

7. Establishment of the Coastal Hazards Adaptation Planning programme

Reference / Te Tohutoro: 20/1114825

Report of / Te Pou
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1. Purpose of the Report / Te Pūtake Pūrongo

- 1.1 The purpose of this report is to seek formal endorsement for the establishment of the Coastal Hazards Adaptation Planning (CHAP) programme of work within Council. The general approach and key milestones are outlined; and a Council committee decision is also sought on the first tranche of communities for adaptation planning.
- 1.2 The recommendations within this report have been tested and endorsed through the governance oversight provided by the Coastal Hazards Working Group (CHWG).¹
- 1.3 The decisions in this report are of medium to high significance in relation to the Christchurch City Council's Significance and Engagement Policy.

2. Officer Recommendations / Ngā Tūtohu

That the Urban Development and Transport Committee:

1. Endorse the establishment of the Coastal Hazards Adaptation Planning programme to undertake adaptation planning collaboratively with communities that will be impacted in the future by sea level rise through coastal erosion, coastal inundation, and rising groundwater.
2. Note that the programme will initially focus on the delivery of an updated Coastal Hazards Assessment and the development of a strategic Options Assessment Framework, and that these will form the basis of district-wide community engagement to understand the nature of the hazards and inform the adaptation planning approach to addressing these.
3. Agree that adaptation planning will be initiated with the first tranche of communities in the Lyttelton-Mt Herbert Adaptation Area.

3. Reason for Report Recommendations / Ngā Take mō te Whakatau

- 3.1 The establishment of the CHAP programme is the Council's comprehensive and long-term response to the challenges the Christchurch district faces as a result of coastal hazards caused by climate change and sea level rise. Council endorsement of this programme of work will provide the necessary mandate for staff to progress this complex programme.

¹ The Coastal Hazards Working Group was established on 13 August 2020 to report to the Urban Development and Transport Committee of the Whole and to provide oversight of the CHAP programme and the proposed Plan Change – New Zealand Coastal Policy Statement Alignment (hazards). The CHWG is comprised of eight elected members of Council, two elected members from Environment Canterbury and two Ngāi Tahu representatives.

- 3.2 The CHWG has received a series of briefings outlining the proposed approach and phasing for this programme of work, as well as options for the ‘first tranche’ communities to undertake adaptation planning.
- 3.3 The recommendation to initiate adaptation planning in the Lyttelton -Mt Herbert communities was based on an analysis of the following considerations:
- an analysis of the areas in the district with relatively higher levels of hazard imminence and hazard exposure – the areas where coastal hazards will impact first and where they will impact the most.
 - engagement readiness – areas that are not awaiting resolution of earthquake legacy issues and that have indicated receptiveness to conversations about coastal hazards.
 - the existence of a diverse range of factors that allow us to pilot our proposed approach and processes – for example urban and rural areas, areas with a mix of built, cultural, economic, social and ecological values, and infrastructure dependencies such as roading.

4. Alternative Options Considered / Ētahi atu Kōwhiringa

- 4.1 The following alternatives were considered and are not recommended as first tranche communities but are recommended to form the basis of the second and third tranches of adaptation planning:
- 4.1.1 The Open Coast Adaptation Area from Southshore to Rawhiti is an area of high exposure and high awareness. However, it is not recommended as the first tranche due to clear advice from the Southshore and South New Brighton communities that earthquake legacy issues must be resolved first. While a report to Council is due on 12 November 2020 and will recommend works to resolve these legacy issues, it is unlikely that works will be physically completed by mid-2021 when first tranche engagement on adaptation planning is intended to start. It is also recognised that the scale of existing development in exposed areas makes it difficult to trial and test the process in this Adaptation Area.
- 4.1.2 The Brooklands community is an area of high imminence. However, it is not recommended as a first tranche due to the low population and limited ability to pilot Council’s proposed approach in that area. This area also has earthquake legacy and red zoning issues, and the Community Board are working with the community to develop a community led action plan (for potential inclusion in the 2021 LTP).
- 4.1.3 The Estuary to Sumner Adaptation Area is an area of high exposure. However, it is not recommended as the first tranche due to the scale of existing development in exposed areas which makes it difficult to trial and test the process. In addition, the mitigation offered by existing coastal defences reduces the short term urgency, while recognising that it is still important to undertake adaptation planning for this area in the near future.

5. Detail / Te Whakamahuki

Sea level rise, coastal hazards, and Council responses

- 5.1 New Zealand is experiencing the first impacts of climate change, with sea levels projected to rise by around 370 mm within 30 years and just over a metre by 2100.² Low lying coastal and inland communities in Christchurch will be impacted by more frequent flooding and ponding, rising groundwater, and increased coastal inundation and erosion.

² *Coastal Hazards and Climate Change; Guidance for Local Government*, Ministry for the Environment (2017).

- 5.2 Communities are rapidly becoming aware of these hazards through the increased impacts of storm events, and through media and political debate. Increasingly, communities are looking to Council for leadership to address concerns about their uncertain future. A climate change survey by IAG³ in 2020 found that 86 percent of those surveyed agreed that sea level rise would lead to inundation of coastal areas, with 65 percent expecting to see climate change action from local government.
- 5.3 The New Zealand Coastal Policy Statement requires local authorities to plan ahead for coastal hazards and consider a range of options in existing developed areas.
- 5.4 In response to these drivers, this report updates Council on the initiation of the CHAP programme, which involves adaptation planning with coastal communities (with input from the wider city) to understand and develop responses to sea level rise and associated coastal hazards.
- 5.5 The Ministry for the Environment (MfE) has issued 'Coastal Hazards and Climate Change Guidance for Local Government' (2017) which sets out a ten-step process of structured engagement that builds increased awareness of the impacts of sea level rise and leads to the development of community-led adaptation plans that consider the social, cultural, natural and built environments.
- 5.6 Adaptation plans will identify community values and objectives and agree on a range of options and pathways that are adjusted over time to respond to the impacts of sea level rise, enabling communities and Council to prepare for the future in times of uncertainty without acting too pre-emptively or with undue delay.
- 5.7 Over time, the implementation of community-led adaptation plans will have significant implications for the city's infrastructure, District Plan, population movement and distribution, natural environment, and the ways that communities and Council manage the impacts of sea level rise.
- 5.8 Because the MfE guidance does not recognise the ongoing impact of earthquake legacy issues on Christchurch communities, it will be critical to build in consideration of psychosocial wellbeing and support throughout the process from the way in which scientific findings are communicated to the ways in which engagement occurs. Early advice received from Dr Rob Gordon (psychologist and international disaster recovery expert) recommends reducing uncertainty by moving actively into adaptation planning, making the risks real, and supporting and empowering the community through the process.

Identifying and grouping communities and selecting the first tranche for adaptation planning

- 5.9 Step 1 of the MfE guidance focuses on preparation and context for the adaptation planning process, and refers to geographically defining adaptation areas and where to start adaptation planning, i.e. characterising and subdividing the coastal area, prioritising areas at risk, and considering other factors such as readiness and ability to test the approach.
- 5.10 Because the timing and severity of sea level rise impacts will vary across the district there is time for adaptation planning to occur in tranches. This also better recognises the diversity of communities and the different approaches that may best suit each community.
- 5.11 Council staff have contracted Royal Haskoning DHV to provide best practice adaptation advice, based on their national and international experience in this field. Royal Haskoning DHV are an international engineering and project management consultancy with extensive

³ <https://www.iag.co.nz/latest-news/articles/Climate-poll-2020.html>

experience in coastal management, hazard assessment, and adaptation planning. They have provided the following recommendations on how best to approach this programme of work:

- Phase adaptation to allow resources to be managed and lessons to be learned, and to recognise and respond to the differences between communities
- Take a tiered approach by defining sub-areas that have linked coastal processes, and ensure they are of a size and scale that is manageable and pragmatic. Prioritise communities within these sub-areas on the basis of risk or readiness.

5.12 In response, Council staff undertook a quantitative assessment of risk and a qualitative assessment of readiness with input from coastal Community Boards, Environment Canterbury and Mahaanui Kurataiao Limited and established:

- seven **Adaptation Areas** which are large sections of the coast and low lying inland areas likely to be affected by coastal hazards with similar coastal processes and/or dependencies such as infrastructure, access, community services, and land use. Each Adaptation Area will be made up of individual communities, across which, the objectives for coastal adaptation and management should be consistent (and also cognisant of the objectives for adjacent Adaptation Areas).
- 23 **Priority Communities** (within Adaptation Areas) with higher risk from coastal hazards as a result of hazard significance and consequence, where coastal adaptation policy will be assessed as a priority.
- five **Access Dependent Communities** (within Adaptation Areas) are not Priority Communities in themselves, but are linked to Priority Communities through a reliance on shared transport routes.

5.13 The attached A3 summarises the results of this exercise and provides an indication of the areas at greatest risk and the extent of the hazard impacts in the next 100 years. The hazards data captured in these maps will be updated with the results of the updated Coastal Hazards Assessment once completed (see p.5.19 below).

Proposed programme approach

5.14 The CHAP programme purpose is to provide communities and the Council with adaptive pathways that allow us to plan for, and respond to, coastal hazards.

5.15 The programme scope is to undertake adaptation planning with low-lying inland and coastal communities in Christchurch city and Banks Peninsula that are likely to be impacted by sea level rise through coastal inundation, coastal erosion and rising groundwater.

5.16 The programme objectives are:

- To undertake coastal hazards adaptation planning with communities that will be impacted by sea level rise due to coastal inundation, coastal erosion and rising groundwater.
- For Council to provide clear and consistent direction and leadership in alignment with national direction and international obligations, and with regard to the principles of the Treaty of Waitangi.
- To establish inclusive and equitable planning and decision-making processes that support community wellbeing.
- To develop community-led adaptation plans that allow Council and communities to respond to changes over time.

- To ensure communities, critical infrastructure and the built environment are safer and more resilient to the effects of coastal hazards.
- To consider the impacts of any decisions on the natural environment, and to minimise or mitigate any negative impacts where possible.
- To increase community and Council awareness and monitoring of coastal hazards.

5.17 The proposed programme is spread across three phases as set out in the table below.

Phase	Key Milestones
<p>Phase One: Programme Initiation (1 year) Establish team, identify resources, develop programme approach.</p>	<ul style="list-style-type: none"> • Establish Project Team and contract adaptation expertise. • Scope and commission key deliverables (i.e. foundation documents). • Establish a governance working group (CHWG). • Initiate community science projects. • Develop proposed process including engagement and decision-making steps. • Identify the first tranche of communities for Phase Three adaptation planning. • Agree the engagement approach.
<p>Phase Two: City-wide Education and Awareness Phase (6 months) Build community awareness of the hazards, seek whole district input to the proposed process.</p>	<ul style="list-style-type: none"> • Finalise and publically release foundation documents: <ul style="list-style-type: none"> • Baseline Information Document • Coastal Hazards Assessment • Options Assessment Framework • Seek feedback on the Options Assessment Process and funding principles. • Prepare for Phase Three engagement – agree rūnanga engagement and appoint Coastal Panel.
<p>Phase Three: Collaborative Adaptation Planning with Communities (1.5 years) Undertake adaptation planning with the first tranche of communities.</p>	<ul style="list-style-type: none"> • Engage with the community to build awareness of the hazards information, identify community values and assets, and identify any additional community options for short-listing. • Over a series of steps the Coastal Panel (with support from specialists and input from rūnanga) undertakes short listing, identifies triggers, and develops adaptation pathways. These are tested with the community and formalised through Council decisions.

5.18 The programme is reliant on building awareness of the hazards across communities. It is also important to establish a strong process and approach that has endorsement from the wider district, in recognition that adaptation planning will have implications for all ratepayers, but has much greater personal and financial significance for the affected communities.

