

# **Coastal Management Project – Responding to Climate Change**

Community Engagement on  
**Coastal Management Options for  
Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua**  
6 September – 15 October 2021

## **Summary of Feedback**

March 2022



For further information on this report or our Coastal Management Project, please contact:



Coastal Management Project  
Tasman District Council  
c/o 189 Queen Street  
Private Bag 4, Richmond, 7050

Phone: 03 543 8400

Email: [tasmancoastalmanagement@tasman.govt.nz](mailto:tasmancoastalmanagement@tasman.govt.nz)

View: [tasman.govt.nz/coastal-management](https://tasman.govt.nz/coastal-management)

## Executive Summary

The Council undertook community engagement between 6 September and 15 October 2021 on high-level options for coastal management in our District. The options were grouped into four broad categories – accommodate, protect, avoid, and retreat.

The community engagement was based on an online campaign, focussing on providing information to assist in broadening the wider community's knowledge of coastal management options to facilitate better informed decision-making in the future. Engagement tools included release of a technical report outlining the high-level coastal management options, new website pages and a short information video. Council staff also hosted a series of three interactive webinars in late September (attended by 160+ people) and a hui in October with Te Tau Ihu iwi pou taiao/resource management representatives of the Tasman Environment Plan Partnership Working Group.

Feedback was sought to help understand views on the options and if there were other options or ideas for coastal management that we should consider. There were 73 in-depth responses received (via the prescribed feedback form or emails/letters) and 15 people provided comments via an online 'sticky note' tool. Feedback was received from landowners and residents, stakeholders and community groups. Of the 50 participants who did specify their age, 64% (32 people) were 65+ years old. The largest group of participants identified that they live or have property in the Motueka – Riwaka area (23%), followed by the Collingwood – Puponga area (15%).

Section 5 sets out a summary of all feedback received. A number of broad themes were identified from the feedback, including:

- There was a common desire to implement coastal management measures/actions to respond to coastal hazards and sea level rise.
- There was general support for the accommodate and avoid options; and mixed views on the use of soft protection versus hard protection options, and the retreat option.
- The range of views considered the respective costs, benefits and potential adverse effects with each of the options, demonstrating the complexities and challenges of coastal management.
- A number of comments and ideas for alternative measures within each of the options were suggested.
- Some responses provided feedback on the staging and timing of options, with some identifying that the accommodate and protect options are limited-life span options (short to medium term actions), that a combination of options will be required, and/or the suitability of individual options should be considered at the local level on a case-by-case basis.
- A range of general feedback was provided, including comments on climate change science, governance, protection of biodiversity and inland ecological migration, and climate change mitigation.

The feedback received will be used to inform the future work programme. This will include considering specific options at the local level around Tasman, and their respective costs, benefits, and potential adverse effects – as well as a process to learn community preferences.

It is important to note that our key legislation, the Resource Management Act 1991, is currently being reformed. Future central government direction will inform future phases of the Coastal Management Project and the work undertaken to date will stand us in good stead for responding to this new direction. Long-term adaptive planning work will take several years to complete and the community conversation will be ongoing.

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## 1. Introduction

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.

As part of this work, the Council undertook community engagement between 6 September and 15 October 2021. The focus of the engagement was to begin community conversations on high-level options for coastal management in our District. The options were grouped into four broad categories – accommodate, protect, avoid, and retreat. Feedback was sought to help understand views on these options and if there were other options or ideas for coastal management that we should consider. This was to ensure we are considering the range of possible coastal management options available and to avoid narrowing down the options too early in the process.

This report summarises the engagement process and the feedback received. There are also several ‘information boxes’ provided throughout the report which provide some supporting information and explanation in response to some of the feedback received.

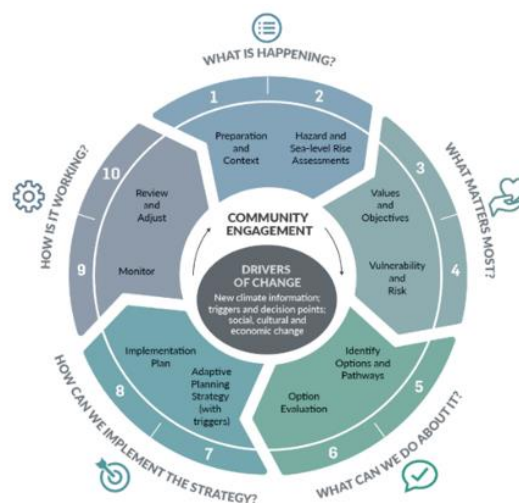
Next steps in the Coastal Management Project will be to consider specific options at the local level around Tasman, and their respective costs, benefits, and potential adverse effects - as well as a process to learn community preferences. Long-term adaptive planning work will take several years to complete and the community conversation will be ongoing.

## 2. Background: Coastal Management Project

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 is guided by 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 as set out in Figure 1.

Following the MfE 2017 Guidance, the Council has completed Phase 1 and 2 projects “*What is Happening*” and “*What Matters Most*” (Steps 1 – 4 in Figure 1) and all information is available on the Council’s website ([tasman.govt.nz/coastal-management](https://tasman.govt.nz/coastal-management)). The community engagement undertaken during September-October formed part of the start of a Phase 3 project focussing on the key question of ‘*What can we do about it?*’ (Step 5 in Figure 1).



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

## 3. Community Engagement Methods

### 3.1 Covid-19 pandemic and community engagement

The community engagement on ‘*What can we do about it?*’ was originally planned around a series of community drop-in sessions to enable and facilitate face-to-face discussion with our coastal communities. Events were planned for Richmond, Mapua/Ruby Bay, Motueka, Marahau, Takaka and Collingwood over 10 days during mid to late September 2021. However, with the government announcement of community transmission of Covid-19 in Auckland and a subsequent national lockdown during August, Council staff took a precautionary approach and cancelled the drop-in sessions before they were advertised and moved the community engagement to an online-based campaign. Given the ongoing uncertainty regarding the Covid-19 pandemic it is likely that future community engagement for the Coastal Management Project will need to be agile and consider innovative ways for participation.

### 3.2 Engagement content

The six-week community engagement was built around content contained in the following two reports:

- *Coastal Risk Assessment for Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua (December 2020)*

The coastal risk assessment considers the vulnerability of Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua to coastal storm inundation and sea level rise. The assessment identifies assets, property, infrastructure, and facilities (known as ‘elements at risk’) that may be vulnerable, using readily available datasets. The report was publicly released in December 2020 (as part of the Phase 2 project), and this 2021 engagement provide an opportunity to socialise that information with the wider community in a summarised and easily understood format.

