Takutai Kāpiti.

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Jacobs Challenging today. Reinventing tomorrow.

Takutai Kāpiti Coastal Hazard Susceptibility and Vulnerability Assessment

Presentation to Public Engagement 23 July 2022

Derek Todd – Jacobs Principal Coastal Hazards Scientist

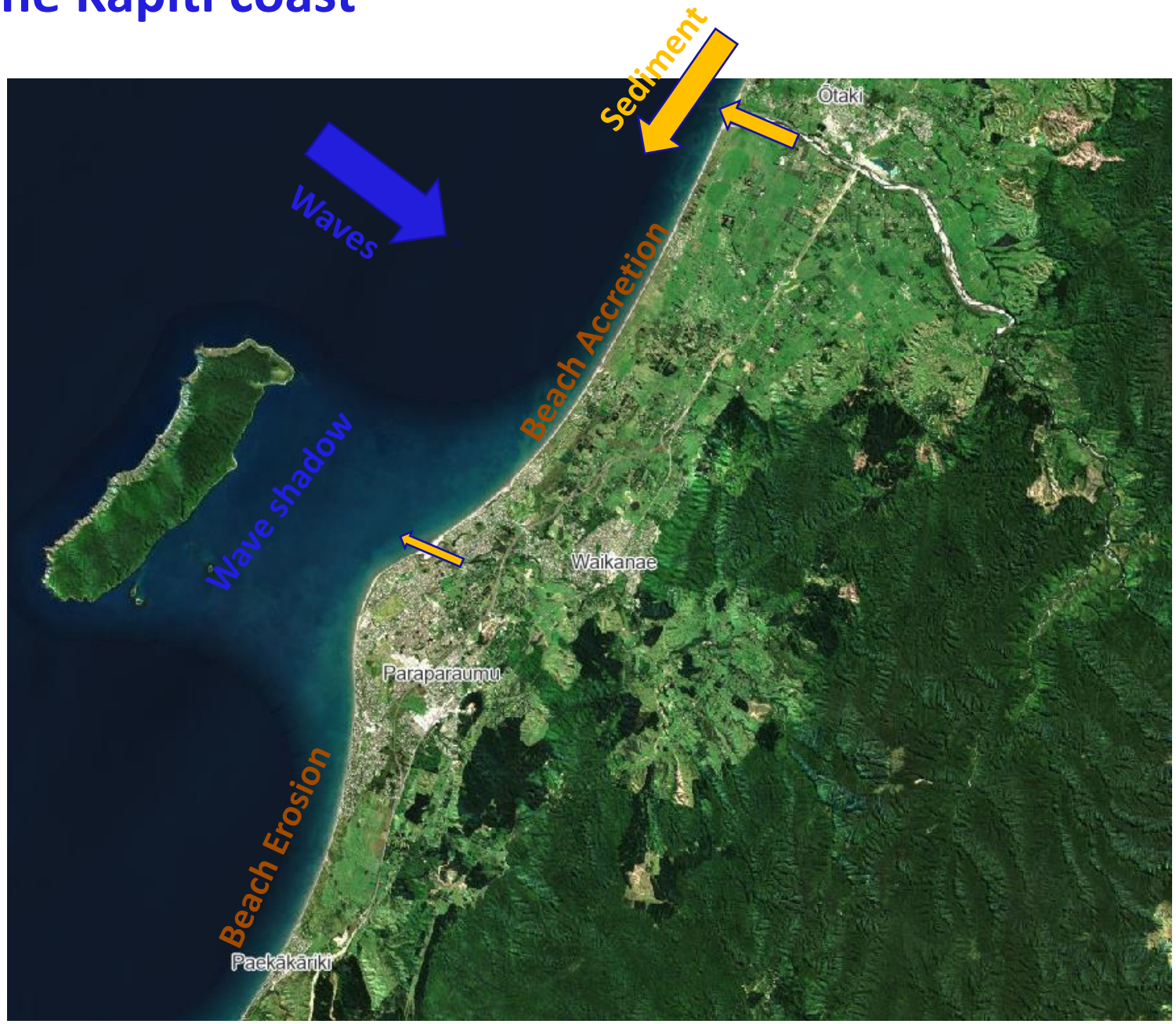
Coastal Hazard Susceptibility and Vulnerability Reports

- **Volume one report: Methodology.** Released June 2021
  - Uses scientific best practise – recognises model limitations
  - Methods are in line with MfE (2017) Guidance
  - Uses most recent information
  - Addresses the recommendations from the 2014 peer review Independently reviewed by GWRC and Beca