5.19 The foundation documents for this programme are:

- The **Baseline Information Documents** will set out the existing natural, cultural, social, economic and built values of the Adaptation Areas through the collation of existing information. It is important to note that community input will be needed to identify the social values in each community.
- The updated **Coastal Hazards Assessment** being delivered by Tonkin + Taylor will identify the potential extent and magnitude of coastal hazards (erosion, inundation and rising groundwater) and will quantify the likelihood of these occurring. It will include updated tidal and sediment data and will increase the geographic range (from the previous Tonkin + Taylor report) to include more locations within Banks Peninsula. It is being independently peer reviewed.
- The **Options Assessment Framework** will establish a strategic framework for adaptation options to guide community planning and to ensure that adaptation plans are acceptable and able to be implemented, and developed using a process that is consistent and equitable across communities.

5.20 Mahaanui Kurataiao Limited on behalf of Te Rūnanga o Ngāi Tahu and Papatipu Rūnanga and Environment Canterbury are supporting the development of these foundation documents.

Engagement

- 5.21 Engagement with a wide and diverse range of partners, stakeholders and communities is fundamental to the success of the programme. The CHWG and Council Project Team staff are aware of the importance of engaging early and broadly.
- 5.22 Particular emphasis needs to be placed on engaging with children and young people, in recognition of the fact that decisions that are made today will have significant implications for their future. Communities with low levels of awareness about coastal hazards and with fewer resources to respond must also be a key focus. It is important that a range of voices are heard.
- 5.23 The Project Team will work with the CHWG to develop an engagement strategy for each phase of the programme, based on the following principles:
- Providing fair, equitable and timely access to information
 - Being inclusive and reflecting diversity
 - Being open and honest in our communications
 - Involving people at the right time, and in the right way, in order to provide genuine opportunities for engagement.

Key partnerships

- 5.24 A collaborative approach will be critical to the success of this work programme. A significant partner for Council in this work is Te Rūnanga o Ngāi Tahu and Papatipu Rūnanga given the intrinsic values that Māori hold with whenua, wai and the environment. In recognition of this partnership, two rūnanga representatives are in the process of being appointed to the CHWG and all critical aspects of the work programme to date have had input from Mahaanui Kurataiao Ltd on behalf of Ngāi Tahu.
- 5.25 Alignment with coastal environment planning work led by Environment Canterbury is also critical and again two representatives of Environment Canterbury have joined the CHWG. Environment Canterbury has also provided significant staff input to support the development of the work programme to date and has contributed funding to the development of a Coastal Hazards Assessment.

- 5.26 Other partners include the University of Canterbury who are currently supporting the development of community science initiatives within the programme. We will also work closely with other Territorial Authorities to share our learnings and approach.

6. Policy Framework Implications / Ngā Hīraunga ā- Kaupapa here

Strategic Alignment / Te Rautaki Tīaroaro

- 6.1 The CHAP programme supports the Council's strategic priorities of enabling active and connected communities to own their future and meeting the challenge of climate change through every means possible.
- 6.2 This report supports the [Council's Long Term Plan \(2018 - 2028\)](#):
- 6.2.1 Activity: Strategic Planning and Policy
- Level of Service: 17.0.1.2 Advice to Council on high priority policy & planning issues that affect the City. Advice is aligned with & delivers on the governance expectations as evidenced through the Council Strategic Framework - Annual work programme aligned to Framework

Policy Consistency / Te Whai Kaupapa here

- 6.3 The decision is consistent with Council's Plans and Policies.

Impact on Mana Whenua / Ngā Whai Take Mana Whenua

- 6.4 Adaptation planning and the management of coastal hazards is of significant interest to Te Rūnanga o Ngāi Tahu and Papatipu Rūnanga due to the intrinsic values that Māori hold with whenua, wai and the environment. The inclusion of two Te Rūnanga representative on the CHWG acknowledges the importance of this relationship as does the partnership approach to the development of key strategic documents.

Climate Change Impact Considerations / Ngā Whai Whakaaro mā te Āhuarangi

- 6.5 The CHAP programme is a core programme under the Council's draft Climate Change Strategy under Goal 2: We understand and are preparing for the ongoing impacts of climate change.

Accessibility Considerations / Ngā Whai Whakaaro mā te Hunga Hauā

- 6.6 Access considerations are critical to the assessment and evaluation of options for adaptation planning and will be considered through input from representatives of the disability sector.

7. Resource Implications / Ngā Hīraunga Rauemi

Capex/Opex / Ngā Utu Whakahaere

- 7.1 Implementation costs through capital expenditure are depending on the development of finalised adaptation programmes and will occur in outyears.
- 7.2 Operational funding for the ongoing delivery of the CHAP programme will be sought through the Long Term Planning process.

8. Legal Implications / Ngā Hīraunga ā-Ture

Statutory power to undertake proposals in the report / Te Manatū Whakahaere Kaupapa

- 8.1 The planning described in this report is consistent with Council's statutory powers and responsibilities, in particular under the Local Government Act 2002 and the Resource Management Act 1991.

Other Legal Implications / Ētahi atu Hiraunga-ā-Ture

- 8.2 There is no legal context, issue or implication relevant to this decision.
- 8.3 This report has been reviewed and approved by the Legal Services Unit.

9. Risk Management Implications / Ngā Hiraunga Tūraru

- 9.1 A programme risk and issues register is in place and is being regularly reviewed.

Attachments / Ngā Tāpirihanga

No.	Title	Page
A ↓	A3 Adaptation Planning Map	21
B ↓	Royal Haskoning DHV short report - Initiating the Process	23

In addition to the attached documents, the following background information is available:

Document Name	Location / File Link
<enter document name>	<enter location/hyperlink>

Confirmation of Statutory Compliance / Te Whakatūturutanga ā-Ture

<p>Compliance with Statutory Decision-making Requirements (ss 76 - 81 Local Government Act 2002).</p> <p>(a) This report contains:</p> <ul style="list-style-type: none"> (i) sufficient information about all reasonably practicable options identified and assessed in terms of their advantages and disadvantages; and (ii) adequate consideration of the views and preferences of affected and interested persons bearing in mind any proposed or previous community engagement. <p>(b) The information reflects the level of significance of the matters covered by the report, as determined in accordance with the Council's significance and engagement policy.</p>

