

Coastal Hazards Assessment Methodology: Purpose and Context

Cover letter for Coastal Hazards Assessment for Christchurch District: Methodology and Approach Summary Report, prepared by Tonkin & Taylor.

The Christchurch City Council (the Council) has engaged Tonkin & Taylor to assess coastal hazards for the entire Christchurch district. This assessment will help the Council in its coastal hazards adaptation planning.

The **Coastal Hazards Assessment for Christchurch District: Methodology and Approach Summary** outlines the intended approach to undertaking this assessment developed by Tonkin & Taylor, and agreed as suitable for the intended purpose by Jacobs (technical reviewer), the Council and Environment Canterbury staff.

Background

The Ministry for the Environment has advised local councils to work with communities to undertake coastal hazards adaptation planning and decision-making. The Council has established the Coastal Hazards Adaptation Planning (CHAP) programme, which focuses on low-lying inland and coastal communities across the district that are likely to be impacted by sea level rise and could experience coastal erosion, inundation and rising groundwater. The programme allows for a collaborative approach to planning for and responding to coastal hazards with communities. The best available data about current coastal processes are needed for good planning and management of areas so that we can broadly understand and predict risks regardless of the uncertainties.

Purpose

The Coastal Hazards Assessment is one of the foundation documents for the CHAP programme, which will have the following purpose:

- Raising awareness of the extent and timing of coastal hazards and communicating the uncertainties of this.
- Providing technical information for engagement as part of adaptation planning.
- Providing information to include in risk evaluations for adaptation planning.
- Helping with the consideration of potential risk treatment options.

Scope

The Coastal Hazards Assessment will provide a base of technical information about coastal hazards to help inform adaptation planning with low lying inland and coastal communities. This information will be in the form of hazard maps¹, and analysis of hazards and uncertainties at a neighbourhood-scale.

Determining management approaches to hazards is not within scope of the Coastal Hazards Assessment, but will be included in the CHAP programme. Similarly, the Coastal Hazards Assessment will not produce hazard management overlays for the District Plan. Information from the Coastal Hazards Assessment will help determine

¹ Hazard maps are prepared to capture knowledge and understanding of natural hazard processes in a particular area or location. The maps can be used to help develop and test possible hazard management options and responses.

any future changes to hazard overlays, but this will be part of a separate District Plan consultation and decision-making process.

Noting the scope, in many cases there will be other sources of information relevant for specific properties such as:

- Hazard information in the District Plan, which provides information on planning controls.
- Flood model data on the Council floor level map website or minimum floor level certificates from Council which provide site-specific “evaluated” information.

Why we need an updated Coastal Hazards Assessment?

There have been various assessments of coastal erosion and inundation hazard undertaken for parts of the Christchurch coast over recent decades. The most recent work includes a series of reports covering parts of the open coast and parts of Banks Peninsula (prepared by Tonkin & Taylor and evolving in response to peer review between 2014 and 2017), and a condition assessment of the eastern edge of the Avon-Heathcote/Ihutai Estuary (prepared by Jacobs in 2019).

An update of the 2017 Coastal Hazards Assessment report is required to:

- Utilise new guidance, data and assessment including:
 - i Availability of more recent topographic data.
 - ii Longer datasets including beach profiles, water level information and wave climates.
 - iii New analysis on extreme water levels and sediment supply scenarios (Goring, 2018 and NIWA, 2018).
 - iv Understanding of rising groundwater hazard due to sea level rise (Christchurch City Council Land Drainage Recovery Programme).
- Include suggestions from the 2016 Peer Review (Kenderdine et al. 2016) of the 2015 Coastal Hazards Assessment that were not able to be included in the 2017 assessment.
- Provide additional scenarios and outputs designed for engagement and adaptation.
- Broaden the geographic scope to cover the entire Christchurch District coastline (including the entire Banks Peninsula coastline).
- Ensure consistency of hazard identification with national-level guidance such as the 2017 Ministry for the Environment *Coastal Hazards and Climate Change Guidance*.

An updated Coastal Hazards Assessment will support sound adaptation planning discussions with low lying inland and coastal communities in Christchurch and robust decision making by the Council.