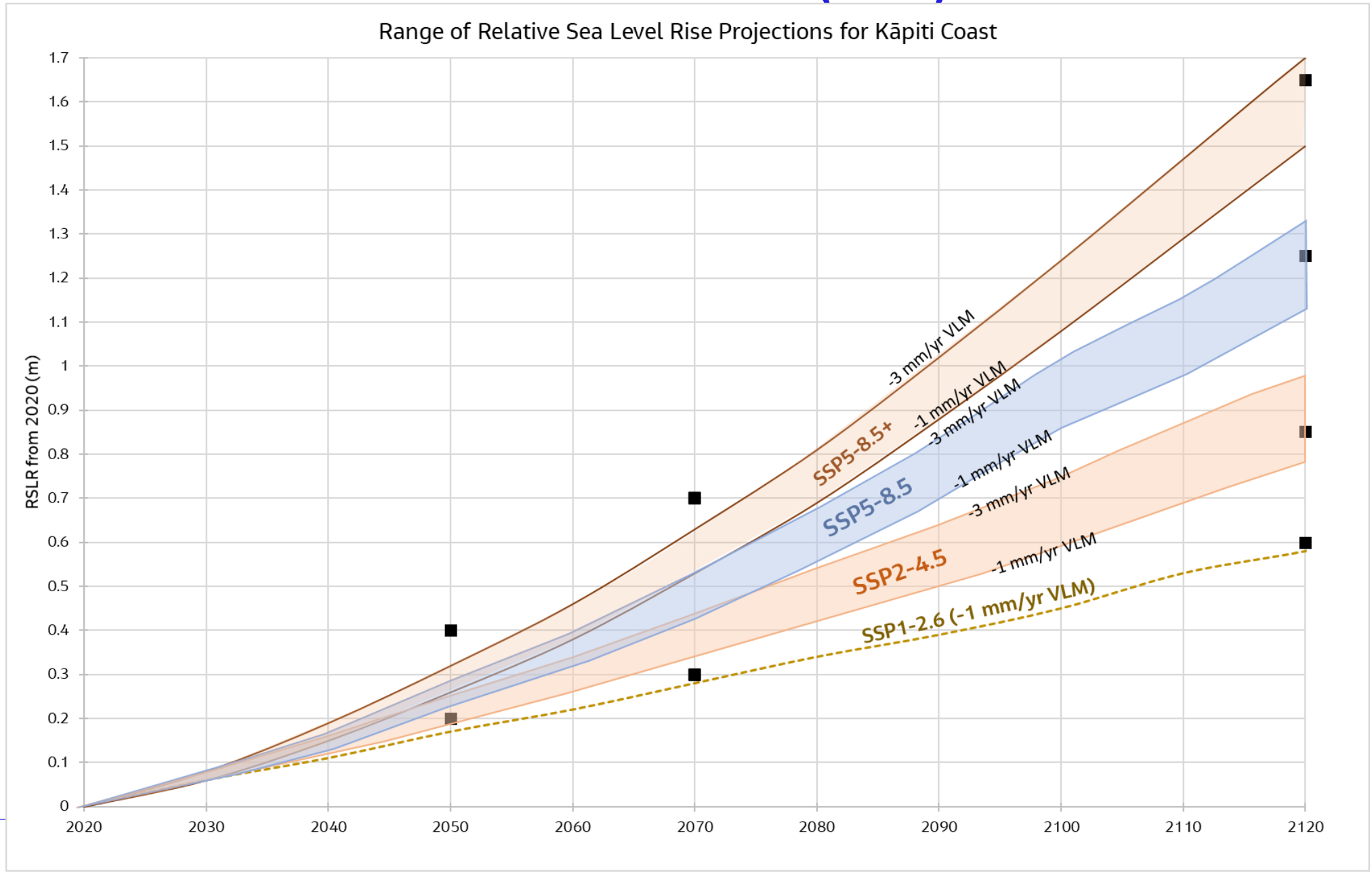
- **Volume two report: Results.** Released 23rd Feb 2022
  - Presents the assessment results of future coastal erosion distances and flood extents under range of SLR scenarios
  - Accounts for uncertainty with probability of erosion distances
  - Presents counts of council roads & three waters infrastructure, and public/private property numbers possibility effected by coastal erosion and inundation under the different SLR scenarios
  - Results Independently reviewed by GWRC and Beca
  - released in conjunction with factsheets, video's, and an online web viewer

Coastal processes operating on the Kāpiti coast

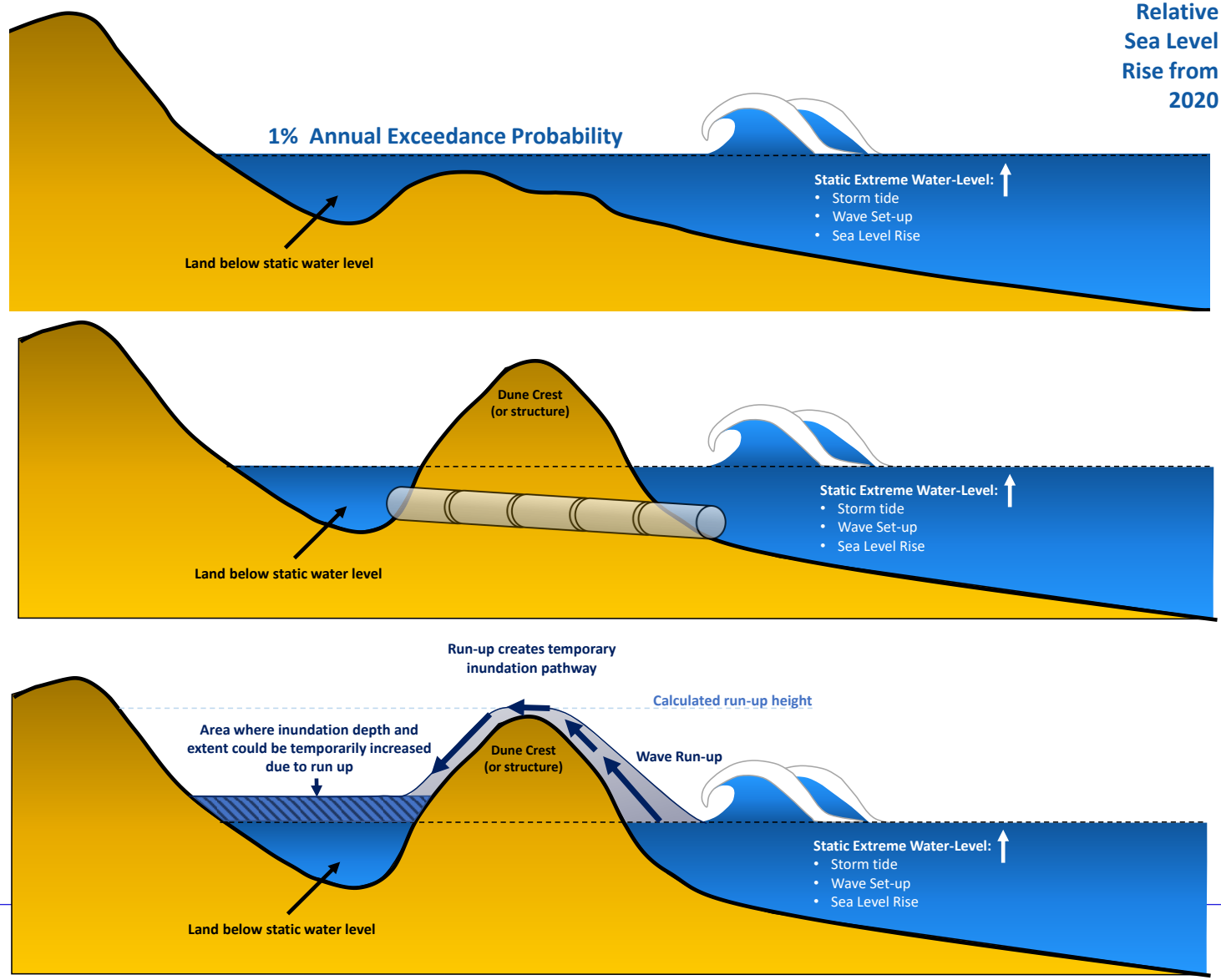
- Sediment is supplied to the Kāpiti coast shoreline from four major rivers to the north of the district. The dominant northwest wave direction drives that sediment south.
- Northern part of the district the shoreline has been building out over the last 6,000 odd years and continues today.
- Kāpiti Island has a major influence on the central and southern shoreline as it creates a wave shadow in behind the island, so that transport is not as efficient and the sediment gets deposited on the coast to form the large bulge (cuspate foreland) around Paraparaumu.
- Less sediment supply to south, so that coastline from Raumati to Paekākāriki has been prone to coastal erosion.

