Coastal Hazards Management Framework

An overview of the legislative and policy context for the Coastal Hazard Adaptation Planning Programme and District Plan Change.

ccc.govt.nz/adaptation-planning

Christchurch City Council

Table of Contents

1 Introduction

The Management Framework has a dual purpose; firstly it provides the international, national and local level statutory and non-statutory context for the Council's Coastal Hazards Adaptation Planning programme. Secondly, it provides an accompaniment to the Issues and Options paper for Council's proposed Coastal Hazards Plan Change and provides further information of a technical nature to assist in understanding the planning context to the plan change. At a broader level, this document also outlines the roles and responsibilities of territorial and regional authorities in relation to coastal hazards.

2 Background and Context

2.1 Coastal Hazards Adaptation Planning Programme

Christchurch City Council (**the Council**) is initiating a programme of adaptation planning in coastal communities that will be impacted by sea level rise through coastal erosion, coastal inundation and the associated water table rise with potentially increased groundwater salinity. The programme known as the Coastal Hazards Adaptation Planning (**CHAP**) programme will follow the approach recommended in the Ministry for the Environment's (**MfE**) 2017 version of the 'Coastal Hazards and Climate Change: Guidance for Local Government'[1] with modifications undertaken where appropriate. This national guidance document sets out a 10-step decision cycle of structured engagement that builds increased awareness of the impacts of sea level rise and leads to the development of community-led adaptation plans that consider the social, cultural, natural and built environments.

Adaptation plans will identify community values and objectives, and set pathways that are able to be adjusted over time to respond to the impacts of sea level rise thereby enabling communities and Council to prepare for the future in times of uncertainty without acting too pre-emptively or with undue delay. Over time, the implementation of these community-led adaptation plans will have significant implications for the city's infrastructure, District Plan, population movement and distribution, natural environment, and the ways that communities and Council manage the impacts of sea level rise.

MfE's abovementioned guidance contains a list of preparatory tasks which set the context and scope of the hazard risk. It is recommended that a stocktake of all available information be performed including relevant plans and policies, iwi management plans, demographics, and social and physical processes. This allows the 'current situation' to be identified so that later steps in the process such as identification of values and objectives, risk and vulnerability assessments, and options evaluation can be considered against a consistent baseline.

2.2 Proposed Coastal Hazards Plan Change

The Council is embarking on a Coastal Hazards Plan Change to the Christchurch District Plan to implement higher order documents including (but not limited to) the New Zealand Coastal Policy Statement (**NZCPS**) and Canterbury Regional Policy Statement (**RPS**). The Council must give effect to national and regional policy direction, particularly the NZCPS and RPS which define how subdivision, land use activities and development should be managed in areas at risk from coastal hazards. The District Plan provisions currently do not give full effect to the NZCPS or RPS insofar that the use and development of land is not managed in some areas that are at risk of coastal hazards and there is an absence of controls on some activities. As a consequence, there is a risk of land use, development and subdivision occurring in areas without appropriate controls.

[1] https://www.mfe.govt.nz/publications/climate-change/coastal-hazards-and-climate-change-guidance-local-government

The scope of the plan change is to manage land use, development and subdivision in areas at risk of coastal erosion, inundation and tsunami. Further consideration is to be given to the risks of groundwater. The proposed plan change will introduce objective(s), policies and methods to the Christchurch District Plan that applies to the full extent of the district.

3 International Programmes and Commitments

Climate change and natural hazard risk reduction are the subject of international research, programmes, guidance and collective agreements. As a signatory to international agreements, New Zealand has an obligation to contribute toward collectively achieving the outcomes sought in the agreements. The national legislation and guidance on natural hazard risk reduction may be influenced by these obligations.

The relevant international programmes and standards are detailed in section 3.1 – 3.4 below.

3.1 Sendai Framework

Prepared under the United Nations International Strategy for Disaster Reduction (UNISDR), the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR)[2] is the first global policy framework which aims to achieve a substantial reduction of risk and better protection of lives, health, livelihoods, ecosystems, cultural heritage, and critical infrastructure from natural and human-caused hazards over 15 years. The framework sets out seven targets and four priorities for action, including investing in disaster risk reduction for resilience.

For further reading, visit: https://www.undrr.org/implementing-sendai-framework/what-sendai-framework

3.2 Paris Agreement

In 2015, the Paris Agreement[3] was signed by 175 countries (including New Zealand). This global agreement recognises that climate change is an urgent and potentially irreversible threat to humans and the planet, and commits all countries to take action on climate change through both mitigation (reducing greenhouse gas emissions to limit the global average temperature increase) and adaptation (strengthening the ability to deal with the impacts of climate change and development of low-carbon and climate-resilient economies).

In response to the Paris Agreement, the New Zealand government has initiated a programme of work to transition to a low-emission and climate-resilient future, including the Climate Change Response (Zero Carbon) Amendment Act released in 2019.

For further reading, visit: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

3.3 Intergovernmental Panel on Climate Change

New Zealand is a participating member of the Intergovernmental Panel on Climate Change (**IPCC**), a body of the United Nations dedicated to providing the world with objective, scientific information relevant to understanding the scientific basis of the risk of human-induced climate change, its impacts, associated risks, and possible response options. The Fifth Assessment Report (**AR5**)[4] produced by the IPCC in 2014 helped inform a major revision of the 2008 MfE guidance on how to adapt to coastal hazard

[2] https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf
[3] https://unfccc.int/sites/default/files/english_paris_agreement.pdf
[4] https://www.ipcc.ch/assessment-report/ar5/

risk from climate change. As a result of the revision, the aforementioned 'Coastal Hazards and Climate Change: Guidance for Local Government' was produced in 2017[5]. The IPCC's Sixth Assessment Report[6] was released in August 2021. This tells us there is much more certainty about causation, projections, and how the environment will respond. Climate change is happening, faster than previously thought (1.5°C increase in temperature likely in 10 years with impacts already being seeing). With greater certainty that climate change is a result of human activity, there is also a better chance of lowering the impacts in the long-term if there is immediate global action. However, irreversible, committed change is already underway due to past and present emissions – these long term impacts will occur for centuries to millennia. The sea level rise projections in AR5 and the more recent AR6 remain roughly aligned. Until the MfE guidance is updated to reflect the latest climate science, Council will continue to rely on existing AR5 and MfE guidance projections and planning advice.

For further reading, visit: https://www.ipcc.ch/

3.4 AS/NZS ISO standards

ISO (the International Organisation for Standardization) is a worldwide federation of national standard bodies. It develops and publishes standards that are internationally agreed by experts. Australia/New Zealand standards of particular relevance to the CHAP programme are outlined below:

- AS/NZ ISO 31000:2018 (Risk Management – Guidelines) sets out principles, a framework and processes for managing risk.
- AS/NZ ISO 14090:2019 (Adaptation to climate change – Principles, requirements and guidelines) specifies principles, requirements and guidelines for adaptation to climate change.
- AS/NZ ISO 14091:2021 (Adaptation to climate change – Guidelines on vulnerability, impacts and risk assessments) provides guidance for assessing the risks related to the potential impacts of climate change.

For further reading, visit: https://www.iso.org/home.html

4 National and Local Management Framework

The abovementioned international programmes set the context for national policy and direction for managing natural hazards and adapting to climate change which councils then implement. This direction is reflected in national legislation (e.g. the Resource Management Act and Civil Defence and Emergency Management Act) which set the requirements that the regional and local councils must comply with and/or implement.

In fulfilling its roles, functions and legal responsibilities, a local authority may need to implement and comply with more than one piece of legislation or policy direction. The diagram below provides an overview of the Council's roles/functions under the relevant legislation and the available tools or actions that could be and are used in the natural hazards management processes. Further detail regarding agency roles and responsibilities is provided below in section 4.1.

Role/function	Legislation and national policy	Tool/action
Adaptation	Climate Change Response Act 2002 Climate Change Response (Zero Carbon) Amendment Act 2019	• Ministry for the Environment (MfE) - Coastal Hazards and Climate Change Guidance for Local Government (2017)

[5] https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/coastal-hazards-guide-final.pdf
[6] https://www.ipcc.ch/assessment-report/ar6/

Role/function	Legislation and national policy	Tool/action
Regulation of land use and subdivision	Resource Management Act 1991 (RMA) New Zealand Coastal Policy Statement 2010 (NZCPS) Proposed legislation: Climate Adaptation Act (CAA)	• Canterbury Regional Policy Statement 2013 (CRPS) • Regional Coastal Environment Plan 2003 (RCEP) • Christchurch District Plan 2017 (CDP) • National, Regional and District Climate Change Risk Assessments • Proposed: national adaptation plan • Ōtautahi Christchurch Climate Resilience Strategy
Planning Decision making	Local Government Act 2002 (LGA) Proposed legislation: Natural and Built Environments Act (NBA), Strategic Planning Act (SPA)	• Financial planning for risk reduction activities • Decision making responsibilities
Provision of information	Local Government Official Information and Meetings Act 1987 (LGOIMA) Building Act 2004	• Land Information Memoranda (LIM) • Project Information Memoranda (PIM) • Land Information Request (LIR)
Regulation of buildings	Building Act 2004 Building Code	• Building consents • Performance standards
Financial and asset management, and community planning	Local Government Act 2002 (LGA) Local Government (Rating) Act 2002 Soil Conservation and Rivers Control Act 1941 Christchurch Drainage Act 1951 Public Works Act 1981 Reserves Act 1977	• Long Term Plan (LTP) • Infrastructure Strategy (IS) • Bylaws • Road stopping • Special rating areas • Flood protection and control works • Land acquisitions • Reserve management and development plans
Emergency management planning	Civil Defence and Emergency Management Act 2002 (CDEM) National Civil Defence and Emergency Management Strategy	• Canterbury Civil Defence and Emergency Management (CDEM) Group • Canterbury CDEM Group Plan 2014 • Community resilience plans

Figure 1. Tools available to the Council in undertaking their functions relating to natural hazards and climate change[7].

