

Infrastructure resilience and marae adaptations



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**RESILIENCE
TO NATURE'S
CHALLENGES**

Kia manawaroa
– Ngā Ākina o
Te Ao Tūroa

National
Science
Challenges

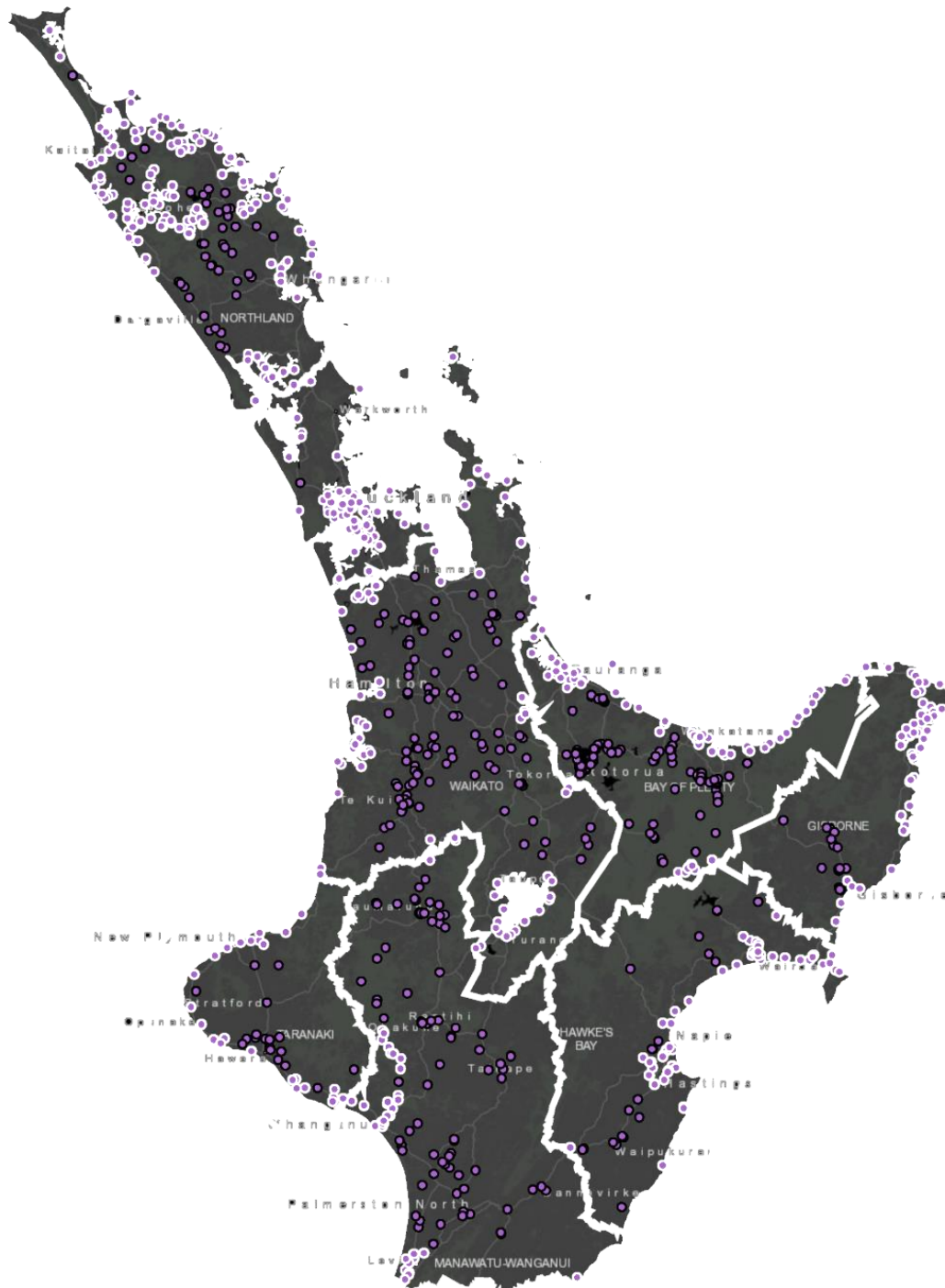






Aims

- Current status of marae and infrastructure
 - Lifelines and infrastructure
 - Areas of vulnerability
- Marae community engagement
 - Traditional management approaches
 - Challenges and opportunities
- Exploration of potential adaptations



