

# Coastal Management Project – Responding to Climate Change

## Coastal Management Options

for

Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua

September 2021



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## Executive Summary

In July 2019, Tasman District Council launched its 'Coastal Management Project – Responding to Climate Change' initiative which aims to enable our Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua communities to work towards long-term adaptive planning for coastal hazards and sea level rise. This project is guided by the recommended good practice set out in the Ministry for the Environment's 2017 Coastal Hazards and Climate Change Guidance.

This report sets out a range of high-level options for coastal management in our District to respond to sea level rise and coastal hazards. Initially, it is important to look at each of the high-level options at a regional level to understand the range of possible coastal management responses. The options are grouped into four categories – accommodate, protect, avoid, and retreat. The options relate to both new development and intensification within existing developed areas.

The range of options listed is not exhaustive and there may be alternative options not identified. Through our community discussions during this phase of work, we are seeking your feedback to understand your views on these options or if there are alternative options or ideas for coastal management that we should consider. This will ensure that we avoid narrowing down the options too early in the process.

This report does not provide specific recommendations for decision-making. Rather, it provides an information base to assist in broadening our knowledge of coastal management options to facilitate better informed decision-making in the future. Next steps in the Coastal Management Project will consider specific options and recommendations at the local level.

Section 2 sets out the current legislative context for the management of natural hazards and responding to sea level rise under the Resource Management Act 1991 (RMA 1991), including the New Zealand Coastal Policy Statement 2010. This section also identifies two key central government-led pieces of work that will significantly influence future phases of the Coastal Management Project. These are the current resource management system reform including the development of a Climate Adaptation Act; and the preparation of a National Adaptation Plan (due by August 2022).

Section 3 identifies that many low-lying parts of our District's coastline has already experienced coastal storm inundation and/or coastal erosion. While there is much uncertainty around the rate and magnitude of sea level rise, we do know that rising sea levels will have increasing implications for development and infrastructure in coastal areas along with environmental, cultural and societal effects.

Section 4 highlights that regardless of the uncertainty around the rate and magnitude of sea level rise, we need to be proactive in our longer-term adaptive planning to ensure our communities are resilient. The decisions we make today will affect our children, grandchildren and future communities. This is because many land use planning, asset and infrastructure decisions lead to the construction of buildings and infrastructure that have long lifetimes. To avoid the risk of 'locking in' decisions that cannot be changed if they are no longer fit for purpose, the use of planning tools such as the dynamic adaptive policy pathways (DAPP) approach can be used to design an adaptive strategy that is robust over different scenarios into the future.

Section 5 details the four groupings of high-level options, namely:

- **Accommodate:** These options enable continued use of coastal land but existing development is adjusted, or new development is designed, to anticipate the hazard risk. Examples include

raising ground and/or floor levels of buildings, requiring relocatable houses, or providing alternative inundation pathways.

- **Protect:** These options ‘hold the line’ and include soft options (e.g. dune and beach nourishment, wetland restoration/enhancement) and hard options (e.g. sea walls, groynes, stopbanks, tide banks, causeways) to protect coastal areas from the sea.
- **Avoid:** This option uses land-use planning measures to avoid further intensification of existing built areas or the development of new sites in low lying coastal locations. Examples include policies and rules within resource management plans to control the types and densities of land uses (via zoning), subdivision and building restrictions, and coastal setbacks.
- **Retreat:** This option applies to existing development and involves moving people, assets and activities away from the coast. It can take place across a range of scales from individual properties (e.g. moving a building further back on a property), to relocating whole communities and infrastructure, or enabling ecological migration of coastal species and habitats.

Section 5 also includes case studies that illustrate the range of measures (options) implemented within our District; and details potential barriers and risks associated with the implementation of the range of options.

Section 6 recognises there are a number of factors that will motivate and influence the perspectives of individuals within the decision-making process around the suitability of options. Factors include differences in risk perception and acceptability of risk; differing values and competing interests; property values; property insurance; and who pays. Coastal management is a complex, challenging and emotive topic that impacts on the places we live, work, play and value.

As we work towards long-term adaptive planning for sea level rise and coastal hazards, input will be required from a range of community interests. Next steps in the Coastal Management Project will consider options at the local level in discussion with landowners and residents, iwi and our communities. The outputs of the central government-led work regarding the RMA 1991 system reform and National Adaptation Plan will inform this work.

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# 1. Introduction

## 1.1 Purpose

In July 2019, Tasman District Council (the Council) launched its 'Coastal Management Project – Responding to Climate Change' initiative which aims to enable our Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua communities to work towards long-term adaptive planning for coastal hazards and sea level rise.

This report sets out a range of high-level options for coastal management in our district to respond to sea level rise and coastal hazards (coastal storm inundation and coastal erosion). Initially, it is important to look at each of the high-level options at a regional level to understand the range of possible coastal management responses. This will ensure that we avoid narrowing down the options too early in the process. Future steps in the Coastal Management Project will consider specific options and recommendations at the local level, in discussion with landowners and residents, iwi and our communities.

This report does not provide specific recommendations for decision-making. Rather, it provides an information base to assist in broadening our knowledge of coastal management options to facilitate better informed decision-making in the future.

The options are grouped into four categories – accommodate, protect, avoid, and retreat. The options presented relate to both new development and intensification within existing developed areas. Potential barriers and risks associated with the implementation of these options are identified and discussed. A number of case studies are included that illustrate the range of coastal management measures which are already implemented within our District.

The report is structured as follows:

- Section 2 – sets out the legislative framework for coastal hazards management
- Section 3 – summarises what we know about our coastal hazards and rising sea levels
- Section 4 – discusses the challenges we face of planning for the uncertainty of sea level rise
- Section 5 – identifies a range of options for coastal management and encourages feedback on these options via the Council's website and feedback forms
- Section 6 – identifies a number of factors that influence our perspectives in decision-making
- Section 7 – sets out next steps

The outputs from the Coastal Management Project will be used to inform a number of Council's core functions including the development of the new Aorere ki uta, Aorere ki tai - Tasman Environment Plan (resource management plan), resource and building consent processes, activity management plans, reserves management plans, and civil defence and emergency management.

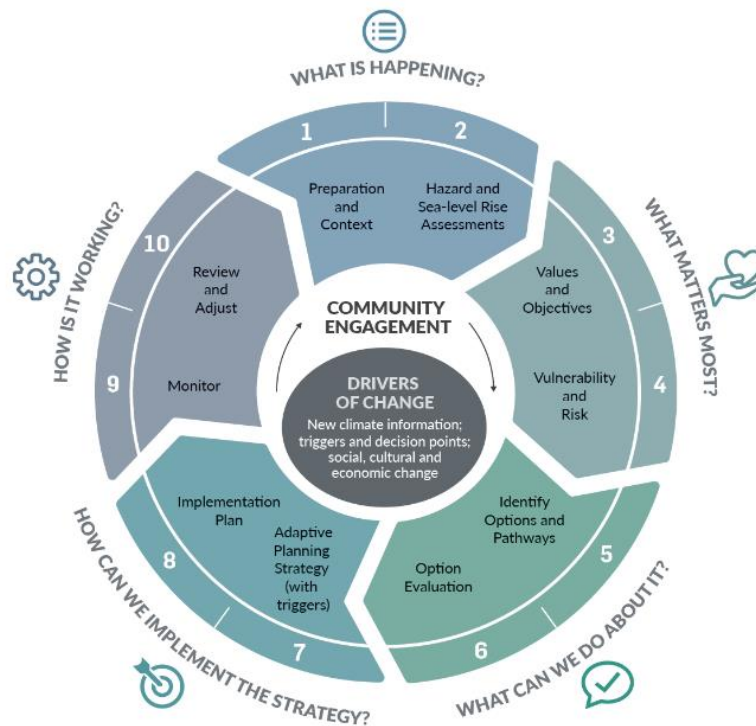
## 1.2 Background

The impacts of climate change affect us all, and in Tasman we continue to experience the effects of significant weather and storm events. As a Council, we are looking to better prepare our communities for the effects of ongoing changes to weather patterns and rising sea levels. This conversation is occurring in coastal communities all around New Zealand.

The Coastal Management Project uses as a guide the recommended good practice set out in the Ministry for the Environment's [2017 Coastal Hazards and Climate Change Guidance](#) (MfE 2017 Guidance). The guidance is structured around an iterative 10-step framework, focusing on five key

questions, to enable long term strategic planning and decision making for coastal management (Figure 1, over page).

The Coastal Management Project focuses on the District’s coastline of Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua. This project currently excludes the west coast of the District from Kahurangi Point (including Whanganui Inlet) to Farewell Spit and Port Pūponga as there is limited hazard information, sparse population, limited access and minimal pressure for coastal development in this area.



**Figure 1: The 10-step decision cycle, grouped around five questions (MfE, 2017)**

Phase 1 of the project (July – September 2019) focussed on the key question of ‘*What is happening?*’ (Steps 1 and 2 in Figure 1). It involved undertaking community engagement focussing on the release of Council’s *coastal hazards map viewer*, an online map tool which illustrates increments of sea level rise up to 2.0 m, coastal storm-tide inundation and coastal erosion hazards. The engagement also sought to raise awareness amongst our community and develop a common understanding of the information. Feedback was sought on what the community values that may be affected by sea level rise and coastal hazards to help inform the Phase 2 project (Step 3 in Figure 1). The *coastal hazards map viewer* and associated reports are available on the Council’s website at [tasman.govt.nz/coastal-management](https://tasman.govt.nz/coastal-management).

Phase 2 focussed on the key question of ‘*What matters most?*’ (Steps 3 and 4 in Figure 1). Along with the feedback gathered during the 2019 engagement (Step 3), it included preparation of a ‘first-pass’ risk assessment (Step 4). The risk assessment is used to better understand Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua’s vulnerability to coastal storm inundation and sea level rise. The assessment identifies a selection of assets, property, infrastructure and facilities, referred to as ‘elements at risk’, that may be exposed to coastal storm inundation and sea level rise using readily available datasets. The report ‘Coastal Risk Assessment for Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua (December 2020)’ is available on the Council’s website using the webpage link above.