Figure 2 below shows the overarching relationship between the key pieces of legislation which create a framework, direction and processes for the management of natural hazards in New Zealand. Greater detail relating to legislation, national policy and tools is provided in sections 4.2 – 4.20 further below.

[7] Adapted from: Figure 3 in Coastal Futures, Southshore and South New Brighton Regeneration Strategy - Information about the area, Part 5 – Management Framework; Regenerate Christchurch, Christchurch City Council, Environment Canterbury, Te Rūnanga o Ngāi Tahu; 2019.

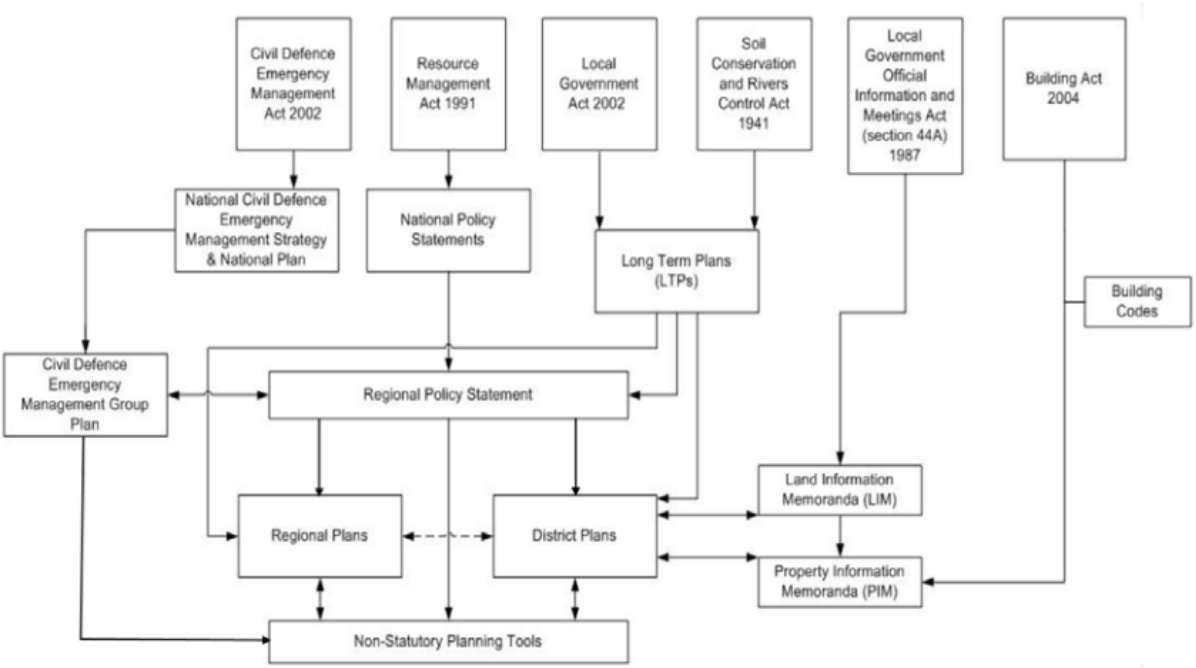


Figure 2. Relationship between key national, regional and district statutory documents for managing natural hazards[8].

4.1 Agency roles and responsibilities and legislative obligations

No single agency in New Zealand is responsible for the management of natural hazards (including coastal hazards) and co-operation between organisations including those identified below, is necessary to ensure that there is a streamlined and holistic national approach to planning for natural hazards and disasters (Saunders et al., 2013[9]):

- National Emergency Management Agency (replaced the Ministry of Civil Defence and Emergency Management in December 2019);
- Regional councils
- Territorial authorities
- Civil defence emergency management groups
- Engineering lifeline groups

In its 2014 think piece for local and central government and others with a role in managing natural hazards, Local Government New Zealand (LGNZ)[10] stated that effective management of natural hazards and the associated risks relies on the interplay of many statutes, most of which are enabling in nature, meaning they provide powers for agencies (mostly local government) rather than prescribing detailed requirements. LGNZ also observed that the current legislative situation is a patchwork of laws from different eras and to some extent different philosophies and subject to different legislative purposes. Furthermore, the policy guidance within these statutes remains very

[8] Ministry for the Environment, Coastal hazards and climate change: Guidance for local government: Appendices, Appendix A: Planning framework and relevant legislation, Publication reference ME 1341, 2017.
[9] Saunders, W., Beban, J. and Kilvington, M. (2013). Risk-based land use planning for natural hazard risk reduction. GNS Science Misc Series 67.
[10] Local Government New Zealand (2014). Managing natural hazard risk in New Zealand – towards more resilient communities.

high level and hence much is left to the discretion and judgement of those at the sharp end of implementation.

Both the Council and Environment Canterbury have responsibility for managing the risks of natural hazards, including land-use planning, civil defence and in managing assets e.g. community infrastructure. In planning for coastal hazards under the RMA, both the Council and Environment Canterbury have the function of controlling the effects of the use of land for the purpose of the avoidance or the mitigation of natural hazards. This needs to be achieved, in part, through the Christchurch District Plan. How the District Plan should manage coastal hazard risks is determined to some extent by the direction in legislation and other policy statements and plans.

As shown in Figure 3 below, the landward boundary of Mean High Water Spring (MHWS) delineates the landward edge of the Coastal Marine Area (CMA). This line will change as sea level rises, hence administrative boundaries will also move, thereby having implications for the application of provisions contained in the respective authority's plans. The Council manages land from the Mean High Water Springs line inland while Environment Canterbury manages land both inland and seaward of this line and the functions of both councils overlap regarding avoidance and mitigation of the risks of natural hazards inland of MHWS.

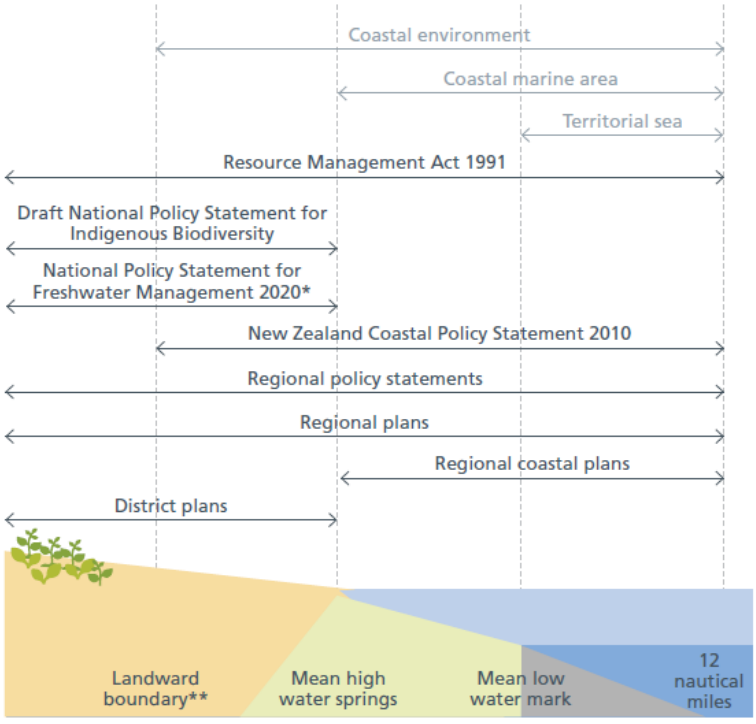


Figure 3. Areas where different RMA instruments apply in the coastal hazardscape[11]

[11] Parliamentary Commissioner for the Environment (2020) *Managing our estuaries*.

4.2 Climate Change Response Act

The Climate Change Response Act 2002[12] put in place a legal framework enabling New Zealand to meet its international obligations under the United Nations Framework Convention on Climate Change and the Kyoto Protocol. The Climate Change Response (Zero Carbon) Amendment Act 2019[13] amends the Climate Change Response Act 2002 to provide a framework by which New Zealand can develop and implement clear and stable climate change policies that:

- Contribute to the global efforts under the Paris Agreement to limit the global average temperature increase to 1.5° Celsius above pre-industrial levels; and
- Allow New Zealand to prepare for, and adapt to, the effects of climate change.

Changes of particular relevance to coastal hazards adaptation include: a requirement for Government to develop and implement policies for climate change adaptation and mitigation; and the establishment of a new, independent Climate Change Commission[14] to provide expert advice and monitoring to help keep successive governments on track to meeting long-term goals.