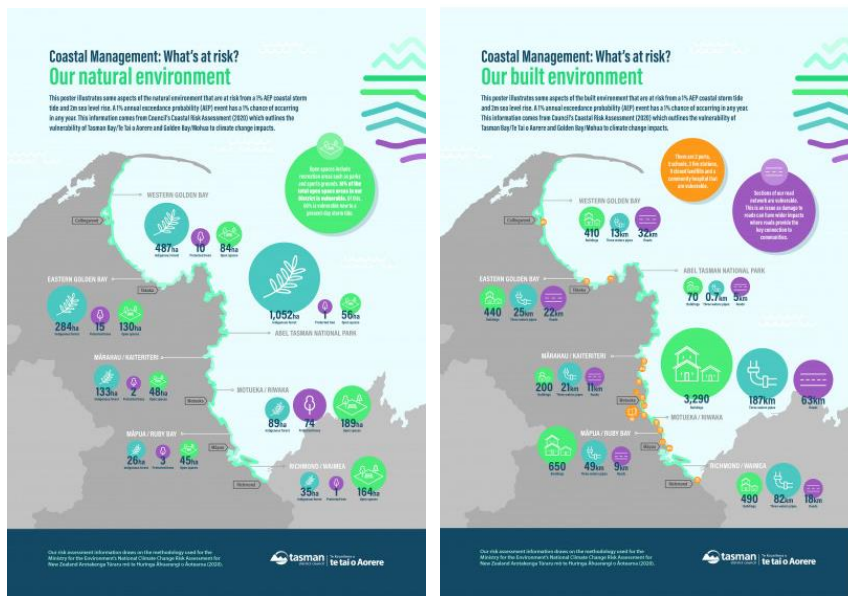
- *Coastal Management Options for Tasman Bay/Te Tai o Aorere and Golden Bay/Mohua (August 2021)*

This report was prepared as part of this Phase 3 project and sets out the four broad options for coastal management (accommodate, protect, avoid, retreat), providing a number of examples and local case studies within each option.

While it was an ‘information heavy’ engagement, steps were made to ensure that the engagement was supported with content across different levels of detail and in different formats. This included:

- Technical reports (as noted above)
- Updated website pages summarising key content in the technical reports
- Poster summaries of the coastal risk assessment work (Figure 2)
- Information video (Figure 3)
- Webinars (see Section 3.4)

The community engagement did not provide or seek specific recommendations for decision-making. Rather, the engagement was educational in nature, and focussed on providing information to assist in broadening the wider community’s knowledge of coastal management options to facilitate better informed decision-making in the future.



**Figure 2:** Examples of the coastal risk assessment summaries. The infographic posters covered the four domains of human, natural environment, built environment, and economy in keeping with the technical report. See: [Coastal Risk Assessment | Tasman District Council](#)

While the information materials were launched as part of this community engagement, they provide a source of resources and information for the community beyond this initial engagement period and will be used to inform development of Tasman’s long-term adaptive strategy for sea level rise and coastal hazards.

**Figure 3:** Cover slide of information video. The five-minute interview-style video was created covering the key messages and the high-level content of the two technical reports. See: [Coastal management project - YouTube](#)



### 3.3 Engagement launch and advertising

The community engagement had a ‘soft launch’ on Monday 6<sup>th</sup> September with the release of updated and new website pages. Over the course of the week a programme of communication materials advertising the engagement and webinars were made available including:

- Email flyer sent to the Coastal Management Project’s email contact list, comprised of stakeholders and residents who responded to our initial 2019 community engagement.
- Email flyer sent to Motueka and Golden Bay Community Boards, local community associations and the Nelson Tasman Climate Forum asking for the flyer to be distributed within their networks.
- Email flyer sent to iwi representatives on Council’s Tasman Environment Plan Partnership Working Group. This Group was 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.

- Advertisements were published and circulated, including 'It's On' listings, 'Eventfinda', TDC Facebook, posters in council service centres, and adverts in local newspapers including Golden Bay Weekly, Motueka Guardian, Waimea Weekly, and Tasman Leader.

### 3.4 Webinars

Council staff hosted a series of three webinars as an alternative engagement platform to the cancelled community drop-in events. The webinars took place on 28 September (12 noon and 7pm) and 30 September (7pm). All webinars followed the same format with the same information presented by the panel. However, the question-and-answer sessions, as well as feedback received, varied depending on the interests of the audience.

The presenters were Dr Rob Bell (a leading New Zealand coastal scientist), Diana Worthy (TDC Senior Policy Planner and Coastal Management Project Lead), Glenn Stevens (TDC Senior Natural Hazards Resource Scientist), and facilitated by Nicole Taber (Memo Public Relations and Communications).

The webinars were an interactive opportunity to find out more about the Coastal Management Project, what is at risk from sea level rise and coastal hazards, and the options for responding. The format of the 1-hour webinars included 30 minutes of presentations, followed by a live question and answer session. Webinar audience members were able to ask written questions to the presenter panel using the Q&A function of the zoom software.

A 'dress rehearsal' webinar for Council staff on 28 September had an audience of 30+ people. The three community webinars had a combined audience total of 160+ people, and included a mix of residents, stakeholders and professionals. Council staff received positive feedback from the audience on the format and informative nature of the webinars.

Council staff also held a hui with the TEP Partnership Working Group on the 20 October to discuss the webinar content with Te Tau Ihu iwi pou taiao/resource management representatives.

A recording of the webinar is available online at: [Coastal Management Webinar Broad Options - YouTube](#)

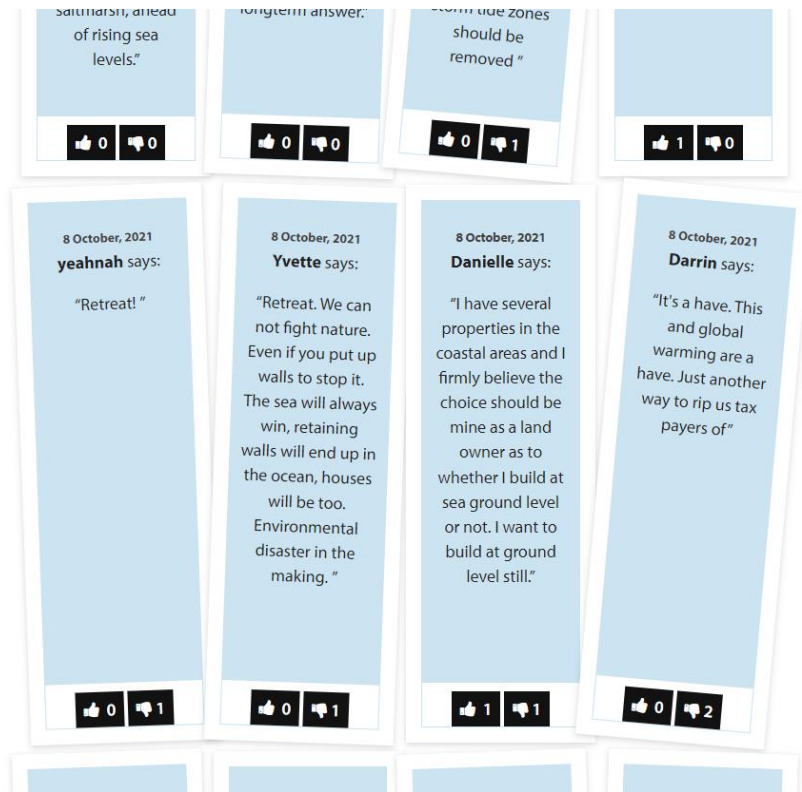
### 3.5 Feedback methods

There were several methods available for providing feedback including:

- In-depth feedback – online form and hard copy versions available
- Online 'sticky note' tool to capture quick feedback (Figure 4)
- General email/hard copy feedback

An article was published in Council's Newline (17 September 2021) detailing the Coastal Management Project's community engagement, including a pull-out feedback form.





