

The New Zealand Herald

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The New Zealand Herald

Six reasons you should worry about climate change



Changes expected to impact New Zealand include at least 30cm and possibly more than one metre of sea-level rise this century. Photo / NZME.

With a historic global climate agreement about to be signed in New York, a new report has laid bare how New Zealand will be affected by climate change.

The report, published by the Royal Society of New Zealand, has found that climate change, already underway, will almost certainly accelerate this century unless drastic action is taken to reduce global emissions of greenhouse gases.

Changes expected to impact New Zealand include at least 30cm and possibly more than one metre of sea-level rise this century.

The report finds it likely that the sea level rise around New Zealand will exceed the global average, which will cause coastal erosion and flooding, especially when combined with storm surges.

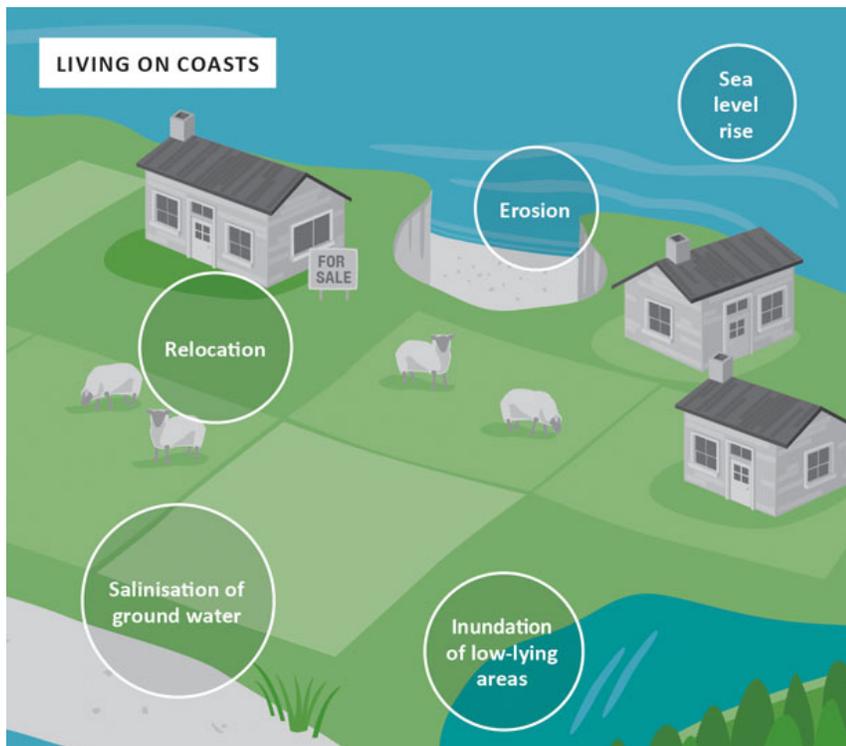
"Many New Zealanders live on the coast and two-thirds of us live in flood-prone areas so we are vulnerable to these projected changes," said Professor James Renwick, chair of the expert panel who wrote the report.

Even small changes in average conditions can be associated with large changes in the frequency of extreme events, he said.

The report highlights six major effects we can expect to see.

1. It will threaten our coastlines





- It is very likely that the rate of sea level rise around New Zealand will exceed the historical rate and exceed the global average - at least another 30cm is virtually guaranteed this century but the rise could exceed 1m.

- With a 30cm rise in sea level, the current one-in-100 year extreme sea level event would be expected to occur once every year or so in many coastal regions.

*Rising sea levels mean rising coastal water tables, leading to semi-permanent or permanent inundation of low-lying areas, and the potential for salt water to get into freshwater systems.

- The implications for coastal populations will vary widely, depending on the shape of the coast, the distribution of buildings and structures at risk and their vulnerability, and the differentiated make-up of communities themselves. *However, the recent report of the Parliamentary Commissioner for the Environment indicates that thousands of households in many towns and cities will be affected.