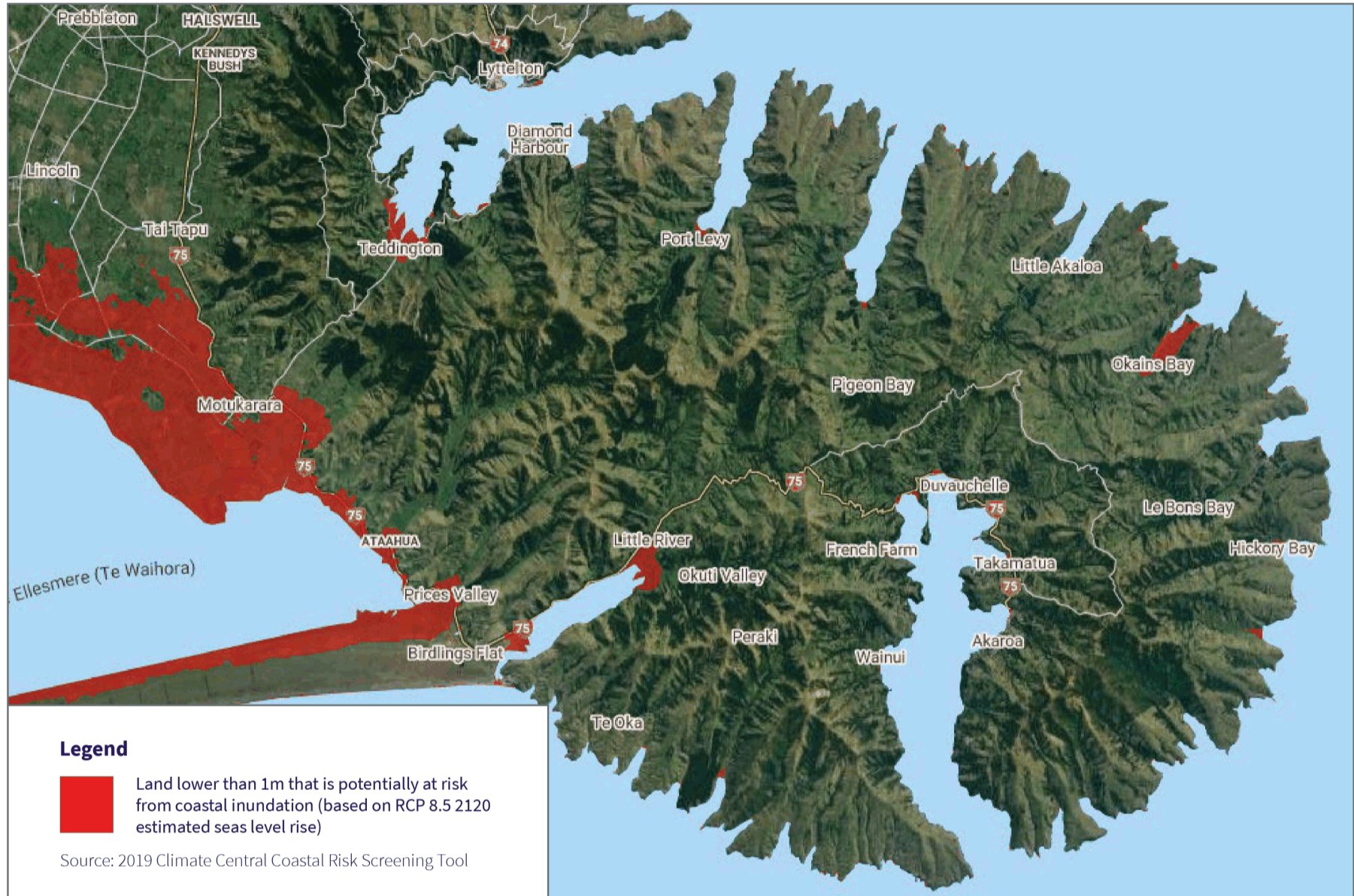
Signatories / Ngā Kaiwaitohu

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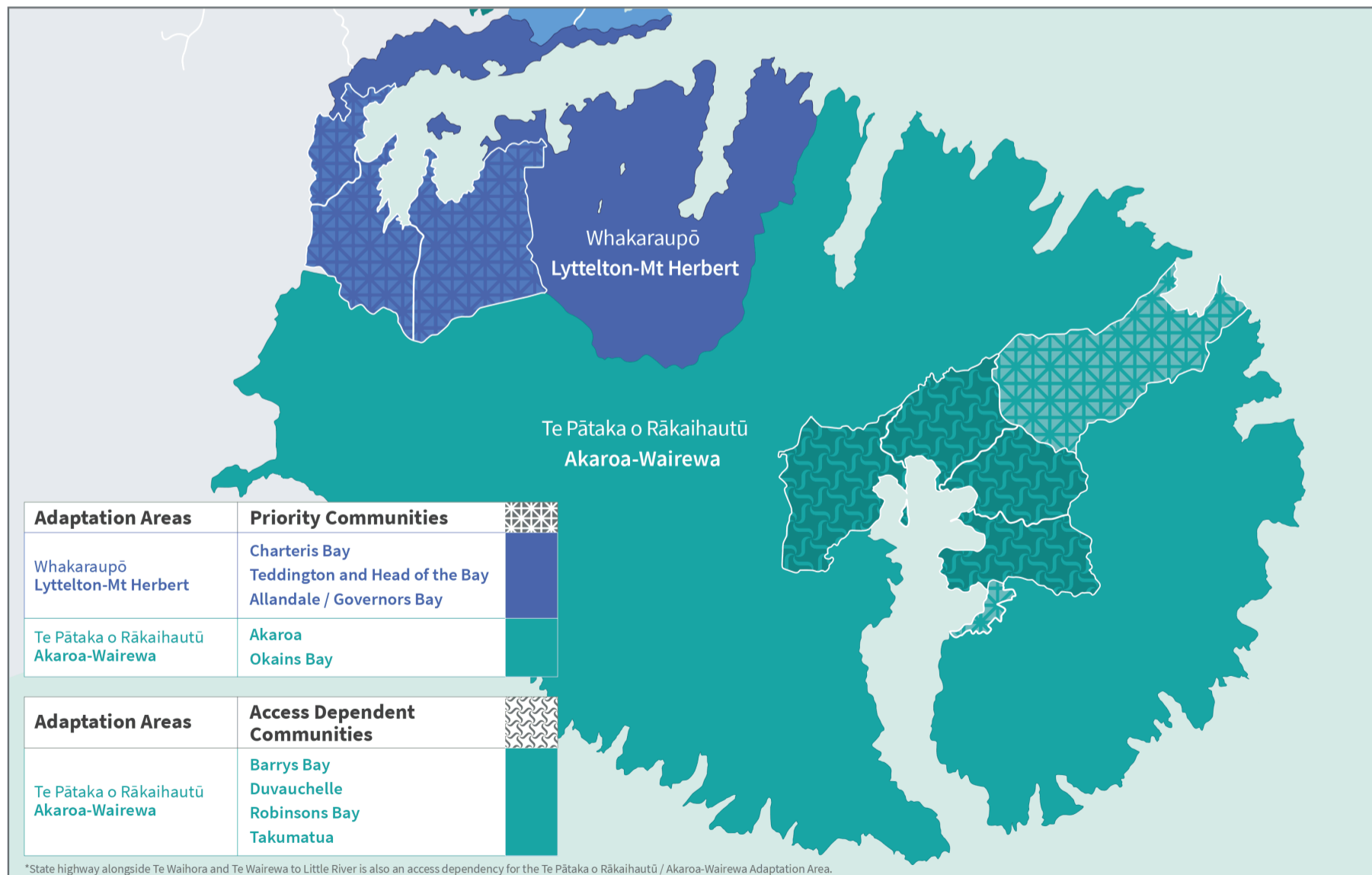
DRAFT - Not Council Policy

Te Pataka o Rākaihautū Banks Peninsula

Areas at risk from coastal hazards in the next 100 years



Grouping and prioritisation of communities at risk



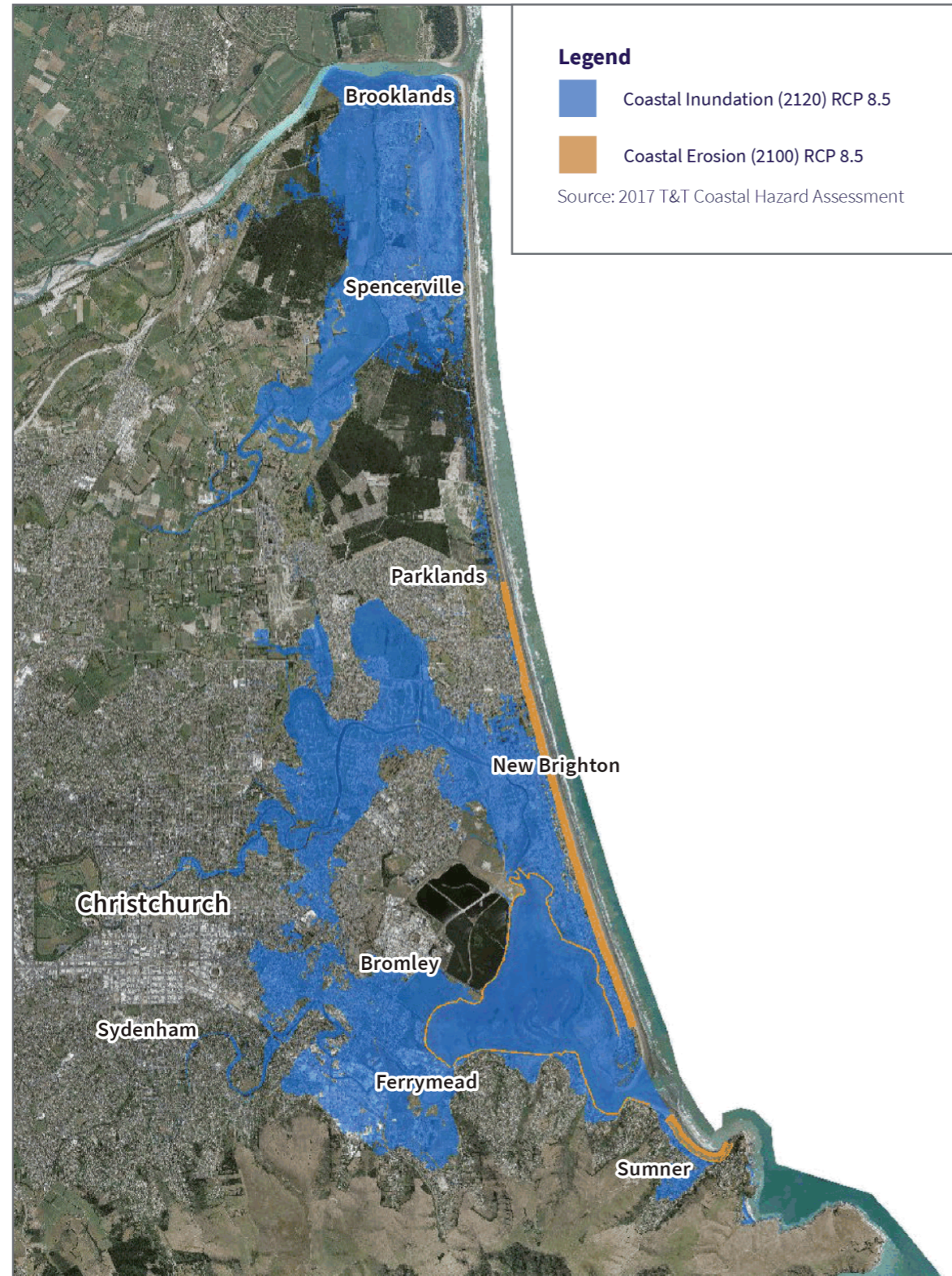
September 2020

This map only shows coastal flooding, not erosion and is from an external source. New maps will be produced once the Council's updated Coastal Hazards Assessment is finalised in early 2021

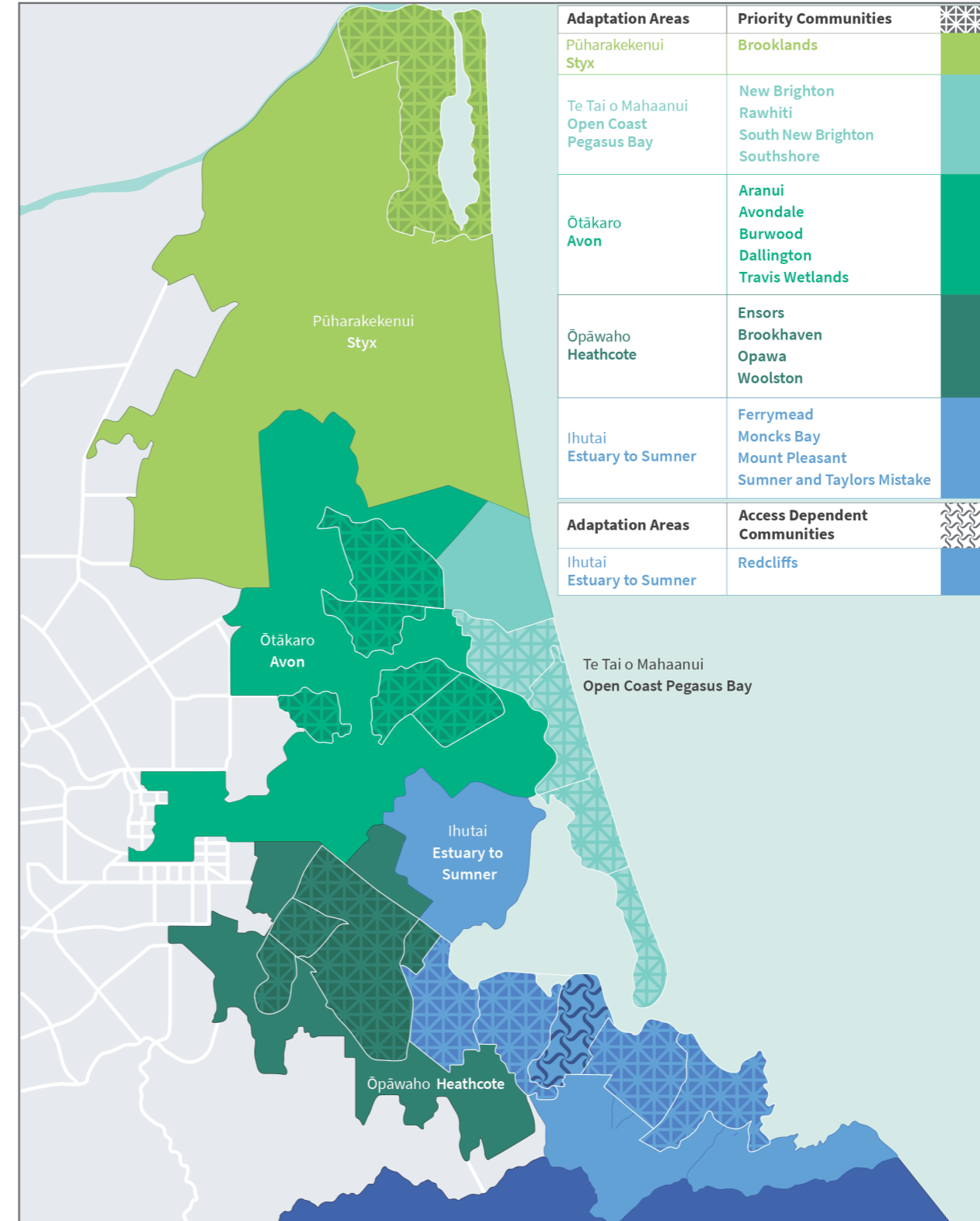
Ōtautahi Christchurch City

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Areas at risk from coastal hazards in the next 100 years

