Takutai Kāpiti Q&A

1 June 2021

About Takutai Kāpiti

1. What is Takutai Kapiti?

Takutai Kāpiti is the Council's community-led coastal adaptation project. This project will help guide our response, as a community, to the impacts of climate change including weather patterns and sea level rise on our environment and our people. Using a community-led approach, we're bringing together a range of voices, recognising the values and knowledge of our indigenous people, to share information and develop solutions for adapting to coming change.

Takutai Kāpiti will establish a Community Assessment Panel (CAP) to deliver recommendations on coastal adaptation options for Council's consideration. These recommendations, including any potential cost associated with those options, should help guide the development of District Plan provisions to manage coastal issues and an approach to help the district deal with coastal hazards in the future.

2. Why is this work important?

Like many coastal communities around Aotearoa, we are vulnerable to a wide range of environmental challenges. This includes coastal hazards resulting from climate change and sea level rise.

In Kāpiti, we have faced some of these hazards in the past. While there is still much uncertainty about these challenges, and how quickly they will happen, what we do know is that there is a growing need for our community to start planning for our future. Communities that work together to plan for change are more resilient.

In May 2019, we declared a climate emergency on the Kāpiti Coast. We also made a commitment to our community, in the face of an iceberg of significant costs now, and increasingly over the coming decades from coastal erosion and floods, that we would progress our work on coastal challenges.

Predicting what will happen is not easy and we know people will have mixed views about how, when and what actions might be needed. However, putting climate change in the too hard basket is not an option. It is vital that communities are part of the decision making process and the development of solutions for adapting to it.

3. Who is involved?

A Community Assessment Panel (CAP), consisting of iwi partners, community and other key stakeholder/ agency representatives, will be established to provide the formal mechanism through which wider community input, indigenous knowledge and technical expertise will be used to develop the medium to long-term coastal adaption options for Council's consideration.

Earlier this year, former NZ Prime Minister and Waikanae resident, Rt Hon James Bolger ONZ PC, was appointed as Chair of the CAP.

Applications for the CAP members closed in May 2021 and we are currently working through a process to finalise the CAP's membership. Once established the CAP will meet regularly over the next 12 months to consider the long-term impacts of coastal erosion and inundation

and the risks they represent consider legislative requirements, review a range of adaptation options, and assess these against environmental, cultural, social, and economic impacts.

4. Have iwi been involved in Takutai Kapiti?

We are committed to iwi partnership, to ensure the collective environmental vision, values and position inherited and held by the iwi of Kāpiti are woven through the project. We will continue to work with mandated representatives as we shape the process going forward.

5. How will the community be involved in Takutai Kapiti?

Although there are multiple ways that the community can be involved in the Takutai Kāpiti project, the main conduit for community involvement will be through the Community Assessment Panel.

The Community Assessment Panel will meet regularly over a 12-month period to consider the coastal hazards and risks they represent, review a range of adaptation options, and assess environmental, cultural, social and economic impacts.

At the end of the process, the Community Assessment Panel will recommend coastal adaptation options for Council's consideration. The recommendations should help guide development of District Plan provisions to manage coastal issues and an approach for the district dealing with coastal hazards, and medium to long-term coastal adaption options for Council's consideration.

The wider community will be able to feed into the process in less formal ways; this will include utilising the dedicated Takutai Kāpiti website, surveys, and public open days.

6. Hasn't the Council gone down a similar path before?

No, Council has undertaken work to access the impacts of future coastal erosion and inundation hazards on our coastline but it has not engaged in a community-led approach to developing adaptive pathways.

Numerous coastal adaptation projects have occurred internationally and nationally. Two examples include the Hawke's Bay Clifton to Tongoio Coastal Hazard Strategy 2120, and the Makara Beach project in Wellington. Coastal adaptation projects are currently underway in other parts of the country (e.g. Thames Coromandel District, Tasman District, Hurunui District and Christchurch City).

We will draw on these projects and look at other emerging best practice to refine our approach for Kāpiti. More information about these projects is available on our Takutai Kapiti website.

7. What does success for the Takutai Kapiti project look like?

At the end of the Takutai Kāpiti project, we'll have a sustainable and flexible 100-year coastal adaptation strategy for the Kāpiti Coast District that is supported by sound technical expertise, and reflects the values and aspirations of tangata whenua and our community.