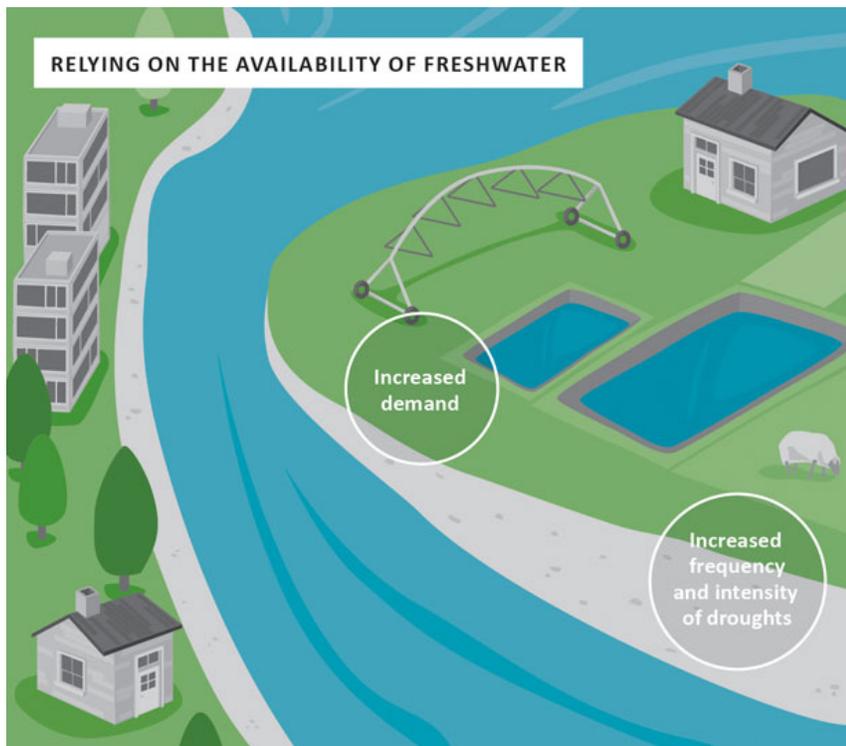
- These communities will need to plan for and adapt to change and some will need to decide whether to "hold the line" or relocate in response to known risks or actual climate change impacts.

2. It will bring more floods



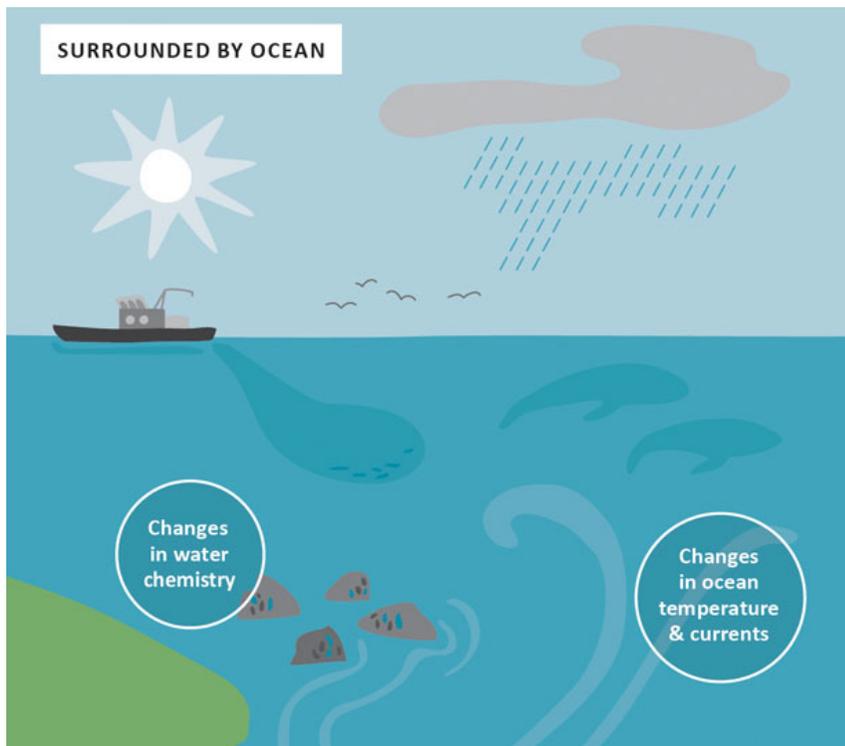
- Damaging flood events will occur more frequently and will affect rural and urban areas differently.
- Near the coast, floods will be exacerbated by rising sea levels and storm surges and further inland flooding will increase erosion, siltation and building damage.
- About two-thirds of New Zealand's population lives in areas prone to flooding, which is New Zealand's most frequent and, after earthquakes, most costly insured disaster.
- Extreme heavy rainfall events are expected to become more frequent in most parts of the country, by a factor of up to four, especially those regions where an increase in average rainfall is expected.
- Engineering solutions such as stop-banks, and static planning measures such as land-use zoning, while helpful in the short term, could reduce New Zealand's ability to respond as flood risk increases over time..

