Impacts of Cyclone Gabrielle

Martin Manning

- Extreme events are becoming more extreme
- Climate damages now worse than earthquakes
- > A lot of us are living in the wrong places
- Policy and adaptation are not keeping up



Every year gets worse than the one before, but we call it bad luck and long for a 'normal' that is never coming back.

With water seeping into my studio for the third time in a year, it suddenly all felt deeply futile.



This is real. There's no escaping. This is climate change.

Spinoff: A climate change reality check

But the change is happening here and now. It's facts. Warmer water means more heat and moisture transferred into the atmosphere, meaning extreme weather events become increasingly potent.

OUTFLOW

Meanwhile, polling keeps showing we all know climate change is an issue, but that we're also not ready to make serious changes to the way we live.

CYCLONE ROTA (CLOCKWISE)

https://thespinoff.co.nz/society/24-02-2023/the-side-eye-a-climate-change-reality-check

Spinoff: A climate change reality check



Adaptation to change has been talked about for many years. When are we going to jump?

Cyclone Gabrielle



Flood waters more than 1 m past Cyclone Bola's level.



South of Napier



Lots of comments

"Let's hope we respond to these sudden shocks by ditching short-termism - Rod Oram, Newsroom

"Auckland's battered infrastructure is 'very fragile'

... disastrous one-two punch should provoke a rethink about how important transport links like bridges are built

- Matthew Scott, Newsroom

"We should have bit the bullet 20 years ago, 30 years ago, but now we have what we have and it's going to be more expensive, but the events that we see are not going to be any less frequent or any milder

- Timothy Welch, U Auckland

... the term "managed retreat" has gone from being a specialist one to something discussed much more widely. And with the growing prospect of repeat events, the urgent need for a national managed retreat framework is very much in focus - The conversation, Feb 14

World Economic Forum warnings

2 years

- 1 Cost-of-living crisis
- 2 Natural disasters and extreme weather events
- 3 Geoeconomic confrontation
- 4 Failure to mitigate climate change
- 5 Erosion of social cohesion and societal polarization
- 6 Large-scale environmental damage incidents
- 7 Failure of climate change adaptation
- 8 Widespread cybercrime and cyber insecurity
- 9 Natural resource crises
- 10 Large-scale involuntary migration

10 years

- Failure to mitigate climate change
- 2 Failure of climate-change adaptation
- 3 Natural disasters and extreme weather events
- 4 Biodiversity loss and ecosystem collapse
- 5 Large-scale involuntary migration
- 6 Natural resource crises
- 7 Erosion of social cohesion and societal polarization
- 8 Widespread cybercrime and cyber insecurity
- 9 Geoeconomic confrontation

Societal

10 Large-scale environmental damage incidents

The Kapiti Context

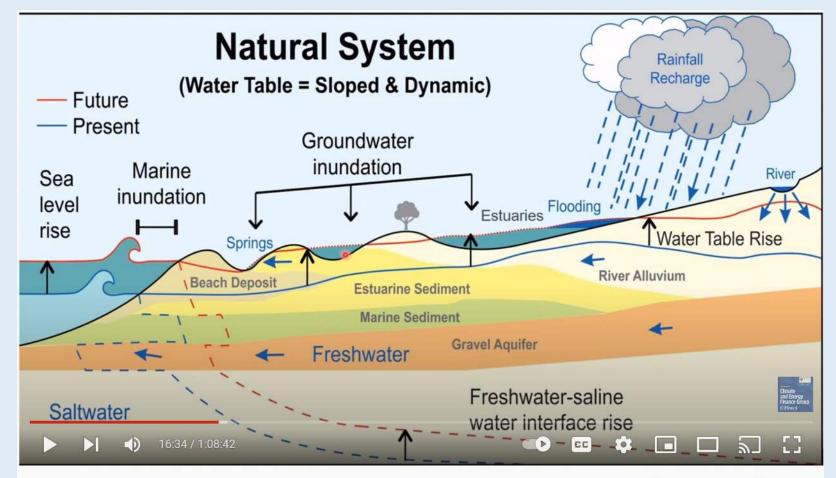
- More flooding, landslips, loss of roads & infrastructure is coming and what is sustainable is changing.
- > We need to be able to cope with wide scale loss of electricity and loss of road access north and south.
- Low lying land in Otaki, back from the beach dunes, is no longer a place for houses.
- Low lying housing in Waikanae back from the dunes is where rain water stays for longer, and where river flood will go.
- The rate of sea level rise is increasing and affecting groundwater levels in coastal regions.

Rain – Groundwater – Sea level all connected

Very good summary of why we need to know where the groundwater is and how it is rising was given by Simon Cox, GNS, last year.

In Kapiti, the block of land at 77 – 109 Kapiti Rd was identified as a floodwater ponding area and has now been sold to a developer.

Who bears the risks of how it gets used?