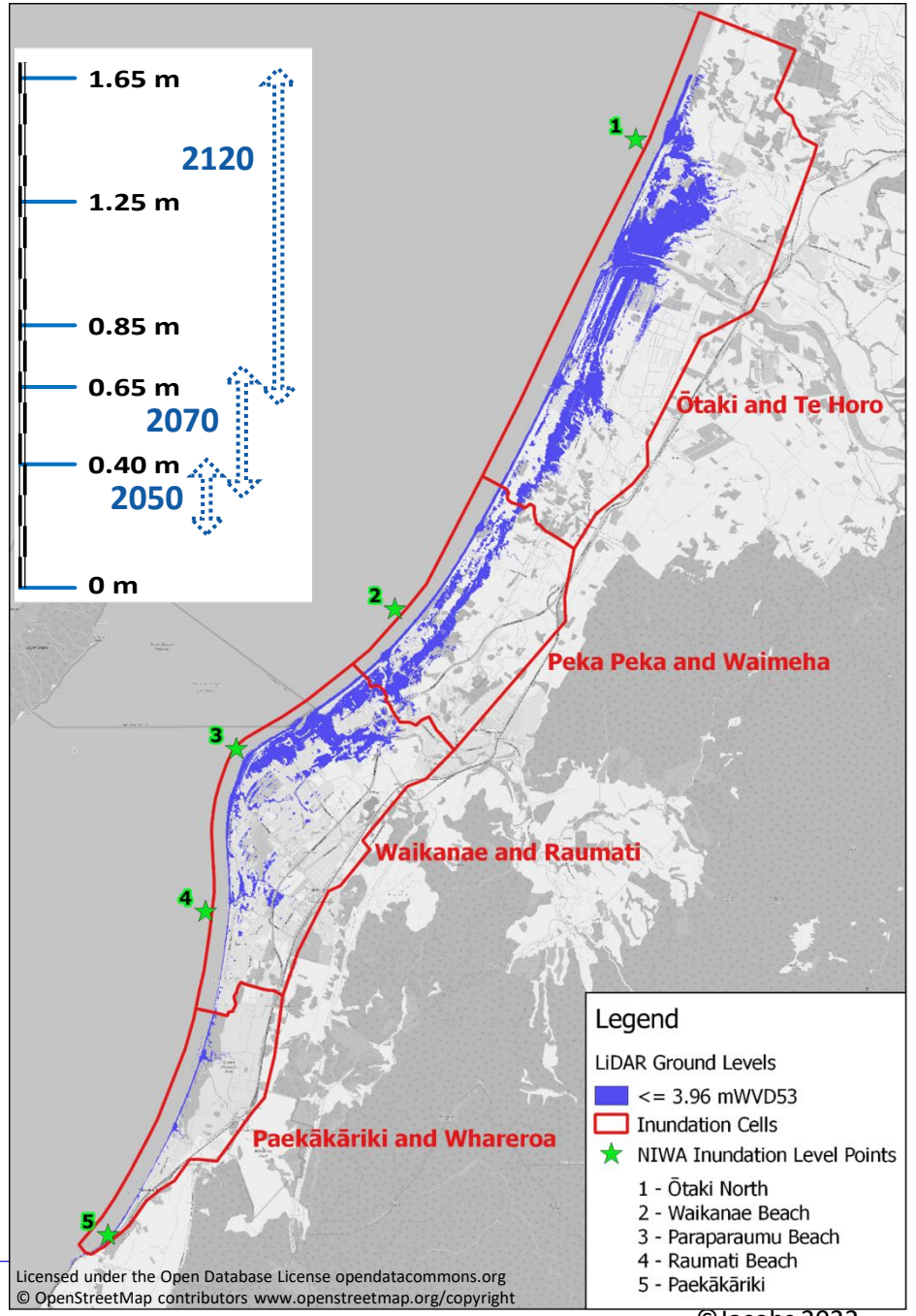


Brief overview of methods – Relative Sea Level Rise (RSLR)