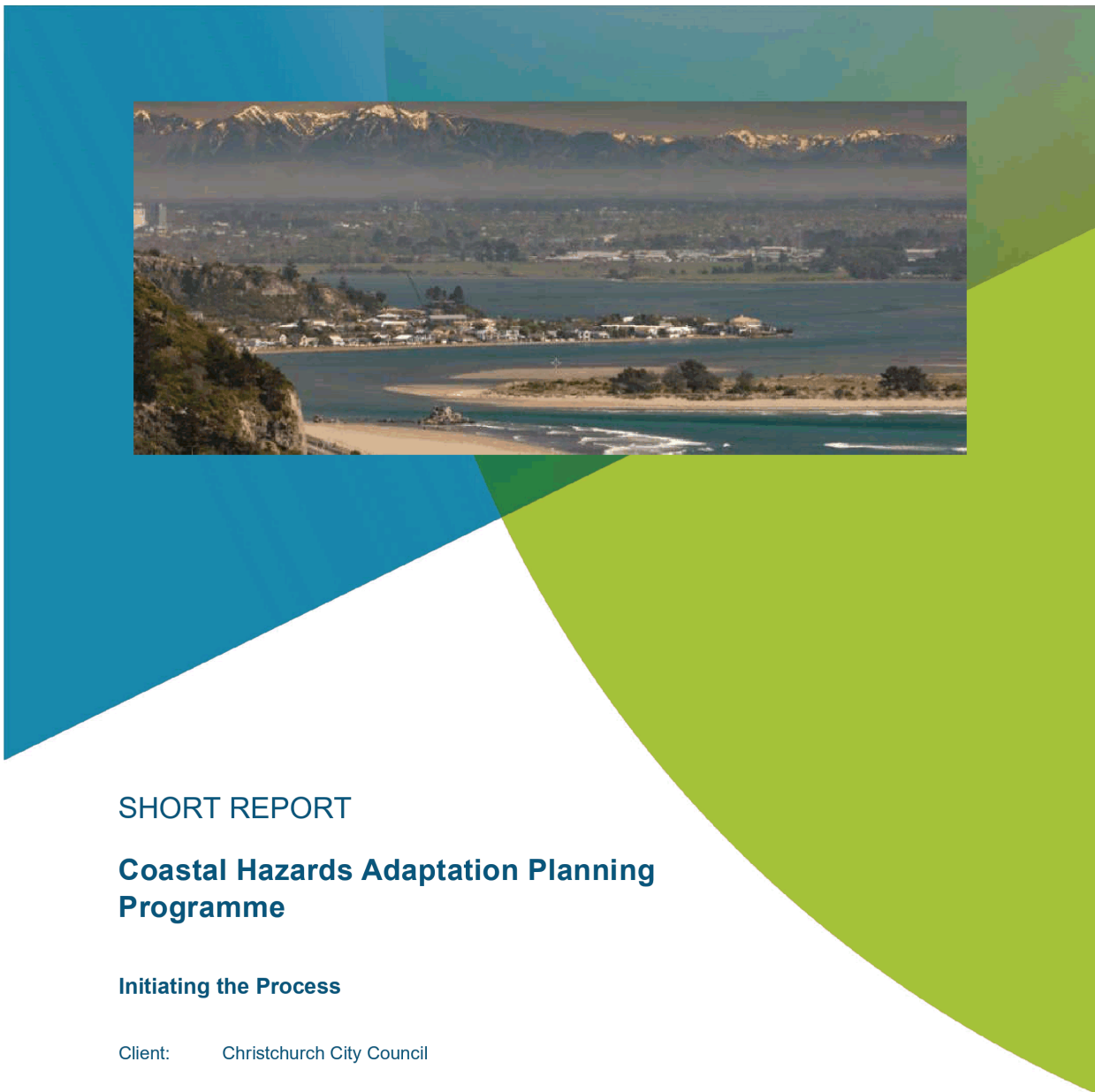


Grouping and prioritisation of communities at risk



New maps will be produced once the Council's updated Coastal Hazards Assessment is finalised in early 2021

September 2020



SHORT REPORT

**Coastal Hazards Adaptation Planning
Programme**

Initiating the Process

Client: Christchurch City Council

Reference: PA2288-WP-2-0001

Status: S0/P01.01

Date: 21 May 2020



Project related



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Date: 21 May 2020
Project name: Christchurch City Council CHAP
Project number: PA2288

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Date / initials: 27/03/2020 

Classification

Project related



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21 May 2020

INITIATING THE PROCESS

PA2288-WP-2-0001

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Glossary

Term	Further information
Adaptation	Change in the way a feature, such as a habitat or community, functions. Adaptation has become an integral part of climate change policy worldwide. In 2017, the Ministry for the Environment provided guidance on coastal adaptation for local government. It defines adaptation as a response strategy to anticipate and cope with impacts that cannot be (or are not) avoided under different scenarios of climate change. The process of adjustment to actual or expected climate and its effects (IPCC, 2014, annex II). In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities.
Coastal cells	Define areas with consistent or linked coastal processes – coastal form and function; not administrative boundaries. They tend to be large areas within which ‘management areas’ fall; in this context. IN adaptation planning they can also be referred to as coastal compartments.
Coastal hazards	Physical processes that expose a coastal area to the risk of loss of life, the degradation of environmental and cultural assets, and/or property damage. For the purposes of the Coastal Hazards Adaptation Planning (CHAP) programme: coastal inundation; coastal erosion; and rising groundwater.
Community action plans	The purpose of community action plans is to deliver the intent of coastal adaptation strategies at a local level. Referred to in the MfE guidance (MfE, 2017) as implementation plans.
Community panels	Adaptation to sea level rise requires individuals, families, communities, businesses, infrastructure and utility providers, local and central government to make choices about the future (MfE, 2017). A key element of adaptation planning, as advocated by the MfE, is the establishment of community panels, the aim of which will be to recommend a course of action to decision makers. Community panels will be location- or site-specific and will be asked to consider the nature and scale of coastal management issues and recognise that coastal processes ignore administrative boundaries, that cross-boundary issues will arise and that interventions will be necessary.
Dynamic adaptive pathways planning (DAPP)	DAPP is defined in Chapter 9 (and Appendix G) of the MfE guidance (MfE, 2017) as a series of actions over time (pathways) to achieve a set of predefined objectives under uncertain and changing conditions. An analytical planning framework.
Management areas	Management areas are used to subdivide the coast into manageable units for adaptation planning. Within a single management area, the intent of and objectives for coastal adaptation and management should be consistent (and should be cognisant of the intent of adaptation in adjacent management areas within a single Coastal Cell). They can also be referred to as management units and adaptation areas.

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Term	Further information
Policy units	Because management areas can be quite large and different adaptation strategies could be adopted for different lengths of the coast within an area, policy units can be defined within them. They are individual units where coastal adaptation policy will be assessed over time. However, within a management area, policy units should be managed coherently, cognisant of each other. Policy units can also be referred to as policy areas, policy development zones and (simply) communities.
Probabilistic approach	A probabilistic approach to coastal hazards assessment allows each input parameter to randomly vary according to probability distribution functions. Randomly sampled parameters are repeatedly combined in a Monte-Carlo simulation. This contrasts to a 'deterministic approach' where each input variable is assigned a single value (e.g. a SLR projection).
Resilience	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.
Risk	The effect of uncertainty on objectives (AS/NZS ISO 31000:2009, Risk management standard). Risk is often expressed in terms of a combination of consequences of an event (including changes in circumstances) and the associated likelihood of occurrence: that is, the product of 'likelihood' and 'consequences' or 'the effect of uncertainty on objectives'.
Shoreline management plans (SMPs)	SMPs are non-statutory plans intended to manage coastal hazards and coastal assets. They will identify flood and erosion risk and resolve how to manage this risk through the implementation of coastal management policies. They are intended to provide a 'route map' for coastal resilience. The MfE guidance (MfE, 2017) refers to Adaptive Planning Strategies, with supporting Implementation Plans.
Vulnerability	The predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including exposure, sensitivity or susceptibility to harm or damage, and lack of capacity to cope and adapt (adaptive capacity).

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1 Introduction

1.1 Background

Christchurch City Council (CCC) has recently established a Coastal Hazards Adaptation Planning (CHAP) programme to support Christchurch communities that will be impacted by sea level rise (SLR) and other coastal change. Specifically, CCC has initiated a process of adaptation planning for low-lying coastal and inland communities at risk from coastal erosion, coastal inundation (including in estuaries) and rising groundwater. Christchurch City has a greater number of residents living in communities exposed to coastal flooding risks than many other cities, including Auckland and Wellington.

The Council is approaching adaptation planning with coastal communities using the nationally recommended approach outlined in the Ministry for the Environment's (MfE's) *Coastal Hazards and Climate Change Guidance for Local Government* (2017) as a guide and adapting this where appropriate to recognise local differences and needs (see **Figure 1**). This guidance establishes a structured engagement process with communities that is intended to support people in adapting to life in a changing climate, through increased awareness and the development of community-led adaptation plans. The adaptation plans will identify community values and objectives and set pathways that can be adjusted over time to respond to the impacts of sea level rise, enabling communities and the Council to prepare for the future.

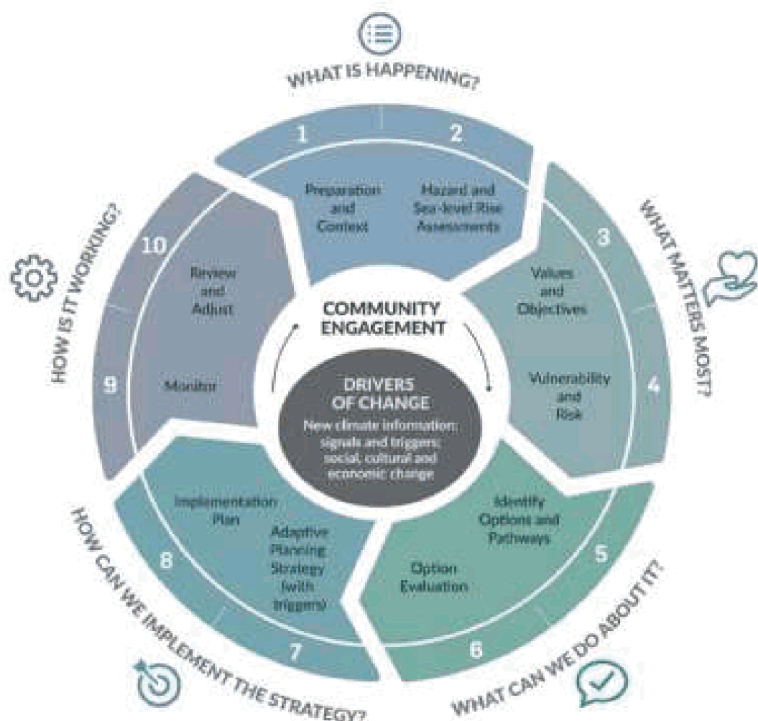


Figure 1 The 10-stage decision cycle, grouped around five questions or phases (from MfE, 2017)

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In February 2020 CCC appointed Royal HaskoningDHV (RHDHV) to be its Coastal Hazards Adaptation Advisor for its CHAP; to provide guidance and expert advice to the Council's Project Team during the development and implementation of the adaptation planning process. In this role RHDHV has undertaken a review of the Programme Initiation Document (PID), the Project Plan for the Initiation Phase and had a series of briefings with the CHAP team.

Due to the large number and range of communities at risk across the District, it is recognised that adaptation planning will take time to do properly. This short report provides advice on how these communities might be grouped and prioritised and the timescales and required resourcing for coastal adaptation planning, based on other examples and Christchurch City's unique circumstances.

1.2 Why Royal HaskoningDHV

RHDHV is an independent, international engineering and project management consultancy who have been in operation for 137 years. Its professionals deliver services in the fields of environmental management, maritime and coastal infrastructure, aviation, buildings, energy, industry, mining, transport, urban and rural development and water management. Backed by the expertise and experience of 6,500 colleagues across the world, we work for public and private clients in over 140 countries.

RHDHV has strong experience and knowledge of coastal management, hazard assessment, planning, protection, adaptation and community/stakeholder engagement internationally, in the Southern Hemisphere and in New Zealand. This includes significant experience in shoreline management planning where it began, in the United Kingdom.

The RHDHV project team has particular expertise in undertaking risk and vulnerability assessments through to the development of adaptation pathways based on a process of rigorous hazard assessment and effective community engagement

2 Approach to Adaptation Planning

Managing coastal hazards is a legislative requirement in New Zealand and strong direction and guidance exists relating to how this should occur

2.1 Policy and Guidance

The approach proposed by CCC aligns with the Department of Conservation's (2010) *New Zealand Coastal Policy Statement* (which the Canterbury Regional Policy Statement (2013) gives effect to) and the MfE's (2017) *Coastal hazards and Climate Change: Guidance for Local Government*.

The New Zealand Coastal Policy Statement derives from the *Resource Management Act 1991*, which any proposals for action arising from coastal adaptation plans will need to comply with.