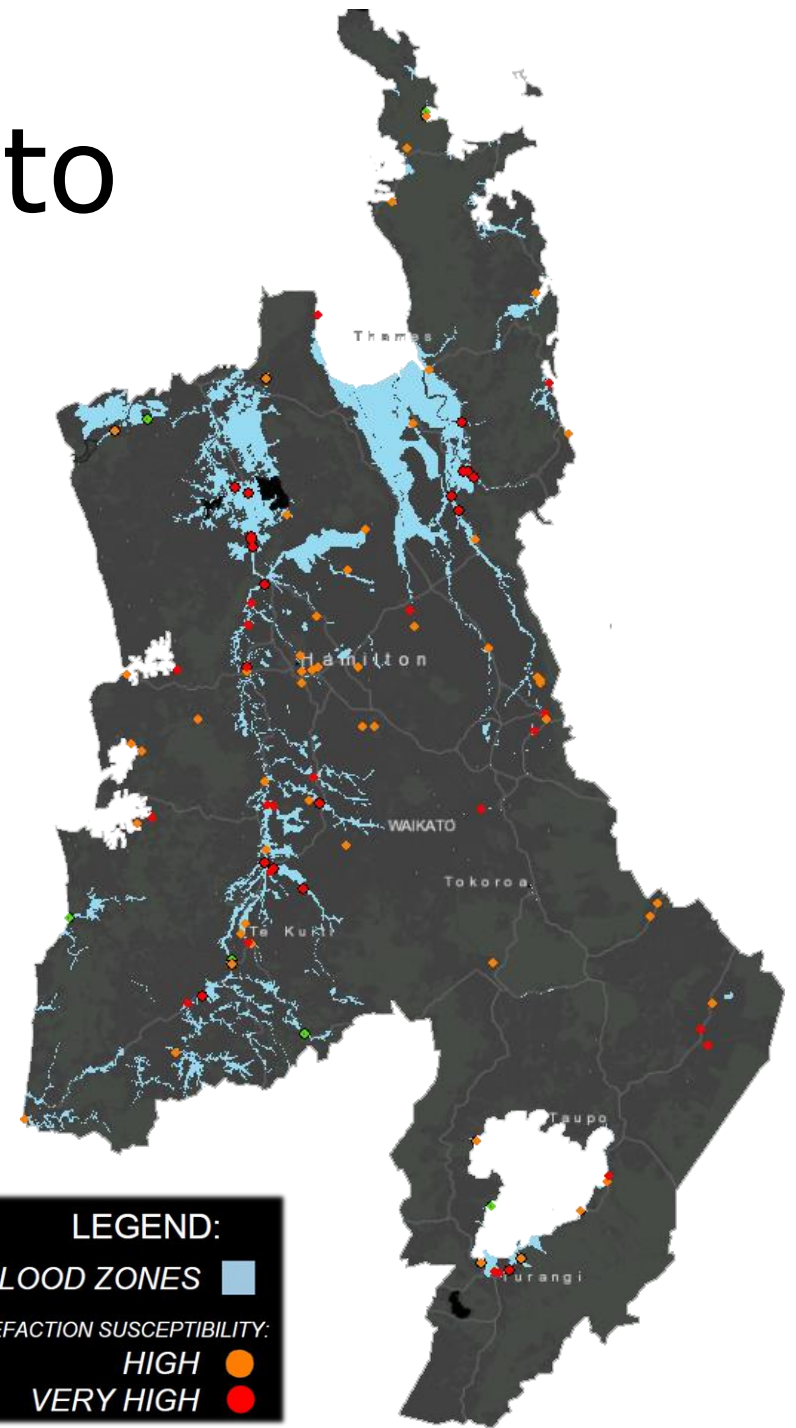
Northland

- 192 Marae in the Northland region
- Major hazards
 - Flooding
 - Tsunami
- 77 marae within tsunami evacuation zone