The Climate Change Response (Zero Carbon) Amendment Act 2019 also includes a mandate for undertaking a National Climate Change Risk Assessment (NCCRA) and that a risk assessment must be carried out every six years. A national adaptation plan outlining the actions needed to respond to the risks identified in the first national climate change risk assessment will be published by August 2022.

4.3 The Resource Management Act 1991 - Regulation of land use and subdivision

The Resource Management Act 1991 (RMA) sets out the framework for regional and district/city councils to manage the effects of land use activities and development on the environment. The purpose of the RMA is to promote the sustainable management of natural and physical resources, which means (section 5(2):

> *managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while:*
>
> *(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
> *(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
> *(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

The RMA identifies a number of matters that are of significance, which are set out in sections 6, 7 and 8 of the Act. Section 6 describes those matters of national importance, which must be *'recognised and provided for*' in planning documents. Of particular relevance is section 6(h) which identifies '*The management of significant risks from natural hazards'*.

Section 7 describes 'other matters' that persons exercising functions and powers under the RMA shall have particular regard to including section 7(i) *'the effects of climate change'*.

In achieving the purpose of the RMA, section 8 states that account is to be had to the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

[12] http://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html?search=ts_act_climate+change+response+act_resel&p=1&sr=1
[13] http://www.legislation.govt.nz/act/public/2019/0061/latest/LMS183736.html
[14] https://www.climatecommission.govt.nz/

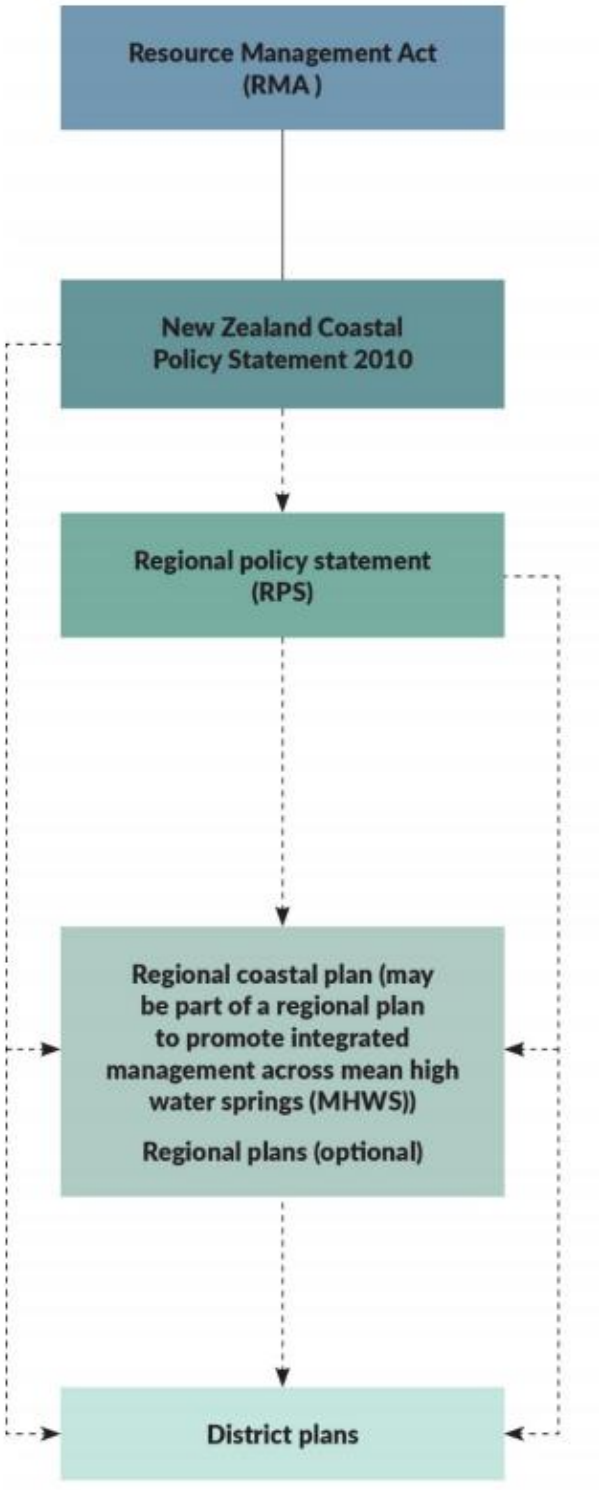
Section 9 of the Resource Management Act allows anyone to use land as they choose, subject to complying with national environmental standards, regional rules or district plan rules. Where someone wishes to carry out an activity that does not comply with standards or rules, they need a resource consent or have to demonstrate that the activity was lawfully allowed when it was established. In effect, there is an assumption that the use of land for any activity is permitted unless stated otherwise in a planning document.

Existing development is protected by "existing use rights" that cannot be removed by district plan provisions. Existing use rights can be extinguished by a regional plan, but using those powers may give rise to compensation rights for affected landowners[15].

Effective planning for, and management of risks from natural hazards through resource management plays a critical role in reducing the potential adverse effects of natural hazards. This is achieved through national, regional and district policies and plans, and the associated resource consent processes. Plans prepared under the RMA are primarily a regulatory framework to determine whether a specific activity needs consent and what conditions it should be subject to.

In planning for coastal hazards under the RMA, the Council has responsibility for managing the use of land and development in a way that avoids or mitigates the effects of hazards on people and property. The Canterbury Regional Council (Environment Canterbury) also has responsibility for managing the use of land for the purpose of avoiding or mitigating natural hazards. This is achieved through planning documents prepared at a regional and district level as shown in Figure 4 below and as further detailed in section 4.3 and 4.5 – 4.8 of this report.

[15] Section 85 of the Resource Management Act 1991.



The **Resource Management Act** requires Councils to manage the risks associated with coastal hazards in achieving its purpose of the sustainable management of natural and physical resources.

The **New Zealand Coastal Policy Statement (NZCPS) 2010** seeks to ensure coastal hazard risks are managed, taking into account climate change. Of particular relevance, the NZCPS seeks to avoid new development, redevelopment, or changes in land use that would increase the risk of harm or adverse effects from coastal hazards.

The **Canterbury Regional Policy Statement** 2013 seeks that new subdivision, use and development which increases risk to people, property and infrastructure is avoided, or otherwise mitigated. The Council is required to give effect to the Regional Policy Statement in the District Plan.

The **Canterbury Regional Coastal Environment Plan** 2005 addresses coastal erosion and sea water inundation hazards. In addition to objectives and policies, the Plan has a suite of rules to control development in coastal hazard zones. The rules are tiered based on the likelihood of an event occurring (Hazard 1 and 2).

The **Christchurch District Plan** must "give effect to" or implement the direction in the New Zealand Coastal Policy Statement 2010 (NZCPS). It must also give effect to the Regional Policy Statement (RPS) and cannot be inconsistent with the Regional Coastal Environment Plan (RCEP).

Figure 4 Coastal hazard management relationships under RMA policy and plans[16]

[16] Ministry for the Environment (2017) *Coastal hazards and climate change: Guidance for local government* – page 218.

4.4 National policy direction - the New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement (NZCPS) is a national policy statement under the RMA. The purpose of the NZCPS is to state objectives and policies in order to achieve the purpose of the RMA in relation to the coastal environment of New Zealand.

The NZCPS contains a number of directions relating to coastal hazards that regional policy statements, regional coastal plans and district plans must implement. Some of those directions are more specific and directive than others. In general terms, the directions seek that new development is located away from areas prone to risks of coastal hazards, and that responses to reduce risks for existing development and protecting/restoring natural defences to coastal hazards are considered. Policies go on to more specifically seek the following:

- In areas potentially affected by coastal hazards over at least the next 100 years:
    a) Avoid increasing the risk of social, environmental, economic harm or adverse effects from coastal hazards arising from new development, redevelopment or changes in land use;
    b) Encourage redevelopment and changes to land use that would reduce the risk of adverse effects of natural hazards;
    c) Encourage the location of infrastructure away from areas of hazard risk where practical;
    d) Consider the potential effects of tsunami and how to avoid or mitigate them;
    e) Take into account the effects of climate change, including national guidance and best available information on the likely effects of climate change; and
    f) Adopt a precautionary approach towards proposed activities where there is uncertainty, but potentially significantly adverse effects.

- Consider specified options and matters for reducing coastal hazard risks in areas of significant existing development, focusing on a reduced need for hard protection structures and similar engineering interventions.

- Provide for the protection, restoration or enhancement of natural defences that protect land uses and significant biodiversity, cultural and other values from coastal hazards.

The NZCPS also directs the integrated management of natural and physical resources in the coastal environment, which requires consideration of cumulative effects. In the case of coastal hazards, this could include changes to development and activities on a number of individual sites that could result in a significant increase in the total numbers of people, and/or the amount of development in an area, that is at risk of harm or adverse effects from coastal hazards.

The NZCPS direction differs in its treatment of tsunami risks, which are not required to be avoided because the probability is so low.

4.5 National Guidance

The NZCPS directs that national guidance is taken into account in determining how to manage the effects of climate change. In relation to the management of risks from coastal hazards, and how those risks should be managed under the RMA and NZCPS, there are two principal government issued documents as detailed below:

4.5.1 Coastal Hazards and Climate Change – Guidance for local Government, Ministry for the Environment 2017 (MfE guidance)

The guidance covers how local government should identify and manage risks, not just through the District Plan, but also potentially through its wider functions and powers. This includes Council's annual and long-term plans (e.g. in allocating funds for community facilities and other projects), asset management plans, civil defence/emergency management, and functions relating to recreation and the natural environment.