The guidance provides room for modification to suit local circumstances

It is important to note, however, that the MfE's guidance is just that – guidance. Rather than setting out a method for site-specific coastal hazards assessment, the guidance provides a framework to support high-level hazard and risk analysis, land-use planning, adaptation and coastal management across a region or district. It is appropriate to modify the guidance to suit local circumstances. It is compliance with the intent of the guidance that is important and not the specifics. For example, the MfE guidance refers to

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approaching your community or community representative panel with a “blank sheet of paper” regarding adaptation options. However, while innovation should be encouraged and a wide range of alternative options considered, there will be some options that would unduly disadvantage certain groups and/or securing resource consent could be a very difficult, expensive and convoluted process (potentially involving hearings, Environment Court and lengthy appeal periods). The guidance presumes that the consultative process would eliminate these options, but it would be much more efficient if the resource management constraints are (the statutory framework is) set out from the outset.

For example, because Thames Coromandel District Council (TCDC) have determined to undertake ‘shoreline management planning’ for the 400km Coromandel coast, based on the UK’s Department for Environment, Food and Rural Affairs (DEFRA) guidance (DEFRA, 2006), it is not adopting wholesale the approach set out in the MfE guidance. The principles of the MfE approach are being applied (see Figure 2) but TCDC aims to produce Shoreline Management Plans (SMPs) informed by Coastal Panels and Community Action Plans, rather than Community Panels and Implementation Plans as per the MfE guidance. Whereas the Wharekawa Coast 2120 project, a joint initiative between Hauraki District Council and Waikato Regional Council, is following the approach set out by the MfE; the outcome from which will be a wider reaching Natural Hazards Community Plan developed by a Community Panel.

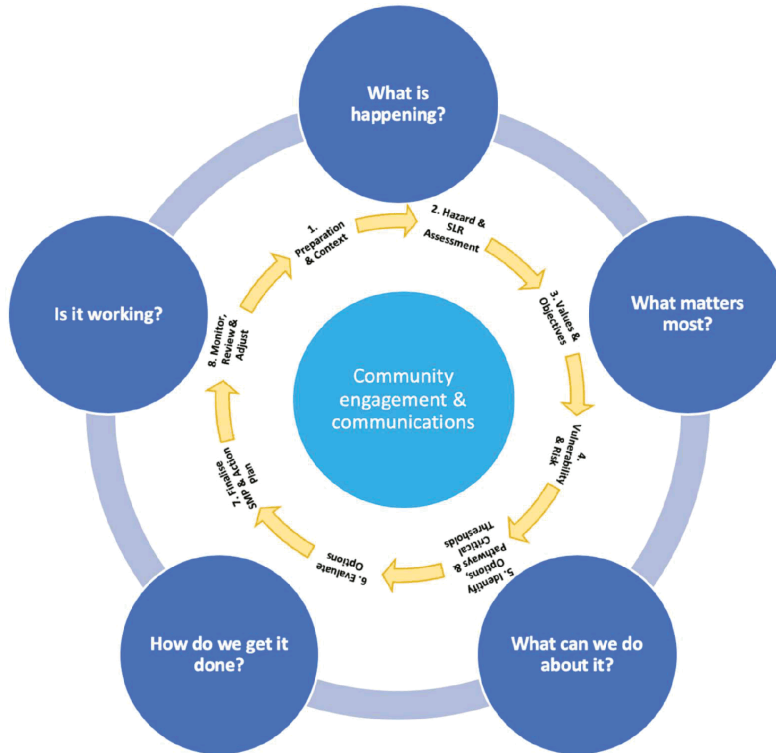


Figure 2 TCDC framework for adapting to coastal change (simplification of the 10-step decision cycle in MfE, 2017) (TCDC, 2020)

Project related



Similar policy processes used nationally and internationally can provide options for and insight into how to use and apply the MfE guidance

In Auckland, Auckland Council's Coastal Management Framework (CMF) (Auckland Council, 2017), which predates the MfE guidance, supports the formation of interrelated coastal compartment management plans (CCMP) to be co-developed through engagement with local agencies, communities and iwi groups, addressing statutory requirements, institutions and the built environment. In the UK, SMPs are produced by Local Government supported by National agencies (e.g. the local district authority and the Environment Agency, with input from Statutory Nature Conservation Bodies); i.e. those with flood and coastal defence responsibilities.

2.2 Initiating the Process

Step 1 of the MfE process – Preparation and Context – refers to establishing your team, your process and your spatial jurisdictions for coastal adaptation planning (i.e. characterising and subdividing your coastal baseline; see **Section 3**); and obtaining the agreement to this of your elected members. Step 2 relates to undertaking hazard assessment given predictions for climate change and sea level rise; i.e. defining the areas that could be at risk. This should be based on best available data but need not wait on new modelling or a fine level of precision (see **Section 2.4**).

Preparation and context – What is happening?

In addition to determining 'What is happening?' in Step 1 (that is, describing your coastal characteristics and hazard types; and compiling/mapping your coastal asset inventory), during this stage consideration should be given to:

- An appropriate approach to the governance of coastal adaptation planning.
- The communications and engagement strategy to be adopted.
- The approach to be taken to defining, not only hazards but also, vulnerability and risk.
- How to geographically define 'adaptation areas' and where to start adaptation planning. The MfE guidance refers to a 'first pass' risk assessment, to identify and prioritise areas at greatest risk in this context.

2.3 The Role of Coastal Hazards Assessment

Coastal Hazards Assessment (CHA), in Step 2, is fundamental to adaptation planning in the coastal environment and this needs to consider coastal erosion and coastal inundation (from the sea as well as upstream) and its interactions with groundwater, pluvial and fluvial flooding. It is imperative that an understanding of the extent and nature of coastal hazards is established prior to a full risk and vulnerability assessment being undertaken¹. That is, identifying 'What is happening' from a hazard and sea level change perspective in order to inform a broad investigation of 'What matters most'.

The CHA should first identify and second define coastal hazards and hazard likelihood; and a *probabilistic approach* should be applied. That is, the MfE guidance moves away from a single value allowance to determine a potential future sea level state (e.g. a single sea level rise number) towards adaptive planning where a range of future scenarios are contemplated, with built in triggers or thresholds to determine the

¹ Both of which will be informed by an inventory of coastal assets and 'What matters most?' – definition of the values associated with and community objectives for the coastal environment and infrastructure.

Project related



next response in the adaptive planning pathway. In short, the probability distribution of the severity of each type of coastal hazard should be calculated for a defined planning horizon.

This information can then be used to inform the risk and vulnerability assessment and to assess the fragility of assets, infrastructure and the environment (in due course) to provide an indication of risk. When combined with the values and objectives to be set through the community engagement processes, and a deeper understanding of the *vulnerability* of communities, socio-cultural and economic systems, this allows a more complete picture of risk² to be developed. **Figure 3** present this approach visually as it is being applied in the Coromandel.

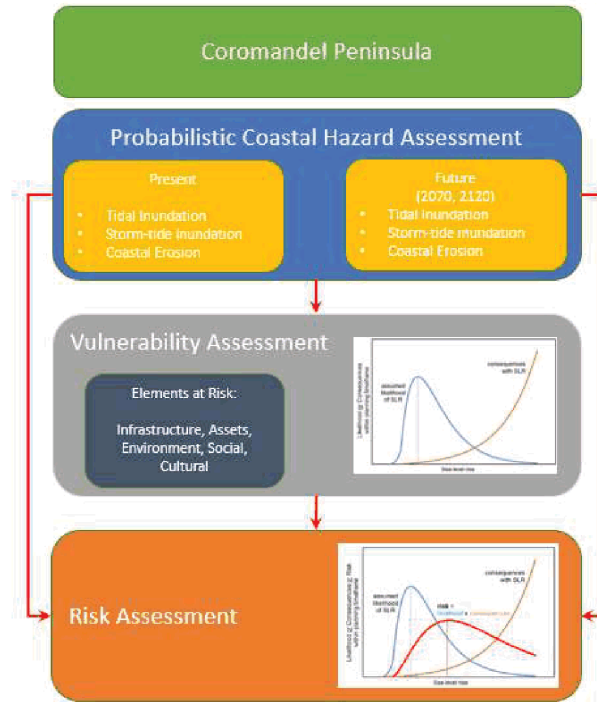


Figure 3 TCDC conceptual framework for a risk-based Coastal Hazards Assessment (TCDC, 2020)

CHA should be based on best available data but need not wait on new modelling or a fine level of precision

However, the purpose of the CHA in the context of adaptation planning is to determine the direction of travel (e.g. a coastal compartment is going to erode, and key assets are likely to be affected by this in the next two decades) rather than precise predictions (e.g. 3.24m of erosion by 2043). Spurious accuracy should be avoided and is not necessary for risk-based 'dynamic adaptive pathways planning' (DAPP) (MfE, 2017). DAPP aims to put in place a management approach that can respond and adapt to changing circumstances; that is, defined, agreed management actions will be taken based a threshold or 'trigger'

² Where total risk = hazard x vulnerability (or likelihood x consequence)

Project related



(e.g. 3m of erosion) being reached. Hence, the predictions from the CHA do not need to be as precise, highly accurate or debated as some sectors of society may seek³, rather, they need to provide information on the likely outcomes of climate change that is sufficient to allow a planning process to occur.

3 Grouping and Selecting Communities

3.1 A Basis in Coastal Processes

3.1.1 Terminology

This section focuses on how to subdivide the coast into manageable units for adaptation planning. Different projects have and do use different terminology to describe these units but, in effect, they are all simply 'Management Areas' in the broadest sense.

Herein 'Management Areas' are referred to as management areas, management units and adaptation areas (reflective of the language used in the project being described) but they all mean the same thing. Within a single Management Area, the intent of and objectives for coastal adaptation and management should be consistent (and should be cognisant of the intent of adaptation in adjacent management areas within a single Coastal Cell).

Coastal Cells define areas with consistent or linked coastal processes

Management Areas normally fall within larger Coastal Cells; as first defined as part of the SMP process that developed in the UK (see **Figure 4**).



Because Management Areas can themselves be quite large (see **Figure 5**) and different adaptation strategies could be adopted for different lengths of the coast within an area, 'Policy Units' can be defined within them (see **Figure 6**). However, within a Management Area, Policy Units should be managed coherently, cognisant of each other. Policy Units are referred to herein as policy units, policy areas, policy development zones and (simply) communities (reflective of the language used in the project being described). They are individual units where coastal adaptation policy will be assessed over time.

³ Noting that, in this context, accuracy is not possible because climate change predictions/scenarios are uncertain and will change.