Understanding the values that individuals, iwi and our communities place on the coastal area, and the vulnerability and risk of these values, will be an ongoing process. This recognises that there will be other things that are valued by the community which are located at the coast that have not yet been captured within work completed to date. In particular, there will be a range of special values that Te Tai Ihu iwi hold for the places, the resources, and the history of the District. The Council will continue to work in partnership with Te Tau Ihu iwi via the Council's TEP Partnership Working Group, set up to facilitate partnership working on development of the Aorere ki uta, Aorere ki tai - Tasman Environment Plan (TEP), our second generation resource management plan.

Following the MfE 2017 Guidance, this report represents the start of the Phase 3 project focussing on the key question of 'What can we do about it?' (Step 5 in Figure 1).

### 1.3 Key Terms

The natural hazards and climate change topics are complex and include a wide range of terms and technical jargon. Appendix A sets out some key terms that used within this report. Understanding what they mean will help to aid our future discussions on coastal management options. These key terms are: natural hazards, risk, climate change mitigation and adaptation, and resilience.

## 2. Legislative Framework

This section sets out a summary of the current and proposed legislative framework for natural hazards management and responding to climate change. Appendix B provides further information. Our legislative requirements set the context for considering high-level options for coastal management as discussed in Section 5.

### 2.1 Existing Legislative Framework

#### 2.1.1 Resource Management Act 1991

Under the Resource Management Act 1991 (RMA 1991) councils are required to recognise and provide for the management of significant risks from natural hazards as a matter of national importance (s6(h)) and to have particular regard to the effects of climate change (s7(i)).

In addition to these Section 6 and 7 matters, regional policy statements, regional and district plans are required to give effect to other national directives including the New Zealand Coastal Policy Statement 2010 (NZCPS). The NZCPS details national objectives and policies for the management of the coastal environment, including responding to coastal hazards and sea level rise. NZCPS Objective 5 seeks to ensure that the management of coastal hazards is risk based and takes account of climate change. It requires proactive management: locating new development away from hazard prone areas; considering managed retreat for existing hazard-prone development; and protecting and restoring natural defences. This objective primarily gives rise to NZCPS Policies 24 to 27 which are detailed in Appendix C. The NZCPS provides directive guidance on the appropriateness of some coastal management options, and this is discussed further in Section 5.

The Council has started work on its second-generation resource management plan, known as Aorere ki uta Aorere ki tai - Tasman Environment Plan, which will replace the current Tasman Resource Management Plan. The planning outputs from this Coastal Management Project will be used to inform the natural hazards and climate change sections of the new plan.

#### 2.1.2 Climate Change Response Act 2002

As required under the Climate Change Response Act 2002 and amendments, the Ministry for the Environment published the first *National Climate Change Risk Assessment for New Zealand*

*Arotakenga Tūraru mō te Huringa Āhuarangi o Āotearoa* in August 2020. It identifies 43 priority risks from climate change across five value domains (natural environment, human, economy, built environment and governance) and highlights the 10 most significant risks. The risk assessment will enable central government to prioritise action to respond to the risks identified, including through the development of a National Adaptation Plan (MfE, 2020). At the time of writing, MfE is currently working on the first National Adaptation Plan which will be published by August 2022. It is likely that councils will play a role in its implementation, which may influence future phases of the Coastal Management Project.

## 2.2 Resource Management System Reform

The Government is currently reforming the resource management system and proposes to repeal the RMA 1991. One of the five objectives of the reform, which is key to this Coastal Management Project, is to provide new legislation that will enable New Zealand to better prepare for adapting to climate change and risks from natural hazards, and better mitigate emissions contributing to climate change. It is proposed that the RMA 1991 will be replaced with three new pieces of legislation: Natural and Built Environments Act (NBA); Strategic Planning Act (SPA); and Climate Adaptation Act (CAA).

It is proposed that the NBA and SPA will be passed into law in this parliamentary term (i.e. by the end of 2022), and the CAA will be progressed in this time too<sup>1</sup>. This reform proposes significant and fundamental changes to resource management in New Zealand. The proposed changes are designed to ensure that the resource management legislative framework is fit for purpose and ultimately, ensure that our communities are resilient in the face of natural hazards and climate change risks. The forthcoming legislation will significantly influence future phases of the Coastal Management Project.

## 3. Natural Hazards and Sea Level Rise

This section summarises the natural hazards that may occur within the coastal areas of our District and the challenges we face with rising sea levels. Understanding these natural hazards (our natural hazard ‘issues’) provides key context when considering future options for coastal management. This section should be read in conjunction with the use of the Council’s *coastal hazards map viewer* which illustrates increments of sea level rise up to 2.0 m, coastal inundation and coastal erosion hazards.

### 3.1 Vulnerability to Coastal Storm Inundation

Many low-lying parts of our District’s coastline have already experienced coastal storm inundation. For example, ex-tropical cyclone Fehi was a significant storm event that impacted our district on 1 February 2018. The storm surge coincided with a very high spring tide elevating sea levels. Large waves further elevated sea levels and damaged the coastline and flooded roads, reserves and nearby properties and houses. Sea level rise will increase the exposure of our coastal land to these type of storm events, creating new hazards in areas that have not previously been exposed.

With a changing climate the frequency of coastal storm inundation events will increase (Parliamentary Commissioner for the Environment, 2015). Rising sea levels will further exacerbate the impacts of such storms.

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<sup>1</sup> Ministry for the Environment website, viewed on 12/07/20. (<https://environment.govt.nz/what-government-is-doing/key-initiatives/resource-management-system-reform/overview/#the-way-forward-for-reform>).

### 3.2 Vulnerability to Coastal Erosion

Our sandy beaches and shorelines are subject to natural processes of coastal erosion (sediment loss) and coastal accretion (sediment gain). Beaches or shorelines will often experience a cycle of erosion followed by accretion, with the duration of the erosion-accretion phase ranging from weeks (the period of a storm event and post-storm recovery) to longer periods over a year(s), a decade or several decades. The Council's *coastal hazards map viewer* shows areas of historical coastal erosion (sediment loss) and accretion (sediment gain), based on a 30+ year record.

How erosion trends or rates will change as sea levels rise into future is uncertain. However, it is expected that for most localities erosion rates will increase and areas of accretion will begin to exhibit an erosional trend. While coastal erosion will be exacerbated by sea level rise, it will remain a localised hazard affecting frontline properties in some locations. As rising sea levels progress, coastal inundation hazard will remain the more spatially extensive coastal hazard.

### 3.3 The Uncertainty of Sea Level Rise

Historic sea level rise in New Zealand has averaged 1.78mm per year, with the Port Nelson tide gauge recording a slightly lower rate than the national average of 1.57mm per year (MfE, 2017). Sea levels measured at Port Nelson in 2017 (averaged over the period 2008 to 2017) are now 150mm higher than sea levels measured 75 years earlier in 1942 (averaged over the period 1939 to 1942) (NIWA, 2018). Much of the observed sea level rise has occurred in the latter part of this period.

Many factors need to be taken into account when considering how future global warming will contribute to climate change and, ultimately, sea level rise. The scientific consensus is that sea levels will continue to rise and are likely to rise at an accelerated rate over time. As the earth's temperature rises, changes could happen sooner than predicted, or there may be changes to emission rates that reduce the rate of warming in the longer term. However the future unfolds, there will be a component of sea level rise caused by the emissions to date. This is despite any recent or near-future measures to reduce emissions given the amount of greenhouse gases currently in the atmosphere (from historical emissions) and the ongoing lagged response to sea level rise (MfE, 2017).

The MfE 2017 Guidance outlines the approximate years, from possible earliest to latest, when specific sea level rise increments (in metres above 1986-2005 baseline) could be reached for various projection scenarios of sea level rise for the wider New Zealand region, as shown in Table 1 (over page).

The representative concentration pathways (RCPs) listed are four comparable scenarios used to predict how future global warming may contribute to climate change and sea level rise. The lower scenario (RCP2.6) represents the rise in sea level if the Paris Agreement measures to control emissions are achieved and keep global average temperatures well below 2° C above pre-industrial levels, while pursuing efforts to limit the temperature increase to 1.5° C. The upper scenario (RCP8.5 H+) represents continuing high emissions and no effective emissions mitigation, plus runaway instabilities in polar ice sheet melting. The other two scenarios (RCP8.5 and RCP4.5) are in between those two different futures. For example, based on current information we may expect 1m sea level rise by the years 2100 (RCP8.5+), 2115 (RCP8.5), 2170 (RCP4.5) or beyond 2200 (RCP2.6).

Given that the rate and magnitude of future sea level rise is uncertain, all four RCP scenarios should be considered when developing our long-term adaptive planning approach. The timing of each increment of sea level rise will depend on the rate of future global warming and climate change.

**Table 1: Approximate years, from possible earliest to latest, when specific sea level rise increments (metres above 1986-2005 baseline) could be reached for various projection scenarios of sea level rise for the wider New Zealand region** (Source: MfE, 2017 (Table 11))

SLR (metres)	Year achieved for RCP8.5 H+ (83%ile)	Year achieved for RCP8.5 (median)	Year achieved for RCP4.5 (median)	Year achieved for RCP2.6 (median)
0.3	2045	2050	2060	2070
0.4	2055	2065	2075	2090
0.5	2060	2075	2090	2110
0.6	2070	2085	2110	2130
0.7	2075	2090	2125	2155
0.8	2085	2100	2140	2175
0.9	2090	2110	2155	2200
1.0	2100	2115	2170	>2200
1.2	2110	2130	2200	>2200
1.5	2130	2160	>2200	>2200
1.8	2145	2180	>2200	>2200
1.9	2150	2195	>2200	>2200

**Note:** The Council relies on national sea level rise data provided by the Ministry for the Environment (MfE). Following the release of the [Intergovernmental Panel on Climate Change's Sixth Assessment Report](#) (August 2021), the Council will update the information contained in Table 1 when updated national sea level rise rates are released by MfE.

### 3.4 Other Natural Hazards in the Coastal Area

The coastal area is the interface between land and sea. It is a dynamic environment where a number of natural hazard processes can occur, either individually or in combination. While the focus of the Coastal Management Project is on coastal hazards (seawater inundation and erosion) and sea level rise, there are other natural hazards that may impact coastal areas, including:

- freshwater inundation (river flooding and incident rainfall/stormwater flooding)
- rising groundwater levels
- earthquakes
- seismic liquefaction
- tsunamis

The combined effects of these natural hazards (where known) should be considered holistically when considering coastal management options. Additionally, sea level rise will increase the exposure of our coastal land to some of these hazards, creating new hazards in areas that have not previously been exposed. For example, as sea levels rise coastal groundwater levels will also rise, and depending on the underlying geology, areas susceptible to seismic liquefaction may increase. The Council's report 'Coastal Hazards Assessment in Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua (July 2019)' provides further detail on each of these natural hazards within the Tasman District's coastal areas.