**Figure 4:** Examples of feedback posted on the online 'sticky note' tool.

## 4. Feedback – Participation

### 4.1 Total number of responses

The following total responses were received:

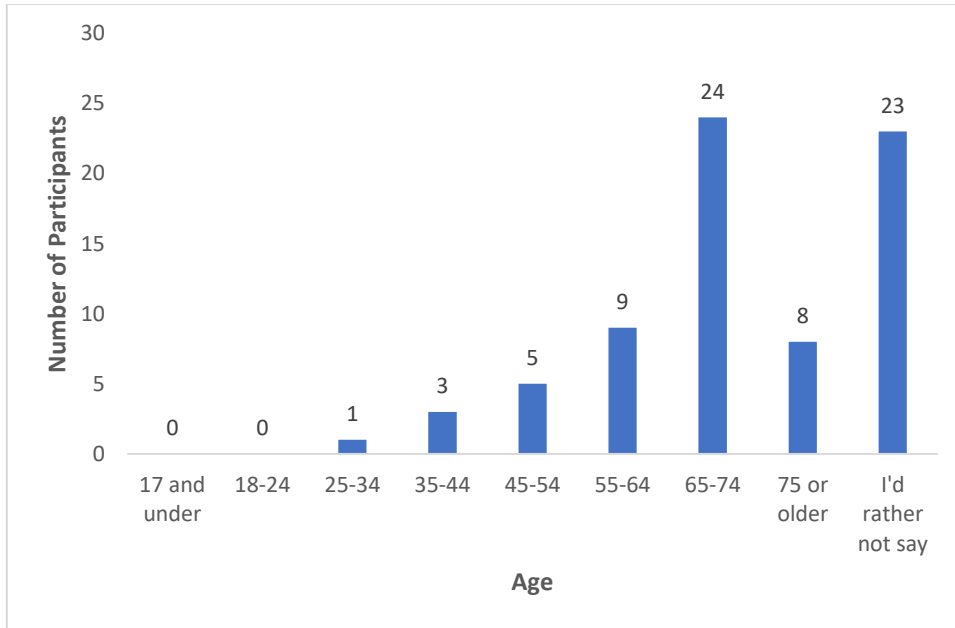
- 73 in-depth responses (feedback forms or emails/letters)
- 15 people provided comments on the online 'sticky note' tool

As well as receiving feedback from individuals and landowners/residents, there were several organisations and groups including:

- Nelson Marlborough Health
- Waimea Inlet Forum working group
- Forest and Bird
- Friends of Nelson Haven and Tasman Bay Inc.
- Mohua (Golden Bay) Blue Penguin Trust
- Friends of Golden Bay
- Nelson/Golden Bay Region of the Ornithological Society of New Zealand

### 4.2 Age of Participants

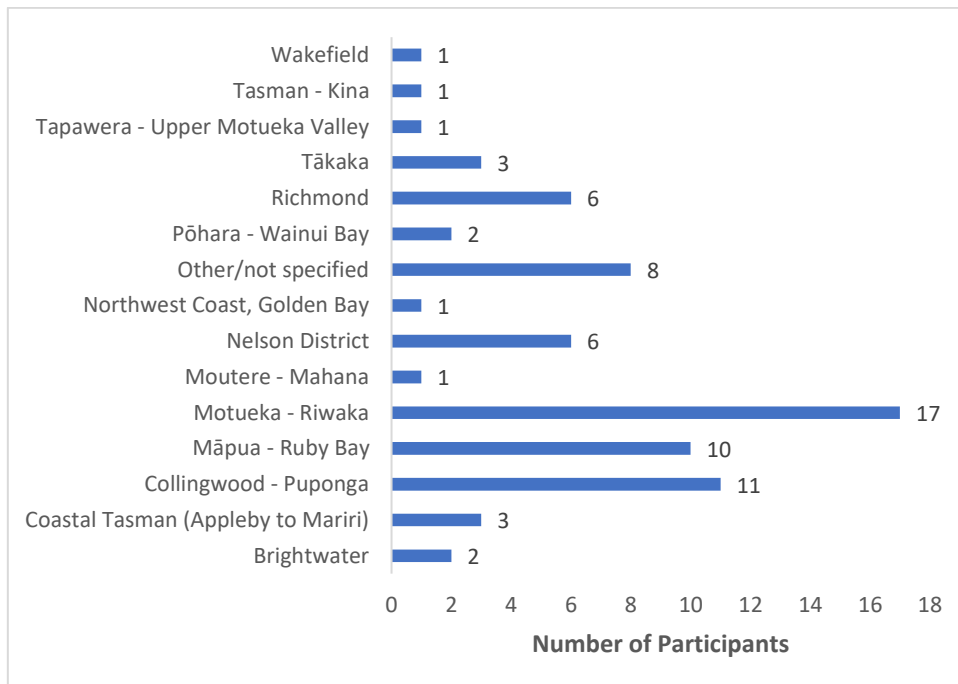
Nearly 1/3<sup>rd</sup> of participants did not specify their age because they chose not to or because they were responding on behalf of organisations. Of the 50 participants who did specify their age, 64% (32 people) were 65+ years old, with a large number of people being in the 65-74 years age range (as shown in Figure 5). There were only 9 participants (12%) who identified as being younger than 55 years old.



**Figure 5:** Number of participants by age group

#### 4.3 Number of participants by location

The largest group of participants identified that they live or have property in the Motueka – Riwaka area (23%), followed by the Collingwood – Puponga area (15%) and Mapua – Ruby Bay (13.5%).



**Figure 6:** Number of Participants by location

## 5. Analysis of Feedback

The following section summarises the feedback received from the in-depth responses (73 participants) and online 'sticky note' tool (15 participants).

Participants were asked to give feedback on the four high-level options for coastal management including:

- Which options are supported or not supported
- 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 were not identified.

Participants were encouraged to only answer those parts of the feedback form that they were interested in and as a result the number of participants who responded to each question varies.

### 5.1 Accommodate Options

The accommodate 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.



#### Question 1: What are your views on the Accommodate options?

Of the responses received, there was general support for the accommodate options of raising ground and floor levels, and relocatable dwellings. However, a number of participants highlighted a range of limitations with these options. Some participants commented that these are limited-lifespan options (short to medium actions) and should only be used in low-risk circumstances in particular locations (e.g. locations vulnerable to infrequent coastal storm events rather than sea level rise). Others noted that for the accommodate options to be acceptable, they need to form part of a package of coastal management actions (including other mitigation and protection measures) as an interim measure while working towards managed retreat.

There were mixed views on whether accommodate options should be applied to existing development only (e.g. retrofitting development), or for new development (including what scale of new development).

For existing coastal development, comments focussed on the costs, feasibility and practicalities to retrofit existing buildings, and implications for existing infrastructure. The costs associated with clean ups after coastal storm events was raised by a participant.

One participant stated that they firmly believe that the choice should be theirs, as the landowner, as to whether they use

*“These are only short-term options and where used, limitations should be placed on further development, to send the signal that they are unlikely to be a long-term solution. Longer term solutions, like retreat, deserve more emphasis. Even relocatable solutions will still require infrastructure to be maintained and possible capacity increase, if intensification is allowed. Infrastructure renewal time will be a decision point.”*

accommodate measures as they wanted to build at ground level still (and not have to raise their ground/floor level).

