Sea Level Rise and Coastal Hazard Assessment for Clarence City Council, Tasmania

Client: Clarence City Council, Tasmanian State Government, Australian Government Department of Climate Change
Year: 2007-Current
Project Reference: 06071

The Water Research Laboratory has recently undertaken a detailed sea level rise and coastal hazard assessment for Clarence City Council, Tasmania. This project was jointly funded by Clarence City Council, Tasmanian State Government, and the Australian Government Department of Climate Change; and is intended to be a pilot project for future sea level rise assessments nation wide.

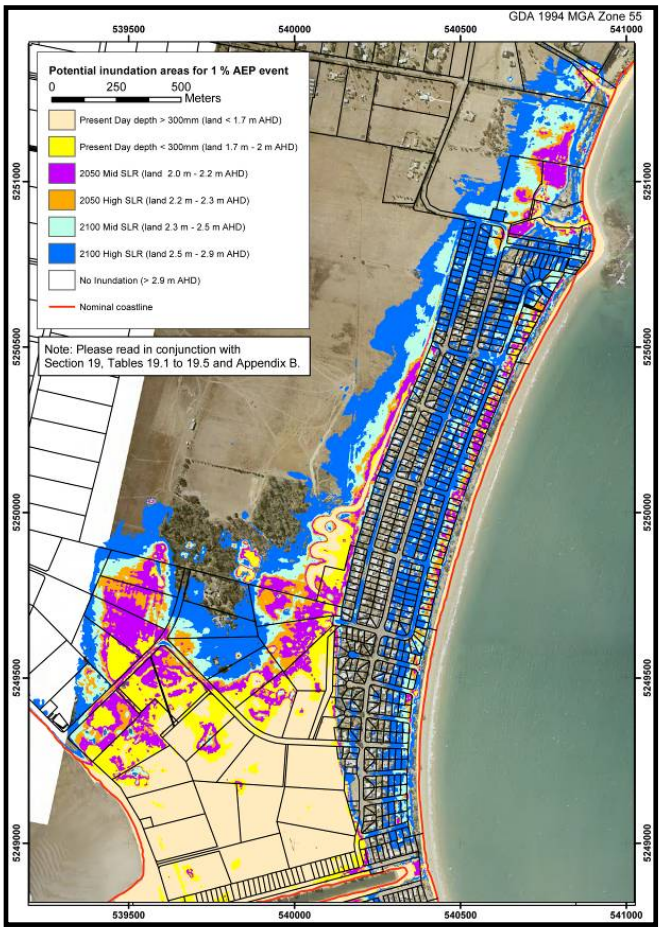
This council wide coastal vulnerability assessment is one of the largest and most detailed studies undertaken in Australia to consider local coastal processes and sea level rise implications. The methodology adopted by WRL for this investigation is now considered a best practice framework for local sea level rise investigation.

To quantify the impacts of sea level rise and the vulnerability of assets and coastal land, a large range of coastal processes were considered in the investigation including tides, storm surge, extreme ocean waves and swell wave penetration, wind waves, and long-shore and cross-shore sand transport.

The effect of sea level rise on hazards such as beach erosion and recession, estuary entrance stability, wind blown sand and inundation, was considered in detail as a part of the investigation. These processes and hazards were considered on a detailed level that allowed quantification of sea level rise implications on specific beaches, headlands, and embayments; as well as assets such as roads, buildings, and stormwater infrastructure. Appropriate adaptive planning management strategies were presented as a part of this investigation.

WRL worked with SGS Economics and Planning, to assess the economics and feasibility of a range of adaptive management options for specific beaches throughout Clarence City Council. One of the adaptation strategies considered, was initial and ongoing beach nourishment with estimation of required sand quantities and costs, the future sand demand, and the cost/benefit of undertaking beach nourishment as an adaptation strategy for the beaches.

In undertaking this project, WRL demonstrated extensive expertise and understanding of contemporary climate change science, and implications of sea level rise on coastal processes and hazards.



Hazard lines and inundation areas overlain on digital cadastral map

WRL's long history and experience in coastal process analysis were combined with current day sea level rise predictions to investigate the vulnerability of Clarence City Council's coastal assets, and possible adaptation strategies.

Due to a lack of appropriate policies and procedures for coastal hazard assessment in Tasmania, WRL was able to use its extensive knowledge of policies and practice from other states to implement best practice for Clarence City Council.

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