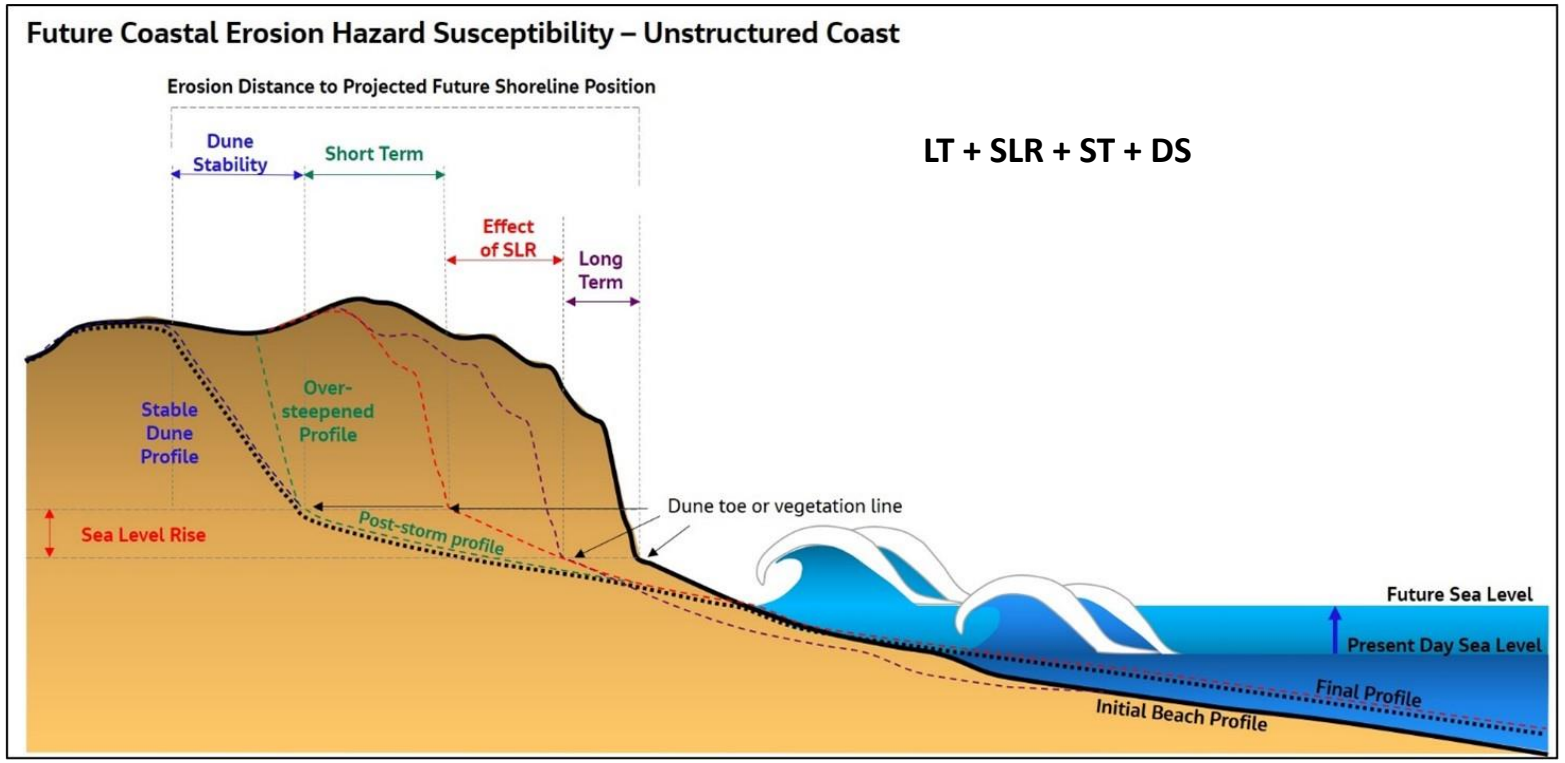
Brief overview of methods – Coastal Flooding