It is recognised that there are other climate change effects that impact on the marine environment (e.g. marine heat waves, ocean acidification) which is beyond the scope of this report.

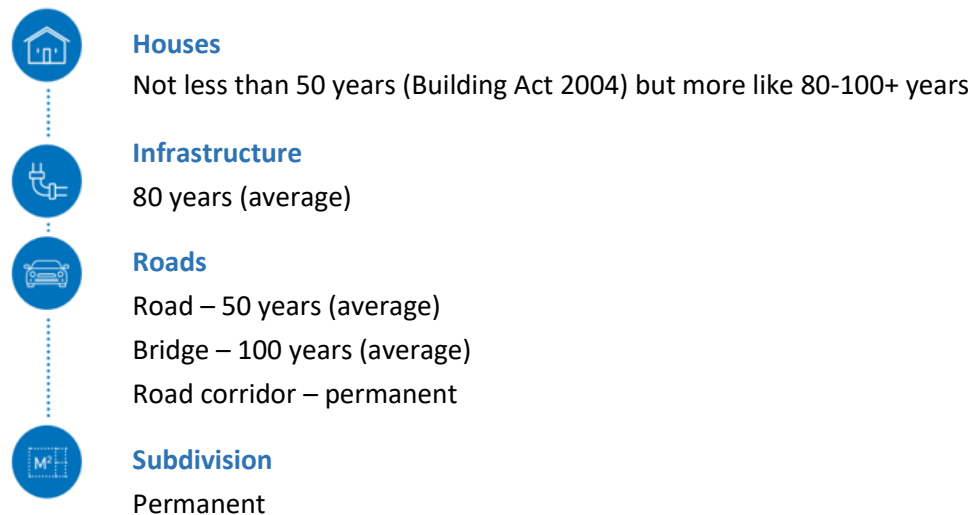
## 4. Planning for the Uncertainty of Sea Level Rise

### 4.1 Planning for Uncertainty

New Zealand's coastal cities and towns developed in the coastal area over time under the presumption of a stable sea level (e.g. no consideration of changes in sea level). Assets such as

homes, roads, airports, and three waters<sup>2</sup> infrastructure were built based on a historical understanding of the reach of tides and occasional flooding during storms (PCE, 2015).

While there is much uncertainty around the rate and magnitude of sea level rise, we do know that rising sea levels will have increasing implications for development and infrastructure in coastal areas along with environmental, cultural and societal effects. Therefore, regardless of this uncertainty we need to be proactive in our long-term adaptive planning for sea level rise to ensure our communities are resilient. The decisions we make today will affect our children, grandchildren and future communities. This is because many land use planning, asset and infrastructure decisions that are made today have long lifetimes, as follows:



Consideration of coastal hazards and sea level rise has been embedded in the Council’s work programmes for a number of years, as discussed in the case studies in Section 5.

## 4.2 Dynamic Adaptive Policy Pathways (DAPP)

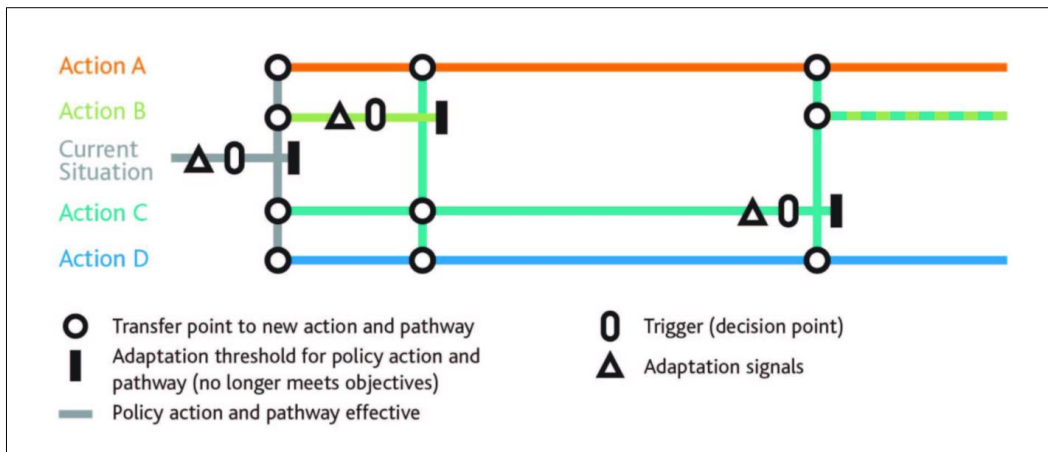
### 4.2.1 What is DAPP?

Given the uncertainty of planning for sea level rise, decision-making processes need to avoid ‘locking in’ decisions that cannot be changed if they become no longer fit for purpose. The dynamic adaptive policy pathways (DAPP) approach is one such planning tool that designs strategies that are adaptive and robust over different scenarios into the future.

DAPP is based on developing a series of actions over time (pathways) and developing triggers to determine which pathway should be followed (see Figure 2 over page). There is no timeframe associated with each action but there is an agreed point at which a particular situation is no longer acceptable. From this, a plan can be developed to enable the preferred option or pathway when a change is required. An adaptive approach means no investment is required until necessary but it means we know what will happen if we get there (Auckland Council, 2021; Hurunui District Council, 2020; MfE, 2017). More information on the DAPP approach is set out in Section 9.3.3 and Appendix G of the MfE 2017 Guidance.

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<sup>2</sup> Water, wastewater and stormwater infrastructure.



**Figure 2: Example of an adaption pathways map (Source: Auckland Council, 2021)**

An example of the DAPP approach using Figure 2, is the scenario of an existing coastal road which will become inundated every high tide under a 1.0 m sea level rise (current situation). The different actions (and pathways) could include building a hard protection structure to protect the road (Action B), raising the height of the road (Action C), or retreating/relocating the road inland (Action A or D). Trigger points could be at 0.3m and 0.6m sea level rise or frequency of significant road damage during storm events. At these points either additional or different actions could be taken via an alternative pathway to avoid reaching the threshold at which the road is no longer useable. Raising and protecting the road could be short to medium term actions, used individually or in combination. While the road could be relocated inland at any time, a preference may be given to protect the road for the near future with an understanding that relocation is the preferred action (pathway) in the longer term.

The MfE 2017 Guidance incorporates the principles of DAPP in its iterative 10 step-framework (see Figure 1). While the Guidance’s framework presents an innovative process for coastal management, with the community at the heart of this decision-making, it also presents a number of challenges. For example, the process to identify and agree to a set of long-term options that span decades and have implications for future generations, may be constrained given that current local government decision-making processes operate under a three yearly cycle and funding decisions are based on a 10 year cycle under the Long Term Plan. Central government has signalled through the reform of the RMA 1991 that the development of a Climate Adaptation Act will address some of these challenges, such as the complex legal and technical issues associated with managed retreat and funding and financing adaptation. Both the RMA 1991 reform and the release of the National Adaptation Plan (by August 2022) will significantly influence future phases of the Coastal Management Project (see Section 2 for more information).

#### 4.2.2 Using DAPP in Tasman

As we work towards developing our long-term adaptive planning for sea level rise and coastal hazards, the use of DAPP will be helpful where it is likely that a combination of options may be required over time (DAPP pathways) in some of our low-lying coastal areas. Using tools such as DAPP will enable our adaptive planning to remain robust over different scenarios of future climate change, and in particular sea level rise. This will ensure that we avoid ‘locking in’ decisions that cannot be changed if they are no longer fit for purpose. In circumstances where our coastal management options are limited due to immediate issues with coastal hazards, there may be other approaches or planning tools that could be more appropriate.

Next steps in the Coastal Management Project will include identifying the range of options applicable in specific locations around Tasman, and their respective costs, benefits and potential adverse effects – and which are acceptable or not. Initially, this work may involve developing a planning response to limit and/or control further development in high hazard areas, while we continue to work towards long-term adaptive planning (such as the use of DAPP pathways and trigger points, or other planning tools). The best way to minimise and reduce coastal hazard risk will be to avoid areas that are, or will become, exposed to hazards.

The Council is already starting to incorporate the principles of DAPP in its resource and building consenting processes. For example, in 2019 the Council received an application to subdivide low-lying coastal land that is zoned light industrial. Given the proximity of the site to the coast and predicted future sea level rise (as shown on the Council's *coastal hazards map viewer*), it was clear that the site is subject coastal hazards within the next 100 years. A natural hazards assessment provided by the applicant concluded that whilst the site is suitable for light industrial use over the medium term as the hazards can be mitigated, long-term managed retreat is required (the preferred DAPP pathway). The applicant proposed the use of a Consent Notice whereby the title holders of the subdivided lots no longer have property rights once sea level rises 0.8 metres (the DAPP trigger point adopted for this site). This requirement facilitates the managed retreat of the occupying businesses once the trigger point is reached, including the removal of all structures, waste and contaminants, and site remediation.

## 5 Coastal Management Options

### 5.1 Introduction

This section sets out a range of options for coastal management to respond to sea level rise and coastal hazards. The options are grouped into four categories: accommodate, protect, avoid, and retreat (Figure 3). Initially, it is important to look at each of these options at a regional level, to understand the range of possible coastal management responses. There are a range of coastal management measures (options) implemented within our District, while others may need careful consideration to understand their suitability. Some potential barriers and risks associated with implementation of the options are also identified and discussed in this section, including the broader legislative context.



**Figure 3: Coastal management options can be grouped into four high-level categories**

The range of options listed is not exhaustive and it is recognised that there may be alternative options that are not identified. Through our community discussions during this phase of work, we want to understand if there are alternative options or ideas for coastal management that we should consider. This will ensure that we avoid narrowing down the options too early in the process. Next steps in the Coastal Management Project will include identifying specific options and recommendations at the local level.

Each option has different costs, implications, effectiveness, and lifespans. Some options may only provide for a short or medium term response, while others will have greater longevity and will provide a more permanent solution to the hazard. Some options will be 'quick wins' to implement, while other options, such as retreat, will require significant forward planning. The options presented relate to both new development and intensification within existing developed areas.