The District Plan is just one of the tools that can be used to manage coastal hazard risks. In managing the risks for existing development and activities, those wider Council powers and functions may play a more significant role in managing coastal hazard risks than the District Plan. The guidance has a strong focus on adaptation planning as a process for determining how coastal hazard risks should be managed.

The guidance outlines a step-by-step approach to how local authorities need to assess, plan for and manage their coastal hazards. The aim of the non-statutory guidance is to assist decision-makers to manage and adapt to the increased coastal hazard risks posed by climate change and sea level rise. It highlights the impacts that climate change is expected to have on coastal hazards, and it details the impacts that are expected through sea level rise, storm surge, wind and waves.

According to the guidance:

> *Adapting to coastal climate change requires much wider consideration than hazard risk management. Adaptation involves many components of the environment (including the natural environment and conservation values, as well as the built environment), and consideration of community values and aspirations that contribute to a sense of place.* (Page 13)

The guidance recommends and provides a process for adaptation planning. It is structured around a 10-step framework as illustrated by Figure 5.

For further reading, visit: https://environment.govt.nz/assets/Publications/Files/coastal-hazards-guide-final.pdf

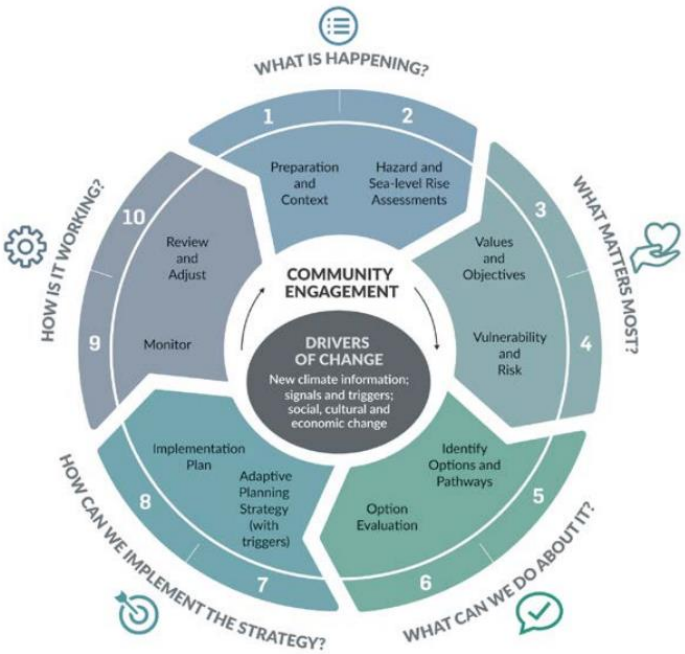


Figure 5. 10 step decision cycle[17].

[17] Source: Coastal Hazards and Climate Change – Guidance for Local Government 2017, Figure 1, page 14, (Adapted from Max Oulton (University of Waikato), and UN-Habitat (2014))

Given the ongoing uncertainty, the likelihood of any specific sea level being reached in a specific timeframe cannot be defined. The Ministry for the Environment guidance identifies different sea level scenarios that should be considered and instances when they should be used in planning processes.

For coastal subdivision, greenfield developments and major new infrastructure, it is recommended that the highest sea-level rise scenario (RCP8.5 H+) is used.

For changes in land use and redevelopment (intensification), it is recommended that a risk assessment is completed using all four sea-level rise scenarios. Drawing on practice from elsewhere, Councils are generally using the RCP8.5 scenario, consistent with the National Climate Change Risk Assessment.

For non-habitable, short lived assets, it is recommended for planning and decision timeframes out to 2120 that a minimum transitional value for sea- level rise of 0.65 metres is used relative to the 1986-2005 baseline.

4.5.2 New Zealand Coastal Policy Statement 2010 Guidance Note: Coastal Hazards, Department of Conservation (DoC) 2017[18] (DoC guidance)

The Department of Conservation has published a series of guidance notes to support implementation of the NZCPS. This material has been developed primarily for local authorities but is likely to be of interest to anyone involved in coastal management and planning. It provides guidance on the meaning and application of the NZCPS objective and policies. The guidance note on Objective 5 and Policies 24 – 27 is of particular relevance for Coastal Hazards.

The guidance confirms that the coastal hazard objective and policies contribute to the promotion of sustainable management of the coastal environment by directing the management of coastal hazard risks in those areas that will potentially be affected by coastal hazards (including the effects of climate change) over at least the next 100 years. The overarching goal of the coastal hazard objective and policies is to manage coastal hazard risks so that the likelihood of them causing social, cultural, environmental and economic harm is not increased. This includes harm arising from responses to those coastal hazards, such as the addition of hard protection structures. The adoption of long-term risk-reduction approaches is strongly encouraged.

It sets out the rationale for the objectives and policies and provides guidance on implementing them. It confirms that the MfE Coastal Hazards and Climate Change guidance for Local Government (2017) provides authoritative national guidance on these issues, and refers to and draws on many other New Zealand and international studies and guidance documents.

It notes that despite legislative and national policy requirements now having been in place for some time, the change to risk-based management for coastal and other natural hazards has not happened rapidly in New Zealand.

Timeframes for planning

[18] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/marine-and-coastal/new-zealand-coastal-policy-statement/policy-statement-and-guidance/

The NZCPS requires consideration of risks 'over at least the next 100 years'. The DoC guidance indicates that the significance/permanence of development may be a relevant consideration in the timeframe that should be considered over which the development must not increase risk.

It indicates that, *'examples of where consideration should be given to a timeframe of more than 100 years may include:*

- *changes in land use, such as subdivision or intensification, that will significantly increase the value of assets for several generations (and are effectively irreversible);*
- *infrastructure that will influence, and be important for, development in communities for several generations;*
- *development on, or degradation of, natural defences that are important for protecting hinterland development (akin to a coastal hazard defence infrastructure);*
- *the development or construction of hard protection structures in areas where 'coastal squeeze' as a result of climate change may result in the destruction or degradation of high-value habitats, public access or public recreational open space, or outstanding natural character or landscapes; or which will have adverse effects on threatened indigenous species;*
- *hazardous facilities where there would be human health and safety consequences if damage occurred; and*
- *other facilities where there would be human health and safety consequences if damage occurred (such as hospitals, schools, rest homes and child-care facilities)'.*[19]

4.6 Regional Direction

4.6.1 Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement 2013 (the **RPS**)[20] includes direction on how natural hazards should be managed. In terms of natural hazards generally, the RPS takes a largely risk-based approach where the management of development and land use differs according to the significance of the consequences and the likelihood of the risk occurring. For example, it requires the avoidance of new subdivision, use and development in high hazard areas if it is likely to result in loss of life or serious injuries, or significant damage or loss.

The RPS has limited specific direction on coastal hazards. It identifies some areas subject to coastal erosion and some areas subject to sea water inundation, which it defines as being 'high hazard areas'. It also requires particular regard to be had to the effects of climate change.

The RPS recognises that there is a need to gather more information, to develop regional and district coastal strategies, to give effect to the NZCPS. It indicates that these are expected to result in changes to the RPS and district plans.

For Greater Christchurch, amendments were made to the RPS (and the RCEP) in 2015 to enable Christchurch City to determine, through its district plan rather than in the RPS, whether and to what extent coastal hazard risks in urban areas should be avoided or mitigated. This was to support recovery following the Canterbury earthquakes.

[19] DoC guidance, page 20.

[20] https://ecan.govt.nz/your-region/plans-strategies-and-bylaws/canterbury-regional-policy-statement/

In accordance with section 62 of the RMA, the RPS sets out responsibilities for the control of the use of land to avoid or mitigate natural hazards in the Canterbury Region as follows[21]:

1. The Canterbury Regional Council:

Will be responsible for specifying the objectives, policies and methods for the control of the use of land in the following areas:

(a) within the 100-year coastal erosion hazard zones outside of greater Christchurch, as defined by maps in the Canterbury Regional Coastal Environment Plan.

(b) within areas in greater Christchurch likely to be subject to coastal erosion and sea water inundation including the cumulative effects of sea level rise over the next 100 years where provisions are not specified in an operative district plan; and

(c) within the beds of rivers and lakes; and

(d) within the coastal marine area for the purpose of avoiding or mitigating natural hazards.

2. Territorial authorities:

Will be responsible for specifying the objectives, policies, and methods for the control of the use of land, to avoid or mitigate natural hazards in their respective areas excluding those areas described in 1(a), 1(c) and 1(d) above.

3. Joint Responsibilities:

Local authorities will have joint responsibility for specifying the objectives, policies, and methods for the control of the use of land, to avoid or mitigate natural hazards in areas subject to seawater inundation. The Canterbury Regional Council will be limited to developing objectives, policies and non-regulatory methods. Territorial authorities will develop objectives, policies and methods which may include rules.

Accordingly, the Christchurch City Council is responsible for specifying the management of natural hazards in its district of Christchurch City and Banks Peninsula. This responsibility is shared with Environment Canterbury in areas of seawater inundation.