A participant noted that they are aware of research that demonstrates that accommodate options can lead to increased exposure to natural hazards over time, and therefore this option should only be chosen when the affected communities are fully informed. They commented that the use of land information memoranda (LIMs) are a valuable means of raising awareness of these limitations when a property changes hands.

It was suggested that if accommodate measures are allowed to be applied to new development on private property, then the owner(s) must accept all direct and indirect liabilities for that development (including obligation to fully indemnify all affected parties from any loss, damage and costs resulting from implementing such measures). Another response recommended that the Council needs to be very clear on their expectations on what level of infrastructure servicing will be provided over time, and what support Council would give to homeowners should relocation be required in the future.

One participant commented that the accommodate options are only appropriate where it will not leave to any consequent loss of existing or potential ecological values on the coasts and intertidal areas of the District's estuaries and inlets, in the short, medium and long term. They suggested planning mechanisms (e.g. rules/bonds) will be required to ensure site remediation when trigger points are reached and buildings are removed (e.g. removal of any fill and re-establishing original soil profiles/characteristics to ensure future adaptation options for wildlife habitat are not blocked or distorted).

A small number of participants did not support the accommodate options as they did not support continued building in low-lying coastal areas given the longer-term risk, unsustainability of such development, and environmental impacts. One participant believed that the time for accommodate options is well past, and an adaptive approach lacks the necessary urgency and may mean we put more assets in harm's way.

One participant suggested that the ability to gain insurance will play a large part in the feasibility of accommodate options, and the use of concrete pad foundations should be banned in coastal developments. Another suggested that the Council should refuse to give consent for new development in areas where insurance companies refuse to cover coastal properties.

There was no specific comments in support of alternative inundation pathways, which could include measures such as canal developments. One participant raised concerns that this option may affect natural coastal processes, especially in the freshwater/seawater interface.

## **Question 2: Are there any other Accommodate options that we've missed?**

A small number of participants commented on the need for improvements to existing infrastructure to accommodate inundation and provide more resilient asset services, including improved stormwater drainage during storm/high tide events, and raising the level of Motueka Quay road.

One participant suggested that property owners who have experienced flooding (rain or seawater) should be allowed to lift (if possible) their buildings by at least one metre as of right to maintain habitability and value for some decades longer.

It was suggested that an important accommodate measure that was not listed is restricting types of development. The participant noted that not all urban land uses have the same degree of sensitivity and while vulnerable land may not be suitable for housing, it may be suitable for a range of commercial/industrial land uses or recreational activities (e.g. golf course, playground or sports fields); and that care needs to be taken when changing land uses so that the exposure to natural hazards is decreased and not inadvertently increased.

Under the accommodate option, it was requested that the Council start planning for the korora/penguin population at Port Tarakohe so that the birds can continue to use the western arm, given that the port contains the most significant population of korora in Golden Bay.

Three responses suggested floating houses or floating structures as an option for consideration.

#### **Information Box 1: What is a floating house?**

'Floating houses' or 'amphibious architecture' has the potential to offer design solutions for inundation-prone locations. A floating house could be as simple as a houseboat. Alternatively, more innovative solutions could use the same design principles as a floating pontoon attached to piles, rising and falling with the level of the water.



Image Source: <https://www.newyorker.com/tech/annals-of-technology/a-floating-house-to-resist-the-floods-of-climate-change>

Some designs may be better suited to river flood plains or coastal locations with infrequent storm events, rather than accommodating every day high tides associated with sea level rise.

In the New Zealand context, it is unlikely that concepts such as floating neighbourhoods or towns will become a reality<sup>1</sup>. More likely, bespoke design solutions will provide limited opportunities for those who have the means, rather than being the norm.

## 5.2 Protect Options

The protect grouping of options 'hold the line' and include soft and hard options to protect coastal areas from the sea. Soft protection includes dune and beach nourishment/replenishment (e.g. sand push-ups) and wetland restoration and enhancement. Hard protection includes coastal protection structures (e.g. sea walls), groynes, stopbanks, tide banks, and causeways.



<sup>1</sup> Stuff. (2021). Are houses on 'stilts' a good solution to more frequent flooding? Mikaela Wilkes. Viewed on 26/01/22. (<https://www.stuff.co.nz/life-style/homed/sustainable-living/125808584/are-houses-on-stilts-a-good-solution-to-more-frequent-flooding>)

### Question 3: What are your views on the Protect options?

There was overall support for the use of protect options, but mixed views between those that supported soft or hard protection measures.

Many that supported soft protection did not support hard protection, and vice versa. Common themes in opposition of each of the measures included interference of natural coastal processes, ecological impacts, and cost versus benefits/effectiveness. A small number of responses did not support any of the protect options for these reasons.

General comments made by participants included that protection measures should be considered at a local level on a case-by-case basis, consideration of implications/costs associated with ongoing maintenance, protection options have limited-lifespans (e.g. are short to medium term actions), and should be undertaken with other coastal management actions (e.g. avoidance or retreat options).

A number of participants commented on the environmental impacts of soft protection measures. Those that supported soft protection measures commented on the benefits including plant and habitat restoration. Two participants who were not supportive commented that the act of moving sand can cause ecological damage to the foreshore affect the feeding grounds of sea birds. Another two participants commented that sand push-ups can be detrimental to korora/penguin habitat, and that hard protection may be more favourable to korora and seals.

*“What has been done (i.e. developed) has been done. So up to a point houses and towns should be protected, at least in the short term (5-10yrs). Soft protections would be much more preferable as we should no longer be changing the coast with sea walls stop banks etc.”*

*“Hard protection would, even by present worse-case scenario of sea level rise, could give Motueka another 100 years, to study the developing situation, and prepare in case retreat is then needed.”*

Those participants that were not supportive of soft protection measures believed that sand push-ups were ineffective and an ongoing expense to replenish the beach after storm events.

A number of participants supported the use of appropriately designed hard protection measures as a means to protect existing development from coastal storms and sea level rise. Some participants commented that the Council should be more supportive and allow landowners to protect their properties, with several specifically mentioning Pakawau properties. One participant suggested that it is entirely practical to protect Motueka from a 0.5m sea level rise with a small rock faced stopbank/sea wall, and that protecting the township from a 1m sea level rise is possible in consideration of the social and financial stakes. Another commented that hard protection to protect existing development along the Richmond coastline/Waimea Inlet would offer the greatest protection in the long term. One participant noted that stopbanks protect properties on floodplains and therefore hard protection was appropriate at the coast. Others were not supportive ‘in principle’ of hard protection such as sea walls but considered that they may be a necessary protection measure for existing development.

Those participants that were not supportive of hard protection highlighted the costs versus benefits, and adverse environmental impacts including end wall effects and ‘coastal squeeze’ (loss of natural habitats or deterioration of their quality as a result of sea walls and other hard protection

structures). One participant stated that they are opposed to any new coastal protection works that are intended either to facilitate more intensive development or to allow for new development.

One response suggested that the carbon cost of building hard protection structures needs to be factored in the decision-making process; and that expectations need to be clearly articulated to communities in terms of how much further investment will be made into protecting and restoring hard protection measures after extreme weather events.

