

AUCKLAND COUNCIL'S PROGRESS ON SUSTAINABLE SHORELINE ADAPTATION PLANS

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BACKGROUND

Auckland Council is currently developing shoreline adaptation plans across the Auckland region to support the sustainable management of public assets into the future with increasing coastal hazard risks. These build upon the Coastal Management Framework (Carpenter et al. 2017) and are being developed as 20 phased plans. At the time of writing the 'Whangaparāoa' and 'Beachlands and East' Shoreline Adaptation Plans (SAP) have been completed. The 'Āwhitu Peninsula' and 'Manukau South' SAPs are well underway, and the remaining SAPs are programmed to be completed over the next 4 years.

PREPARATION

To inform the development of the adaptation strategies numerous datasets were required. Coastal erosion and coastal flooding predictions have been mapped for the Auckland region to assess the evolving coastal hazards. Up-to-date coastal asset information was gathered through hundreds of coastal asset inspections for each SAP area. This asset data fed into adaptation strategy decisions as well as being incorporated into a regional risk assessment to assess the relative risk across Auckland's SAP units.

The adaptation strategy for each coastal stretch was developed in partnership with mana whenua, and involved extensive engagement with local communities and asset owners. Community engagement included a range of in-person engagement events, online webinars, focus groups, surveys and GIS-based feedback. Numerous specialists from a range of stakeholders were also involved throughout the SAPs and adaptation strategy decision-making.

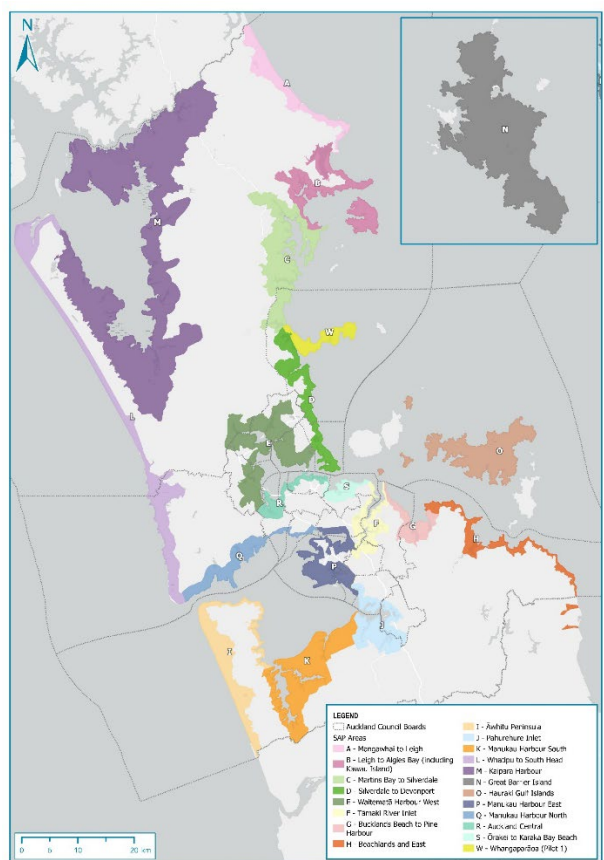


Figure 1 - Auckland's coastline broken down into 20 shoreline adaptation plan areas

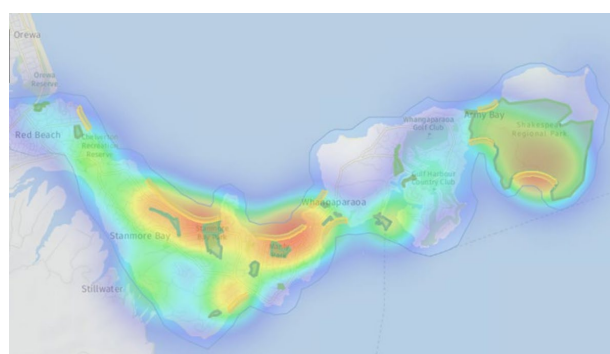


Figure 2 - Heat map highlighting the areas most commented on during the digital engagement for Whangaparāoa's SAP

ADAPTATION STRATEGIES

The following four adaptation strategies were adopted for Auckland's coastline based on the following definitions:

- No Active Intervention - natural processes are allowed to continue.
- Limited intervention - shoreline will not be fixed into the future but may be supported through

limited works e.g. dune planting or minor asset maintenance to prolong life.

- Hold the line - fixing the coastal edge at a certain location, e.g. using nature-based options (like beach nourishment) or hard structures (like sea walls).
- Managed realignment - assets and activities are moved away from hazard-prone areas in a controlled way over time.