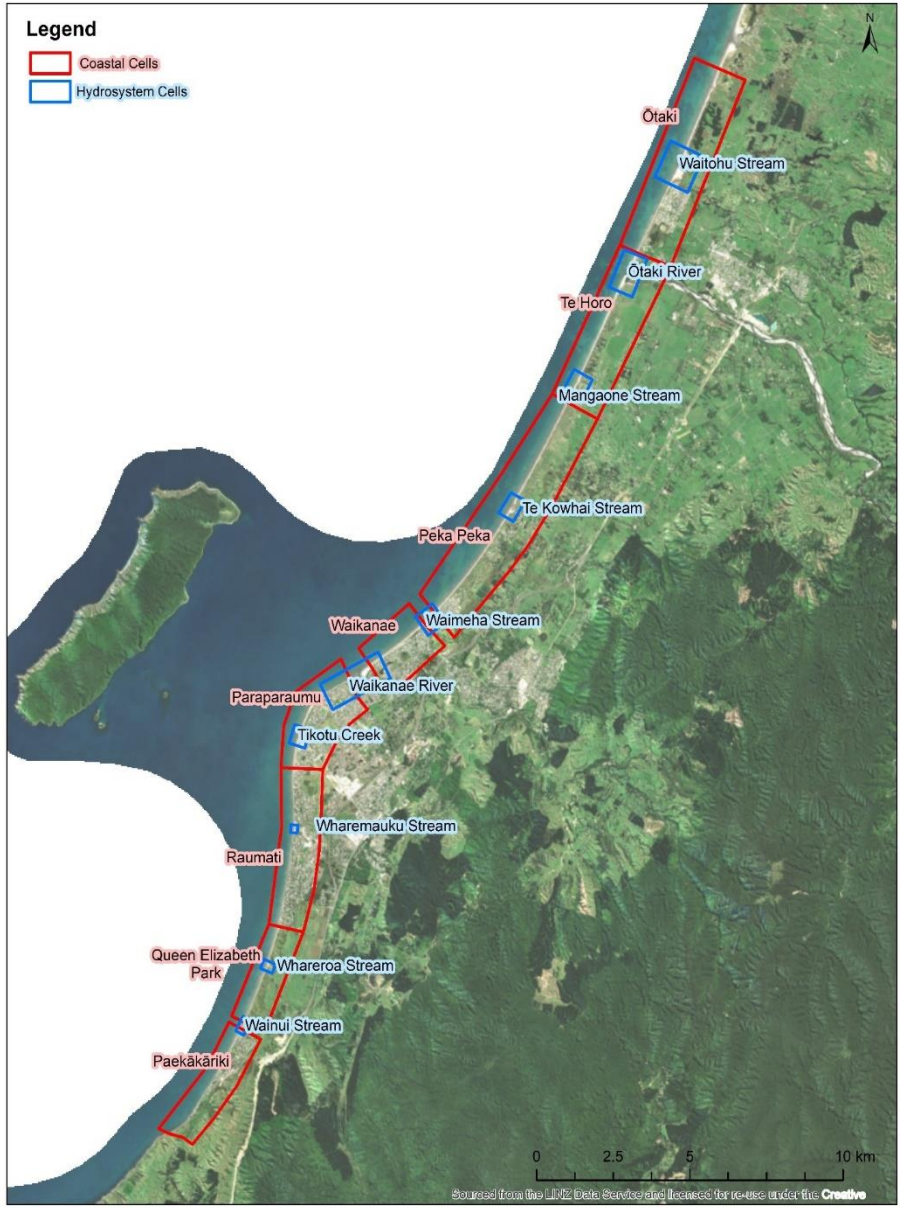


Coastal Inundation Assessment Cells

Brief overview of methods – Coastal Erosion

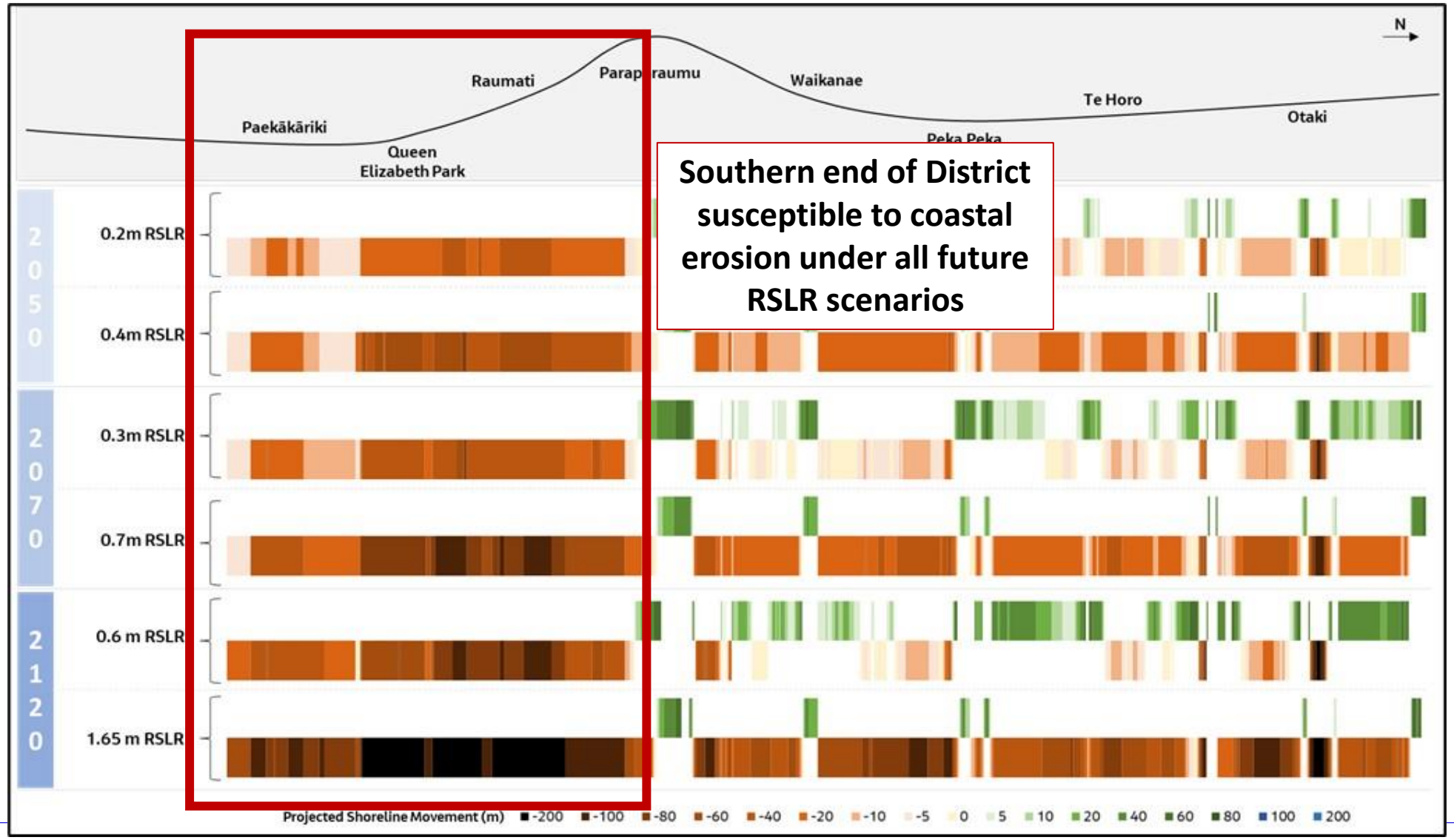


LT + SLR + ST + DS