Five participants commented on the necessity of protecting critical Council infrastructure, including roads and lifeline utility services. One participant also highlighted that from a public health perspective, salt-water intrusion into aquifers is a major concern and there are a range of public and private drinking water supplies drawing water for human consumption which are located near the coast.

#### **Information Box 2: Protection measures won't hold back the sea**

The feedback gathered on the group of protection options highlights the complexity of coastal management and the range of views regarding the suitability of individual measures. Both soft and hard protection measures will have their own set of pros and cons, and are likely to vary between locations.

In our District, Council-owned hard protection structures have been built to mitigate coastal erosion only and not coastal inundation. Similarly, soft protection measures (sand push-ups and plantings/Coastcare projects) have successfully been undertaken at a number of locations including Pakawau, Torrent Bay and Little Kaiteriteri in response to coastal erosion.

How erosion trends or rates will change with rising sea levels into the future is uncertain. 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 will remain the more spatially extensive coastal hazard.

Protection options are unlikely to be viable with rising sea levels due to the physical practicalities (a need for more sand or higher sea walls), the potential for significant adverse environmental impacts, and the cost versus benefit. Ultimately, the use of soft and hard protection measures won't 'hold back the sea'<sup>2</sup>. Rather, they are likely to only provide for short to medium protection at best, as an initial part of a long-term strategy that will need to also include retreat or enhanced or alternative protection.

#### **Question 4: Are there any other Protect options that we've missed?**

One participant suggested the use of 'living shorelines' which use natural salt marsh vegetation, alone or in combination with some type of harder shoreline structure for added stability. They commented that living shorelines are being used globally in locations where retreat is difficult and is

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<sup>2</sup> Stuff. (2021). A Shore Thing: not enough money to 'hold back the sea', but defence is possible. Geraden Cann and Denise Piper. Viewed on 27/01/2022. (<https://www.stuff.co.nz/environment/climate-news/300471583/a-shore-thing-not-enough-money-to-hold-back-the-sea-but-defence-is-possible>)

a more environmental short to medium term alternative to traditional protection measures. The technique, adapted to suit New Zealand conditions, could be used as an interim measure to protect valuable built assets that impinge upon the District's estuarine shores. Another participant also noted that while rock seems to be the most widely used form of hard protection in the District there are more ecosystem-friendly options and cheaper alternatives being developed overseas as countries consider more coastal protection strategies (e.g. 'Hillblock' revetment system).

A small number of participants provided comments in relation to Council infrastructure. Suggestions included raising the level of coastal roads as a means of hard protection or improving drainage systems alongside hard protection measures to better accommodate inundation and protect assets and property.

One participant recommended that the Council needs to change their whole philosophical approach to coastal assets that was used in earlier Coastal Assets Activity Management Plans, with more focus on environmental values and natural assets. They also suggested that where continuing or increased hard protection is deemed essential for short to medium term protection in commercial/industrial zones and highways, the adverse environmental impacts (especially 'coastal squeeze') must be fully compensated for or offset in each estuary/inlet. This is to ensure there is no net reduction in the area of healthy natural intertidal ecological sequences as the sea level rises – this practice is already widely used elsewhere around the world.

A response recommended that the Council works in partnership with impacted communities to develop an agreed 'coastal protection plan' that avoids having to go through expensive and complicated planning application processes for hard protection. Another suggested that the Council needs to listen to people that live in the affected areas, as they have the ideas and know what will work.

A participant commented that by hard protecting coastal areas, not only are roads, infrastructure, houses, etc protected but also areas needed by wildlife (e.g. birds, seals, penguins, etc) are protected.

### 5.3 Avoid Options

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. It includes measures such as 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.



#### **Question 5: What are your views on the Avoid options?**

There was overall support for this option. Avoiding further intensification of existing built areas was described by some participants as being the 'best option', 'sensible', or a 'no-brainer'.

A number of participants highlighted the longer-term environmental, social and economic benefits of using avoidance measures, as it would minimise the overall scale of assets needing to be relocated (e.g. houses, businesses, infrastructure) in the future if managed retreat was required.

Some participants were supportive of avoiding more development on coastal margins in favour of providing reserves, restoring coastal wetlands and enabling buffer zones to support ecological



migration as sea levels rise. One participant suggested it is important to prevent the filling and/or development of land behind coastal stopbanks, otherwise it will be very hard and costly to remediate in the longer term to enable establishment of saltmarsh and shoreline wildlife habitat once sea level rise trigger points have been reached.

*“Absolutely agree. This would avoid extending the existing problems that we have now that will require ongoing remediation and escalating cost.”*

Avoidance measures can include land use planning tools such as zoning and rules. Some participants suggested that the approach may need to vary between communities and areas along the coast and encouraged the Council to continue to raise awareness, work with, and support, those affected communities. One response highlighted that when implementing avoidance measures in low-lying coastal areas, it is important to retain protection of highly productive land from urban encroachment to enable local food production.

*“Avoid is very important - especially when you identify areas required for coastal migration of natural ecosystems and species - recalling that those margins need to be quite wide for some species, e.g. banded rail.”*

Some participants suggested that avoidance measures should be used in conjunction with accommodate and/or protect options. That is, where the hazard risk cannot be mitigated or minimised, then development should be avoided. Others commented that Council is already using these types of measures in resource and building consent processes. However, a small number of participants were critical of Council practices and suggested that the Council has not applied avoidance measures by continuing to allow development in low-lying vulnerable coastal areas. One participant suggested that the Council should not be investing in any more infrastructure in vulnerable coastal areas.

One participant commented that the potential for liquefaction on low-lying coastal land should also be considered as part of the overall avoidance strategy. This is in recognition of the lessons learned regarding Christchurch and the liquefaction hazard caused by the 2011 earthquake, and the potential for the Alpine Fault to rupture in the future.

One responder commented that the avoid ideas seem over-cautious and over-planning and recommended to only plan when there is real data on coming changes in sea levels, as little has changed so far. Another participant queried who pays to buy back areas that may be affected by future set back rules.

### **Question 6: Are there any other Avoid options that we've missed?**

The Coastal Management Project focuses on climate change adaptation initiatives. Two participants suggested that avoidance measures should also include climate change mitigation initiatives such as large-scale emissions reduction (e.g. cars, planes, cows), or a reduction in population growth and changing demand for infrastructure. These types of comments are also noted in the general feedback in Section 5.5.

One participant commented that as part of the engagement there was no discussions on incentives to move to safe areas or encourage new development in these safe areas. Another participant recommended that advice needs to be given to residents on how to make their coastal homes safe, given that there are many other places around the world (such as Florida Keys, USA) that have

existed for many decades being battered by much larger storms than what has been experienced in the top of the South Island/Te Tau Ihu.

As part of the avoid measures, a participant suggested that esplanades should be protected with need for specific access points to the beach for vehicles and boats, tsunami evacuation routes, and some beaches nominated as reserves with restricted motorised engine activities (e.g. vehicles, jet skis, speedboats).

One participant commented that a key avoid option that was not listed is transitioning land uses in more exposed urban areas, from more sensitive land uses such as residential development to more resilient land uses such as commercial and industrial and recreational.

