Coastal hazards on the Kapiti Coast

September 2012

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Introduction

- New coastal erosion hazard information.
- Required by Central Government.
- This presentation outlines:
  - why the work was done and how
  - what it means
  - what happens now.

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Context

- Council is preparing a new District Plan.
- Identification and management of coastal erosion is a critical part of this plan.
- Coastal erosion is a long-standing problem on the Kapiti Coast.
- This issue has been under discussion for some time but is becoming more urgent with sea-level rise and other potential effects of global climate change.
- Big focus for Council and community for coming decades is how to respond to the risk.

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Central Government requirements (NZ Coastal Policy Statement 2010)

Policy 24: Identification of coastal hazards

Requires councils to identify areas in the coastal environment that are potentially affected by coastal hazards ….over at least 100 years ….including the effects of climate change.

Councils must take into account national guidance and the best available information.

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New information: erosion study

- Detailed coastal hazard assessment completed August 2012.
- Defines potential ‘future shorelines’:
  - managed and unmanaged scenarios
  - open coast beaches and inlets
  - 50 year and 100 year planning timeframes.

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Assessment accuracy

- Assessment carried out by experienced coastal hazard expert – Dr Roger Shand of Coastal Systems Limited.
- Used best practice methodology (publicly consulted on in 2005 before work conducted).
- Peer reviewed by experienced coastal scientist with input from other experienced coastal scientists and engineers.
- Further analysis for use in District Plan Review to come.

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Hazard study

Estimation of future erosion requires consideration of:

- most likely erosion from bad storms
- continuation of existing long-term shoreline trends (e.g. erosion or advance)
- likely impact of sea-level rise over the next 100 years
- catch-up erosion (i.e. if sea walls removed)
- safety factors (to ensure calculations are precautionary).

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Calculating coastal hazards

The erosion assessment involved detailed analysis of available data, including:

- historic aerial photographs (1940s - present)
- cadastral surveys (1890s - present)
- past coastal hazard studies
- projections of future climate change and sea-level rise (Ministry for the Environment guidelines, 2008).

Current and Future Risk

The projected shorelines include both current and future risk over 100 years.

- Current risk (i.e. worst case for present situation):
  - likely storm erosion including dune stability
  - catch-up erosion (erosion that 'catches up' with where a natural shoreline would be) after the loss of protection works for unmanaged scenario.
- Future risk:
  - continuation of existing trends
  - likely effect of projected sea-level rise.

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Future shorelines

Map lines represent different scenarios:

- 'Managed' 50 year i.e. management of current public seawalls/inlets (assumes some failure and repair of protection works).
- 'Unmanaged' 50 and 100 year - presumes existing seawalls are not repaired (eventually removed).
- Separate 100-year managed line for inlets managed mainly by Greater Wellington Regional Council.

'Managed' line not shown where there are no public hard protection structures in place.

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Who's affected?

- 1,800 properties at risk within 100 years.
- Up to 1,000 within 50 years.
- This means parts of property may be eroded.
- Current capital value of affected properties is $1.6 billion.

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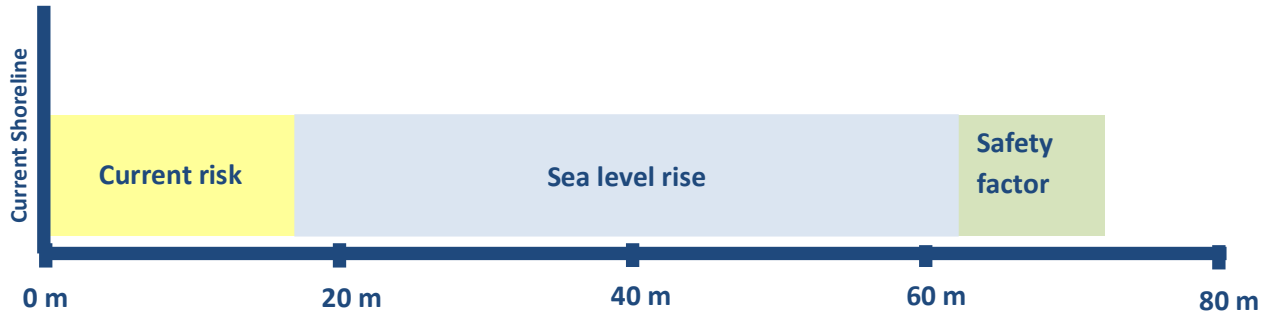
Waikanae/Ōtaki

- These areas are stable or have a long-term trend for accretion.*
- Short-term shoreline fluctuations of 10-15m.
- Most development is safe from current risk.
- Main potential risk is effect of sea-level rise.



Example of the approximate composition of 100-year coastal hazard zone on northern Kāpiti Coast (site-specific figures vary).

