

Introduction

Introduction:

Waikato Regional Council is undertaking the first stages of developing a comprehensive **climate change risk assessment** (CCRA) to identify and understand the climate change risks within the Waikato region.

As you complete the survey (by clicking the links below), we encourage you to focus on climate change risks/impacts most relevant to your local area, your area of responsibility, your area of expertise, or your area of interest.

Please complete this survey by **Sunday 22 May 2022**.

Please use Google Chrome, Microsoft Edge, Mozilla Firefox or Safari to fill in this survey.

General climate change projections for the Waikato

The following information can be used as a guide when identifying risks within the region. Over the next century, while the effects will vary across the Waikato region, in general we can expect:

- rising sea levels and coastal flooding
- more extreme weather (including heavier rainfall during extreme events)
- warmer summers (including more hot days)
- milder winters (with less cold and fewer frost days)
- seasonal rainfall shifts
- while overall rainfall during a year is predicted to remain similar to present rainfall, the rainfall will likely be more concentrated around the winter period, more acute when it does occur, and likely lead to more severe flooding.
- drought risk will increase in the north and east over spring and summer, and there may be seasonal changes in rainfall and wind in the west.
- ocean warming and acidification

The map below summarises likely climate change projections for the Waikato region.



Additional information

More detailed information about climate change projections for the Waikato can be found at the Ministry for the Environment website, here: <https://environment.govt.nz/facts-and-science/climate-change/impacts-of-climate-change-per-region/projections-waikato-region/>

Or on the Waikato Regional Council website, here:

<https://www.waikatoregion.govt.nz/environment/climate-change/#e4051>

Your contact details

Name?*

Please type in your first name and surname

Email address?*

Are you completing this survey on behalf of your organisation or as an individual?*

You are welcome to complete the survey multiple times if you'd like to separately represent the views of different organisations you belong to.

If you chose "organisation" please add your organisation's name and your position. If you chose "other" please describe.

Workshop attendance

Workshops

As part of this project, we invite you to attend an online workshop to discuss and refine the climate risks to the region.

We invite iwi Māori to attend both the stakeholder workshop (which may include discussions of Waikato climate change risk relevant to iwi Māori economic interests) and the iwi Māori hui where the kōrero will likely focus on specific iwi Māori risks.

Please indicate below which of the online workshops you wish to attend:

Stakeholder workshop: 9 June 2022, 1:30 pm to 4:00 pm

Please select to indicate interest. A meeting invitation will follow.

Iwi Māori hui: 10 June 2022, 9:00 am to 11:30 am

Please select to indicate interest. A meeting invitation will follow.

Privacy:

You will be contacted by email as a follow up for this work. The information you provide, including your contact details, will be only used for the purposes of this climate change risk assessment project and any subsequent adaptation planning.

How to complete this survey

Survey instructions:

The survey is designed so that you can identify and describe as many climate change risks of relevance to the Waikato region as you like. The survey starts with some general questions, then asks you to think about specific climate hazards, and "elements" at risk (i.e. **what** is at risk from this hazard?), followed by some questions on transition risks.

Please complete all sections that are relevant to your areas of interest.

If you do not have time to complete the survey in one sitting, your responses will be saved. To edit, simply click on the survey link and pick up where you left off. Once you press the submit button, you can no longer edit your responses.

For the hazard section of the survey, you will be asked to identify elements at risk for the four general hazard groupings:

- Hazard 1: Flooding and extreme rainfall
- Hazard 2: Coastal Hazards
- Hazard 3: Temperature increases and drought
- Hazard 4: Any others you wish to add

For each hazard:

- **Identify what is at risk (the element)** (e.g. roading, waste management, parks and reserves, water availability and quality, native species (taonga), coastal ecosystems and species, soil ecosystems, wetlands, marae, wāhi tapu, horticulture, agriculture, forestry, tourism, homes, etc). You can add multiple elements which are at risk from a hazard.
- **Describe the risk and its impact/s**
 - Climate change risks can be both **direct** and **indirect**. A **direct** risk occurs as a result of a climate hazard (e.g. increased temperature/ flooding) impacting on something of value e.g. a species, building, infrastructure etc. An **indirect** risk occurs often as a result of knock-on/ **cascading** effects from a direct risk.
 - Eg, a **direct** risk would be increased temperatures affecting eel populations within rivers. An **indirect** risk would be the impact on the ability for communities to gather food (mahinga kai), which in turn could have health and wellbeing implications. Other examples of indirect risk include risk to emergency services as a result of inland flooding risk to roads, and risk to insurance availability as a result of coastal hazard risks to housing.
- **Describe any knock-on/cascading/indirect impacts from this risk**
- **Upload any relevant/supporting documents or technical information**
- **Give the location of the risk (if relevant)**
 - You have the option of adding a pin on the map to show where this risk is currently a problem or may be a problem in the future or you can describe the location. Note that you can only add one pin per element.