Project related

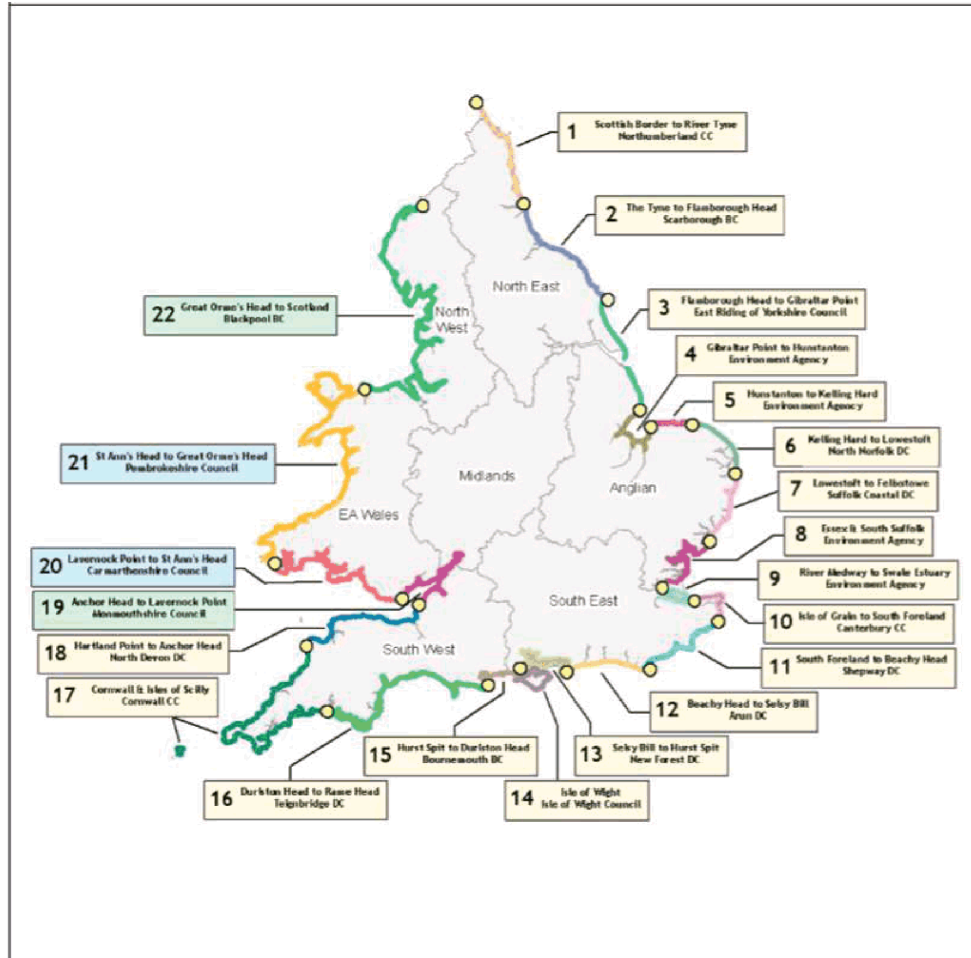


Figure 4 Environment Agency (England and Wales) SMP2 Location Plan (RHDHV, 2012)

3.1.2 Approaches elsewhere

SMPs in the UK through to Integrated Coastal Zone Management Plans (ICZMs) in the Caribbean and elsewhere are all founded on Coastal Cells; geographical units characterised by consistent coastal processes and bounded by coastal process divides (e.g. headlands), within which sediment exchange occurs (see Figure 4). Wherein any management action in one part of that Coastal Cell is very likely to have an influence on other parts of the Coastal Cell (but not on adjacent Coastal Cells). It is for this primary reason that coastal management and adaptation planning should be based on coastal process and Coastal Cells and must be cognisant of the likely outcome for the whole unit. If it is not and is instead (for example) based on political boundaries (such as Wards), then management action in one location could adversely affect other locations.

Project related



Figure 5 TCDC SMP Coastal Compartment C Proposed Management Areas (TCDC, 2020)

Project related



West of Wales Shoreline Management Plan 2

Coastal Area A,

Including Policy Development Zones (PDZ) 1, 2, 3.

St Ann's Head to Strumble Head



Figure 6 West of Wales SMP2 Coastal Area A Policy Development Zones

The need for a similar regional Coastal Cell approach to assessing coastal hazards and consequent risks in Australia emerged from the First Pass National Coastal Assessment (DCC, 2009). This assessment found that there was a need to develop better methods to determine how coastal processes move sediments along pathways to or from offshore sources, and from rivers, to beaches, dunes, and into and out of estuaries, to understand the direction and rate of present and future coastal change for decision making.

Project related



New South Wales has since legislated for the use of Coastal Cells (referred to in that case as coastal compartments) through the enactment of the *Coastal Management Act 2016*, which requires consultation between adjoining local government areas that contain land within the same coastal sediment compartment when developing Coastal Management Plans (CMPs); as shown in **Figure 7**.

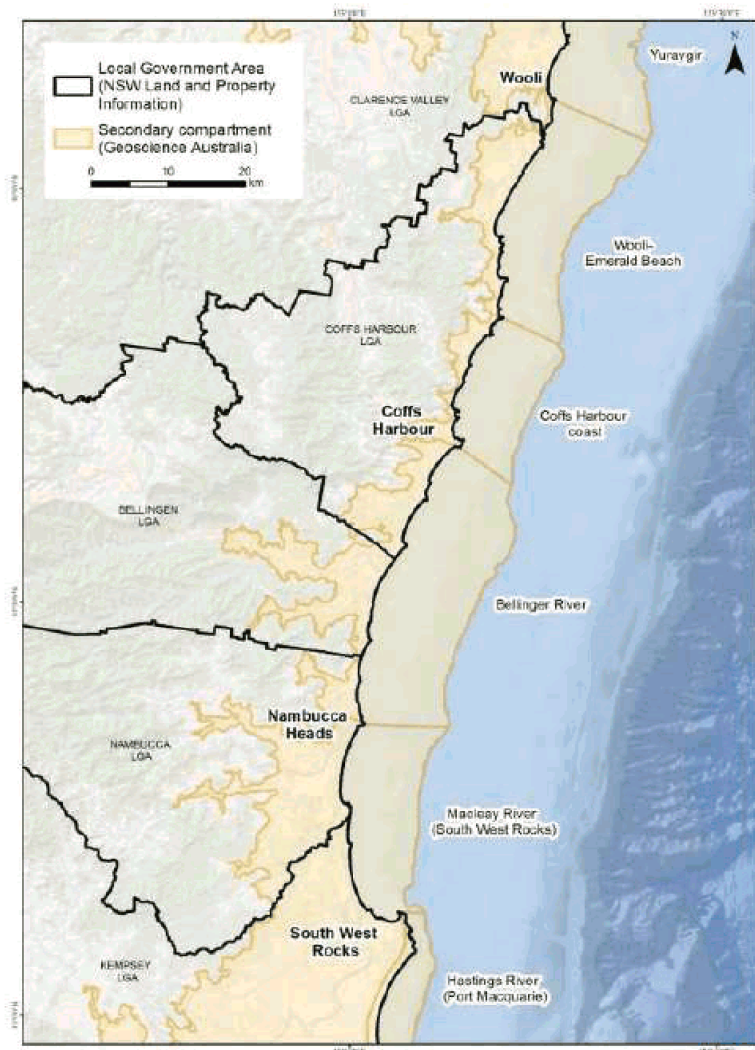


Figure 7 Coastal sediment compartments and local government area boundaries (NSW Coastal Management Manual Part B: Stage 1)

Similarly, Auckland’s coastline has been broken down into 12 large scale Coastal Cells. For each of these, non-statutory management plans are to be produced. The aim is that these will form long term planning tools, considering at least a 100-year timeframe that can be used to translate regional objectives and principles into more localised project plans; resulting in a move away from reactive coastal management.

Project related



Coastal Cells (largely based on unique coastal process interactions and different coastal landforms; and referred to as coastal compartments in this case (see **Figure 5**)) have also been defined in the Coromandel. For the Wharekawa (Kaiaua) Coast 2120 project, because of the relatively short length of this coastline (from Pukorokoro Miranda to Waharua), it is being considered as one Management Area, for which one Community Plan is to be produced (albeit different policies will be promoted for different areas and communities within the wider unit). Wellington City Council, however, has progressed adaptation plans for small coastal communities (Matata and Makara) / Policy Units.

The size and scale of Management Areas needs to be manageable and pragmatic

The aim of compartmentalising the shoreline within a Coastal Cell is to provide manageable management or adaptation areas, within which the character of the coast (whether it be physical coastal processes or coastal features, such as settlements, infrastructure and assets, or both) and its essential qualities are captured. The intention of this approach is to allow the broader scale context to be captured, while enabling the process to focus on particular areas requiring specific management approaches. In implementing this approach, Management Areas can be identified based on aspects such as settlements, infrastructure, the environment and cultural values; as well as geography.

This approach was debated extensively during the development of DEFRA's SMP guidance in 2006 (DEFRA, 2006); that is, should management policy be set at a high level / broad scale or at a local level. The outcome of this debate was that, if you do not take a broad enough view, you miss the interactions and interdependencies between locations (including physical, societal – in the hinterland – and environmental / landscape interactions). However, if you just stay at that level and do not get down to the detail, you miss important features and cannot develop realistic, strong management policies. As a result, in the UK it was determined that you need to do both; i.e. take an overarching approach but with local context.

The management of coastal hazards has to be undertaken with both an understanding of the broader context and the local context

For some early SMPs there was too much focus on the local, with a string of polices developed that, when viewed at a higher level, had no coherence. This is still happening in coastal management, where problems are agonised over in one area, without an understanding that the solution is at a higher level. But, equally, there are areas where the policy has been set at such a high level that no one understands what is meant on the ground. From this experience, especially when defining priorities, it is clear that we need to do both.



Project related



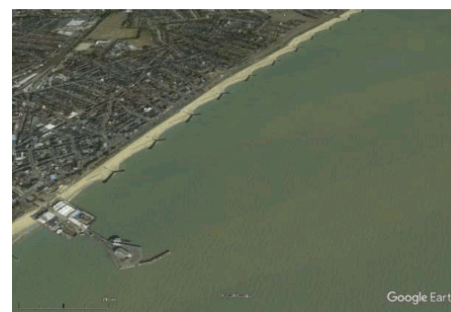
In Penzance, Cornwall, Coastal Change Management Areas (CCMAs) have been defined with the intent of moving away from simply development planning (and the protection of what is there) towards a designation that recognises the need to make a positive difference to the broad scale environment; *“facing up to change, at a broad scale, can be a daunting and complex process but this can be managed by co-ordinating small steps, within an overall vision”* (Bice *et al.*, 2019).

Millar *et al.* (2019) compared different coastal management approaches across England (SMPs), NZ (Auckland) and Diego Garcia in the British Indian Ocean Territories (BIOT). For England and Auckland they concluded that: *“in both countries a key difficulty faced is translating this long term vision to implementation at the local scale....Their key strength is in bringing together key parties in the decision-making process, ensuring that management is not bound by political boundaries or the interests of a single body.”*

Different approaches will be required for different locations, but the problem has to be framed at a larger scale

Case studies of different coastal adaptation strategies were recently reviewed in Wales (Williams *et al.*, 2019). For the village of Fairbourne, the high level SMP provided the context and identified the risk to a system and locally. The broader scale approach enabled all risk elements to be identified (“framing and taming”), providing confidence that there was an overall understanding in dealing with a local, well defined problem. In Pwllheli, only certain areas of the town will be affected by inundation, but this includes part of the town centre, which provides a much broader benefit to the wider area, in terms of tourism, harbour use and the support the town provides to the rural hinterland; such that the problem has to be approached at a larger scale. In Newgale, the problem arises at a local scale, however, the loss of the road would affect the whole of southwest Pembrokeshire and change the character/function of the village (which itself is not at risk). Furthermore, realigning the road would affect a National Park and, if this was just a road realignment, then the National Park Authority would be forced to object. Hence, it is only by framing the problem (and solutions) within a larger scale adaptation plan that sensible solutions can be developed.

For Clacton on Sea in Essex, early strategies concluded that defence of the town could not be justified under flood and coastal erosion risk management (FCERM) funding alone. Taking a different approach, a strategy was progressed to examine opportunities for re-invigorating Clacton through new approaches to FCERM (enabling the future, rather than protecting the past); i.e. working with planners and developers to develop a land-use led approach to defence adaptation (image on the left). However, the defence authority did not take this approach and progressed a local project appraisal for erosion protection, the conclusion of which was that all that could be afforded from a local FCERM perspective was a series of uniform groynes, defending the old sea wall and narrow promenade; and partnership funding for this approach was very limited (image on the right).



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3.1.3 Christchurch

Christchurch has large areas that are at risk and the nature of the coastal hazards present vary

Christchurch City is defined by unique and very different geographical and social characteristics. From highly populated and vulnerable flatlands, that include areas of significant public and private investment (large commercial and industrial areas) as well as largely abandoned 'residential red zones' (resulting from central government's policy response to the Canterbury earthquake events), to the embayments and headlands of Banks Peninsula. The 2017 CHA for Christchurch and Banks Peninsula undertaken by Tonkin + Taylor (T+T, 2017) is the most up-to-date information on coastal hazards available for these areas and this illustrates that the locations at risk from coastal erosion and inundation in the study area are equally widespread and are defined by physical processes rather than by built assets or local community types. The modelling outputs demonstrate that large areas are at risk and that the nature of the risk varies.