Coastal Erosion Assessment Cells

Results – Coastal Erosion Distances

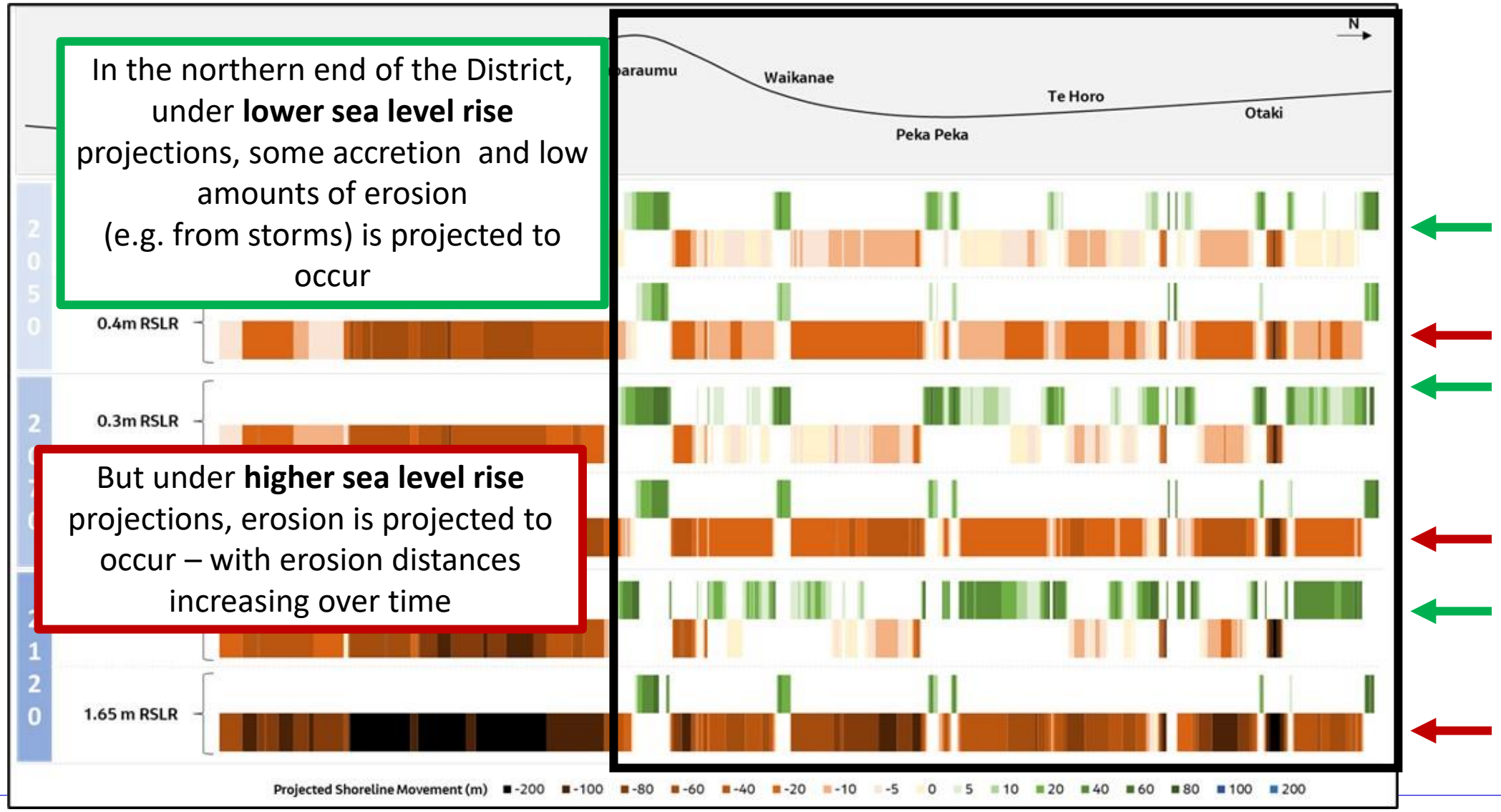


Southern end of District susceptible to coastal erosion under all future RSLR scenarios