3. It will make our freshwater problems worse



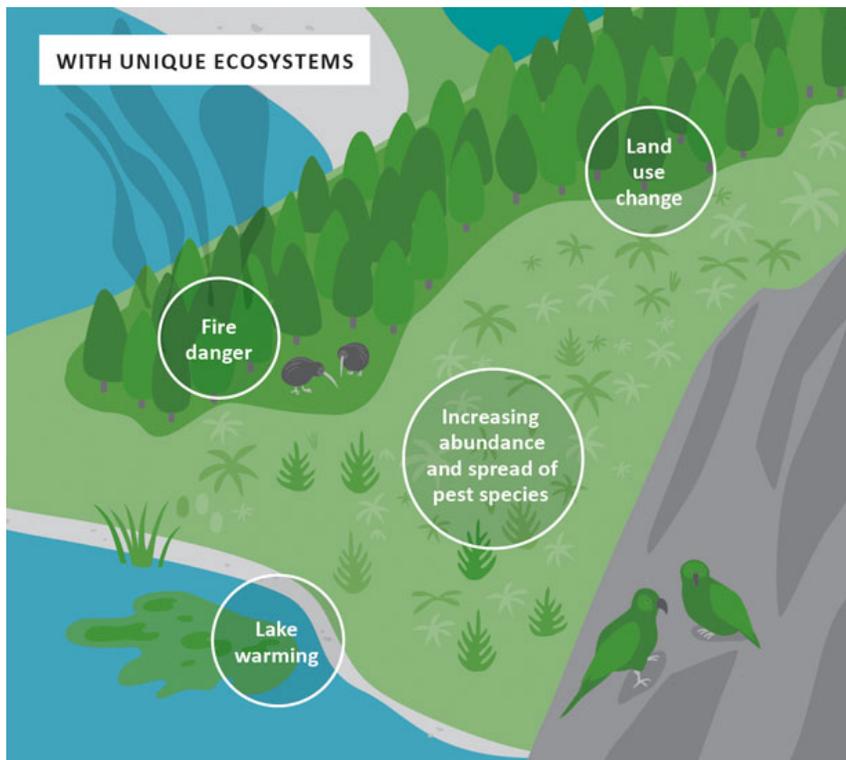
- Decreasing annual average rainfall in eastern and northern regions of both main islands, plus higher temperatures, will increase the frequency and intensity of droughts and the risk of wild fire.
- At the same time, urban expansion and increased demand for water from agriculture will result in increased competition for freshwater resources.
- There will be increased pressure on water resources due to both climate change and economic development.
- Decreasing rainfall in the east and north, plus higher temperatures, will increase the frequency and intensity of droughts, while at the same time, urban expansion and increased demand for water from agriculture will result in increased competition for freshwater resources.
- The increased pressure on water resources and increased demand for water resources also puts our freshwater ecosystems at risk.
- Fire danger is projected to increase in many parts of New Zealand due to changing rainfall and higher summer temperatures - the number of days with very high and extreme fire weather is expected to increase, with greatest changes in the east and north of both islands.