Section 75(3) of the RMA directs that a district plan must give effect to any regional policy statement.

The objectives and policies of the RPS provide a framework for the management of natural hazard risk and are set out in Chapter 11. All of the objectives from Chapter 11 are relevant to coastal hazards adaptation. The RPS takes a hierarchical approach to dealing with natural hazards, including, in order of priority:

- Avoidance - keeping assets away from hazard prone areas, this includes land use planning to avoid new development in hazard prone areas or where changes in climatic conditions are anticipated. If avoidance is not possible, then:
- Mitigation - managing or reducing the effects of natural hazards while acknowledging that there will be some residual adverse effects from natural hazards, and that some development (particularly infrastructure) may have to be located in areas prone to natural hazard events. This may include stop banks, retaining or sea walls, retaining natural features such as dunes and wetlands, and constructing resilient buildings and infrastructure, then:

[21] RPS, Chapter 11 Introduction.

- Response and recovery – responding to the consequences of natural hazards, which includes immediate response and longer term rebuilding and restoration of communities and infrastructure.

The CRPS reflects and reinforces the direction of the NZCPS, including:

- Avoiding increasing risk in areas subject to hazards which are unacceptable[22], such as areas likely to be subject to coastal inundation or erosion over at least the next 100 years[23];
- Reducing reliance on hard protection structures[24];
- Maintaining or upgrading critical infrastructure[25].

4.7 Canterbury Regional Coastal Environment Plan

The Regional Coastal Environment Plan for the Canterbury Region 2005 (**RCEP**)[26] is required to implement and not be inconsistent with the NZCPS and RPS and sets out how Environment Canterbury will carry out its resource management responsibilities in the coastal marine area, including those related to coastal hazards. As with the RPS, it takes a largely risk-based approach, where the management of development and land use differs according to the significance of the consequences and the likelihood of the risk occurring. For example, it requires new housing to be located away from areas that have the potential to be subject to sea water inundation or coastal erosion.[27]

The RCEP contains specific rules in areas subject to coastal erosion (Hazard Zones 1 & 2[28]) relating to the reconstruction or replacement of existing structures damaged by the action of the sea and other activities such as excavation, filling and the removal of vegetation.

The aim of natural hazard management is to minimise the net cost of damage. The principle of avoidance rather than post-hoc protection is adopted In the RCEP as the most effective approach in terms of avoiding loss or damage to people, property, or other parts of the natural environment and promoting sustainable management. Where coastal hazards are actively managed through engineering works or other methods, then the potential adverse effects of such works should be avoided, remedied or mitigated.

Section 75(4)(b) of the RMA directs that the district plan must not be inconsistent with a regional coastal plan for any matter specified in section 30(1). This includes the control of the use of land for the purpose of avoiding or mitigating natural hazards (section 30(1)(c)(iv).

Method 9.6 indicates that the City Council has responsibility to identify areas likely to be subject to coastal erosion and sea water inundation including the cumulative effects of sea level rise over the next 100 years through the provisions of their district plans and include objectives, policies and methods to control the use of land within those areas.

[22] CRPS objective 11.2.1 and policies 11.3.1, 11.3.2, 11.3.5 (Environment Canterbury, 2013)
[23] These are defined as "high hazard areas" in the CRPS policy 11.3.1 (Environment Canterbury, 2013)
[24] CRPS objective 11.2.2 and policies 11.3.1(3), 11.3.7 (Environment Canterbury, 2013)
[25] CRPS policies 11.3.1(7), 11.3.4 (Environment Canterbury, 2013)
[26] https://www.ecan.govt.nz/your-region/plans-strategies-and-bylaws/regional-coastal-environment-plan-for-the-canterbury-region/
[27] Regional Coastal Environment Plan for the Canterbury Region 2005, Policy 9.1a.
[28] Hazard Zones 1 &2 are defined in Section 9.1 of the RCEP.

4.8 Christchurch District Plan

The Christchurch District Plan is informed by direction and guidance from a national and regional level, which Council is required to apply when preparing objectives, policies and rules for managing land use, subdivision and development in the District Plan.

4.8.1 Existing District Plans

Objectives, policies and rules associated with coastal hazards in the Christchurch City Plan and Banks Peninsula District Plan continue to apply in Christchurch. This reflects the provisions on coastal hazards being withdrawn from the Proposed Christchurch Replacement District Plan during its review in 2015.

The City Plan and Banks Peninsula District Plans currently manage the effects of:

- Filling, excavation and building within 20 metres of the Mean High Water Springs
- Development within the South Brighton Coastal Management Area (a small area of the spit)
- Subdivision on Banks Peninsula

The provisions in the City Plan and Banks Peninsula District Plan are limited, therefore not giving full effect to the NZCPS.

4.8.2 Christchurch District Plan 2017

While the Christchurch District Plan does not include objectives, policies and rules specific to coastal hazards, it provides direction on managing the risks associated with hazards generally. Objective 3.3.6 of the Strategic Directions chapter seeks that:

- New subdivision, use and development is to be avoided in areas where the risks from natural hazards to people, property and infrastructure are deemed to be unacceptable;
- In all other areas, subdivision, use and development is to be undertaken in a manner that ensures the risks of natural hazards are appropriately mitigated;
- New critical infrastructure or strategic infrastructure is to be designed to maintain its integrity and form during natural hazards events while ensuring risks to people, property and infrastructure are appropriately mitigated.

The District Plan defines the coastal environment, which has been informed by a range of matters described in 9.6.1 including coastal natural hazards. However, the information on which this is based was limited, reflecting the withdrawal of coastal hazards provisions from the District Plan.

Within the area defined as the Coastal Environment in the Christchurch District Plan, certain activities require resource consent. Where this is triggered, the Council can consider the susceptibility of the proposed activity to the effects of coastal hazards. However, the effects of coastal hazards will be felt by a much wider area than just the Coastal Environment.

Coastal hazards can also be considered for activities requiring resource consent where there is discretion[29] within areas identified as being at risk of other hazards, for example flooding from rivers and rainfall. This includes the Flood Management and High Flood Hazard Management Areas, as described below.

Flood Management Areas and Fixed Minimum Floor Overlays

[29] Restricted Discretionary (where discretion specified), Discretionary and Non-complying activities

These are areas at risk in a large flood event due to a combination of rainfall and tidal event (higher tide), where a requirement exists for minimum floor levels and restrictions on earthworks apply.

High Flood Hazard Management Areas

These are areas at high risk in a very large flood (a 1-in-500-year flood event) due to the depth and/or speed of flood waters. The flooding can be due to a combination of high rainfall events, rivers breaking their banks and/or tidal inundation (due to storm surges and high tides).

The District Plan requires that new developments or intensification of land uses in these areas are to be avoided. This is to limit the exposure of residents to known future high hazard risk. Resource consent may be issued for uses that do not increase the present intensity of land use in the High Flood Hazard Management Areas.

Within the High Flood Hazard Management Areas are some areas that are defined by a Residential Unit Overlay (RUO). The RUO only applies to parts of New Brighton, South New Brighton, Southshore, Monks Bay and Redcliffs where flooding is primarily affected by sea-level rise and where measures can be taken to protect people and property from unacceptable risks. The rules applicable to the RUO make provision for replacement of houses that existed prior to the earthquakes, and for houses to be built on land influenced by sea level rise where unacceptable risk to safety, wellbeing and property can be mitigated.

4.9 Reform of the Resource Management Act

In the context of the CHAP programme and Coastal Hazards Plan Change, it is important to be cognisant of the changing resource management regulatory system in New Zealand. In February 2021, the government announced that it had agreed to replace and repeal the RMA with three new laws that will fundamentally change the way both our natural and built environments are planned for and managed, and how we respond to climate change. The reform is based on the recommendations of the Resource Management Review Panel (led by Judge Randerson QC) reported in mid-2020. The aim is to protect the environment while better enabling development within environmental limits.

The proposed new laws will include:

i. ***Natural and Built Environments Act (NBA)*** to provide for land use and environmental regulation. This will be the primary replacement for the RMA and will focus on promoting improvements in the quality of the environment and ensuring that use and development is within biophysical limits set by the new National Planning Framework. The Act will seek protection of the natural environment while providing for urban growth and change, based on strategic integration of infrastructure with land use, and ensuring sufficient development capacity for housing and business. The 100+ local government plans will be consolidated into approximately 14.

ii. ***Strategic Planning Act (SPA)*** will provide a strategic and long-term approach to how we plan for using land and the coastal marine area. It will integrate the NBA with other legislation relevant to development e.g. LGA, Land Transport Management Act and the Climate Change Response Act. Each region will need to develop a long-term regional spatial strategy to identify areas that:

- will be suitable for urban growth;
- need to be protected or improved, including areas of natural significance, landscapes and places of significance to Maori;

- will need new infrastructure and meet other social needs;
- are vulnerable to climate change effects and natural hazards such as earthquakes.

iii. ***Climate Adaptation Act (CAA)*** will support New Zealand's response to the effects of climate change. It will address the complex legal and technical issues associated with managed retreat (where it is required for climate change adaptation, e.g. vulnerable coastal settlements, or to reduce risks from natural hazards) and funding, and financing adaptation.

The government intends to pass all three pieces of legislation before the end of the current Parliamentary term.