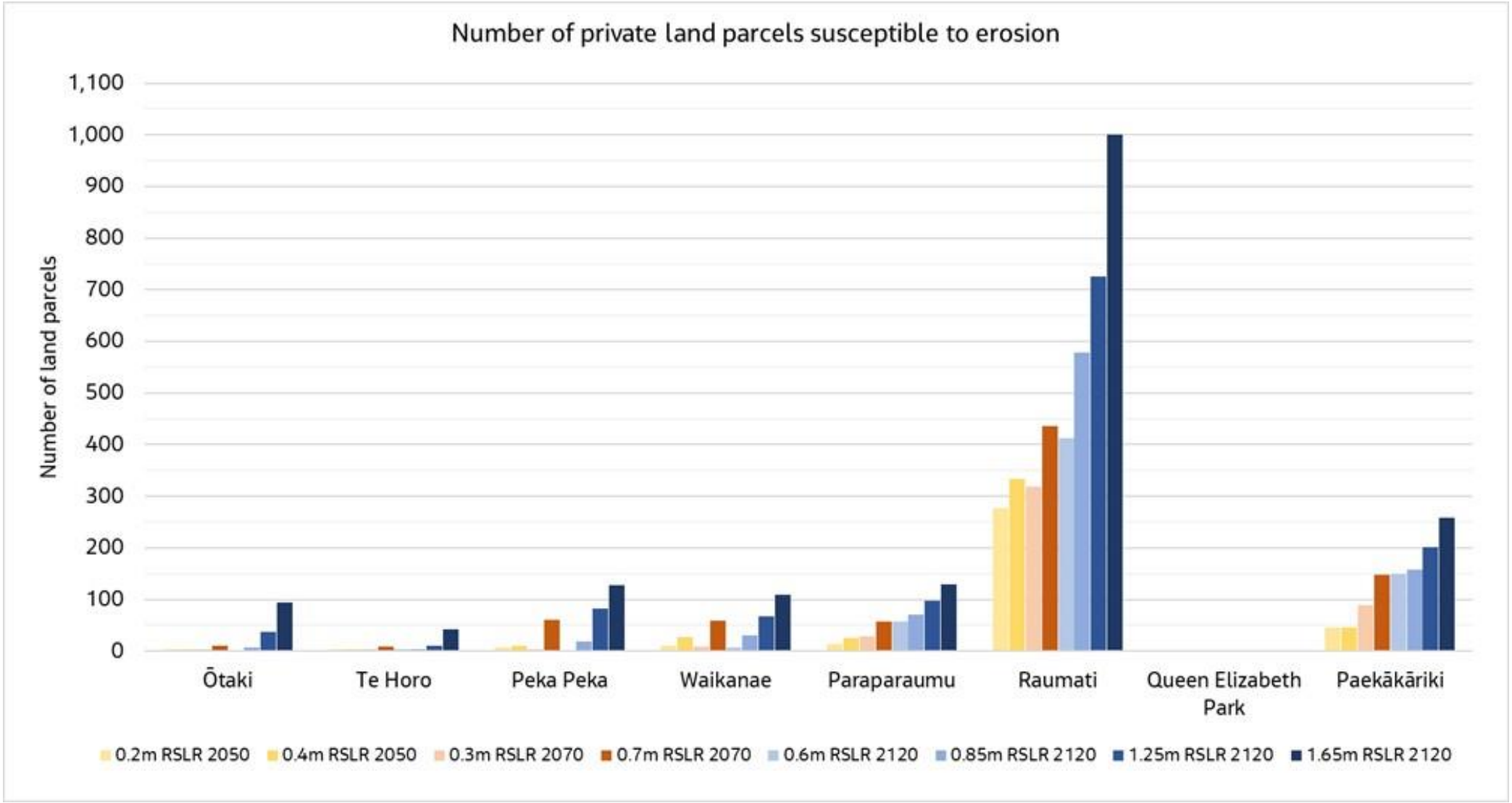
Results – Coastal Erosion Distances

In the northern end of the District, under **lower sea level rise** projections, some accretion and low amounts of erosion (e.g. from storms) is projected to occur

But under **higher sea level rise** projections, erosion is projected to occur – with erosion distances increasing over time



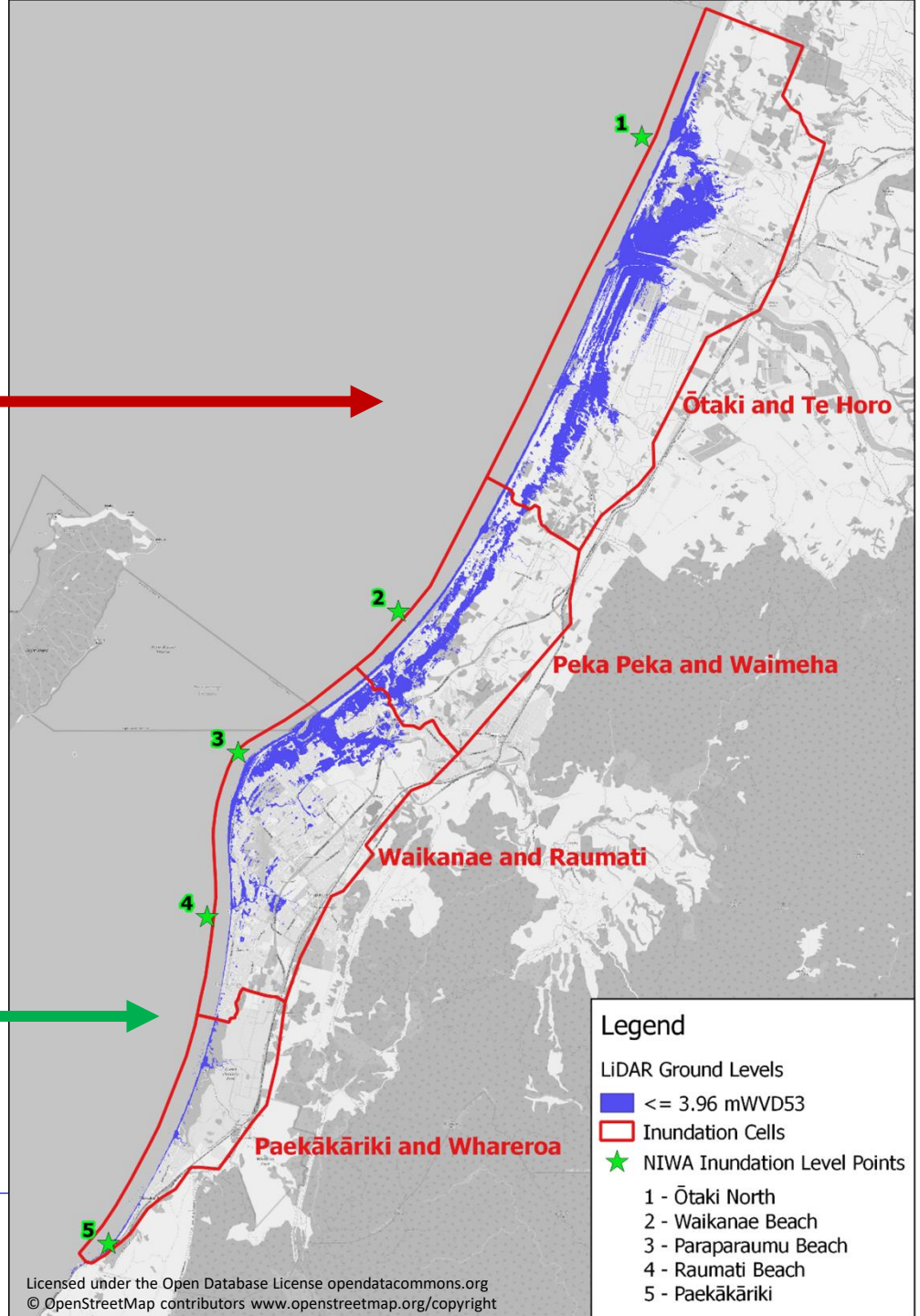
Coastal Erosion – Vulnerability of Private Land Parcels