Process

The Coastal Hazards Assessment draws upon the process recommended in the international standard *ISO 31000:2019 Risk management – Guidelines*. The four stages and outputs of the process are outlined in Figure 1.

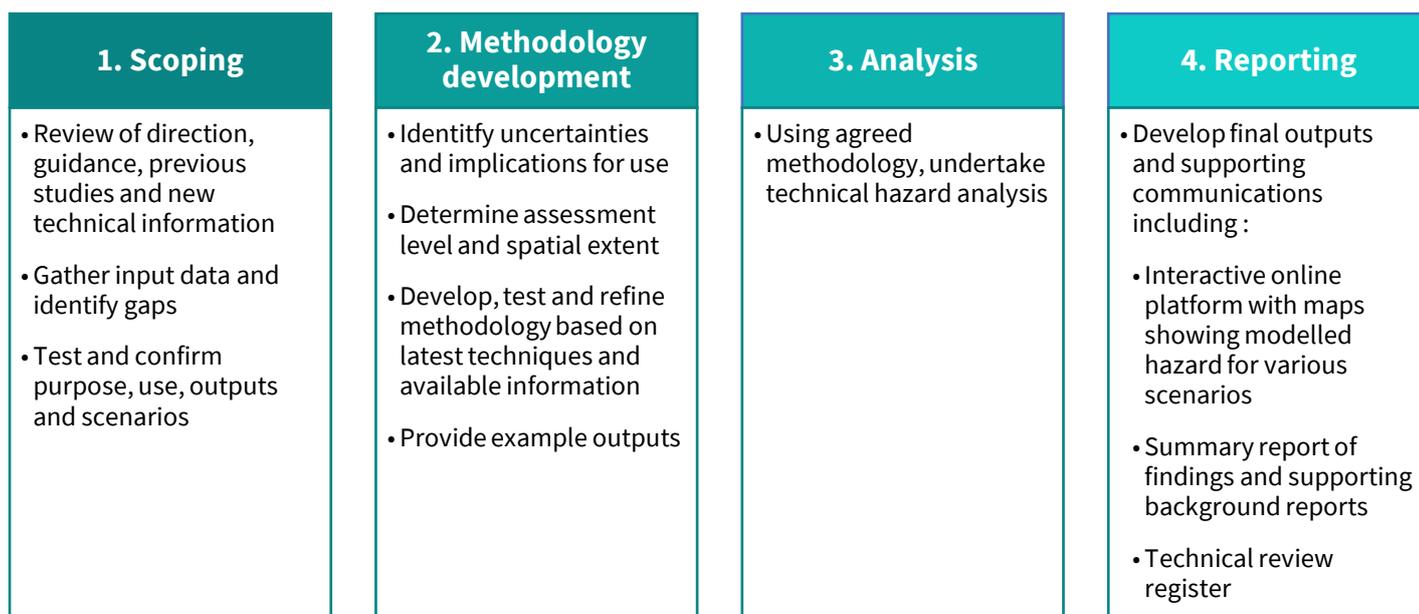


Figure 1 –Coastal Hazards Assessment process outline.

At each stage, the CHAP programme team and relevant staff from the Council and Environment Canterbury will undertake a review to ensure the assessment is suitable from a technical, organisational and project perspective.

Separately, a rolling technical review is being undertaken throughout the development of the Coastal Hazards Assessment and Derek Todd, a principal coastal hazard scientist at Jacobs, attends regular meetings to provide expert advice. For transparency, all feedback from the technical reviewer and the response will be published.

The **Coastal Hazards Assessment for Christchurch District: Methodology and Approach Summary** report marks the end of stage 1 and 2 of the process to undertake the Coastal Hazards Assessment, as shown in Figure 1. Prior to releasing this report, a high-level overview of the approach was presented to representatives from community groups with interests in technical hazard information and/or environmental issues. The purpose of doing this was to test the approach more widely, and to seek assistance in developing communications and supporting information. Notes from this meeting, and a list of attendees, can be found on www.ccc.govt.nz/coast/coastalhazards. There will be further opportunities for these community groups to support the development of the Coastal Hazards Assessment’s final outputs in stage 4.