As recommended by the MfE 2017 Guidance, any consideration of options will require input from a range of community interests including landowners, iwi, council staff and technical experts, and the wider community. As we have these coastal conversations, it is important that we manage our expectations. Options that may be preferred by individuals or groups may not be automatically included in our long-term adaptive planning if they have significant environmental, cultural, or socio-economic impacts. Any discussions on coastal management options should be framed within the context of:

- Statutory requirements (e.g. Resource Management Act 1991 and New Zealand Coastal Policy Statement 2010, or any future legislation)
- Iwi and Māori relationships with the coastal environment and iwi management plans
- Community values and objectives
- Understanding what risk our regional and local communities are willing to live with - acceptable, tolerable, and intolerable
- Private benefit and costs versus public benefit and costs
- Feasibility and burden of cost (either now and/or in the future) and who pays

The following sub-sections provide a summary of options within each grouping and case studies from within our District.

## 5.2 Accommodate

The 'accommodate' grouping is a set of options that enable continued use of coastal land but existing development is adjusted or new development is designed to anticipate coastal hazards. Examples include raising ground and/or floor levels of buildings, requiring relocatable houses, or providing alternative inundation pathways (MfE, 2017). Accommodate options can make use of new technologies and innovation.

A key issue with some of the accommodate options, particularly raising floor levels, is that they are unlikely to be viable with progressively rising sea levels. While houses could continue to be raised above the maximum expected sea and storm level, infrastructure servicing will become problematic and costly, particularly road access.

The Council already implements some of these accommodate options through our resource and building consent processes, as discussed in Case Studies 1 and 2.



Accommodate



### **CASE STUDY 1: Nelson Tasman Inundation Practice Note 2019**

Council's Inundation Practice Note provides non-statutory guidance to determine minimum ground and floor levels for subdivision, new buildings, and major alterations to existing buildings in inundation prone areas. The practice note provides guidance to support Tasman District Council and Nelson City Council building and resource consent processes. The guidance ensures that new buildings and major alterations are built to mitigate a 1% annual exceedance probability (AEP) inundation 'design event' for seawater and/or freshwater inundation. A 1% AEP inundation event has a 1% chance of occurring in any year.

In coastal locations, the practice note also includes consideration of at least 100 years of projected sea level rise, following the MfE 2017 Guidance. Application of the practice note ensures that new buildings and major alterations to existing buildings are designed in a way that allows buildings to remain resilient from inundation over the expected lifetime of the building, taking into consideration climate change effects. The Inundation Practice Note can be viewed on the Council's website (<https://www.tasman.govt.nz/my-council/key-documents/more/growth/land-development-manual/>).

Resource and building consent decisions are made with the most up to date natural hazards and sea level rise data available at the time they are granted. Consequently, a building constructed today may have different requirements for minimum ground and/or floor levels in comparison to a building constructed 15 years ago, because of improved local data (such as modelling) and updated national sea level rise guidance. There will also be a range of local factors that will influence site specific minimum ground and/or floor level requirements, which means comparisons cannot always be made between sites in close proximity, including within local neighbourhoods. Local factors can include site topography, existing hazard mitigation works or infrastructure, and the design life of the building. Some resource consents may include specific conditions to address the hazard risk. Sometimes there will be a time lag between when a consent is granted and when the consent holder chooses to implement it.

## CASE STUDY 2: Relocatable Houses

In our district there have been a small number of relocatable houses built in coastal locations in recent years, recognising the site specific natural hazards risks these locations are subject to over the longer term.

One example is a relocatable house built adjacent to the Coastal Highway and the Moutere Inlet which featured on the TV programme 'Grand Designs New Zealand' (Stuff, 2017). In 2017, the Council received a resource consent application to construct this house on very low-lying land. Parts of the site are just at, or slightly above, current mean high water springs (MHWS) and the setback between the proposed house and MHWS was only 7 metres at the closest point. As such, the development is subject to seawater inundation and erosion hazard and required mitigation.

The habitable parts of the house were designed to be relocatable so they can be moved if sea level rise makes occupation of the site untenable. The foundation of the house is constructed from durable material to mitigate the effects that inundation will have on the house in the medium term. Through the building consent process, the Council required that a hazard notice be placed on the property title (under sections 72 and 73 of the Building Act 2004). This notice warns future property owners of the natural hazard risk which, from a legal perspective, provides some protection for Council if there is subsequent damage as a result of the natural hazard.

*Grand Designs New Zealand host, Chris Moller, outside the Moutere Inlet relocatable house.*

(Photo credit: Mediaworks)



### 5.3 Protect

The 'protect' grouping is a set of options that 'hold the line'. It includes soft and hard options to protect coastal areas from the sea as discussed below. The use of soft and/or hard protection signals that there will be investment to protect an area for longer, at least as an initial part of a longer-term strategy. This recognises there will likely be a need for retreat or enhanced or alternative protection at some point in the future (MfE, 2017).



**Protect**

From a legislative perspective, the NZCPS provides clear guidance on the suitability of both soft and hard protection options. The NZCPS discourages the use of hard protection structures (Policy 25) and promotes the use of alternatives including natural defences/soft protection (Policy 26). In relation to protecting significant existing development from coastal hazards, Policy 27 prefers strategies that reduce the need for hard protection structures and similar engineering interventions. Appendix C sets out NZCPS Policies 25-27.

### 5.3.1 Soft protection

Soft protection options include a range of measures such as dune and beach nourishment/replenishment (e.g. sand push-ups) and wetland restoration and enhancement. Soft protection can assist in reducing the impacts of natural hazards on coastal development while protecting a number of other values including cultural, coastal habitats and species, landscapes, public access and recreation. Case study 3 provides examples of soft protection measures implemented in our District.

Over time, soft protection options may experience erosion as part of natural coastal processes. For example, a coastal storm tide may erode a sand push-up exposing nearshore coastal land. In such instances while it may appear that the sand push-up is not working, this is exactly what is intended as they act as a natural buffer protecting the land behind, rather than the land being eroded. Following large storm events, push-ups can be undertaken again to reinstate the sand.

#### **CASE STUDY 3: TORRENT BAY SAND PUSH UPS**

Soft protection shoreline management is successfully undertaken at a number of locations in the District through sand push-ups and plantings/Coastcare projects. In recent years, resource consents for sand push-ups have been granted in areas such as Pakawau, Torrent Bay, and Little Kaiteriteri in response to coastal erosion.

Torrent Bay beach within the Abel Tasman National Park experiences periodic erosion as a result of storms and ongoing wave action. The erosion may impact on the back-beach dune planting, public access routes and ultimately private property. The Council periodically undertakes replenishment of the beach from the lower foreshore to the upper foreshore. Beach replenishment work is usually undertaken every 2-3 years on average, depending on the frequency of storm events. This activity has been undertaken since 2005 and has effectively mitigated the erosion issues to date. These sand push-ups are funded through a mix of targeted rates on Torrent Bay landowners and wider Council funding.



While soft protection measures provide a range of positive environmental benefits, from a hazard mitigation perspective it is likely that such measures will only be a short to medium term option providing localised protection for nearshore coastal land. Over the long-term, this option may become unsustainable as sea levels rise, accelerating coastal processes.

### 5.3.2 Hard Protection

This option includes hard structural measures such as coastal protection structures, groynes, stopbanks, tide banks, and causeways. Coastal protection structures can be made out of a range of materials, which include sloping-faced rock and concrete block revetments, vertical or near-vertical timber and concrete walls – these are all more commonly referred to as ‘sea walls’. Hard protection measures modify natural coastal processes on beaches and nearshore coastal land. Their purpose is to deter or prevent coastal erosion or inundation affecting those coastal areas they are built to protect (e.g. the built environment and/or coastal land uses) over the short to medium term. However, they tend to shift these issues to other parts of the coast and this needs to be considered in their suitability as an option.

For many coastal landowners and communities around New Zealand, a common response to the increasing risk from coastal hazards and sea level rise is to ‘harden the coasts’ to defend property – particularly the use of coastal protection structures (e.g. sea walls) (Storey *et al*, 2020). However, there can be many environmental and social costs over the longer term in taking this approach. The location of a hard protection structure, and how coastal processes respond to the placement of that structure, may result in the degradation of the natural, cultural, ecological, access and recreational values of beaches (including the loss of the high tide beach). The use of hard protection can also result in unintended outcomes, adverse environmental effects (including ‘end wall effects’ for sea walls affecting adjacent properties), implications for liability, and in some circumstances the use (and/or loss) of public land for private benefit.

Hard protection measures are expensive to build and maintain. Their costs will vary depending on location and design, but a project may be multi-million dollars for construction, with additional ongoing maintenance costs. The associated costs must be a key factor in any decision-making process when considering their use. This is particularly so given that Storey *et al* (2020) notes that hard protection measures (such as sea walls) will only delay damage, and are likely to be counterproductive as they can encourage further intensification of development in vulnerable coastal areas.

NZCPS Policy 27 sets out strategies for protecting significant existing development from coastal hazards, focusing on promoting and identifying long-term sustainable risk reduction approaches. The Policy acknowledges that hard protection structures may provide a role in protecting important built infrastructure that needs to be at the coast for functional reasons or where there is no viable alternative (e.g. major infrastructure such as the national electric power transmission grid, state highways, ports and airports). However, several parts of Policy 27 focus on discouraging the use of hard protection structures in relation to private property, particularly where it is proposed on public land and there is no significant public or environmental benefit in doing so. In circumstances where hard protection structures may be considered necessary, this should form an initial part of a longer-term strategy, until there is an opportunity for relocation or redevelopment to reduce vulnerability, which in turn would reduce the need for hard protection structures over time (Department of Conservation, 2017).

Case Study 4 details examples of hard protection measures used in our District, while Case Study 5 sets out the Council’s current policy approach for the use of hard protection measures.

#### **CASE STUDY 4: HARD PROTECTION STRUCTURES**

Along the Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua coastline, there are a number of hard protection structures built on both public and private property to protect land, buildings and/or community assets (roads, parks and reserves, etc.) from coastal erosion and/or inundation from present day high tides. Council-owned hard protection structures were historically built to mitigate coastal erosion only (not inundation).