4. It will acidify our oceans



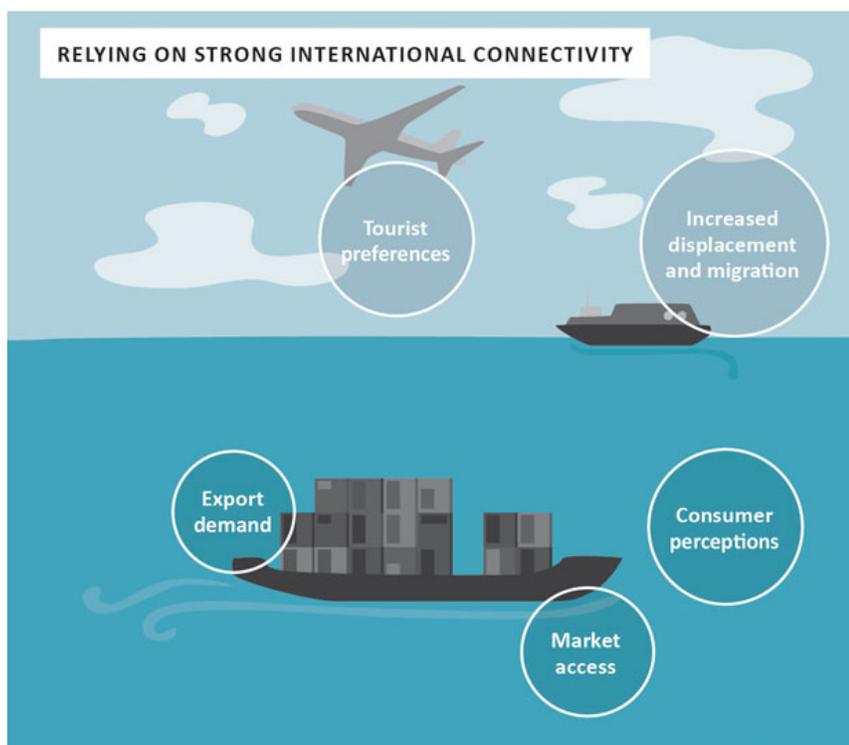
- Changes in ocean temperature, water chemistry, and currents will have impacts on New Zealand's marine life, fisheries, and aquaculture, including southward migration of species and negative effects on shell-forming species such as pāua and mussels.
- A fifteen-year time series taken off the Dunedin coast shows that ocean chemistry is already changing in the waters around New Zealand, consistent with measurements from other sites around the world.
- Model projections show that the waters around New Zealand will warm and acidify, with the greatest warming occurring in the Tasman Sea.
- Studies on different marine organisms have shown that there will be impacts ranging from productivity to ecosystem community structure as a result of these changes.

5. It will put our threatened species even more at risk



- Over half of New Zealand's more than 50,000 species are found nowhere else in the world; over three quarters of the vascular plants, rising to 93 per cent for alpine plants, and over 80 per cent for the more than 20,000 invertebrates.
- Existing environmental stresses will be exacerbated by shifts in mean climatic conditions and associated change in the frequency or intensity of extreme events, especially fire, drought and floods.
- Native ecosystems are being directly affected by climate change and also indirectly by expanded ranges for pests and diseases, increased fire risk and land use change.
- Even with the current rise in average temperatures, up to 70 species of native plants are likely to be at risk of extinction this century.
- Warming of New Zealand's normally cold lakes, combined with nutrient runoff from the surrounding production land will likely increase occurrence of cyanobacterial blooms, while the abundance and spread of pest species will be an added cost for Councils and may affect New Zealand's "clean and green" image.

6. There'll be flow-on problems from the rest of the world



- The way other countries respond to climate change will influence New Zealand's international trade relationships, and potentially migration patterns.
- New Zealand is strongly dependent upon our international connections, and so climate change impacts far from our shores are likely to be felt here.
- While New Zealand agriculture could benefit from increasing global commodity prices in the long term, there are many negatives.
- Reduced food security, increased displacement and migration, and potential political instability suggest that patterns of international trade, demand for services, and international tourism, could change substantially in the future as a consequence of climate change.
- We gain significant revenue from long-haul tourism which could be reduced if the acceptability of long haul travel, and costs of fossil fuels, are affected by climate change.

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