The 2017 CHA mapped discrete sections of the coast with respect to the impacts of coastal erosion (the Open Coast and Sumner/Taylor's Mistake) and inundation (all other selected areas), with a focus on vulnerable assets and communities; as shown in **Figure 8**. Moving from North to South, Brooklands and its surrounding area (viewed from the perspective of the estuary) is at high risk of coastal inundation, as shown in **Figure 9**, and comprises a relatively discrete group of communities. Whereas the entire stretch of open sandy coastline from the Waimakariri River through to South Shore is predicted to be impacted by erosion. The developed coastal reach from Waimairi Beach (south of Bottle Lake Forest Park) to South Shore is predicted to be directly affected by coastal erosion, as shown in **Figure 10**, as well as by coastal inundation either directly (e.g. South Shore) or indirectly (through impacts on, for example, access and infrastructure) as shown in **Figure 11**.

The greatest population predicted to be affected by coastal inundation is located within the Avon-Heathcote Estuary and river systems, as shown in **Figures 11 and 12**; considered to have the lowest awareness relating to coastal hazards.

Similarly, the physical location and geography of Sumner and Taylor's Mistake make them vulnerable to both coastal erosion and the impacts of inundation, as shown in **Figures 11 and 13**. While the area is physically large, the communities located across Banks Peninsula are predicted to face similar impacts due to coastal inundation, as shown in **Figure 14**.

A tiered approach to grouping communities in Christchurch is recommended to provide the broader management context (through Management Areas) but to allow prioritisation of particular locations and/or communities (Policy Units)

Based on practice elsewhere, it is recommended that a tiered approach to adaptation planning should be adopted for Christchurch's CHAP programme in order to logically 'group' locations and communities based on coastal processes, the nature of the coastal hazards, infrastructure dependencies and community types.

Project related

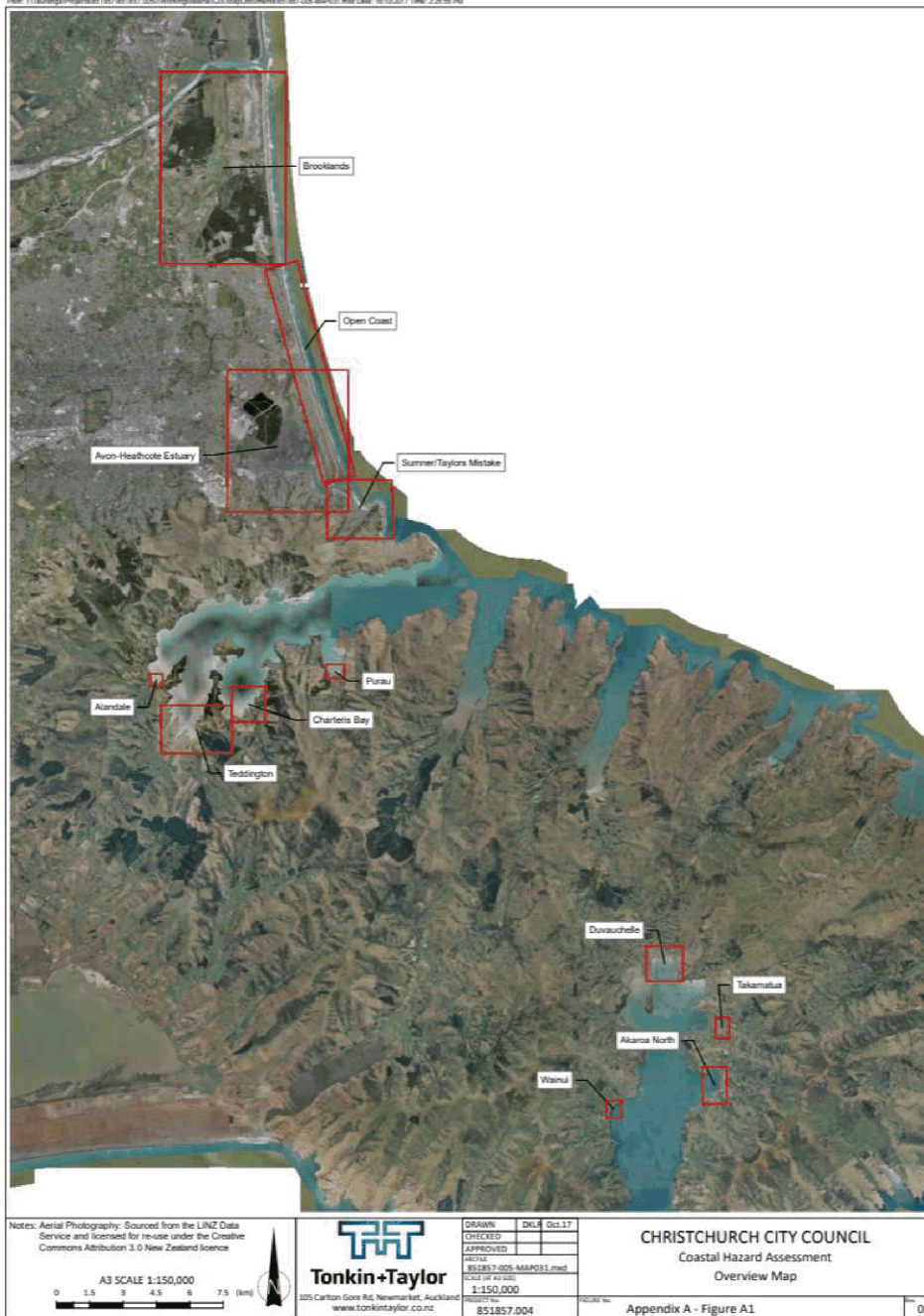


Figure 8 Locations assessed within the 2017 Coastal Hazard Assessment (T+T, 2017)

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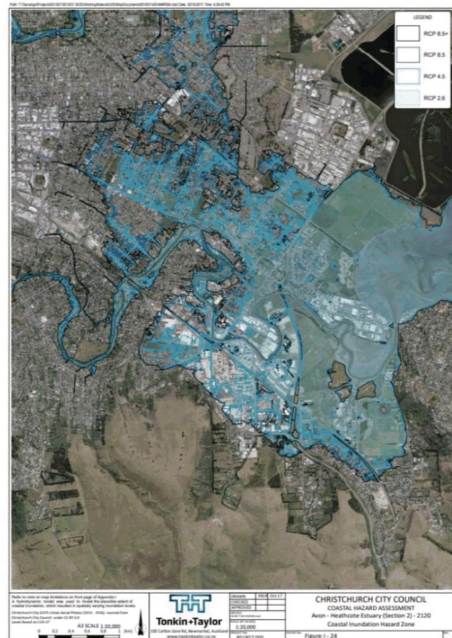
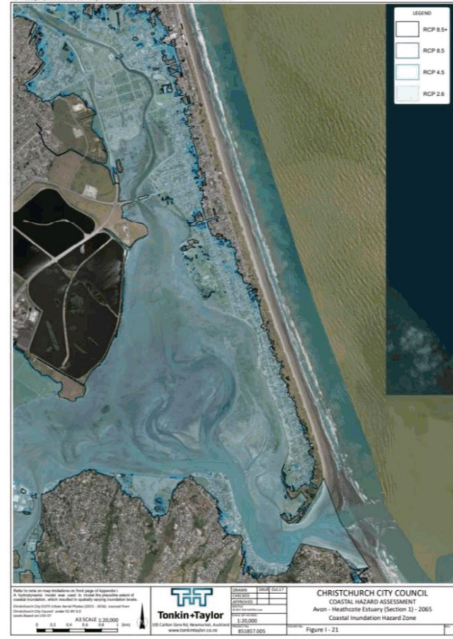
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Attachment B Item 7

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Figures 9 to 12 Estuarine locations assessed for inundation within the 2017 CHA (T+T, 2017); left to right, top to bottom

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Figure 13 Location assessed for coastal erosion (T+T, 2017)

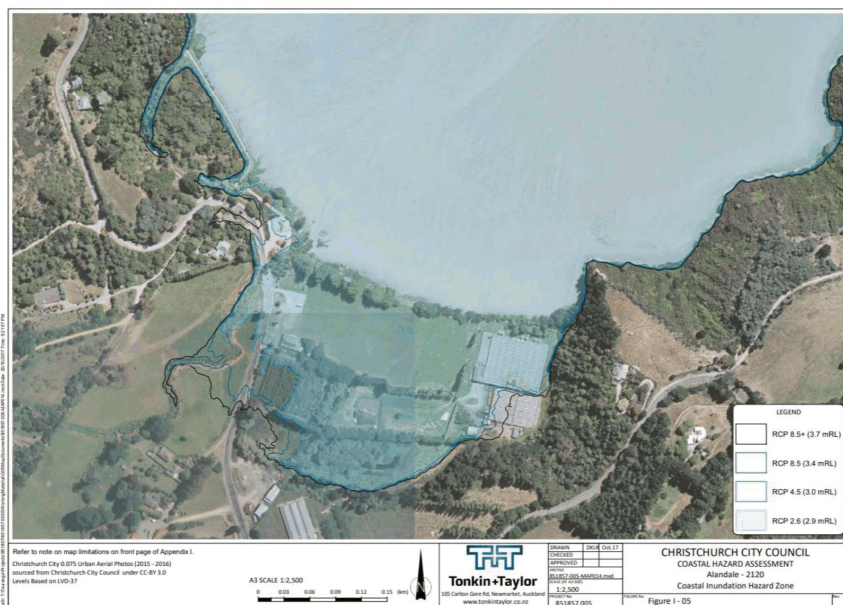


Figure 14 Example location in Banks Peninsula assessed for coastal inundation (T+T, 2017)

Project related



3.2 Why Prioritise

Phasing adaptation planning allows resources to be managed and lessons to be learnt; it also recognises differences between communities and degrees of risk

A phased approach is proposed to be taken by CCC to its coastal hazards adaptation planning; identifying a priority community (Policy Unit) or communities (Policy Units) within two or three Management Areas (in CCC's case referred to as adaptation areas) and progressing these simultaneously. This will target areas at risk across all adaptation areas (because communities at high risk exist across all adaptation areas). RHDHV consider this approach to be sensible for several reasons, including:

- It will provide the programme with the opportunity to learn lessons from those areas/communities progressed first and apply these elsewhere; i.e. to build on and improve processes.
- It recognises the differences between (as well as within) communities and provides the opportunity for the approach to be adapted to suit.
- It allows for the management of resources and resource continuity.
- It allows those communities where the risk profile is the highest to be targeted first.

Similarly, TCDC has defined four SMP areas on the Coromandel Coast which align with their Coastal Cells (i.e. Thames and the Thames Coast; Coromandel-Colville; Mercury Bay; and the South-East Coast – see **Figure 15**) and have elected to begin the SMP process with one of these Cells (Thames and the Thames Coast). However, all Management Areas and Policy Units within this Coastal Cell will be considered simultaneously (albeit conclusions may be reached with respect to one area before another) and, prior to progressing any Policy Unit(s) within a Management Area, the overarching objectives for coastal adaptation planning in that Coastal Cell will first be determined, followed by the objectives for that Management Area (given the broader context).