Locations of protection structures include coastal urban areas (e.g. Ruby Bay, Mārahau, Collingwood), and both farmland and industrial land adjacent to the Waimea Inlet, coastal farmland near Riwaka, and coastal farmland at Ferntown (near Collingwood). These structures are built from a variety of materials. At some low-lying rural locations, behind tide banks and areas where drainage is compromised by high tide levels, pumps are also used to control or reduce water levels.

Both Council-owned and privately owned hard protection structures that have resource consents often allow maintenance to occur as required. However, their presence is uncertain beyond the consent expiry date. There are some privately erected structures along the coastline that do not have formal authorisation and similarly, there is no certainty that they will continue to function in a protective capacity into the future. General issues such as the removal of structures when they are no longer working and who pays ('end of life costs') will become more problematic as sea levels rise.

Between 2003 and 2007, the Council, in conjunction with the local community, completed substantial coastal protection at Mārahau and Ruby Bay (Broadsea Avenue and Old Mill Walkway). These have been constructed to protect existing urban development and are built to a higher standard than earlier works at these locations.



The photo above shows a section of the Sandy Bay-Mārahau Road which has hard protection, enabling ongoing access to Mārahau and Abel Tasman National Park.

## CASE STUDY 5: COUNCIL'S COASTAL PROTECTION POLICY

Council's interests and roles in coastal management are complex. Different teams within the Council provide different functions, for example:

- as an asset manager of hard protection structures
- as a landowner of vulnerable low-lying coastal land and assets (e.g. parks and reserves, roads and infrastructure)
- as a regulatory authority under the RMA 1991 and Building Act 2004
- as a local authority to control and manage reserves under the Reserves Act 1977

Within the [Coastal Assets Activity Management Plan 2021](#), the Council sets out a policy on coastal protection. This policy provides an interim position statement on coastal protection, specifically the use of hard protection structures, focusing on the Council's role as an asset manager. This interim position statement is summarised as follows.

The Council will:

- maintain or repair only existing Council-owned coastal protection structures.
- consider new investment in coastal protection works only where there are substantial vulnerable Council-owned assets that are impractical to relocate.
- not invest in, or maintain any new Council-owned coastal structures or works to protect private property, or accept responsibility for the repair or maintenance of existing private coastal works.
- only give consideration to allow any privately funded construction of coastal protection structures on Council-own land, for the purposes of protecting the Council-owned land or private property, where a proposal is substantially compliant with the New Zealand Coastal Policy Statement 2010, Tasman Resource Management Plan, and the Council's Reserves General Policies document.

This interim policy statement has been developed while the Council works towards long-term adaptive planning for sea level rise and coastal hazards through the Coastal Management Project. Appendix D sets out the Policy and interim position statement in full.

The Council is also developing a policy on coastal erosion protection structures on Council reserve land. The policy provides guidance on the process and considerations involved when a private landowner wishes to establish a coastal erosion protection structure on reserve land. It details the matters that the Council will consider including requirements under the Reserves Act 1977. It is important to highlight that this landowner approval process is a separate and parallel process to any consents required under the RMA 1991 and/or Building Act 2004.

## 5.4 Avoid

The 'avoid' grouping of options primarily uses land-use planning measures to stop putting people and assets in harm's way. It seeks to avoid further intensification of existing built areas or the development of new sites in low lying coastal locations – this can be thought of as a "let's not make the situation worse" approach.

Land-use planning measures include policies and rules within resource management plans that control the types and densities of land uses (via zoning), subdivision and building restrictions, and coastal setbacks.



**Avoid**

Avoidance measures are a key component of any long-term planning for coastal hazards and sea level rise (MfE, 2017). These measures give effect to NZCPS Objective 5 and its supporting policies, which promotes locating new development away from hazard prone areas. In terms of coastal management options, the best way to minimise and reduce the risk from coastal hazards is to avoid areas that are, or will become, exposed to coastal hazards. In doing so, this will avoid costly and avoidable risk which the Council and community would otherwise have to address in the future.

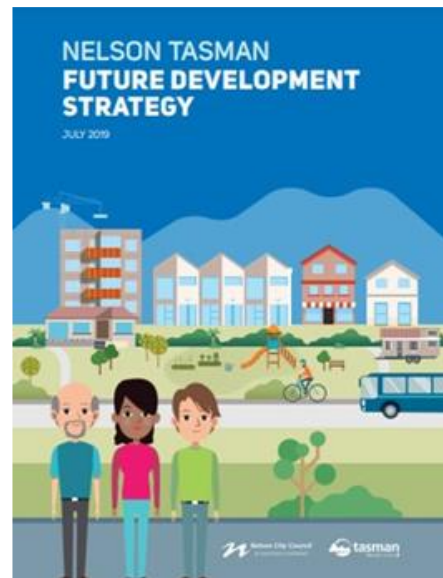
The Council already implements forms of avoidance measures as discussed Case Studies 6 and 7.

### **CASE STUDY 6: NELSON TASMAN FUTURE DEVELOPMENT STRATEGY 2019**

The Future Development Strategy 2019 (FDS) sets out how the urban settlements and townships in the Nelson and Tasman regions will change and develop over the next 30 years. The FDS shows where future housing and business development is likely to be located, and how this development is likely to be phased and timed over the 30 year period.

In preparing the FDS, each potential growth site was assessed against 28 criteria to assess its suitability for housing or business use. Within our District, the Council avoided low-lying coastal areas subject to long term sea level rise by excluding all land below 5m NZVD2016 datum.

The FDS will inform a range of local plans and strategies, including the Councils' Long Term Plans, Infrastructure Strategies, Regional Land Transport Plans, and resource management plans. A new FDS is being prepared over 2021-2022, which will give effect to the National Policy Statement on Urban Development 2020.



## CASE STUDY 7: MĀPUA/RUBY BAY COASTAL RISK AREA

Coastal hazards are well documented in Māpua – Ruby Bay, including the effects of ex-tropical cyclones Drena (1997), Yali (1998) and Fehi (2018). In the late 2000s, the Council initiated Tasman Resource Management Plan (TRMP) Plan Change 22 working with the community to address future development options, recognising coastal processes and the hazards they pose. The plan change was made operative in 2015 and directs future expansion of Māpua and Ruby Bay away from low-lying land and the inundation and erosion prone coastline, on to more elevated land northwest of the township. The TRMP identifies a ‘Coastal Risk Area’ that provides a number settlement specific policies and rules that minimise the assets in the areas at risk, including prohibiting further subdivision and the construction of new habitable buildings in this area. The plan change is the start of building longer-term community resilience for the Māpua/Ruby Bay community. The plan change is promoted by MfE as an example of current good practice for coastal hazards planning.



The aerial photos above show the boundary of the TRMP Coastal Risk Area (left photo); and coastal protection around parts of Māpua Leisure Park (foreground) which is included in the Coastal Risk Area (right photo).

### 5.5 Retreat

The ‘retreat’ option applies to existing development and involves moving people, assets and activities away from the coast and the coastal processes that are threatening them. Retreat can be a planned and staged process undertaken over time to remove risk, or a forced and unplanned process as the result of a catastrophic event (for example the ‘red zone’ area following the 2011 Christchurch earthquake).



**Retreat**



Retreat can take place across a range of scales from individual properties (e.g. moving a building back on a property), to relocating whole communities and infrastructure (MfE, 2017; Turbott, 2006).

NZCPS Objective 5 and its supporting policies promotes managed retreat as a response option for existing development located in areas prone to coastal hazards. However, the concept of retreat presents a number of challenges for society as a whole and has the potential to create inequitable outcomes (see Section 6). In particular, the costs associated with retreat (of either public and/or private assets), and the potential expectations of who pays is complex and emotive. Central government has signalled through the reform of the RMA 1991 that the development of a Climate Adaptation Act will address these complex legal and technical issues associated with managed retreat and funding and financing such adaptation.

Retreat is unlikely to be viewed favourably by some coastal landowners and communities who place high value on their coastal lifestyle/attachment to place and/or the potential loss in investment in the land. While there is a growing awareness of retreat as an option, and indeed nationally in some locations it will be the only feasible long-term option, it is likely that it may take several generations before it becomes accepted as a 'normal' response to coastal hazards and sea level rise (Department of Conservation, 2017; Turbott, 2006).

Recently published research from the Resilience Challenge's Resilience in Practice work programme describes three approaches to policy for a range of possible retreats, being:

- *Government control* – using legislation, standards, policies and regulations, central or local government to restrict certain developments or compulsorily acquire property to enforce retreat.
- *Cooperative managed retreats* – collaborative decision making and negotiation between government agencies and affected parties, using instruments such as opt-in buyouts, relocation subsidies or land swaps.
- *Unmanaged retreats* – individual choices influenced by factors such as loss of insurance cover and other market changes, decisions not to invest more in a property or to sell it (potentially at a loss) or to remain in place and face the hazard" (Lawrence, McCleave and Hanna, 2021).

The research recommends that cooperative managed retreats, which involves a collaborative process between central/local government and coastal landowners/communities, is the preferred approach as individuals and communities are embedded in the retreat strategy design, decision making and delivery (Lawrence, McCleave and Hanna, 2021). Retreat needs to be considered at both the national and local level, with any process of retreat involving extensive community engagement and a staged process that is developed and implemented over a period of time (Turbott, 2006; Department of Conservation, 2017).

Councils will play a key role in integrating retreat strategies into long-term urban growth, infrastructure and reserves planning. As the provider of public infrastructure and assets (e.g. roads, 3 waters infrastructure, reserves and facilities), long-term asset management planning will be required in vulnerable low-lying coastal locations to avoid ongoing expensive repairs, disruption and declining levels of services. This is particularly important given the longevity of some infrastructure and the critical nature of some assets such as the road network (Turbott, 2006; Department of Conservation, 2017). Additionally, through Council's land use and biodiversity planning functions, any retreat strategy should provide provisions to enable ecological migration of coastal species and habitats as the land/coast interface moves landward as a result of rising sea levels.

An August 2020 Stuff article<sup>3</sup> and anecdotal evidence gathered by Council staff (through community engagement processes in recent years) indicates that there is already an element of individual retreat occurring in our District. It is important to note with these examples that while the individuals are retreating, the existing assets (e.g. homes and infrastructure) remain within these low-lying vulnerable coastal areas. At some point in the future, the only realistic coastal management option may be wholesale retreat of some coastal communities, including people and assets. However, while there remains a generally strong and active coastal property market, many existing residents and potential buyers are happy to live by the sea and are prepared to accept a higher tolerance to coastal hazards – for now. This may be a benefit to the wider community where coastal property ownership shifts to individuals with a willingness and ability to absorb retreat costs, including the decline in asset value and eventual loss of the asset – providing they do not seek to pass this cost onto the wider community over time.