8. Why is the project focussing on adaption and not mitigation?

Mitigation and adaptation are the two approaches for addressing climate change issues. We need both however, Takutai Kāpiti focuses on building resilience and adapting to change along our coast.

Climate change mitigation means avoiding and reducing emissions of heat-trapping greenhouse gases into the atmosphere to prevent the planet from warming to more extreme temperatures.

Climate change adaptation means altering our behavior, systems, and—in some cases—ways of life to protect our families, our economies, and the environment in which we live from the impacts of climate change. The more we reduce emissions right now, the easier it will be to adapt to the changes we can no longer avoid. The aim is to build resilience so the impact is less.

Mitigation actions will take decades to affect rising temperatures, so we must adapt now to the change that is already upon us—and will continue to affect us in the foreseeable future.

9. What are the cost implications for Takutai Kāpiti?

A key part of the Community Assessment Panel (CAP) process is to consider a range of adaptation options (informed by technical expertise, cultural, social and economic impact assessments). Cost modelling will be undertaken as part of this stage of the process**.**

10. Why does Kāpiti need to prepare for the impacts of climate change and coastal hazards?

There are statutory and legislative requirements for Councils to manage the risks from coastal hazards and the effects of climate change.

An important document is the New Zealand Coastal Policy Statement 2010 (Objective 5 and Policies 24-27) which directs councils to identify areas that may potentially be affected by coastal hazards over a timeframe of at least 100 years and to assess a range of options for reducing coastal hazard risk.

Under the Resource Management Act 1991 (RMA) the Council must prepare its district plan in accordance with, and must give effect to the New Zealand Coastal Policy Statement[1]. Under s.6 (h) of the RMA, the management of natural hazards is considered a matter of national importance.

Understanding the impacts of climate change on our coast

11. How will climate change impact people living along the coast?

While we don't know how significant the impact of a changing climate and sea level rise will be, or how quickly these changes will happen in Kāpiti, we do know that communities that plan for change, and work together, are more resilient in the face of that change.

It is important that we are dealing with the social and environmental challenges facing us, including climate change impacts. Adapting to climate change along with ongoing development pressures on our coasts will be an ongoing challenge into the future.

People within our coastal communities will need to:

- become more aware of climate change effects
- consider how they become more resilient to the potential impacts of climate change.

Climate change and impacts from sea level rise will vary along the coastline and decision-makers face unavoidable uncertainty. It is not possible, practical or sensible to wait until uncertainties are reduced before we start to consider what options might be preferred by the community. That's why we are starting this conversation now.

[1] Resource Management Act 1991, section 74 (1)(ea), and section 75 (3)(b).

The Kāpiti Coast Coastal Hazard Susceptibility and Vulnerability Assessment

12. Why have you produced the Kāpiti Coast Coastal Hazard Susceptibility and Vulnerability Assessment - Vol 1: Methodology Report?

This report has been developed to provide background technical information on the methods of how the areas susceptible to present and future coastal hazard are being calculated in the Kapiti Coast District. This is required for Takutai Kāpiti, our community-led coastal adaptation process for managing coastal change in our district.

13. What is the methodology report?

The coastal hazard susceptibility and vulnerability assessment is being reported in two volumes. Volume 1 covers the methodology used, and volume 2 will present the results. Volume 1 is the more technical document that outlines the data and scientific methods used to assess current and future erosion and inundation hazards within the district.

14. What will this information be used for?

The information will be used to inform discussions with the community about the extent of coastal erosion and inundation that the district may face in the future with sea level rise. It is likely to then be used to support the development of new District Plan provisions around coastal hazards.

15. Has it been peer reviewed?

Yes – the methodology report has been through an external peer review process, the findings of which are attached to the report.

16. Is this methodology best practise and used elsewhere?

Yes – the various methodologies have been used recently in coastal hazard assessments around New Zealand for Councils in both Te Ika a Maui and Te Wai Pounamu, the North and South Islands. The peer review process has confirmed that the methodologies applied are consistent with techniques used to define coastal hazards for similar coastal environs in New Zealand and with the guidelines outlined in the Ministry for the Environment 2017: Coastal Hazards and Climate Change – Guidance for Local Government.

Key terms and methods in the report

17. What is coastal erosion?

Coastal erosion is the sudden or gradual loss of sand dunes and coastal land due to various coastal processes such as waves and storm surge.