For further reading, visit: https://environment.govt.nz/what-government-is-doing/areas-of-work/rma/resource-management-system-reform/

4.10 Regulation of buildings

4.10.1 Building Act 2004

The Building Act 2004 governs the building sector in addition to setting out the rules for the construction, alteration, demolition and maintenance of new and existing buildings in New Zealand. It manages natural hazards (including coastal erosion and inundation) in relation to the construction and modification of buildings. The situations in which a Council can use the Act to prevent new buildings in areas subject to natural hazards are limited. The Act focuses on the adequacy of buildings rather than land use management and therefore is not a substitute for RMA planning and management.

The Building Act requires the Council to issue a Project Information Memorandum (PIM) on request (sections 31-35 of the Building Act). A PIM must include information that is likely to be relevant to the proposed building work and which identifies each special feature of the land concerned, including potential natural hazards.

A building consent is required to construct a building or to make major alterations to an existing building on hazard-prone land. The Building Act only requires certain natural hazards to be taken into account when determining whether to grant a building consent, this includes erosion and inundation. The Council must not grant a building consent if the building work is to be carried out on land subject to natural hazards or the building work is likely to accelerate, worsen or result in a natural hazard on that land or any other property, unless it is satisfied that adequate provision has been, or will be made to protect the land, the building work or other property from the natural hazard, or to restore any damage caused by the building work (section 71 of the Building Act) .

Despite the above, the Council must grant a building consent (section 72) if the buildings work is to be carried out on land subject to natural hazards and:

- The building work will not accelerate, worsen or result in a natural hazard; and
- The land is subject (or likely to be subject) to one or more natural hazards; and
- It is reasonable to grant a waiver of the Building Code in respect of the natural hazard concerned.

In accordance with section 73, the consenting authority must notify the consent to the appropriate authority, i.e. the Registrar-General of Land, the appropriate Minister and the Surveyor-General, or the Registrar of the Maori Land Court, depending on the land ownership. The notification must include a copy of any PIM issued for the building consent and identify the natural hazard concerned. The Registrar-General of Land must then record on the title of the land for which the building consent was

granted that the consent was granted under section 72 and identify the details of the natural hazard concerned.

The Building Act also has powers to prevent entry to dangerous building (including homes) where the buildings are likely to cause injury or death to persons. These powers may be used if, for example, a property were severely destabilised by coastal erosion.

4.10.2 The Building Code

The Building Code is contained in regulations under the aforementioned Building Act 2004. Whilst it does not prescribe how work should be done, it does state, in general terms, how the completed building must perform in its intended use. All building work must comply with the Building Code whether or not a building consent is required. The Building Code requires that buildings safeguard people from injury caused by structural failure and from loss of amenity caused by structural behaviour.

4.11 Relationship between the Resource Management Act 1991 and the Building Act 2004

In managing natural hazards, territorial authorities have to navigate the often problematic relationship between the RMA and Building Act, particularly where the land has been identified as subject to coastal hazards, but earlier zoning and/or subdivision permits urban development. Box 5 contained in MfE's 'Coastal Hazards and Climate Change: Guidance for Local Government'[30] (page 40) provides an overview of some key tensions between the two Acts with respect to managing coastal hazards and one of those key tensions is outlined below.

Under the RMA, Councils can zone land subject to hazards so that urban development is not permitted. In the case of land already zoned, an 'overlay' identifying hazard areas can be introduced into district plans and restrict development or require an appropriate level of intervention, e.g. setbacks, minimum floor levels, or the need for resource consent.

Section 106 of the RMA provides councils with powers to test the suitability of the proposed subdivision of land that is already zoned, and to prevent subdivision or to apply restrictive conditions if natural hazards would create a significant risk of damage to the land in respect of which the consent is sought, including through its likely use, a risk to other land, and/or to structures.

Where a proposed building is not restricted under the RMA, the Building Act has provisions to manage exposure to natural hazards (including coastal erosion and inundation from tides and storm surge), but the focus of the provisions is on the safety of the building during its life span, usually of 50 years, and the safety of its occupants rather than on the wider environmental consequences. A council can refuse consent if the land is subject to natural hazards or the development is likely to cause or exacerbate a natural hazard[31] on that land or any other property, however, there is no ability to refuse consent if the building consent authority is satisfied that adequate provision is made to protect the land and building work from natural hazards. This may include structures such as sea walls or retaining walls on site even if these are inconsistent with the NZCPS. Where specific provisions have been made to mitigate the natural hazards, the hazard concerned must be identified and noted on the title at the time the consent is issued.

[30] https://www.mfe.govt.nz/publications/climate-change/coastal-hazards-and-climate-change-guidance-local-government

[31] Section 71 of the Building Act 2004

This tension means that local authorities and the communities need to recognise the importance of the RMA in managing natural hazards (for the purpose of avoidance or mitigation) through planning processes.

4.12 Mahaanui Iwi Management Plan

When preparing or changing its district plan, the Council must take into account any relevant planning documents prepared or recognised by an iwi authority and lodged with a territorial authority, to the extent that its content has a bearing on the resource management issues of the district (section 74(2A) of the RMA).

The Mahaanui Iwi Management Plan 2013 (IMP) is such a planning document and represents the values of six Papatipu Rūnanga who hold manawhenua rights over lands and waters within the takiwā from the Hurunui River to the Hakatere River.

It includes policy direction on a range of matters including climate change. The IMP describes the issue that climate change could have significant impacts on the relationship of Ngāi Tahu and their culture and traditions with their ancestral land, water, sites, wāhi tapu and other taonga.

Policies of the IMP to consider in planning for climate change include the following:

R3.1 *To work with Te Rūnanga o Ngāi Tahu to contribute the local views of Papatipu Rūnanga to regional and national climate change policies and processes*

R3.3 *To require that local authorities recognise and provide for the potential effects of climate change on resources and values of importance to Ngāi Tahu, for example:*

(a) Effects of sea level rise on coastal marae and coastal wāhi tapu, including urupā;

(b) Increased salination of rivers and hāpua, affecting mahinga kai resources and customary use;…

4.13 Ngai Tahu Claims Settlement Act 1998

The Ngāi Tahu Claims Settlement Act 1998 includes Statutory Acknowledgements[32]. These recognise Ngāi Tahu's mana in relation to a range of sites and areas. The instrument provides for this to be reflected in the management of the areas covered by Statutory Acknowledgements. The two Statutory Acknowledgments in Christchurch district are:

- Wairewa (Lake Forsyth)
- Te Tai o Mahaanui (Selwyn-Banks Peninsula Coastal Marine Area)[33]

In performing its functions as a consent authority under the RMA, the Council is required to form an opinion on a resource consent application (section 95B) as to whether the proposed activity is on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement, and whether Te Rūnanga o Ngāi Tahu may be adversely affected by the granting of the consent (section 95E).

[32] https://www.mfe.govt.nz/sites/default/files/stat-acknowledgments-may99.pdf

[33] Refer to the map in Appendix 1 of the Mahaanui Iwi Management Plan 2013, https://mahaanuikurataiao.co.nz/wp-content/uploads/2019/08/Full-Plan.pdf

4.14 Civil Defence Emergency Management Act 2002

Civil Defence Emergency Management is governed by the Civil Defence Emergency Management Act 2002[34] (**CDEM** Act). As most hazard events occur at the local or regional scale, New Zealand's hazard risk management and CDEM planning frameworks place a strong emphasis on local initiatives for risk reduction. Individuals, communities and local government are best placed to decide on the management options suited to them, for example through land-use planning and building control activities.

CDEM Act requires every local authority to be a member of a Civil Defence Emergency Management Group. The functions of the Group include, among other things, the identification, assessment and management of hazards and risks in the relevant area, and identification and implementation of cost-effective risk reduction[35].

At a regional level, CDEM groups and their constituent local authorities and emergency services are responsible for implementing local risk management and civil defence emergency management. Regional risk reduction measures are outlined in CDEM Group plans, Long Term Plans and Annual Plans. Documents prepared under the RMA, such as regional policy statements, coastal or district plans, contain hazards reduction policies. Councils may also produce other statutory and non-statutory plans such as catchment plans and urban growth strategies that have hazard risk reduction as a component.

The Canterbury CDEM Group Plan[36] has identified earthquakes, tsunami, human disease pandemic and flooding as its top priorities for hazards in the region. The Plan outlines the risk management mechanisms for achieving risk reduction, readiness, response and recovery. The Plan can be supplemented by community resilience plans applicable to a specific area or group.

The departmental agency National Emergency Management Agency (NEMA) provides leadership in reducing risk, being ready for, responding to and recovering from emergencies. The government has given NEMA an important stewardship role that requires it to lead and coordinate across the emergency management system (including central and local government) for all hazards and all risks.

4.15 National Disaster Resilience Strategy Rautaki ā-Motu Manawaroa Aituā

The National Disaster Resilience Strategy (section 31 of the CDEM Act) provides the vision and strategic direction, including outlining priorities and objectives, for increasing New Zealand's resilience to disasters. It is intended to provide the common agenda for resilience that individual organisations, agencies, and groups can align with for collective impact. The detail of how those objectives are to be achieved sits in an accompanying work plan, alongside other related key documents including the National CDEM Plan and Guide, the National Security Handbook, CDEM Group Plans, and a range of other supporting policies and plans.