Case Study 8 details the planned retreat of the Motueka wastewater treatment plant (over page).

## 5.6 We Want Your Feedback on These Options

The conversations we are having now are at a regional level, to understand the range of possible coastal management options. We are seeking your feedback to understand:

1. your views on each of the four groupings of high-level options; and
2. if there are alternative options or ideas for coastal management that we should consider.

This will ensure that we avoid narrowing down the options too early in the process to develop our long-term adaptive planning for sea level rise and coastal hazards.

Your feedback may cover:

- Which options you do or do not support
- The challenges or opportunities with an option(s)
- General feedback to inform a district-wide approach for coastal management, or specific feedback relating to a local area or site
- Other options and ideas for coastal management that we haven't identified.
- Suggestions on what combination of options may be appropriate or the staging of options over time.

Go to [tasman.govt.nz/coastal-management](https://tasman.govt.nz/coastal-management) and fill out the feedback form to let us know your views, thoughts, ideas and preferences. You only need to fill out the parts of the survey that you are interested in. Feedback closes on Friday 15<sup>th</sup> October 2021.

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<sup>3</sup> See [Close to Home: Moving on or moving up as climate change looms](#), viewed on 09/07/21.

## **CASE STUDY 8: MANAGED RETREAT OF COUNCIL INFRASTRUCTURE – MOTUEKA WASTEWATER TREATMENT PLANT**

The Council has a risk, resilience and recovery planning work programme in place that focuses on the identification, planning and management of its critical infrastructure assets and lifelines. This ensures that Council, working in partnership with iwi/Māori and the community, can make robust decisions regarding the management of infrastructure assets over the longer term, taking into account the effects of climate change.

In December 2020, the Council published a report entitled 'Coastal Risk Assessment for Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua (December 2020)' which provides an initial overview of the Council's existing infrastructure assets that are located in low lying coastal locations and may be vulnerable to coastal storm inundation and sea level rise. More in-depth risk assessment work on the Council's infrastructure assets will be completed in the future to contribute to Council's infrastructure risk and resilience work programme.

The Motueka Wastewater Treatment Plant (WWTP) is an example of Council's work in planning for the managed retreat of a Council-owned infrastructure asset. The WWTP services Motueka, Riwaka and Kaiteriteri and is located near the coast adjacent to the Motueka River within an area expected to be vulnerable to coastal storm inundation under predicted sea level rise and river flooding. Rather than seeking to renew the WWTP's resource consents at its current location when they expire, Council is considering longer-term options to relocate the Motueka WWTP inland within 15 years. Staff are working with iwi and a working group to develop a site selection framework and will present a short list of sites and discharge options to the wider community in due course.



In July 2020, central government launched the 'Three Waters Reform Programme'. This programme proposes a voluntary reform of local government three waters services by establishing four new publicly-owned multi-regional entities that benefit from scale and operational efficiencies. These new entities will be tasked with continuing to build natural hazard resilience into the three waters networks, if they are established.

## 6. Factors That Influence Our Perspectives in the Decision-Making Process

### 6.1 Introduction

As we work towards long-term adaptive planning for sea level rise and coastal hazards, input will be required from a range of community interests. This section recognises there are a number of factors that will motivate and influence the perspectives of individuals within the decision-making process around the suitability of options. This is because coastal management is a complex, challenging and emotional topic that impacts on the places we live, work, play and value. The factors described in this section are: differences in risk perception and acceptability; differing values and competing interests; property values; property insurance; and who pays.

As part of the Council's community engagement in 2019, feedback was sought on what things the community values that may be affected by sea level rise and coastal hazards. Participants provided broad ranging comments on coastal hazards and sea level rise issues, with many responses displaying the motivations and behaviours that are outlined in the examples in this section. The community feedback report (December 2019) can be viewed on the Council's website at [tasman.govt.nz/coastal-management](https://tasman.govt.nz/coastal-management).

### 6.2 Differences in Risk Perception

Understanding what level of risk our communities are prepared to live with will be important in shaping our options for coastal management (refer to Appendix A for the definition of risk). To help with risk management, risk can be categorised into the following:

- **Acceptable:** part of daily life – these things happen
- **Tolerable:** when it's awful but you know that your family and the community can recover from it in time
- **Intolerable:** NO WAY – risk is so great that it can't be justified (BOP Regional Council, 2014)

An individual's appetite for risk can vary greatly, as what one person perceives as being an acceptable risk may be quite different to someone else's perception (e.g. intolerable). The MfE 2017 Guidance identifies that depending on how the magnitude and immediacy of the risk is perceived, this will drive behaviours within communities.

An individual's risk perception could be based on a range of factors or circumstances. For example, a beachfront property owner who may have current issues with coastal hazards would have a high and immediate sense of risk and would demonstrate a strong desire to protect their property. Conversely, someone living further back from the beach may experience far less urgency and express a greater degree of ambivalence around if, how and when to act (MfE 2017 Guidance). Feedback from the Council's 2019 community engagement identified that some participants had a sense of urgency to act in response to existing coastal erosion issues. For example, comments included that it is a 'basic right' for residents to protect themselves and it is a primary duty of the Council to make this protection possible, and that the Council should spend more on hard protection (e.g. sea walls).

As with other human behaviours, an individual's perception of risk can change over time depending on their experiences (e.g. they have been affected by a natural hazard event), their understanding (e.g. better knowledge of natural hazards and the potential risk), or other personal circumstances. There may also be a difference between an individual's risk perception and a group or community perception (e.g. a 'mob or herd mentality'). For example, an individual might have one perception

that relates to their own personal circumstances but may be swayed by a group majority at a community or regional level which may differ in their individual views.

### 6.3 Differing Values and Competing Interests

Our coastal environment holds significant environmental and cultural values, provides employment and economic opportunities, numerous recreational activities and experiences, as well as being a great place to live. There will be a range of values that individuals hold for the coastal environment that may be vulnerable to coastal hazards and rising sea levels.

Depending on what is valued and what is at stake, there may be a range of responses from individuals, groups and communities when considering options for coastal management. Responses may be expressed by supporting a particular coastal management option or 'solution', questioning the technical evidence/science, the process, or the perceived nature of the threat (MfE 2017 Guidance).

Competing interests may also arise when individuals or groups rank values differently. For example, protecting private property with a sea wall versus sand-push ups and plantings to enable a natural buffer. Competing interests may influence or cause conflict within the decision-making process for prioritising coastal management options. This can be a common problem when dealing with complex resource management issues.

### 6.4 Property Values

Since the middle of the 20<sup>th</sup> century there has been active real estate investment in coastal development. While the attraction of coastal property began for lifestyle reasons, over time the demand for such property has resulted in increased property values and expectations of future capital gain have become increasingly important (Turbott, 2006). For many New Zealanders, purchasing a home is the largest financial investment that they will make over their lifetime. Properties and houses provide financial security and are often seen as a 'nest egg' for retirement and/or an inheritance asset to provide for family in the future.

Anecdotal evidence suggests recent natural hazard events (e.g. ex-tropical cyclones Fehi and Gita in 2018), have had little impact on the coastal property market in our District. Additionally, the publication of the Council's *coastal hazard map viewer* has not affected property values, or at least not to the extent that values have ceased to increase over time (Stuff, 2020).

When considering options for coastal management, the financial implications for some coastal property owners will be a key driver for their behaviours, decision-making, and perceptions of risk. Some owners will have the financial freedom to be able to pay for any damages to their homes and other assets as a result of a natural hazard event(s) in the short to medium term, or be able to afford the financial loss and 'walk away' from their asset if and when required. Conversely, most property owners will not have such financial freedom and will be reliant on a mix of insurance or local/central government funding options, if these are available. In the future, the availability of property insurance may have the biggest impact on property values given insurance is generally required for raising a mortgage on property (see Section 6.5 below for further discussion on this).

### 6.5 Property Insurance

Natural hazard events cost New Zealanders millions of dollars every year. Compared to other countries, New Zealand property is extremely well insured which means that the insurance industry bears most of the costs when a natural hazard event occurs. For example, nationally there were

3,750 claims covering in total \$45.9 million of insured losses associated with ex-tropical Cyclone Fehi in 2018 (ICNZ, 2021).

When the Council releases new natural hazards information, staff are often asked what are the implications of this new information on obtaining insurance or for insurance premiums. The Council is not able to advise on the implications, rather this question needs to be directed to the relevant insurance company. However, staff are aware that the insurance industry uses local government-produced natural hazards data, along with their own assessments, to quantify natural hazard risk to help determine insurance coverage and/or premiums.

The relationship between natural hazards and property insurance is complex, with wider implications in relation to mortgages. In New Zealand, most banks will not lend mortgages to customers unless the house is insured. While mortgages can often last between 25 – 30 years, insurance premiums are set annually and can rise from one year to the next. Homes damaged from natural hazard events or homes that become increasingly vulnerable to natural hazards will become expensive to insure. When an insurance provider calculates that it is too costly to insure a property (as they would have to pay out more than what they would earn), they may decide the house is ‘uninsurable’ and stop offering renewal of existing coverage or declining a new application for insurance – this is known as ‘insurance retreat’ (DSC, 2020; Storey *et al*, 2020). For example, following the 2016 Kaikoura earthquake, some Wellington insurance providers have taken a more conservative approach in response to the region’s seismic hazards, increasing premiums and declining applications for insurance coverage from some new customers (Stuff, 2019).

A key implication of insurance retreat is that if a homeowner can no longer get insurance, then they will likely be in technical default on their mortgage (DSC, 2020). Additionally, if a homeowner is looking to sell their property, the pool of potential buyers will be restricted to those that do not require mortgages to purchase. Recently published Deep South National Science Challenge research discusses the concept of ‘insurance retreat’ within the New Zealand context, identifying that a relatively small increase in sea level rise will likely cause at least partial insurance retreat for some coastal properties within 15 years (Storey *et al*, 2020).