Another avoid option that was suggested was requiring esplanade reserves rather than strips and Council acquisition of low-lying land in areas with important ecological values, for example at Pearl and Nieman's Creeks. Additionally, low lying areas adjoining estuaries should be included in esplanade reserves at the time of land subdivision.

#### 5.4 Retreat Options

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 back on a property), to relocating whole communities and infrastructure, or enabling ecological migration of coastal species and habitats.



#### **Question 7: What are your views on the Retreat options?**

There were mixed views regarding the use of retreat options and the feedback highlighted the complexities and challenges associated with retreat for society as a whole.

The majority of participants' comments fell into two groups of (a) we must start planning for retreat now, or alternatively (b) that retreat should be viewed as a 'last resort' option when other options had been exhausted. A small number did not support retreat in general, as they believed it was already too late for retreat given the scale of existing development and/or favoured other options (particularly protect options).

A common feedback theme was the cost involved with retreat, with many participants commenting on how expensive it would be and/or who would pay for it (with some suggesting ratepayers should not pay to protect private property). Comments included the need for assistance and incentives to initiate retreat (including a suggestion for a national fund), consideration needs to be given to vulnerable populations who may not have the financial means or wish to relocate, or that planned retreat would be cost-effective over the longer term as the cost could be spread over many decades.

Some participants suggested that we should be proactive in planning for managed retreat now. Comments included that re-zoning is required, identification and planning of locations to retreat to (including new infrastructure servicing, and avoiding highly productive land), development of a retreat policy for all new infrastructure, and that it is essential to work with affected communities.

A range of comments were provided regarding new resilient locations for new urban centres or industrial/commercial sites. Some participants highlighted that locations/zones within Mapua, Lower

Queen Street, and Motueka are at high risk within this century and require options for retreat – proposed locations included on the Moutere hills and inland of Mapua or Mahana. It was also suggested that the future lies in compact, inland residential hubs where planning protects farmland and nature, and improves access, services, recreation, high value jobs. Another participant suggested a number of planning actions to enable Motueka to become more resilient and recommended that developers must be required to take responsibility for their developments made in at-risk areas.

There were a number of comments supporting the provision of areas to enable inland ecological migration as sea levels rise, including protection and restoration of wetlands/saltmarshes and korora/penguin habitat. One participant commented that future coastal management should incorporate managed retreat as this will provide opportunities for habitat creation/restoration, therefore ensuring the region’s biodiversity values are maintained. Another response commented that natural processes do not retreat, they adapt; and the adaptive planning approach requires that boundaries between intertidal, shoreline and inland areas be given the freedom to move naturally inland to match the pace of sea level rise.

Three participants suggested that more technical knowledge/information from independent researchers was required to understand sea level rise (e.g. timeframe and severity) before retreat options should be considered. One participant noted there was no need to over-plan until we can begin to see what we are facing otherwise it will be “a complete waste of money and destroy coastal towns”.

A small number of participants suggested that retreat options should be considered on a case-by-case basis, could be favourable in low-lying areas but not everywhere. One responder recommended that retreat would only be suitable for existing very low-density development and suggested Jackett Island as an example as it would be particularly difficult to protect. One participant stated that retreat is not an option for the Pakawau community.

*“This is the worst case scenario and probably necessary in decades to come but is not an immediate issue and will require substantial planning to implement. I therefore do not consider that it should be considered along with the other measures and rather be treated as a long term, in the future action.”*

*“Last resort and should not be forced on people.”*

*“Retreat. We cannot fight nature. Even if you put up walls to stop it. The sea will always win, retaining walls will end up in the ocean, houses will be too.  
Environmental disaster in the making.”*

Several participants highlighted the social complexities of retreat options. A response recommended that “the existing social, political, ethnic and economic inequalities and structural power imbalances must be acknowledged and accounted for in the implementation of a managed retreat approach”. Two other participants highlighted the importance of the Council working with communities regarding retreat options, and a third commented that the concept of retreat is overwhelming and the affected landowners and communities will need to be helped. It was suggested by two participants that retreat should not be forced on people, with one commenting that it is for the

occupants to decide what they wish to do. It was also recommended that moving communities to safe areas must be accompanied by relocation and co-location of jobs inland.

One participant suggested that it will be like 'musical chairs' to see who will be left unable to insure or sell a property when the risk becomes too high. Other comments considered implications for coastal landowners who knowingly purchase or invest in vulnerable coastal areas and where does the responsibility lie regarding relocation costs or compensation.

### **Question 8: Are there any other Retreat options that we've missed?**

One participant suggested that services should be withdrawn from those properties that refuse to retreat and do not repair properties damaged by coastal storms.

It was noted by one participant that esplanade reserves are a key method for both facilitating public access and protecting the conservation and habitat values of coastal and riparian margins. It was requested that the Tasman Resource Management Plan should clearly signal that esplanade reserve waivers or reductions in coastal areas of low-lying land are inappropriate, and that the Council should also consider adopting a policy of acquiring low-lying land adjoining the coast at the time of subdivision to facilitate the protection or restoration of native vegetation in these areas.

It was suggested that the Council needs to work with key landowners and stakeholders to explore in a non-confrontation way, just how to use the adaptive planning approach to get the future migration of salt marsh and coastal margin vegetation onto privately owned low-lying rural land, incrementally over time, without unduly burdening individual parties.

One participant believed sea level rise is relatively slow and given that houses have an average lifetime of 50-60 years, then it becomes a next century problem. They concluded that reductions in greenhouse gas emissions will have been required before then, otherwise there will be more pressing issues than worrying about coastal housing.

Two participants believed that there is cognitive dissonance (contradictory behavioural decisions) between growth/development and reduction, with one participant commenting that all further 20<sup>th</sup> century-style growth will bring coastal destruction and the need for retreat much faster (for example, construction and use of new buildings can cause greenhouse gas emissions which in turn causes climate change and sea level rise).

The use of 'climate leases' was suggested by a participant as the concept aims to prevent new permanent development in hazardous areas.

### **Information Box 3: What are ‘climate leases’?**

Developed by New Zealand climate economist Belinda Storey, ‘climate leases’ has the potential to restrict permanent coastal development in hazardous locations. The concept focuses on developing a legal framework which could convert property freehold titles to leasehold titles when sea level rise renders properties suitable for only temporary occupation. The lease would put a time limit on the property, which could potentially range from years to decades or up to 100 years depending on the risk to the property. Once the lease expires, existing use rights would be extinguished and the landowner would be required to move off the property. Such a concept would promote the use of relocatable buildings and other design innovations<sup>3,4</sup>.

## 5.5 General feedback

The following section provides a summary of all the general feedback that was received and has been collated into common themes as set out below. This general feedback was in response to:

- Question 9 of the feedback form, which sought any general feedback on the coastal management options and how we may respond to coastal hazards and sea level rise, including what combination of options may be appropriate or the staging of options over time.
- General comments provided amongst the targeted Questions 1-8.
- Feedback from the online ‘sticky note’ tool
- Additional information and feedback provided by some participants (e.g. via letter, email).

### **Combination or staging of options**

Some comments focussed on the suitability of options, for example that options must be offered with flexibility, all options have merit with the exception of retreat, or a combination of options is preferred.