GNS Seminar : Models of Groundwater Inundation as a consequence of Sea Level Rise [Dr Simon Cox]

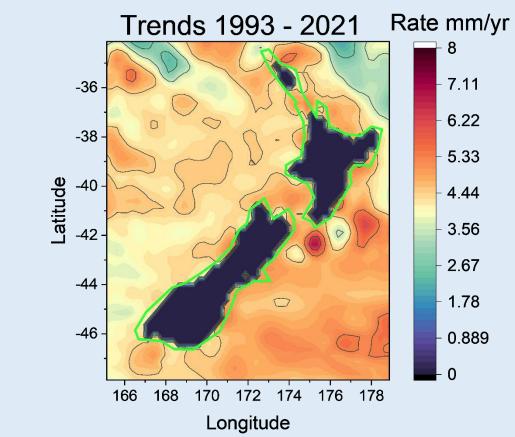
https://www.youtube.com/watch?v=zoe2kAghA9c

Satellite data on Sea Level around NZ

Satellite data to monitor sea level has been collected since late 1992 and analyses done by groups in the EU and USA are publicly available.

Satellite data has sea level rise around NZ averaging about 5 mm/yr over the last 29 years. Trends in station tide gauge data are shown for comparison.

Trends in tide gauge data for 1993 – 2015 (mm/yr)	
Auckland	4.6
Dunedin	3.6
Lyttelton	6.0
Moturiki	4.4
New Plymouth	1.3
Wellington	4.9



Copernicus/ECMWF satellite data from https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-sea-level-global

Local Adaptation Requirements

- Active Engagement with: the public, iwi, all levels of government, scientists
- Continual monitoring of change coastlines, wetlands, flood extent & its persistence
- Investment in better monitoring of groundwater
- Identification and regular updating of thresholds for sustainability of current practice
- Developing alternative forms of land use for low lying coastal areas
- Continually evolving group of advisors and interaction with other groups doing similar things

"Adapt and thrive", MfE, April 2022 Report

(Has 72 questions for the reader.)



Consultation document

Kia urutau, kia ora: Kia āhuarangi rite a Aotearoa Adapt and thrive: Building a climateresilient New Zealand

Draft national adaptation plan Managed retreat

A

Environment Tek New No R Tales

Te Kāwanatanga o Aotearoa

A. Initiation

Initiation of a managed retreat or broader adaptation planning process could

occur:

- as part of the development of Regional Spatial Strategies or NBA Plans
- through a request from a council or community

of newly acquired public land

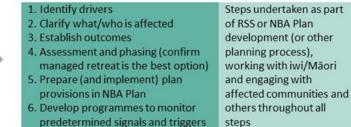
community

to provide amenity value to the

- as a result of a natural hazard event
- as a result of engagement with the community on non-statutory plans.

All of these should include engagement with affected community and others and should be informed by relevant data and information, such as a local risk assessment.

B. Planning and preparing



At this point there is a plan in place outlining how retreat will occur and how the next 3 stages will be implemented

Only detail considered is managed retreat.

E. Clean-up and C. Enabling D. Active retreat repurposing investment This stage could include: This stage could include: This stage could include: · relocation, removal, or demolition of remaining property transfer abandonment of structures and services programmes private and public rehabilitation of abandoned the development of property land (eg, removal and alternative land for relocation of public and treatment of septic tanks, relocation private infrastructure removal of concrete, replanting investments in new relocation assistance. of coastal vegetation) infrastructure enhancement and maintenance

Stages C, D and E implemented through a combination of RSS, NBA and Climate Adaptation Act instruments reduced investment in at-risk infrastructure.

Comments on "Adapt and thrive", MfE, April 2022 Report

Prof Bronwyn Hayward

"... importance of integrating all actions. ... decision-making is most effective when inclusive, transparent, and focused on protecting the most vulnerable first.

"... enormity of the task facing the government after years of inaction; we now need to implement climate planning guidelines across a raft of new legislation

"If home owners, businesses, schools, ports or airports have to move away from a high-risk area for example, who pays?

Prof Anita Wreford

"... groups waiting in anticipation for this NAP may have hoped for more concrete direction in implementing adaptation ... require much more guidance for decision-makers.

"... central government cannot bear all the risks and costs of climate change. ... (but) would have liked to have seen identification of the role for Central Government alongside other groups.

https://www.sciencemediacentre.co.nz/2022/04/27/blueprint-to-adapt-to-a-warmer-world-expert-reaction/

Conclusion

- Relocation of people on low lying land needs to start now with identification of priorities and engagement with property owners.
- Developing new land to move onto is becoming more important than protecting existing housing.

"The era of procrastination, of half measures, of soothing and baffling expedients, of delays, is coming to its close. In its place, we are entering a period of consequences – Churchill in a fiery speech to UK Parliament in 1936. as cited by Rod Oram