Our coastlines are always changing. Open coast sand beaches can erode rapidly during storms, followed by slower recovery in claimer post-storm periods. . Gravelly and rocky shorelines trend to response less to these storm events. Over long timeframes some shorelines show signs of on-going retreat (erosion) where sediment supply is insufficient to fully recover between storms, whereas others have a good sediment supply and can continue to grow (or accrete).

Sea level rise will promote more erosion along our coastlines. Beaches that are continuing to grow at the moment may begin to erode in the future, and beaches that are already eroding are likely to erode faster in the future.

18. What is coastal inundation?

Coastal inundation is the flooding of land by water that comes from the sea.

Coastal Inundation occurs at locations with low coastal landforms (e.g. river/stream mouths, low beach ridges, breaks in sand dunes) due to a combination of high tides, and storm weather increasing sea water levels of the sea (called storm surge) and wave heights. With sea level rise due to climate change, the risk of coastal inundation will increase in certain areas. Areas may experience more frequent and deeper inundation and the extent of land experiencing inundation may be bigger.

19. What sea level rise projections have we used?

Sea level is expected to rise with climate change, but the rate of rise will depend on future global greenhouse gas emissions and how quickly the climate warms.

As is standard in New Zealand, we have used the range of sea rise projections given in the 2017 Ministry for the Environment 'Coastal Hazards and Climate Change: Guidance for local government', and updated these for the projected increases given in the Intergovernmental Panel on Climate Change (IPCC) 2019 'Special Report on the Ocean and Cryosphere in a Changing Climate'. The outcome is a range of projected sea level rises for three points in time: 2050; 2070; and 2120.

20. What does Relative Sea Level Rise (RSLR) mean?

Relative Sea Level Rise (RSLR) is the combination of sea level rise (SLR) from global climate change and local vertical land movements.

In the Kāpiti District and the wider Wellington Region, the land has a long-term trend of slowly subsiding (lowering) due to the movement of the earth's tectonic plates. As a result of this subsidence the observed change in water levels at our coastline will be bigger than just the rise from sea level rise due to climate change.

21. What timeframes have we assessed?

We are considering potential impacts of sea level rise at three timeframes in the future:

- 2050 to indicate the medium term potential impacts over the next 30-year period. There is greater certainty in the sea level rise projections over this timeframe and range of projections is smaller;
- 2070 to provide a longer-term idea of the range of the hazards over a 50-year timeframe. There is less certainty in the sea level rise projections over this period, so the range of projections is larger; and
- 2120 to provide a very long-term view of how the hazards may change up to 100 years in the future. There is a much greater range and much less certainty in the sea level rise projections over this timeframe.

22. What are projected future shoreline positions?

With different levels of sea level rise the coast will erode by different amounts. The Projected Future Shoreline Positions (PFSP) provide an indication of the range of positions of where the shoreline is most likely to be for each sea level rise projection at the given timeframe using a probabilistic approach.

23. What is a probabilistic approach?

A probabilistic approach is considered to be a best practise industry standard to deal with the uncertainty in the data and assumptions used to calculate the projected future shoreline positions (PFSP). Under this approach, random combinations of the full range of possible data input values are used to calculate thousands of potential future shoreline positions for each timeframe. This gives us confidence that the full range of possible future shoreline

positions have been calculated. Statistical methods are then applied to these thousands of possible positions to calculate the probability (likelihood) of each potential future shoreline position occurring.

From this approach, we obtain a range of potential future shoreline positions, with those with the highest probability of occurring being more likely to occur, and these with the lowest probability the least likely to occur.

24. Why is a different method used for erosion of open coasts and river mouths?

River and stream mouths have more complex interactions of erosion processes as they are also subject to flooding coming down the rivers. This leads to a different method needing to be used to assess them than what is used on the open coast shorelines. These river and stream mouth areas will be shown differently on the results maps.

25. Is there consideration of coastal structures in this assessment?

Yes – the impact of existing coastal structures on future erosion is considered in this assessment but only for the expected lifespan of those structures. Once a structure is older than its expected lifespan it is no longer considered in this assessment to be providing any protection for the shoreline.

26. What is the difference between coastal inundation and coastal inundation with run-up?

Modelling has been undertaken that considers what inundation may occur with high sea surface water levels due to tides and storm surges (termed “storm tides”) with varying amounts of sea level rise. This will be reported as coastal inundation.