Finally, we will ask you to think about any risks associated with the **transition** to a low carbon economy. Descriptions of transition risks are presented in the transition risk section.

How is climate change impacting you?

Tell us how climate change is impacting you now and how it might in the future

This could be within your community and/or hapū and iwi, your business/organisation, and/or the Waikato region in general.


Climate change is already impacting our region. Some examples include water scarcity, drought, extreme weather events such as storms, heatwaves and heavy rainfall which affects lives, livelihoods, health and wellbeing, ecosystems and species, economic, social and cultural assets, services (including ecosystem services) and infrastructure.

1. How is climate change impacting you now? How do you expect climate change to impact you in the future?

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2. What are you most concerned about?

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Risk identification

Hazard 1: Flooding and extreme rainfall

Flooding and extreme rainfall related hazards may include:

changes in variability of rainfall, extreme weather (wind and storms), increased extreme rainfall and flooding, increased hail frequency or severity, and increased landslides and soil erosion.


To add another element press the (+) button. When you have added all the elements at risk, continue to the next hazard. To delete an element select the element's number and click the bin icon.

Flooding and extreme rainfall (1)




1. What is at risk (element)?


(e.g. wetlands, horticulture, agriculture, stormwater management, parks and reserves, water quality, native species (taonga), coastal ecosystems and species, marae, wāhi tapu, tourism, regulatory services, homes, other property and facilities, roading, waste management etc.)

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2. Describe the risk to the above

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3. Are there any knock-on/cascading/indirect impacts from this risk?

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Hazard 2: Coastal hazards

Coastal related hazards may include:


sea level rise (SLR), coastal erosion, groundwater rise, salinity stress, coastal inundation/flooding etc.

Coastal hazards (1)




1. What is at risk (element)?


(e.g. coastal ecosystems and species, soil ecosystems, water availability and quality, native species (taonga), roading, waste management, stormwater management, parks and reserves, wetlands, marae, wāhi tapu, horticulture, agriculture, tourism, homes, other property and facilities etc.)

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2. Describe the risk to the above

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3. Are there any knock-on/cascading/indirect impacts from this risk?

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Hazard 3: Temperature increase and drought

Temperature increase and drought related hazards may include:


higher temperatures, changes in variability of rainfall, reduced water availability and reliability, marine heatwaves, and increased fire weather.

Temperature increase and drought (1)




1. What is at risk (element)?


(e.g. roading, waste management, stormwater management, parks and reserves, water availability and quality, native species (taonga), soil ecosystems, wetlands, marae, wāhi tapu, community wellbeing and health, horticulture, agriculture, forestry, tourism, etc.)

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2. Describe the risk to the above

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3. Are there any knock-on/cascading/indirect impacts from this risk?

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Hazard 4: Other climate hazards

Add any other hazards that were not included that you would like to identify and describe.

Other climate hazards (1)




1. Other hazard description

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2. What is at risk?

(e.g. marae, wāhi tapu, stormwater management, native species (taonga), parks and reserves, water availability and quality, coastal ecosystems and species, soil ecosystems, wetlands, horticulture, agriculture, forestry, tourism, regulatory services, roading, waste management, homes, other property and facilities etc.)

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3. Describe the risk to the above

4. Are there any knock-on/cascading/indirect impacts from this risk?

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Transition risk identification

Transition risks (1)



Identify a transition risk

Transition risks refer to risks associated with the **transition** to a low carbon economy (as opposed to the physical risks associated with climate change which are captured in the above survey sections).

As part of this project, **transition** risks are being addressed in two broad categories:

Transition risks for key economic sectors in the Waikato. These risks will be related to:

- Changes to global and local policies (e.g. changes to carbon prices, regulations, subsidies, etc.).
- Changes to technology development and challenges with adoption of these (e.g. low carbon transport).
- Changes to markets and customer preferences, both locally and internationally (e.g. demand for more sustainable products and services).
- Legal risks due to stakeholder litigation and regulatory enforcement.

Transition risks for Waikato communities. These risks may be related to:

- Livelihood and increased cost of living (eg energy and transportation costs), changes in the regional economy (potentially impacting employment), etc, creating further social and economic inequalities.
- Issues of "just transition" which recognises that responding to climate change will be a mix of positive opportunities and necessary changes. It acknowledges that we will only be successful if we find a way forward which is fair to everyone.

1. Identify a transition risk

2. Describe the above risk

To add another transition risk, press the (+) button.

End of survey. Please click the submit button to complete the survey.

We thank you for your time and contribution to this mahi.