*Accretion is the seaward expansion of the coast to create additional stable land

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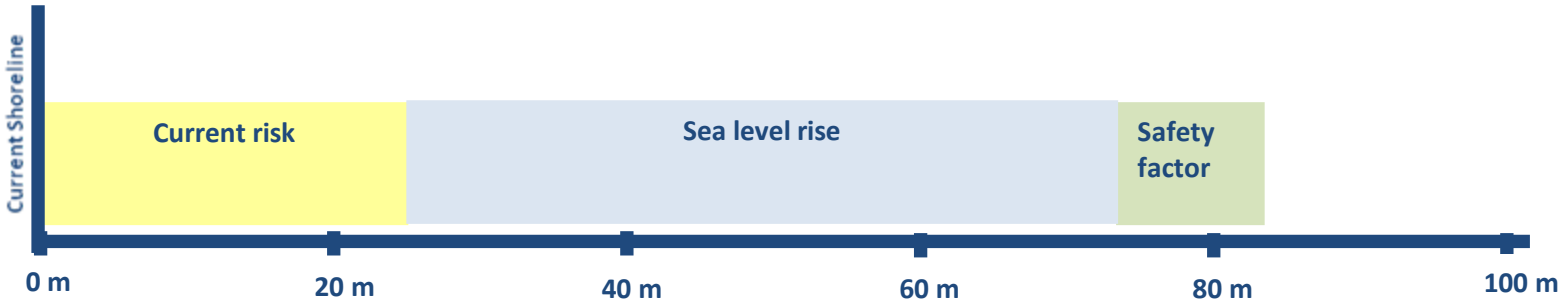
Paraparaumu

- Most areas are stable, with no long-term erosion trend.
- Short-term shoreline fluctuations of 10-35m.
- Main risk is long term.



Example of the approximate composition of 100-year coastal hazard zone at Paraparaumu (site-specific figures vary).

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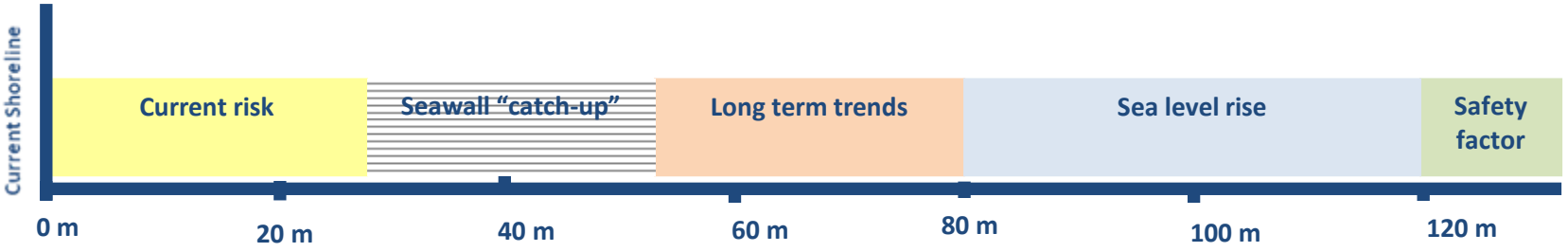
Raumati

- Long-term erosion trend.
- Short-term shoreline fluctuations of 15m.
- Significant current risk of coastal hazards and dependence on seawall.
- Increasing end-effects of seawall.
- Long-term risk even without sea level rise.



Example of the approximate composition of 100-year coastal hazard zone at Raumati (site-specific figures vary).

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Coastal protection works

- Over 50 years, the projections of future shorelines consider options with and without existing seawalls.
- Over 100 years, the assessment scenarios presume all seawalls fail and are removed.
- This reflects the fact that seawalls are unlikely to be a viable long-term solution to serious erosion.
- The NZ Coastal Policy Statement and Wellington Regional Policy Statement don't support seawalls.

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Coastal protection works

On an eroding coastline, the beach level continues to erode (drop) in front of a seawall, meaning:

- The beach is progressively lost to the public for recreational use.
- Over time, the structures must become larger and more strongly engineered, creating a long-term financial burden and greater environmental impacts.

These are key reasons why seawalls are unlikely to provide a long-term solution to serious coastal erosion.

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LIM requirement

- This hazard risk information is now on LIMs.
- Required by Local Government Official Information and Meetings Act.
- Letters gone to affected property owners.
- Coastal LIMs will include neighbourhood maps of shoreline projections.

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What does it mean?

- Shoreline projections are hazard risk information only at this stage.
- Resource Management Act requires Councils to try to avoid building and development in areas with high hazard risk.
- District Plan Review currently under way is considering rules to address this.
- Further analysis will be conducted for the District Plan Review and will consider issues raised by public.

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Other Councils

- All councils required by central government to do coastal hazard assessments for ‘at least’ 100 years.
- All councils have to consider the effects of projected climate change over ‘at least’ 100 years.
- Many councils already have 100-year coastal hazard zones in place.
- Many councils also have planning restrictions already in place including Whangarei, Whakatane, Western Bay of Plenty and Hastings district councils.
- Consistent approach around ‘no build’ and ‘relocatable only’ areas.

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What happens now?

- LIMs will now show coastal hazard information including neighbourhood maps of shoreline projections.
- Further analysis for District Plan Review following public information sessions.
- Proposed District Plan provisions notified late November 2012.
- Affected property owners will be contacted.
- Formal submissions can be made then.

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Long-term discussion

- Coastal erosion concern is not new.
- Climate change effects noted as significant in Council's 2006 Long Term Plan and Coastal Strategy.
- Managed retreat is indicated in 2012 Long Term Plan.
- Working groups being set up after natural hazard information exchanges held earlier this year.

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Summing up

- The shoreline projections are hazard risk information.
- Required through central government's New Zealand Coastal Policy Statement.
- Shoreline projections in LIMs.
- How we respond to coastal hazard risk is very important for coastal property owners and the whole community.

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