Waves run-up on beaches reaches higher elevations that the “storm tide” water level, and has the ability to overtop low beach ridges and sand dunes along the open coastline. As a result, there is the potential for short time scale increases in the depth and extent of coastal inundation at these locations. Where is likely to occur with \varying amounts of sea level rise has also been modelled, and will be mapped as areas of potential coastal inundation with run-up.

27. What is a 1% AEP storm-tide?

A storm-tide is the combined effect of a storm event and the tide, resulting in a higher sea level than the tide alone. A 1% AEP storm-tide is the sea level reached by the effects of a storm event in combination with the prevailing tide that has a 1% chance of occurring or being exceeded every year. It can also be described as a 1 in 100-year event. The 1% AEP storm tide level has been used to identify where coastal inundation may occur along the Kāpiti Coast in the future with sea level rise.

What happens next

28. What will the results look like?

Volume 2 of the Kāpiti Coast Coastal Hazard Susceptibility and Vulnerability Assessment will present the results that have been calculated using the methodology detailed in the methodology report.
This will discuss the potential range of projected future shoreline positions plus the potential extent of inundation.

The results will be presented as a series of maps available as pdf and on a web viewer.

The methodology and final assessment report will be independently reviewed by Beca and Greater Wellington, and be made available on the Council’s website.

29. How will this information affect my Council rates?

At this stage, we don't know what the implications for Council rates will be – that will depend on what future mitigation or adaption options the community chooses, and the costs of these options over varying timeframes, alongside future Council and central government decisions.

How your property is rated varies depends on where you live, what services you can access and the value of your property.

The annual rates requirement for each rate type is determined through the Council's Annual Plan or Long Term Plan process. This means that there is an opportunity to present your views to the Council before rates are set through those processes.

Coastal Hazard provisions in the District Plan

30. Why were coastal hazard provisions withdrawn from the Kapiti Proposed District Plan?

As a result of community and submitter concerns surrounding a number of the Proposed District Plan (PDP) provisions relating to coastal hazards, Council commissioned two independent reviews of the PDP in November 2013. An independent Coastal Hazard Review Panel was also established.

On 24 June 2014 the Council received the two reports entitled 'Coastal Erosion Hazard Assessment for the Kāpiti Coast: Review of the Science & Assessment Undertaken for the Proposed Kāpiti Coast District Plan' and 'Independent Review of the Kāpiti Coast Proposed District Plan'. The key findings of the Independent Coastal Hazard review panel was:

> *"The opinion of the Panel based on its review is that the existing recommended hazard lines are not sufficiently robust for incorporation into the Proposed District Plan. However, there are components of the analyses undertaken by Lumsden and Coastal Systems Limited, which if updated and combined could potentially yield scientifically–sound, best practice hazard lines for the Kāpiti Coast."*

The report then presented a series of further technical recommendations to improve the scientific evidence to quantify the coastal hazard risks posed to the Kāpiti coastline.

Sylvia Allan (Allan Planning and Research Ltd), in the 'Independent Review of the Kāpiti Coast Proposed District Plan', recommended the formal withdrawal of the coastal hazard provisions of the PDP.

31. Will there be updated coastal hazard provisions in the future District Plan?

Yes, but the nature of those provisions will not be decided until the Takutai Kāpiti project has been completed.

32. What coastal hazard rules currently apply?

The Council is currently in a transition period, moving from the Operative District Plan (ODP) to the new, Proposed District Plan (PDP). While most rules/restrictions for the district now come from the PDP, all of the rules, which manage coastal hazards, are still taken from the ODP. These existing coastal hazard provisions will continue to apply until replaced by a future change to the district plan.

Links to the coastal hazard provisions, which will continue to apply until, replaced via future RMA Schedule 1 process can be found

here: https://www.kapiticoast.govt.nz/media/34521/part-c-current-operative-district-plan-objectives-policies-methods-outcomes-271657-_.pdf

Seawalls

33. Which seawalls are currently owned and maintained by Council?

Council build and maintain multiple seawalls (or hard protective structures) along the Kāpiti Coast for the purpose of protecting council infrastructure and areas of importance. A large-scale example is the Paekākāriki seawall (which we plan to renew following the outcome of our Long-term Plan discussions). It is not Council policy to build seawalls for the purposes of protecting private property.

34. Will the Takutai Kapiti project impact the planned replacement of the Paekākāriki Seawall?

No, the Paekākāriki Seawall project is signalled as a major project in our 2021-41 Long-term Plan (we've just consulted on options for replacing it) and is aimed at protecting council roading infrastructure for up to the next 30 years.