Some participants reiterated that different options will be suitable for different locations along the Tasman coast, with some noting that it was difficult to provide an opinion on options at this high level of engagement. One participant commented that “unless the whole coastline is abandoned to the ravages of the sea, then some form of ongoing remediation will be required using measures that interfere with natural coastal processes”. A response suggested that a combination of hard and soft protection measures would be suitable for Pakawau, while another recommended that avoidance measures to prevent further intensification of coastal areas in Golden Bay was required due to the very high conservation and landscape values.

The timing or staging of options was also commented on. One participant suggested that the near-future risk is occasional high tide/weather-related temporary inundation, therefore the immediate focus needs to be for accommodation and protection of existing structures and coastline; and

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<sup>3</sup> Stuff. (2021). Proposed library and homes at risk from insurance retreat, expert says. Katy Jones. Viewed on 02/02/22. (<https://www.stuff.co.nz/environment/climate-news/126460590/proposed-library-and-homes-at-risk-from-insurance-retreat-expert-says>)

<sup>4</sup> RNZ. (2021). Climate hazard property - from freehold to leasehold. Viewed on 02/02/22. (<https://www.rnz.co.nz/national/programmes/ninetonoon/audio/2018781916/climate-hazard-property-from-freehold-to-leasehold>)

planning for avoidance and finally retreat options should be considered and planned for as the pattern of sea rise can be better determined. Others suggested that the avoidance and retreat options need to be planned and implemented sooner, particularly implementing avoidance measures to prevent further intensification in low-lying vulnerable coastal areas.

A participant noted that while it was understandable that the climate change scenario of 2m sea level rise for the year 2150 (RCP8.5 H+) is often utilised, this results in a discussion being around retreat, as it is impossible to accommodate or protect against 2m sea level rise. They recommended that 0.5m and 1.0m sea level rise scenarios should also be seriously considered so the possibilities of protection and the timing of avoidance actions can be identified.

One participant suggested that the Council could consider developing a hierarchy of options which is embedded in the Council's resource management plan. The hierarchy could follow the format of (a) avoid new development in high-risk locations; (b) accommodate/adapt for existing development and new development in medium to low-risk locations (including measures such as limited duration resource consents); (c) protect existing land uses on public land (where appropriate), and protection of new development should generally not be considered or provided for on public land (noting that if the hierarchy is followed then many of these new developments may be avoided in the first place); and (d) retreat should only be actively provided/considered for existing land uses, and new development should be limited in duration and provide for their own retreat when/if ever necessary. Council could develop maps for inclusion in its resource management plan to illustrate the hierarchy (similar to the existing Coastal Risk Area overlay for Mapua/Ruby Bay) and how it should be applied to different areas along the Tasman coast, to signal clear direction on coastal risk management.

There were a small number of comments relating to protection of Council-owned land and infrastructure assets. Two participants requested that the Council prioritise the protection of vulnerable public land (e.g coastal reserves, parks, and roads). Another participant advocated for the Council to undertake a comprehensive assessment of vulnerable public infrastructure, noting that it is critical that plans and funding for adaptive strategies are available in order to secure lifeline infrastructure. It was also suggested by a participant that given that the Council uses hard protection measures to protect Council assets, then it was only fair to allow ratepayers to protect their assets too.

One participant suggested that the Council has taken the worst-case scenarios for sea level rise and applied it in a manner that effectively tries to eliminate all risk, and this has implications of an over-zealous application of the Council's management tools. They suggest that there is a need for a two-tier system to provide balance and avoid harsh application of infrastructural risk management to private property risk management.

The use of 'dynamic adaptive policy pathways' (DAPP) was commented on by one participant noting that the Council's engagement materials indicate the benefit of DAPP as a tool by virtue of it being adaptive and flexible. However, it was suggested that there appears to be a tension between (a) the need to entrench long-term options that manage the impact of sea-level rise, and (b) the lack of certainty resulting from un-entrenched local government policies susceptible to change by cycles of local government election and economic funding processes. They pointed out that this tension is being considered by central government in the progression of the Climate Adaptation Bill and Resource Management Act 1991 reform, and that until communities can better understand how central government will enable local government to resolve this tension, it remains problematic for affected people to properly comment on the range of options; and recommends that it is essential local communities are provided with certainty provided by long-term entrenched laws and policies.

In relation to the types of coastal management options, two participants suggested that we should draw on international experience, with one suggesting the Netherlands could provide expert advice and there was no need to ‘reinvent the wheel’.

#### **Information Box 4: Comparing New Zealand’s coastal management with the Netherlands**

The Netherlands is considered a world leader in water management. Located on a low-lying delta on the western edge of Europe, it has three major rivers flowing through it and 523 km of coastline. The relatively small and densely populated country has for centuries successfully held back the sea and developed innovative hard engineering solutions to provide coastal protection and flood management<sup>5</sup>.

In considering our response to coastal management to date, it has sometimes been suggested that we need to look towards the Netherlands and adopt their solutions. However, New Zealand climate change economist Belinda Storey advises that it simply is not possible because as a country we cannot afford it. The Netherlands is comparable in size to New Zealand’s Southland region, and the entire New Zealand coastline is more than 10 times longer than the Netherlands’ coastline. Given that they are a densely populated country, the Netherlands’ amount of GDP (gross domestic product) per kilometre of coastline is 47 times the size of New Zealand’s GDP<sup>6</sup>. While some hard protection may be necessary in New Zealand, we will not be able to replicate the Netherlands and an overriding factor will be the cost versus benefits.

## **Climate Change Science**

There were a range of comments regarding the scientific advice on climate change and rising sea levels.

A small number of participants suggested that we take a ‘wait and see’ approach before implementing some options (e.g. avoid or retreat), and gather more data to share with the community, or were generally sceptical of sea level rise to date.

One participant requested that the Council’s messaging needs to be more balanced, suggesting that coastal storms occur and life carries on without the scare tactics regarding climate change; and that the term ‘global warming’ is inflammatory and gives people a biased impression of what may or may not happen in the future. Another suggested that sea level rise and global warming is ‘a have’ and just another way to rip off taxpayers.

Other participants were more accepting of climate change science. Three participants commented that sea level rise and climate change are occurring/is inevitable and there is a need to act now and avoid development in vulnerable areas (with an example of Ruby Bay provided by one participant).

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<sup>5</sup> Dutch Water Sector. Coastal Management: the sustainable management of coastal areas. Viewed on 03/02/22. (<https://www.dutchwatersector.com/expertise/coastal-management>)

<sup>6</sup> Newshub. (2021). Coastal erosion: The sea level rises putting thousands of New Zealand homes at risk - and how the Govt decides who foots the bill. Matt Burrows. Viewed on 03/02/22. (<https://www.newshub.co.nz/home/new-zealand/2021/04/coastal-erosion-the-sea-level-rises-putting-thousands-of-new-zealand-homes-at-risk-and-how-the-govt-decides-who-foots-the-bill.html>)

Another participant suggested it is critical to adopt best science directives. One participant was concerned that sea level rise will happen quickly as huge glaciers are melting, and that we have to act and prepare now.

A responder believed that measured sea level rise is increasing at a faster rate and that the Council should refer to more up to date and reliable projections (e.g. by Statistics New Zealand and NASA), and expressed concern that Council's background papers give a misleading (under-stated) impression of the implications of sea level rise for Tasman coastal communities.