The six objectives designed to progress the priority of managing risks are, at all levels, as follows:

1. Identify and understand risk scenarios (including the components of hazard, exposure, vulnerability, and capacity), and use this knowledge to inform decision-making
2. Put in place organisational structures and identify necessary processes - including being informed by community perspectives - to understand and act on reducing risks

[34] http://www.legislation.govt.nz/act/public/2002/0033/51.0/DLM149789.html
[35] Section 17 of the Civil Defence Emergency Management Act 2002
[36] Canterbury Civil Defence and Emergency Management Group Plan, 2014, http://cdemcanterbury.govt.nz/media/37550/canterbury-cdem-group-plan-updated-june-2018.pdf

3. Build risk awareness, risk literacy, and risk management capability, including the ability to assess risk

4. Address gaps in risk reduction policy (particularly in the light of climate change adaptation)

5. Ensure development and investment practices, particularly in the built and natural environments, are risk-aware, taking care not to create any unnecessary or unacceptable new risk

6. Understand the economic impact of disaster and disruption, and the need for investment in resilience; identify and develop financial mechanisms that support resilience activities

4.16 Local Government Act 2002

The Local Government Act 2002 (the LGA) provides the general framework, obligations, restrictions and powers under which local authorities operate. In performing their roles and making decisions, a local authority must have particular regard to the avoidance or mitigation of natural hazards[37] and undertake financial planning for risk avoidance activities through long term plans and an infrastructure strategy[38]. This includes provision for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks. The requirements encompass both current and future needs of communities[39].

The LGA describes "the avoidance of or mitigation of natural hazards" as a core service, which a local authority must have particular regard to, however, the LGA contains no direct reference to climate change and Long Term Plans are limited by their short-term focus (in the context of long-term climate change effects).

Decision making under the LGA requires councils to take into account the principles of the Treaty of Waitangi and to maintain and improve opportunities for Māori to participate in and contribute to local government decision-making processes[40].

The LGA empowers local authorities to make bylaws, including for the purpose of protecting, promoting, and maintaining public health and safety. It also sets out their specific powers to remove works in breach of bylaws.

Local authorities also have to prepare 30-year infrastructure strategies as part of their Long Term Plans (section 101B of the LGA) but the statutory requirement is directed at council infrastructure and not at communities.

Councils must at all times have a Long Term Plan (LTP) which describes the community outcomes for the district or region and must cover a period of 10 consecutive financial years. To ensure prudent financial planning, a financial strategy[41] must be prepared for the same period. Through the LTP, decisions must be made on groups of activities such as water supply, provision of roads, or flood protection and control works[42]. The LTP must include a statement on the intended level of service, e.g. what level of natural hazard protection will be provided in the case of flood protection works or, in the case of network infrastructure, the level/severity of event that assets are to withstand in the next 10 years.

[37] Section 11A of the Local Government Act 2002
[38] Sections 93-97 and 101B of the Local Government Act 2002
[39] Section 10 of the Local Government Act 2002
[40] Section 4 of the Local Government Act 2002
[41] Section 101A of the Local Government Act 2002
[42] Schedule 10, Part 1, Clause 2 of the Local Government Act 2002

As part of the LTP, an infrastructure strategy must prepared every three years. The strategy is required to plan for at least 30 consecutive years and must include consideration of the resilience of infrastructure in relation to natural hazards risks such as natural disasters, climate change[43] and sea level rise.

A number of other tools for managing council assets and services, including protection of communities from natural hazards, are available to councils:

- Powers to make bylaws and stop roads[44];
- Ability to set targeted rates on the land under the LGA[45];
- Powers under the Soil Conservation and Rivers Control Act 1941[46] and Christchurch Drainage Act 1951[47] for flood protection and control works;
- Powers to acquire private land for public purposes under the Public Works Act 1981[48];
- Acquisition of land for reserves and reserve management plans under the Reserve Act 1977.

4.17 Christchurch City Council – Long Term Plan 2021 – 31

The Long Term Plan (LTP) addresses the need for continued investment in the Christchurch district's core infrastructure in order to build resilience and prepare communities and the city for the impacts of climate change. On 23 June 2021, the plan was adopted by City Councillors and included an additional $11 million funding boost for climate change and environmental initiative, $700,000 per year of which has been allocated to enable the CHAP programme to proactively work with communities in the areas most likely to be affected by the impacts of climate change.

Included in the Strategic Planning and Policy section of the LTP, is the development of a coastal hazard assessment and strategic adaptation framework to guide the development of adaptation pathways with communities who will be exposed to coastal hazards caused by climate change.

For further reading: https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/plans/long-term-plan-and-annual-plans/long

4.18 Christchurch City Council - Infrastructure Strategy 2021 - 31

The Christchurch City Council 30-year Infrastructure Strategy 2021-51[49] informs the Council's Long Term Plan for the ten year period of 2021-31 and explains how the Council will deliver and manage infrastructure to support core services to meet the needs of current and future generations. The Strategy considers the Council's provision of water supply, wastewater, stormwater, transport, parks, facilities, solid waste and information and communication technology. The total optimised replacement value of these assets is $12.5 billion.

The strategy outlines the levels of service for the provision of infrastructure, flood protection commitments and resilience of infrastructure. It sets out how the Council will manage its infrastructure taking into account four significant issues affecting the city, i.e. asset renewals, climate change, post-earthquake recovery and regeneration, and affordability.

[43] Section 101B of the Local Government Act 2002
[44] Part 21 of the Local Government Act 1974, Part 8 of the Local Government Act 2002, and Bylaws Act 1910
[45] Sections 16 to 18 of the Local Government (Rating) Act 2002
[46] Section 10 of the Soil Conservation and Rivers Control Act
[47] Christchurch District Drainage Act 1951
[48] Guidelines for the acquisition of land under the Public Works Act 1981 can be found on the Land and Information New Zealand website https://www.linz.govt.nz/regulatory/15703
[49] https://ccc.govt.nz/assets/Documents/The-Council/Plans-Strategies-Policies-Bylaws/Plans/Long-Term-Plan/2018-2028/Vols/LTP-201828-Vol2-02Infrastructurestrategy.pdf

Various projects related to the management of flooding as a result of the earthquakes are being undertaken through the Council's Land Drainage Recovery Programme[50] and include investigations of potential options for protection from flooding.

Based on current information, climate change is expected to affect Christchurch in the following ways:

- Rising sea levels and more frequent storm surges causing more frequent and extensive flooding
- Increased coastal erosion - Rising groundwater levels at the coast and near rivers
- Lower average annual rainfall which may result in rivers with lower flows
- Higher intensity storms which will result in increased flood and landslide risk during those events.

Learning to adapt to a changing environment and make decisions in the face of uncertainty will be important steps in addressing the impacts of climate change. Identifying adaptive pathways, which allow changes to be made in the future as circumstances change, will be key to appropriate infrastructure investment across a range of Council activities.

The Council has begun to plan and respond to the likely effects of climate change. Many asset management programmes now take these effects into account in the design and location of critical infrastructure.

One of the mandatory areas that the strategy covers is flood protection and control works. The strategy acknowledges that adapting to and mitigating the impacts of climate change is one of the significant issues that need to be addressed in considering flood protection/mitigation. The Council is committed to developing a coastal hazards adaptation policy framework and building resilient infrastructure assets.

The Council financial decisions, however, are likely to be affected by the impacts of Covid-19 pandemic, including global recession, the full effects of which are unclear and still evolving.

4.19 Local Government Official Information and Meetings Act 1987

The Local Government Official Information and Meetings Act 1987 (LGOIMA) requires district councils to issue Land Information Memoranda (LIM) on request.

A LIM Includes any information held by councils identifying any special characteristic of a specific parcel of land, including but not limited to natural hazard risks such as potential erosion, falling debris, subsidence, slippage, avulsion and inundation[51]. While hazard information included in the district plan is not required to be included in the LIM, it is good practice to do so.

Land Information Requests (LIR) can be provided on request by regional councils even though they are not required under any legislation. Like LIMs and PIMs, LIRs provide any known natural hazards information that is held by the Regional Council for a particular site.

4.20 Marine and Coastal Area (Takutai Moana) Act 2011

The Marine and Coastal Area (Takutai Moana) Act 2011 acknowledges the importance of the marine and coastal area to all New Zealanders and provides for the recognition of the customary rights of iwi, hapū and whānau in the common marine and coastal area. Public access to the common marine and coastal area is guaranteed by the Act.

[50] https://ccc.govt.nz/services/water-and-drainage/stormwater-and-drainage/stormwater-projects/
[51] Section 44A of the Local Government and Official Information and Meetings Act 1987

The Act:

- Applies to the area formerly known as the foreshore and seabed, which is now known as the marine and coastal area.
- Creates the common marine and coastal area (the CMCA) that cannot be owned by anyone and therefore cannot be sold.
- Provides legal recognition and protection of customary interests in the CMCA, through protected customary rights (PCRs) and customary marine title (CMT).
- Provides that local authorities are prohibited from granting a resource consent for an activity that will, or is likely to, have more than minor adverse effects on the exercise of a PCR (with some exceptions) unless the PCR group gives its approval.

The Crown is deemed to be the owner of any 'abandoned' structures in the CMCA. A structure is considered abandoned if it has no current resource consent and if, after following a specified process of inquiry, the relevant council is unable to determine the identity or whereabouts of the owner.