## 6.6 Social Vulnerability and Inequalities

There is a growing body of research identifying that some individuals, groups, and communities will be more vulnerable to the effects of climate change. The *National Climate Change Risk Assessment for Aotearoa New Zealand Arotakenga Tūraru mō te Huringa Āhuarangi o Āotearoa* (2020) identifies that the ability of individuals to respond, adapt or cope with the hazards associated with the effects of climate change (e.g. flooding, sea level rise) is uneven due to existing social vulnerability and inequalities. The Assessment identifies some of these inequalities (referred to as ‘key sources of sensitivity to extreme climate events’) including socio-economic disparities between Māori and non-Māori communities, socioeconomic status, ethnicity, gender, age, disability, and other factors (e.g. risk perception, previous experiences, social networks, etc.). While some inequalities may already be present, changes to weather-related natural hazards and rising sea levels may exacerbate existing inequalities, or create new inequalities, as more individuals or communities become exposed (MfE, 2020).

Nationally there needs to be further discussion around how these social vulnerabilities and inequalities may be addressed within the affected communities. Any response is broader than the role that local government can play, requiring a coordinated response across a number of central government and local service providers.

## 6.7 Who Pays?

For any of the coastal management options identified in this report, there will be the question of 'who pays?'. Some coastal management options may only benefit a small number of people directly affected (e.g. a sea wall to protect a handful of private properties from localised coastal erosion) while other options will have wider community benefits (e.g. protecting a road that provides a key link between communities). The costs associated with coastal management is extremely complex and challenging and any options discussion either locally or nationally will need to consider a number of factors, for example:

- Use of private or public funds
- Financial viability of an option (e.g. costs versus benefit gained)
- Affordability and willingness of individuals, groups or communities to pay/fund
- Potential financial burden on future generation(s) by choosing a particular option
- Balance of individual or community benefits to any adverse effects on other properties, the environment, or wider community.

In particular, whether individual property owners are compensated as part of any retreat option, and if so, who buys out or compensates them, is a discussion needing to be led by central government. This has been signalled through the current reform of the RMA 1991, as the proposed Climate Adaptation Act is expected to address the legal and technical issues associated with managed retreat and funding and financing adaptation.

## 7. Next Steps

This report sets out a range of high-level options for coastal management in our District to respond to sea level rise and coastal hazards (coastal storm inundation and coastal erosion). Initially, it is important to look at each of these options at a regional level, to understand the range of possible coastal management responses. This will ensure that we avoid narrowing down the options too early in the process as we work towards long-term adaptive planning.

The options are grouped into four categories – accommodate, protect, avoid, and retreat. The options presented relate to both new development and intensification within existing developed areas.

Next steps in the Coastal Management Project will consider specific options and recommendations at the local level, in discussion with landowners and residents, iwi and our communities. To inform these conversations, we will need to:

- Summarise the feedback received from the community in relation to these high-level options.
- Continue to build an understanding what is valued by our community, particularly the range of special values that Te Tai Ihu iwi hold for our coastal areas.
- Develop Council and community objectives, which will inform and guide the identification of options.
- Understand what level of risk our communities are willing to live with – acceptable, tolerable or intolerable.
- Understand the range of options applicable in specific locations around Tasman, and their respective costs, benefits and potential adverse effects - and which are acceptable or not.

In addition to this work, it is recognised that there are currently two key central government-led pieces of work underway. These are the current reform of the RMA 1991, including the development of a Climate Adaptation Act; and the preparation of a National Adaptation Plan (due by

August 2022). The outputs of this national direction and guidance will inform future phases of the Coastal Management Project, including local level discussions on coastal management options.

Coastal management is a complex, challenging and emotive topic that impacts on the places that we live, work, play and value. Long-term adaptive planning work will take several years to complete and the community conversation will be ongoing.



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## APPENDIX A: Key Terms

The natural hazards and climate change topics are complex and include a wide range of terms and technical jargon. Some key terms relevant to this report and the discussion around high-level options are set out below.

### 1. Natural Hazards

The Resource Management Act 1991 (RMA 1991) defines natural hazards as being any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment as shown in Figure 2.

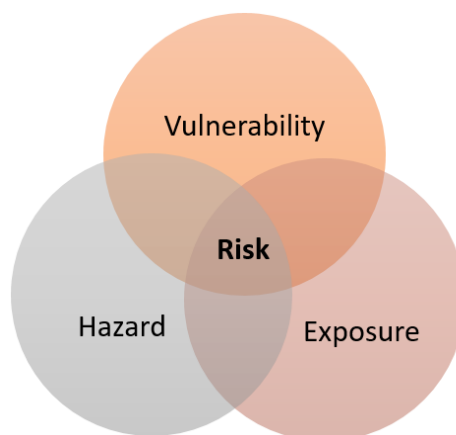


**Figure 2: A hazard involves an interaction between human life and property and natural events that could cause damage (Source: Auckland Council, 2014).**

The presence of a 'natural hazard' versus natural hazard 'risk' are two terms that are often mixed up/used interchangeably, however they mean different things. Risk is discussed below.

### 2. Risk

IPCC (2014) defines 'risk' as being the potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability, exposure, and hazard as shown in Figure 3.



**Figure 3: Definition of Risk = Hazard + Exposure + Vulnerability (adaptive capacity + sensitivity) (Source: IPCC, 2014)**

An example of natural hazard 'risk' is a coastal storm event along a coastline. The storm event becomes a hazard when people and buildings (or other things we value) are affected by seawater inundation. If people are able to evacuate before seawater inundates their houses, their exposure, and therefore their risk, is low. Given that most buildings are permanent and cannot be easily moved, their risk from seawater inundation would be high. The level of risk for affected buildings depends on the characteristics of the coastal storm event (e.g. storm surge, wave runup and setup) and the vulnerability of individual buildings (e.g. building design such as raised floor levels; and building materials). Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC, 2014). In this example, both the buildings and people are affected by the same hazard, but there is a difference in the level of risk they are each subject to. A risk eventuates when elements (e.g. human life and property) are vulnerable and are exposed to a hazard. Risk can be described quantitatively (e.g. dollar losses, fatalities) or qualitatively (e.g. minor, moderate, severe), and incorporates the likelihood of a particular hazard event impacting elements at risk (e.g. people, property, assets, infrastructure, etc) (Auckland Council, 2014).

### 3. Climate Change Mitigation

Climate change mitigation means actions that help to slow and lessen global warming, focusing on reducing greenhouse gas emissions. There are a range of actions that individuals and communities can do to reduce their emissions including using sustainable modes of transport (e.g. electric vehicles, bikes, walking), energy efficiency and energy conservation in buildings, composting green waste, recycle and reuse to reduce waste to landfill, planting trees, etc.

### 4. Adaptation

Adaptation is about taking action and getting prepared for both the current and future effects of climate change (e.g. sea level rise, and more frequent and intense weather-related natural hazard events), to prevent or minimise the damage they can cause. It also means thinking ahead to how we can make the most of any potential opportunities associated with a changing climate. The coastal management options presented in Section 5 present a range of adaptation responses. The IPCC (2014) highlights that adaptation will be necessary to address climate change impacts resulting from the warming that is already unavoidable due to past greenhouse gas emissions.

### 5. Resilience

The term 'resilience' can apply in a wide range of contexts. In relation to natural hazards and climate change effects, resilience is the ability to anticipate and resist these disruptive events, minimise adverse impacts, respond effectively, maintain or recover functionality and adapt in a way that allows for learning and thriving. In essence, it is about developing a wide zone of tolerance – the ability to remain effective across a range of future conditions (MCDEM, 2019). Building national resilience is the key goal of the Ministry for Civil Defence & Emergency Management's *National Disaster Resilience Strategy Rautaki ā-Motu Manawaroa Aituā* (2019) which identifies three priorities and a number of objectives to improve New Zealand's resilience to disasters.

## APPENDIX B: Legislative Framework

This appendix sets out the current and proposed legislative framework for natural hazards management and responding to climate change. It sets the context for considering high-level options for coastal management which is discussed in Section 5.

### 1.1 Existing Legislative Framework

The existing legislative framework requires the Council to identify, and avoid or mitigate natural hazards, as summarised below.

#### 1.1.1 Resource Management Act 1991

Under the RMA 1991, councils must recognise and provide for the management of significant risks from natural hazards (s.6(h)) and all decisions must have particular regard, amongst other things, to the effects of climate change (s.7(i)). Through the Tasman Resource Management Plan (TRMP), the Council administers and regulates activities such as subdivision and land uses and manages the land-coastal interface.

#### *New Zealand Coastal Policy Statement 2010*

In addition to Section 6 and 7 matters as set out in the RMA 1991, regional policy statements, regional plans and district plans are required to give effect to national policy statements including the New Zealand Coastal Policy Statement 2010 (NZCPS).

NZCPS Objective 5 seeks to ensure that the management of coastal hazards is risk based and takes account of climate change. It requires proactive management: locating new development away from hazard prone areas; considering managed retreat for existing hazard-prone development; and protecting and restoring natural defences. This objective primarily gives rise to Policies 24 – 27, which are summarised as follows (see Appendix C for the full text):

- Policy 24 lays the foundation for risk-based coastal hazard management and requires councils to identify coastal areas that will be potentially affected by coastal hazards over at least the next 100 years.
- Policy 25 sets the policy framework for planning decisions for land use and development in areas potentially affected by coastal hazards, with an emphasis on avoidance and reduction of risks.
- Policy 26 addresses the management of natural coastal landforms/features that provide natural defences (e.g. beaches, estuaries, dunes) and promotes the use of natural defences against coastal hazards.
- Policy 27 addresses areas with significant existing development and encourages councils to develop sustainable risk-reduction strategies to protect these areas from coastal hazard risks.

Other policies within the NZCPS also apply and may affect how our coastlines are managed. The NZCPS provides directive guidance on the appropriateness of some coastal management options and this is discussed in Section 5.

#### *Tasman Regional Policy Statement and Tasman Resource Management Plan*

Councils must give effect to the RMA 1991, the NZCPS and other national direction through their regional policy statement and resource management plans. The TRMP has been subject to a number of 'rolling review' plan variations/changes since being notified (1996) and made operative (in staged parts over a number of years since 2008), but no district-wide coastal hazard planning review has been undertaken to date. Location-specific changes to the TRMP have been introduced to manage coastal hazards, including Plan Change 22 (Mapua/Ruby Bay) and Plan Change 10 (Richmond West).