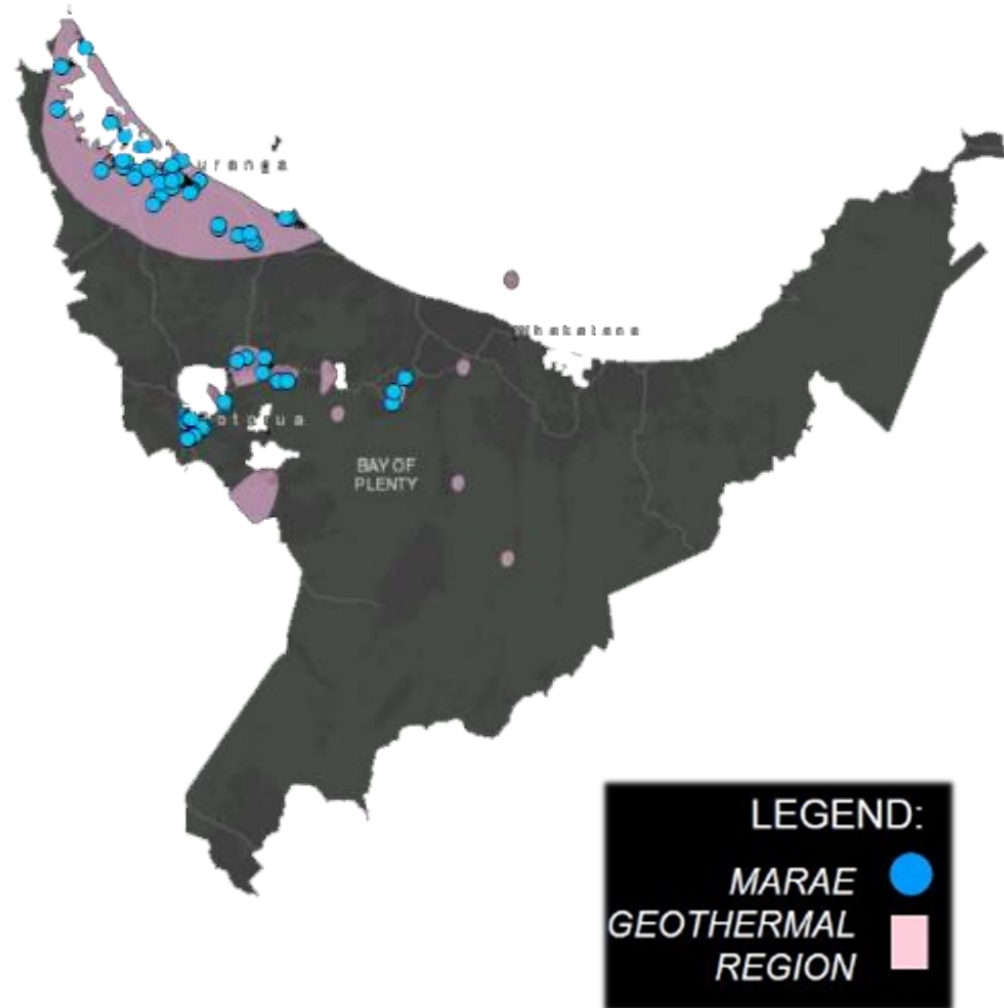
Waikato

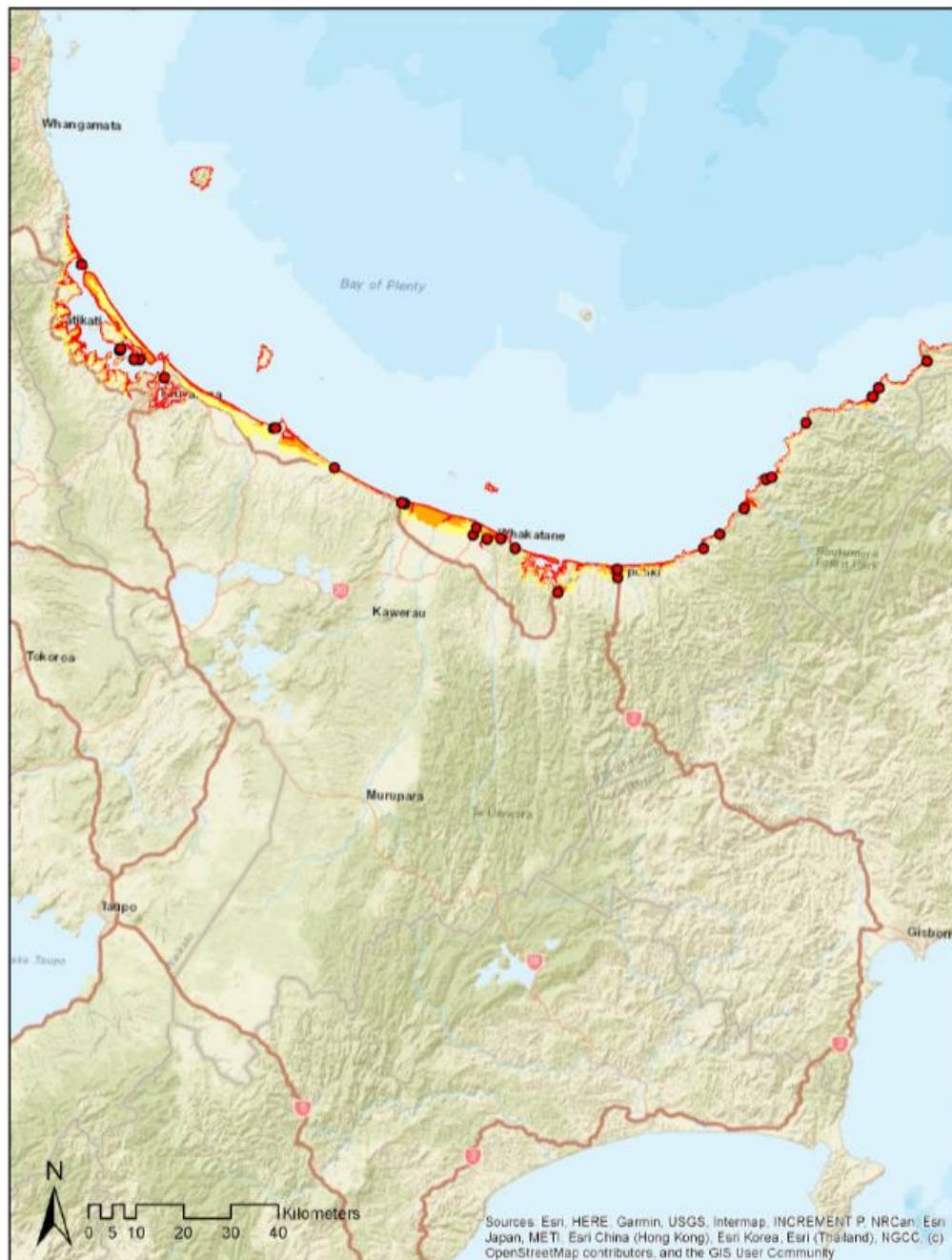
- 185 marae in Waikato region
- Hazards:
 - Geothermal
 - Landslides
 - Flooding



Bay of Plenty

- 176 marae in BOP region
- Hazards:
 - Tsunami
 - Flooding
 - Geothermal
 - Seismic





Bay of Plenty Maraie in the Tsunami Evacuation Zone





Building marae database

- Data sets retrieved from Māori maps
- QGIS used to identify:
 - Property boundary lines
 - Marae building assets
 - Access road lines
 - Water tanks





LEGEND

-  **asset_polygons**
-  **access_road_line**
-  **property_boundary**
-  **water_tanks**

What about the people?

Engagement

- Qualitative assessment
 - Holistic approach
 - Infrastructure incl. social and cultural
 - Communication networks
- How can data be helpful?
 - Informing decision making
 - Starting to think about 'what if' scenarios

Work to be undertaken

- Identify existing IHMPs and hazard related plans
- Linking in with other work focused on marae and Māori in RNC
- Mapping out marae and infrastructure vulnerability
- Expand reach into other parts of country