The ownership of roads remains with the current owner and formed roads are not part of the CMCA. Unformed roads are excluded from the CMCA for a temporary period allowing local authorities to promote or initiate formation of roads they wish to be permanently excluded from the CMCA.

Coastal reclaimed land is land that was formerly below the line of high-tide but is now above this line thanks to reclamation work. This land can include port developments, airport runway extensions, and marinas. Reclaimed land does not include land that forms as a result of natural processes, or structures such as breakwaters or sea walls.

A developer of reclaimed coastal land, can apply for various property interests in the land, ranging from freehold to interests such as a lease, licence, or an easement. Land Information New Zealand process these applications on behalf of the Minister for Land Information, with the final decision being made by the Minister or their delegate.

4.21 Christchurch City Council - Climate Change Programme

In 2019, the Council declared a Climate and Ecological Emergency and set the target of achieving net zero greenhouse emissions by 2045 (excluding methane), five years ahead of the equivalent target included in the Government's proposed Climate Change Response (Zero Carbon) Amendment Act. A number of transport, energy and waste related projects to reduce emissions have been initiated and include, among others, transport and cycleway projects, shared electric vehicle fleet, free support for businesses to become more resource efficient, eco-design advice for new home design, and waste minimisation and recycling.

The Council has established a climate change programme (which the CHAP programme sits under) to better respond to local issues and opportunities associated with climate change. As part of the programme, Council developed a draft Climate Change Strategy for the district to act as a blueprint for collective action and part of a wider conversation about how we work together to reduce our greenhouse gas emissions to minimise future harm, and plan for the ongoing effects of climate change. The draft strategy was released for public comment from 12 March to 25 April 2021. After a period of consultation and hearings panel process, the Council formally adopted its climate resilience strategy on 21 June 2021. A Climate Leadership Group will be established to implement the strategy with stakeholder groups set up to focus on developing the action programme.

For further reading, visit: https://ccc.govt.nz/environment/climate-change

4.22 Greater Christchurch Partnership

The Greater Christchurch Partnership (GCP) comprises the territorial authorities in the Greater Christchurch area including Christchurch City Council, Environment Canterbury, Selwyn District Council and Waimakariri District Council, local Iwi - Te Rūnanga o Ngāi Tahu, and government organisations such as Waka Kotahi the New Zealand Transport Agency and Canterbury District Health Board. This partnership has worked collaboratively for more than a decade on planning and managing growth and urban development in Greater Christchurch to support the long-term needs of our people and communities.

The collaborative work undertaken through the partnership has primarily focused on the creation of key planning documents that set the long-term direction for Greater Christchurch, and enable consistent, effective and efficient decision making across partner organisations. Some of the key documents produced by the partnership over the years is shown in the figure below.

Figure 6. Greater Christchurch Partnership documents

The primary focus of the Partnership was to develop an Urban Development Strategy (UDS) for the Greater Christchurch Area to manage the projected urban growth needs, both residential and business, and provide a broad settlement pattern. The UDS was prepared in the context of a range of plans, strategies and programmes, including regeneration plans and strategies, transport and health programmes, climate change and hazard management programmes, and other plans. The future growth areas chosen sought to ensure sufficient development capacity for both housing and business development.

The UDS is regularly updated to reflect the changing environment and to ensure alignment with other initiatives or government directions such as the National Policy Statement on Urban Development. This approach supports a cohesive approach to planning.

The latest update to the UDS is the Greater Christchurch Settlement Pattern Update entitled 'Our Space 2018-2048 (Our Space)'[52] which outlines the latest housing and business development capacity targets in Greater Christchurch until 2048. The update complements the existing Greater Christchurch Urban Development Strategy (UDS) and was prepared to satisfy the requirement, outlined in the National Policy Statement on Urban Development Capacity 2016 (which has since been replaced by the National Policy Statement on Urban Development 2020), to produce a future development strategy.

[52] https://www.greaterchristchurch.org.nz/our-work/background/our-space/

Our Space notes that the new greenfield areas zoned in the Christchurch District Plan have been carefully chosen to avoid and protect areas of value, such as the Port Hills, and to ensure protection of drinking water sources (unconfined aquifers), efficient operation of the Christchurch International Airport (noise contours), preservation of productive rural land and avoidance of risk from natural hazards.

In June 2020, the GCP agreed to establish Greater Christchurch 2050 to set a new strategic direction for Greater Christchurch. The objectives of this project are to:

- Deliver a clear and agreed aspiration and positioning of Greater Christchurch
- Drive and focus of Partnership investment and commitment to deliver shared outcomes
- Advance a partnership and investment agreement between local and central government
- Grow private sector confidence and investment.

Through Greater Christchurch 2050, a new strategic framework has been drafted following a current state assessment of intergenerational wellbeing in Greater Christchurch and extensive consultation with the community and stakeholders about their aspirations and priorities for the future. It was determined that a new Greater Christchurch Spatial Plan would be the next logical step in giving effect to the aspiration set out in the draft Greater Christchurch 2050 strategic framework. This new spatial plan is being developed jointly with central government to give effect to the government's Urban Growth Agenda and as an important step in progressing an Urban Growth Partnership between central government and the GCP.

In the context of coastal hazards, the Greater Christchurch Spatial Plan will include climate change mitigation and adaptation considerations at a strategic level and from an urban form perspective will identify areas requiring protection from development in perpetuity (including taking into account hazards) and constraints to development (including consideration of the effects of climate change).

5 Biodiversity

5.1 Canterbury Biodiversity Strategy

Canterbury boasts a diverse range of habitats and ecosystems that support a remarkable array of plant and animal life with many native species being endemic to New Zealand. This diversity helps give the region its unique character.

In 2008, a multi-interest advisory group developed the first region-wide, collaborative vision for maintaining and enhancing this natural heritage. The Biodiversity Strategy for the Canterbury Region[53] is a non-statutory document that establishes a framework of goals and priorities for undertaking biodiversity initiatives.

The biodiversity strategy fosters a coordinated and cooperative approach and recognises the importance of shared responsibility and working together to achieve the strategy's vision. Continued commitment and participation from our communities, decision-makers and landowners will ensure continued enjoyment of our region's natural landscapes and wildlife in the future.

The strategy recognises that climate change will have effects on ecosystems and biodiversity through, for example, a rise in sea level and temperatures, changes to rainfall patterns with extreme events

[53] https://ecan.govt.nz/your-region/plans-strategies-and-bylaws/canterbury-biodiversity-strategy/

becoming more frequent. The main potential effects on biodiversity are gradual changes in habitat, changes in species' distribution, and increased threats from pests and disease.

It will be crucial that species whose habitats are affected, are able to relocate or move into more suitable areas. This can only happen if there are corridors along which species can move. In reality, species' habitats are frequently constrained by human development, e.g. urban development or farm land, and by structures, e.g. sea-protection structures, etc. Therefore, the adequacy of buffer zones and corridors to allow for shifts in habitat and distribution will become increasingly important, as will reducing, to the greatest extent practicable, existing stresses on vulnerable species, ecosystems and habitats.

5.2 Christchurch City Council Biodiversity Strategy 2008 - 2035

The Christchurch City Council's Biodiversity Strategy 2008 – 2035[54] supports "A Biodiversity Strategy for the Canterbury Region" and focuses on biodiversity across Christchurch and Banks Peninsula.

The Strategy sets out a vision of what could be achieved for biodiversity across Christchurch and Banks Peninsula. Among the key goals and objectives for the protection and enhancement of local biodiversity is protection and restoration/enhancement of indigenous biodiversity and its supporting ecosystems in Christchurch and on Banks Peninsula. This will require Council policies in other areas, e.g. the management of natural hazards, to take into account the Biodiversity Strategy and its objectives. Much of this is happening already, for example, in the post-earthquake restoration and management of parks and waterways, in the advice about biodiversity given to planners and developers, and in the biodiversity protection mechanisms imbedded in the District Plan policies and rules.

6 Conclusion

New Zealand has an intersecting array of legislation and agencies that set frameworks, rules and responsibilities relevant to coastal hazards adaptation planning in the context of land use planning and local-government infrastructure. The RMA and LGA are pivotal in defining the responsibilities of local government in these areas.

The RMA requires local government to consider the effects of climate change and incorporate climate change into decision making. It charges regional councils with the main responsibility to control the use of land so as to avoid or mitigate natural hazards (including flood hazard management).

The NZCPS has statutory force and requires all regional councils and local territorial authorities (in exercising their authority and in their regional policy statements, regional plans and district plans) to recognise the exacerbating effects of climate change on coastal erosion and other natural hazards and where these effects threaten existing infrastructure and private property.

While the NZCPS provides for councils to make precautionary decisions around land use, a DoC review in 2017 found that implementation has been challenging and very controversial for some communities. It found that in some areas, pressure for development is conflicting with best practice to set development back from the coast.

Getting laws and regulations right to support councils to make tough decisions is also crucial. High-quality data and information, and a robust and adaptive planning approach, needs to be supported by

[54] https://www.ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/strategies/biodiversity-strategy/

an appropriate legal framework. A major source of climate-change pressure on local government funding arises from councils' responsibilities to regulate land use.

Coastal Hazards Management Framework

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