In alignment with the Dynamic Adaptive Policy Pathway approach these adaptation strategies are not fixed over time and will respond to changing circumstances in the future. Preliminary estimates have been developed over the approximate timescales below, but transitions will be based on signals and triggers:

- Short-term: 0-20 years
- Medium-term: 20-60 years
- Long-term: 60-100+ years

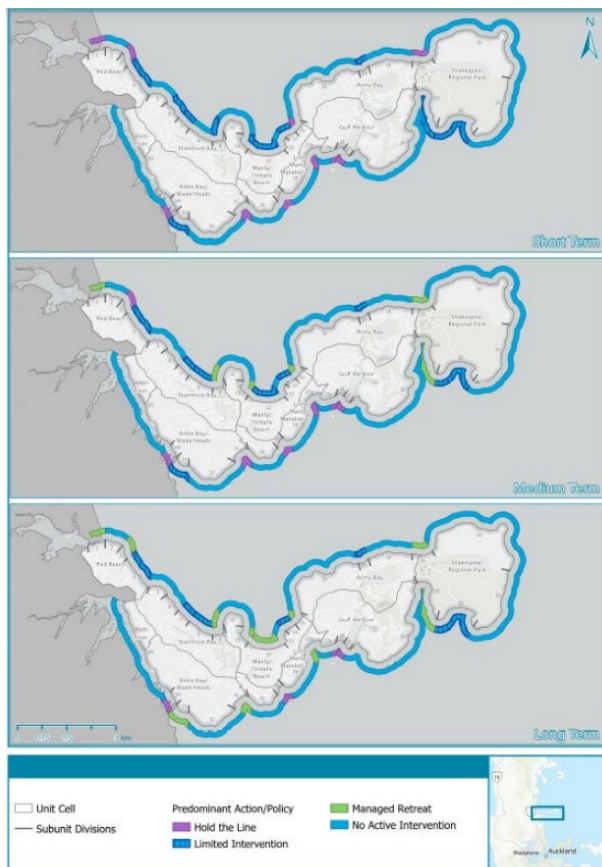


Figure 3 - Evolving adaptation strategies over time for Whangaparāoia's SAP

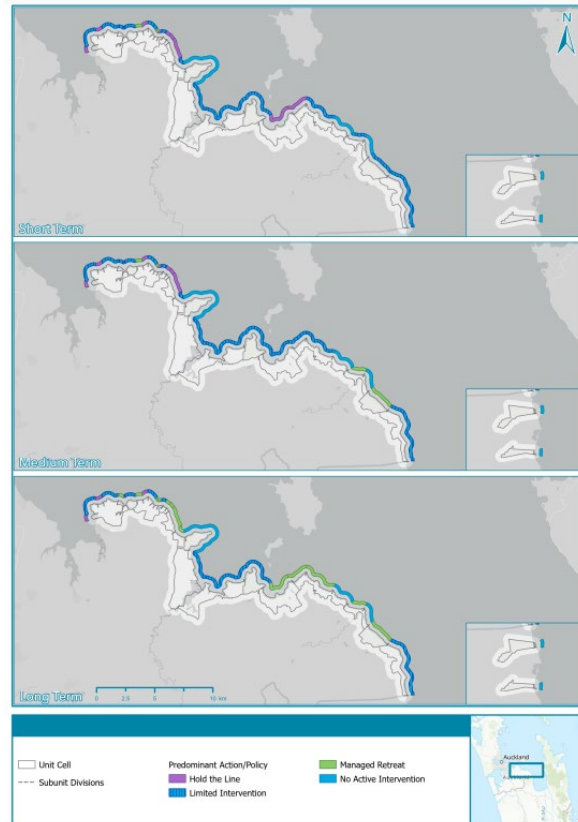


Figure 4 - Evolving adaptation strategies over time for Beachlands and East's SAP

DISCUSSION

Auckland Council have adopted a strategy of No Active Intervention for much of the coast to achieve the multitude of benefits from a natural coast while also managing Auckland Council's expenses. Hold the Line or Limited Intervention is adopted where there is critical infrastructure or community assets of value at risk which cannot be relocated. As coastal hazards increase into the future with sea level rise, a shift in strategies is often required as the present-day strategies become unsustainable. As such, Managed Retreat is the increasingly adopted strategy into the future.

The lessons learnt, successes, challenges and limitations of Auckland Council's shoreline adaptation plans will be discussed, as well as the next steps required for implementation.

REFERENCES

Carpenter, Sinclair, Klinac, Walker, (2017) Coastal management framework for the Auckland Region, Auckland Council.