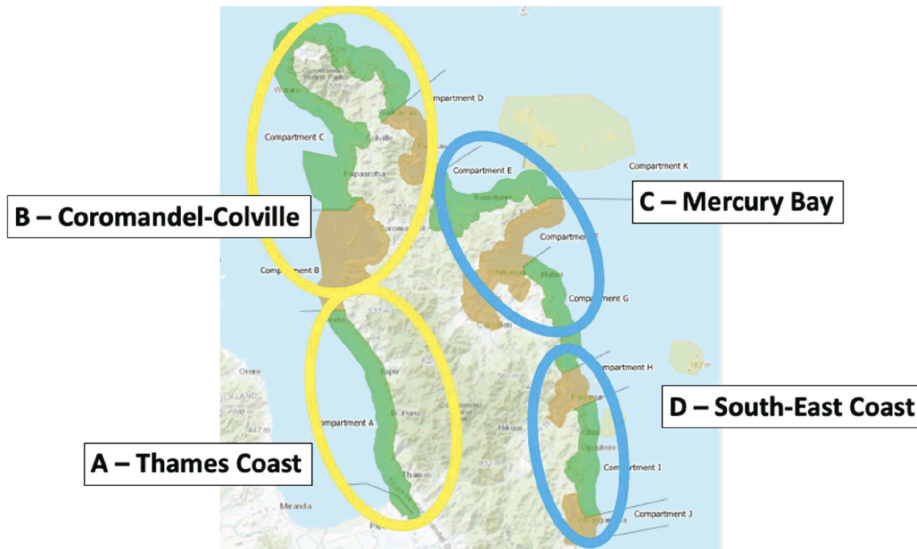


Figure 15 TCDC Coastal Panel jurisdictions, reflecting coastal processes and Council Ward and Community Board boundaries

Project related



The decision to start with one Cell was made for the reasons set out above and because the Thames Coast has the highest risk profile (overall) based on TCDC's 'first pass risk assessment' for the Coromandel coastline. Mercury Bay is likely to be progressed next and will be commenced before the Thames Coast work has been completed, because its risk profile is also high (albeit not as high as Thames). This is a clear, manageable approach that should not cause unnecessary delay, because different areas can be progressed simultaneously, were this makes sense.

The Auckland CMF acknowledges that, in the past, the management of areas (such as Mangatāwhiri⁴ Barrier Spit) has tended to be reactive, with repairs being undertaken following erosion events and replacing like-for-like. This approach does not address the underlying problem, it simply delays it (Millar *et al.*, 2019). Further, the problems currently faced are likely to become exacerbated by both climate change and ageing coastal protection structures. For this location, therefore, the CMF aims to provide a 'robust, defensible operational policy' for the area as a whole that will support both regional and local coastal management of assets.

Although it is not common to begin the adaptation process with individual Policy Units (or communities) within a Management Area (followed by other Policy Units in the area Management Area) and not consider the whole of the Management Area, this approach could be adopted where communities at high risk exist across a number of different Management Area and resources are a constraint. If such an approach is to be adopted, however, it will be important for the intent of and objectives for coastal adaptation within that Area (i.e. its guiding management principles) to be established up front; along with controlling parameters such as National and Regional policy and funding constraints.

In line with the best practice approach developed in the UK, the management of coastal hazards has to be undertaken both reflecting the local context (local readiness, needs and objectives) and understanding the broader context. It does not matter where you start, as long as you think beyond local silos.

3.3 The Basis for Prioritising

Prioritisation can be based on risk

There are a number of different approaches that can be taken to the prioritisation of different communities and the determination of which areas to progress first. In Thames-Coromandel this has been based on the coastal hazards risk profile. In Hauraki, the Wharekawa Coast Management Area has been selected over other coastal locations in the District for the same reason. However, other factors that are relevant include the 'readiness' and willingness of the community to progress coastal adaptation planning, and a desire to make early progress (i.e. to target less complex locations).

Prioritisation can be based on readiness

In Christchurch, the readiness of the communities to be engaged in this process is particularly relevant, given a post-earthquake loss of trust in agencies, cynicism and consultation fatigue, as well as concerns over equity. For example, although some areas not directly adjacent to the coast are at high risk, we understand that their awareness of the need to become engaged in coastal adaptation planning is limited at this stage. Hence it would make sense to begin the process in a different location and raise the awareness of these inland communities (and the wider Christchurch community) as part of this process. The willingness of communities to be involved and the degree to which they are organised is also relevant.

⁴ Omaha

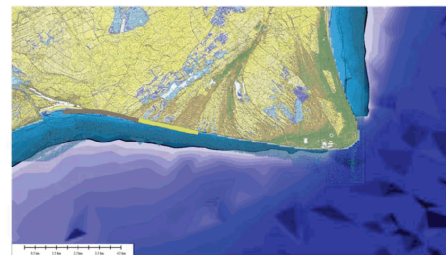
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Prioritisation can be undertaken at a Management Area or Policy Unit level as long as focus is maintained on the interconnected nature of any management proposals and overarching principles

Ideally, the first communities to be taken through the process, should be progressed in tandem with the rest of the communities within their Management Area (e.g. Akaroa-Wairewa). However, it is acknowledged that this may not be possible. Again, it does not matter where you start, as long as you think beyond local silos.

In the example provided to the right, local decision making, in effect, reversed the bigger picture, sustainable management approach that had initially been advocated (i.e. providing a combination of defence and managed realignment into the longer term). Resulting in the absence of a clear strategy beyond 50 years and significant uncertainty over the impacts on the natural environment.



Red. Now defended and extending defence to east. Yellow. Originally defined as Managed realignment to support environmental designations (with suggested set back defence further in land). Now being assessed locally, with the intention to defend over the next 50 years +. No clear long term strategy for the whole area.

While governance of the process is not covered in this report, to achieve consistency and equity between different Policy Units, Community Panels should be established at a Management Area level, with Working Groups set up for different Policy Units. This is in addition to wider public engagement through activities such as drop-in sessions, public meetings, newsletters, factsheets, and website content and updates.

4 Duration of Adaptation Planning

Adaptation planning elsewhere generally takes two to three years

In the UK, SMPs typically take two years to complete, but it may take significantly longer for the proposals to be adopted. However, UK SMPs do not involve community panel decision making. Rather, engagement is limited to public consultation events (e.g. drop in sessions) and opportunities to provide written feedback on draft documentation/proposals released for consultation. Delivery of CMPs (or Coastal Zone Management Plans under previous legislation) in Australia typically takes approximately one year for a relatively uncomplicated location, though generally takes between two to three years, depending on the complexity of the issues and the degree of community involvement in the decision making.

The Thames-Coromandel SMP Project has a three-year duration; with one year allocated to project scoping and initiation and CHA, one year to Community Panel deliberation (risk and vulnerability assessment, and the evaluation of options) and one year to Community Action Plans, asset legalisation and adoption. The Wharekawa 2120 Project had a two-year duration, pre-Covid-19, with their Community Panel process due to extend between March and December 2020. For both Thames-Coromandel and Wharekawa 2120, CHA has been undertaken prior to adaptation planning in the first year, alongside the establishment of the process and governance, and wide public engagement

Project related



The MfE process - community based decision making - is time consuming

The process advocated by the MfE (2017) takes time to progress (see **Figure 1**). Following their constitution (which itself takes time), for example, Community Panels need to:

- be introduced to the process and agree terms of reference (orientation);
- visit the site visit with key stakeholders (What is happening?);
- understand the coastal hazards and discuss areas for focus and values (What matters most?);
- obtain an understanding of the outputs from the CHA and develop the risk assessment;
- develop consequence tables and tolerance thresholds;
- be introduced to adaptation options and adaptive pathways;
- develop adaptive pathways (What can we do about it?);
- evaluate adaptive pathways (How can we get it done?);
- agree on and present preferred adaptive pathways to the decision-makers.

This could require eight to ten workshops per panel.

If Community Panels are to progress through a series of workshops, it will readily require a year for each panel to work through the process. Therefore, as an example, if a Management Area includes three Policy Units (or communities) and their processes are to be run sequentially⁵, then conclusions could be reached for the whole Management Area within five to six years; based on the outputs from the CHA being available early in the process (i.e. by workshop two or three). However, Community Action Plans in some locations are going to be far more challenging to resolve than in other locations and, therefore, take longer to develop.

Where the process is being progressed for more than one Management Area (as for Christchurch), results are unlikely to be obtained for the whole Coastal Cell(s) for 10 years; but this assumes that progress is made across all Management Areas concurrently (and relies on sufficient resource to make this possible). If Management Areas are to be progressed sequentially, then the timescale for delivery for the whole district would be longer.

5 Conclusion

5.1 Key Messages

The CHAP Project Team has developed a series of key messages which are central to the approach to be taken to the programme during the initiation phase. These are summarised below:

- We are at the very start – time will be taken in the early phases and throughout to fully involve Elected Members to ensure they have understanding and ownership of the process. This is critical to the success of the programme.
- Expert, independent advice and guidance will support the process.
- Elected Members should champion the *process* not the *outcome* – successful adaptation plans are community (and Council) led and the support of Elected Members to provide confidence in the process is critical to a positive outcome. Ultimately, adoption of the recommendations made by the community (or community representatives) will fall to the Elected Members but, at the outset, Elected Members should not predetermine or constrain the outcomes of the process.
- Community wellbeing is core – evidence supports the fact that delaying difficult conversations has poorer wellbeing outcomes than simply getting started and providing the right support.

⁵ Assuming that a plan could be developed for one Policy Unit in two years.

Project related



- Coastal change only becomes a hazard where valued coastal assets (people, property, and sites of cultural or environmental significance) will be affected. Given this, coastal hazards assessment also has to consider community values and profiles of acceptable risk.

RHDHV supports these key messages.

5.2 Recommendations

Managing coastal hazards is a legislative requirement in New Zealand and strong direction and guidance exists relating to how this should occur. However, the guidance provides room for modification to suit local circumstances.

In addition to determining 'What is happening?' at the outset of the process advocated by the MfE (2017) (i.e. describing your coastal characteristics, coastal assets and undertaking CHA), consideration should be given to an appropriate approach to governance, the communications and engagement strategy to be adopted, the approach to be taken to defining vulnerability and risk, and how to geographically define 'adaptation areas' and where to start adaptation planning.

CHA should be based on best available data but need not wait on new modelling or a fine level of precision.

The coast needs to be subdivided into manageable units for adaptation planning. Coastal Cells define areas with consistent or linked coastal processes, Management Areas normally fall within larger Coastal Cells. However, size and scale of Management Areas needs to be manageable and pragmatic and, because Management Areas can themselves be quite large and different adaptation strategies could be adopted for different lengths of the coast within an area, Policy Units can be defined within them. Within a Management Area, Policy Units should be managed coherently, cognisant of each other.

The management of coastal hazards has to be undertaken with both an understanding of the broader context and the local context. Different approaches will be required for different locations, but the problem has to be framed at a larger scale.

A tiered approach to grouping communities in Christchurch is recommended to provide the broader management context (through Management Areas) but to allow prioritisation of particular locations and/or communities (Policy Units).

Phasing adaptation planning allows resources to be managed and lessons to be learnt; it also recognises differences between communities and degrees of risk. Prioritisation can be based on risk or readiness. It can also be undertaken at a Management Area or Policy Unit level as long as focus is maintained on the interconnected nature of any management proposals and overarching principles. That is, it does not matter where you start, if you think beyond local silos.

Delivery of an effective community engagement programme for Management Areas and Policy Units over such a physically large, diverse and complex area will require significant commitment and the dedication of appropriate resources from Council. The creation of representative Community Panels generally requires significant lead time and facilitation of these Panels will require Project Team representatives (planners, engineers and environmental and engagement specialists) and expert advisors (as required), along with a facilitator. Awareness raising and direct engagement with the greater Christchurch community will also be required, as the adaptation pathways selected may have direct, as well as indirect, effects on them; for example, relating to payment for selected options.

Given the diverse and often challenging circumstances that characterise the Christchurch district, having reflected on international best practice, RHDHV support the current framework proposed by CCC for the development and implementation of the coastal hazards adaptation planning process.

Project related



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