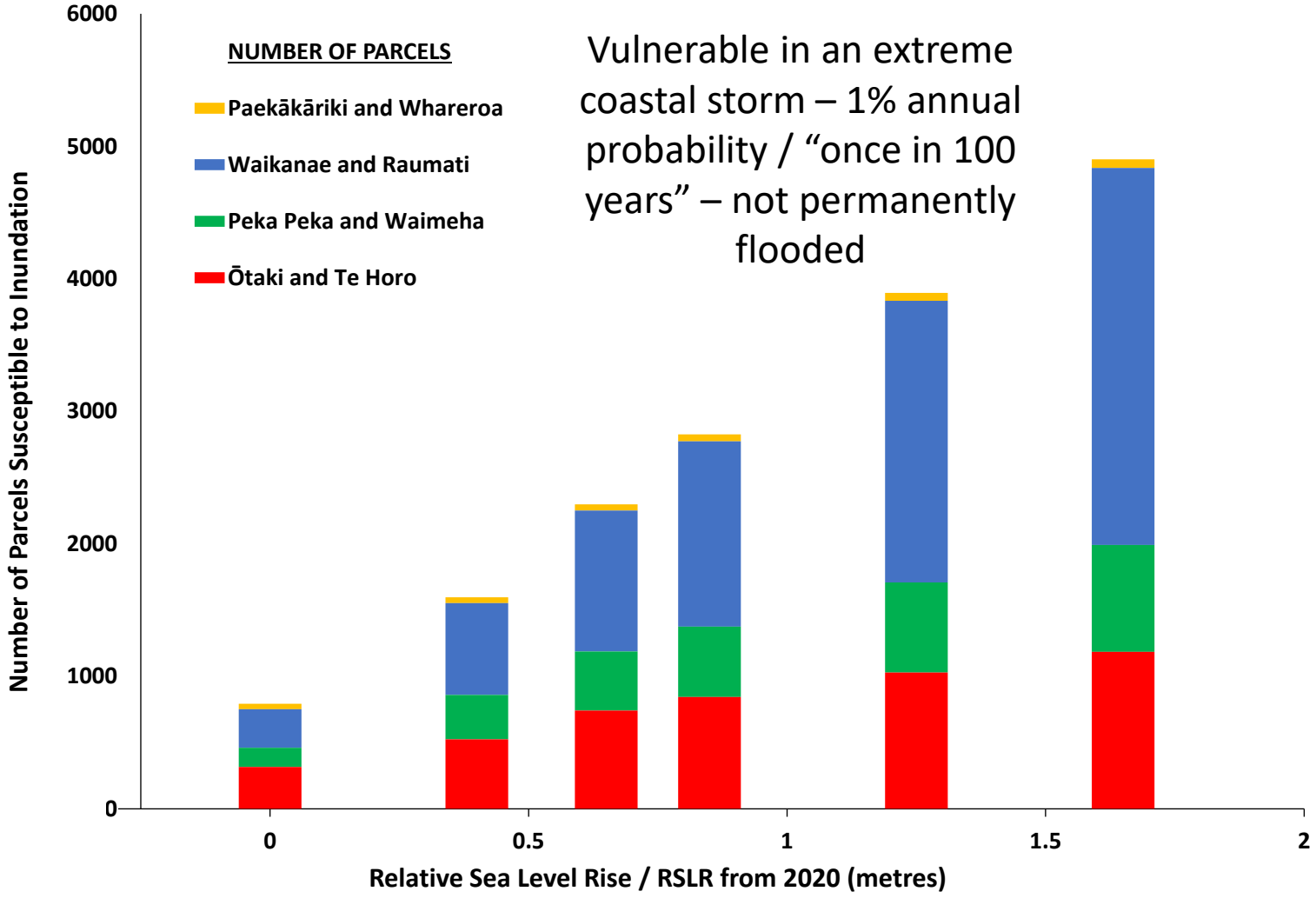
Results – Coastal Flooding

Northern part of the district is **generally lower lying**, made up of old dune swales, and is **much more susceptible to flooding issues** than the southern area of the district

Southern part of the district has relatively high elevations, **flooding generally confined to river mouth/inlet areas**



Coastal Inundation – Vulnerability of Private Land Parcels in 1% AEP storm



Thank you

Jacobs

Challenging today.
Reinventing tomorrow.

Lindsay Poutama, Iwi Perspectives
Cultural Values Assessment

Jim Bolger,
Chair, Coastal Advisory Panel

Questions?

Takutai Kāpiti.