In November 2018, Council resolved to undertake a review of its suite of resource management plans and develop a second generation resource management plan, known as the Aorere ki uta Aorere ki tai - Tasman Environment Plan. Work to date has focussed on preparation of efficiency and effectiveness evaluations for the TRMP (known as s35 reports), and community engagement on identification of high level planning issues and opportunities. Given the pending resource management system reform, the ultimate form and content of the plan will be better understood later this year once more details of the reform are made known (see Section 2.2). Further information on the development of the Tasman Environment Plan is available on the Council's website (<https://www.tasman.govt.nz/my-council/projects/tasman-environment-plan/>).

### 1.1.2 Climate Change Response Act 2002

The Climate Change Response Act 2002 established an institutional and legal framework to enable New Zealand to meet its international climate change obligations. The Act has been amended a number of times, with the most recent being the Climate Change Response (Zero Carbon) Amendment Act 2019. This amendment established a number of requirements including targets to reduce net carbon emissions to zero by 2050, establishment of a Climate Change Commission, preparation of a national climate risk assessment (every six years), and followed by a national adaptation plan.

The first *National Climate Change Risk Assessment for New Zealand Arotakenga Tūraru mō te Huringa Āhuarangi o Āotearoa* was published in August 2020. It identifies 43 priority risks across five value domains (natural environment, human, economy, built environment and governance) and highlights the 10 most significant risks. The risk assessment will enable central government to prioritise action, including through a National Adaptation Plan (MfE, 2020). MfE is currently working on the first National Adaptation Plan which will outline what is needed to be done to respond to the risks, and will be published by August 2022. At the time of writing, it is not clear what the form or outputs of the plan may be or the role of local government in plan implementation. However, it is acknowledged that the National Adaptation Plan may have a key role in guiding future steps in the Coastal Management Project where relevant.

### 1.1.3 Other Legislation

The Council is required to identify and/or manage the risk of natural hazards through a range of other Council functions and statutory requirements, including:

- administration of building consents and making natural hazard information available to the public via Project Information Memorandum (Building Act 2004)
- making existing natural hazard information available to the public via Land Information Memorandum (Local Government Official Information and Meetings Act 1987)
- managing infrastructure assets (Local Government Act 2002)
- civil defence responsibilities (Civil Defence Emergency Management Act 2002)

## 1.2 Resource Management System Reform

Central government is currently reforming the resource management system and proposes to repeal the RMA 1991. One of the five objectives of the reform, which is key to this Coastal Management Project, is to provide new legislation that will enable New Zealand to better prepare for adapting to climate change and risks from natural hazards, and better mitigate emissions contributing to climate change.

In June 2020, the outcomes of an independent review of the resource management system was published, entitled '*New Directions for Resource Management in New Zealand*' (also known as the

Randerson Report). The report outlined a number of recommendations, with the review panel highlighting that climate change needs to be considered more strongly across the whole resource management system to strengthen climate outcomes that provide the necessary mechanisms to achieve these outcomes and to establish clear mandates, roles and responsibilities (Shaw, 2020). It is proposed that the RMA 1991 will be replaced with three new pieces of legislation, being:

- **Natural and Built Environments Act (NBA)**

The purpose of the NBA is to enhance the quality of the environment to support the wellbeing of present and future generations, and is the core piece of legislation to replace the RMA 1991. This Act will include a new 'national planning framework', providing a set of mandatory national policies and standards, including environmental natural limits, outcomes and targets. At the time of writing an 'exposure' draft of the NBA had been release for consultation, providing an early look at key aspects of the legislation. The draft NBA requires that the national planning framework and all plans must promote a number of environmental outcomes – the outcomes relating to natural hazards and climate change are: (i) the significant risks of both are reduced; and (ii) the resilience of the environment to natural hazards and the effects of climate change is improved.

- **Strategic Planning Act (SPA)**

The SPA will provide a strategic and long-term approach to how we plan for using land and the coastal marine area. It is proposed each region would develop a long-term spatial strategy to enable more efficient land and development markets to improve housing supply, affordability and choice, and climate change mitigation and adaption.

- **Climate Adaptation Act (CAA)**

The 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 and funding and financing adaptation.

It is proposed that the NBA and SPA will be passed into law in this parliamentary term (e.g. by the end of 2022), and the CAA will be progressed in this time too. The information above is sourced from MfE's website<sup>4</sup> unless otherwise stated.

This reform proposes significant and fundamental changes to resource management in New Zealand. The proposed changes will ensure that the resource management legislative framework is fit for purpose and ultimately, ensure that our communities are resilient in the face of natural hazards and climate change risks. The forthcoming legislation is likely to significantly influence future steps in the Coastal Management Project.

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<sup>4</sup> Viewed on 12/07/20. (<https://environment.govt.nz/what-government-is-doing/key-initiatives/resource-management-system-reform/overview/#the-way-forward-for-reform>).

## Appendix C: New Zealand Coastal Policy Statement 2010

This appendix sets out Objective 5 and Policies 24 to 27 of the [New Zealand Coastal Policy Statement 2010](#), as it relates to the management of coastal hazards and responding to sea level rise.

### Objective 5

To ensure that coastal hazard risks taking account of climate change, are managed by:

- locating new development away from areas prone to such risks;
- considering responses, including managed retreat, for existing development in this situation; and
- protecting or restoring natural defences to coastal hazards.

### Policy 24: Identification of coastal hazards

1. Identify areas in the coastal environment that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high risk of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:
  - a. physical drivers and processes that cause coastal change including sea level rise;
  - b. short-term and long-term natural dynamic fluctuations of erosion and accretion;
  - c. geomorphological character;
  - d. the potential for inundation of the coastal environment, taking into account potential sources, inundation pathways and overland extent;
  - e. cumulative effects of sea level rise, storm surge and wave height under storm conditions;
  - f. influences that humans have had or are having on the coast;
  - g. the extent and permanence of built development; and
  - h. the effects of climate change on:
    - i. matters (a) to (g) above;
    - ii. storm frequency, intensity and surges; and
    - iii. coastal sediment dynamics;taking into account national guidance and the best available information on the likely effects of climate change on the region or district.

### Policy 25: Subdivision, use, and development in areas of coastal hazard risk

In areas potentially affected by coastal hazards over at least the next 100 years:

- a. avoid increasing the risk of social, environmental and economic harm from coastal hazards;
- b. avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards;
- c. encourage redevelopment, or change in land use, where that would reduce the risk of adverse effects from coastal hazards, including managed retreat by relocation or removal of existing structures or their abandonment in extreme circumstances, and designing for relocatability or recoverability from hazard events;
- d. encourage the location of infrastructure away from areas of hazard risk where practicable;
- e. discourage hard protection structures and promote the use of alternatives to them, including natural defences; and
- f. consider the potential effects of tsunami and how to avoid or mitigate them.



**Policy 26: Natural defences against coastal hazards**

1. Provide where appropriate for the protection, restoration or enhancement of natural defences that protect coastal land uses, or sites of significant biodiversity, cultural or historic heritage or geological value, from coastal hazards.
2. Recognise that such natural defences include beaches, estuaries, wetlands, intertidal areas, coastal vegetation, dunes and barrier islands.

**Policy 27: Strategies for protecting significant existing development from coastal hazard risk**

1. In areas of significant existing development likely to be affected by coastal hazards, the range of options for reducing coastal hazard risk that should be assessed includes:
  - a. promoting and identifying long-term sustainable risk reduction approaches including the relocation or removal of existing development or structures at risk;
  - b. identifying the consequences of potential strategic options relative to the option of “do-nothing”;
  - c. recognising that hard protection structures may be the only practical means to protect existing infrastructure of national or regional importance, to sustain the potential of built physical resources to meet the reasonably foreseeable needs of future generations;
  - d. recognising and considering the environmental and social costs of permitting hard protection structures to protect private property; and
  - e. identifying and planning for transition mechanisms and timeframes for moving to more sustainable approaches.
2. In evaluating options under (1):
  - a. focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions;
  - b. take into account the nature of the coastal hazard risk and how it might change over at least a 100-year timeframe, including the expected effects of climate change; and
  - c. evaluate the likely costs and benefits of any proposed coastal hazard risk reduction options.
3. Where hard protection structures are considered to be necessary, ensure that the form and location of any structures are designed to minimise adverse effects on the coastal environment.
4. Hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so.

## Appendix D: Tasman District Council's Coastal Protection Policy

Extract from Tasman District Council's Coastal Asset Activity Management Plan 2021 (pages 28-29):

### 3.7 The Council's Coastal Protection Policy

An increasing number of storm events in the district have caused considerable damage and erosion along parts of the Tasman coastline. Community expectations for the Council to protect private property is unaffordable, so an interim policy statement was developed while the Council works towards long-term adaptive planning for sea level rise and coastal hazards through the 'Coastal Management Project – Responding to Climate Change' work programme. The Council is developing a policy on Coastal erosion protection structures on the Council's reserve land. This policy provides guidance on the process and considerations involved when a private landowner wishes to establish a coastal erosion protection structure on the Council administered reserve land. A broader-reaching Council policy around coastal protection is still in draft form at the time of writing this activity management plan.

The Council's interim position statement is:

- The Council will maintain or repair only existing Council-owned coastal protection structures (CPS) (subject to a review of economic benefit and affordability and compliance with New Zealand Coastal Policy Statement (NZCPS) and the Tasman Resource Management Plan (TRMP)).
- The Council will consider new investment in coastal protection works only where there are substantial Council-owned capital works, assets or infrastructure at risk and it is impracticable to relocate the Council assets (subject to compliance with the NZCPS and the (TRMP). This coastal protection policy relates to the protection of all vulnerable Council-owned assets regardless of which activity management plan is responsible for the structure except for the Council administered reserve land.
- The Council will not invest in or maintain any new Council-owned coastal structures or works to protect private property, nor will it accept responsibility for repair or maintenance of existing private coastal works.
- The Council will only give consideration to allow any privately funded construction of shoreline protection structures on the Council-owned land, for the purposes of protecting the Council-owned land or private property, where a proposal is substantially compliant with the objectives and policies of the NZCPS and objectives, policies and rules of the TRMP, and the Council's Reserves General Policies document. In any event, the Council retains complete discretion regarding authorisation of private structures on the Council-owned land.