## **Governance**

A few participants were appreciative of the work that Council is doing through the Coastal Management Project, including sharing information (including the webinar series) and working with the community. Others suggested that more work is required, for example a public education campaign (joint council/government initiative) and more media publications to inform residents of the dangers and urgency of sea level rise.

Two participants believed that the Council was previously unresponsive to coastal management issues in Golden Bay (e.g. Pakawau, Awaroa) but is now supportive, with one participant hoping that the Council will start supporting other at-risk communities in need of urgent protection. Another participant believed that the Council has a negative and confrontational attitude towards residents who want to protect their properties and this must change.

It was identified by a participant that the District is highly exposed and that as a community we need to come to terms with the situation. Another commented that the hard planning decisions need to be made now, while one participant hoped that some concrete decisions are made even if they are difficult and encouraged the Council to 'walk the talk'.

It was suggested by a participant that the Council should get central government financial support and assistance for research, relocation and planning.

## **Protection of Biodiversity and Inland Ecological Migration**

Protection of biodiversity and the need for space to enable inland ecological migration was a strong theme that came through in the feedback by individuals and a number of organisations including the Waimea Inlet Forum working group, Forest and Bird, Friends of Nelson Haven and Tasman Bay Inc., Mohua (Golden Bay) Blue Penguin Trust, Friends of Golden Bay, and the Nelson/Golden Bay Region of the Ornithological Society of New Zealand.

A range of comments can be summarised into the following broad themes and recommendations:

- The intertidal flats, beaches, saltmarshes and wetlands around the Tasman coastline provide habitats for a wide variety of birds and other fauna and flora, many of which are endangered and/or extremely vulnerable to the effects of climate change and sea level rise and existing human/development pressures.
- There is a range of existing studies/reports that have been undertaken by Council and others (including the [Native Habitats Tasman](#) work programme) – work to continue to identify habitats and species should continue, including implementing the recommendations in these reports (e.g funding, protection and restoration).



- The environmental impacts of each coastal management option needs to be considered as part of the decision-making process, and that in relation to retreat, we need to identify suitable retreat and enhancement areas for coastal species now to provide for future inland migration as sea levels rise.

Two responses provided comments on the Council's Coastal Risk Assessment Report (2020) and what information was used to inform the 'natural environment' domain. One participant suggested that the work completed by Native Habitats Tasman which includes detailed ecological surveys (on Council reserves and private land) should be used to inform the Coastal Management Project. Another participant noted that the Risk Assessment considers vegetation, but not other aspects of biodiversity.

As part of existing opportunities to protect biodiversity (particularly coastal birds and their nesting and resting sites), a small number of responses suggested measures such as seasonal restrictions on dogs/horses/vehicles and other activities on coastal margins, signposting, community education or removal of existing coastal structures.

### **Climate Change Mitigation**

While the Coastal Management Project focuses on climate change adaptation, several participants also suggested climate change mitigation initiatives. Recommendations included reducing emissions (including banning coal fires), reducing reliance on vehicles and promotion of active transport (including future proofing active/public transport infrastructure in low-lying areas), encouraging planting of indigenous forests for carbon sinks (as pine forests are unsuitable for long-term carbon sequestration); increase wetlands (better carbon sinks than forests), and support for farmers to fence off riparian strips/wetlands and discourage draining of wetlands. A response also stressed the importance of warmer, drier homes from both an energy efficiency and health perspective.

### **Other General Comments**

There were a range of other general comments including:

- Comments in relation to the current resource and building consenting process with suggestions that the process should be less complicated and more affordable, information provided by developers' agents need to be thoroughly checked as it is not always correct, and the Council's mitigation requirements to avoid building consent s72/73 hazard notices.
- A participant queried when the Council was going to study riverbank erosion (such as the Motueka River), as they object to ratepayer funding of coastal issues when rivers are ignored.
- A request to re-zone land in the Ngatimoti area to allow for subdivision and more housing, as they believe the land is not highly productive, and the local school would benefit from more families/ideal location for the centre point of the community.
- Farming, forestry and industrial practices impact on estuaries (e.g. silting up and eutrophying, loss of habitat and estuarine species) and regulation is needed to avoid this, particularly farming and forestry.
- One responder requested a map of Golden Bay illustrating what areas were once wetland or swamps, to better understand how far development has encroached into the sea, as they believe this is exacerbating the coastal erosion in the Bay.

- Consideration given to the location and storage of potentially toxic/hazardous substances and activities (including the industrial area of Lower Queen Street), and a suggestion that these should meet stringent design and maintenance requirements intended to seal potential contaminants within sea water-proof building and containers when storms occur.
- Concern about the development of houses in Richmond West in relation to sea level rise, and how the development included the filling of land which may only provide short term protection from flooding and may also increase other hazards, for example liquefaction.
- Care must be taken to ensure full alignment with the future Tasman Environment Plan, BioStrategy and definition of the 'coastal environment'.
- The Council should help the Tasman community to create a group which is monitoring developments and has responsibility to consult, monitor and report.
- Tasman and Nelson Councils should be cooperating, with for instance in cross-border environmental offsetting, and be in liaison with central government and other neighbouring councils so that communities/councils in the top of the south are working towards a consistent approach.
- Evidence from overseas suggests that high insurance premiums and the unavailability of insurance has a stronger impact on private decision making than the uncertain risk of extreme events.
- Based on a participant's experiences during the 2011 Christchurch earthquake, they provided comments on how the Nelson Tasman region may deal with a large natural hazard event, the vulnerability of the road network (particularly SH6), the need for household evacuation plans, the location of emergency services and their ability to respond during an event.
- Comments regarding over population, climate change, pandemics and sea level rise that the solutions can only come from positive action by governments, United Nations, World Health Organisation and supported by technical advice and direction from scientists worldwide.

## 6. Feedback - Broad Themes

A number of broad themes can be identified from all the feedback received, including:

- There was a common desire to implement coastal management measures/actions to respond to coastal hazards and sea level rise.
- There was general support for the accommodate and avoid options; and mixed views on the use of soft protection versus hard protection options, and the retreat option.
- The range of views considered the respective costs, benefits and potential adverse effects with each of the options, demonstrating the complexities and challenges of coastal management.
- A number of comments and ideas for alternative measures within each of the options were suggested.
- Some responses provided feedback on the staging and timing of options, with some identifying that the accommodate and protect options are limited-life span options (short to medium term actions), that a combination of options will be required, and/or the suitability of individual options should be considered at the local level on a case-by-case basis.
- A range of general feedback was provided, including comments on climate change science, governance, protection of biodiversity and inland ecological migration, and climate change mitigation.

## 7. Next Steps

The feedback received on the high-level options for coastal management will be used to inform the future work programme. Next steps in the Coastal Management Project will include considering specific options at the local level around Tasman, and their respective costs, benefits, and potential adverse effects - as well as a process to learn community preferences.

It is important to note that our key legislation, the Resource Management Act 1991, is currently being reformed. Central government-led work to develop a proposed a Climate Adaptation Act, and release of a National Adaptation Plan (due August 2022), will inform future phases of our Coastal Management Project. The work that has been completed to date will stand us in good stead for responding to future central government direction.

Long-term adaptive planning work will take several years to complete and the community conversation will be ongoing.