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# Water Research Laboratory

## Assessment of Coastal Hazards – Manly, NSW

Never Stand Still

Faculty of Engineering

School of Civil and Environmental Engineering

**Client:** Manly Council

**Year:** 2012

**Project Reference:** 2011016

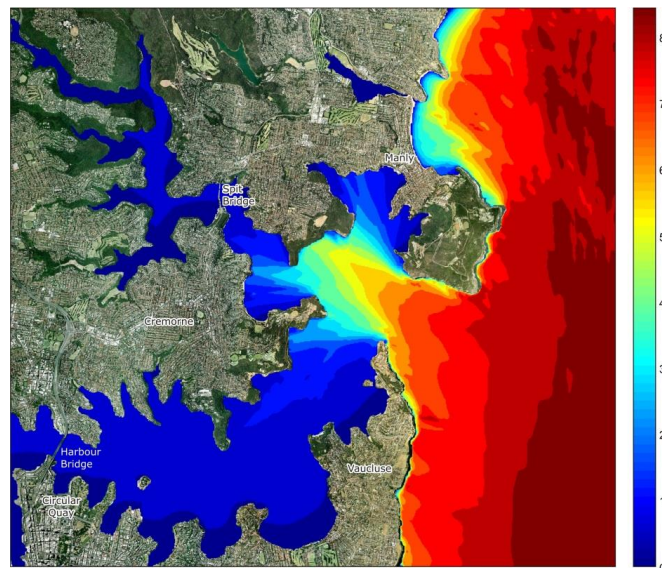
The iconic Sydney suburb of Manly occupies the northern shores of Sydney Harbour. It includes low energy harbour-side beaches as well as the famous Manly Beach dominated by the swells of the Pacific Ocean. Manly beaches are susceptible to significant erosion during extreme storm events and have a long history of failure of their protection works. The Water Research Laboratory (WRL) of the University of New South Wales was commissioned by Manly Council to undertake a comprehensive investigation to identify and quantify coastal risks on sandy beaches within the local government area.

Coastal risks considered included:

- Beach erosion due to storm events
- Shoreline recession caused by long term sediment imbalance
- Coastal inundation as a consequence of elevated water levels
- Wave overtopping of seawalls and coastal protection works
- Impacts of sea level rise

The study commenced with a field survey of existing coastal protection works (seawalls and revetments). A wave propagation model was then implemented to determine the nearshore wave conditions during design storm events. Based on the wave modelling results and the analysis of available data (including historical photogrammetry, council and resident records, beach survey and wave buoy data), WRL identified coastal hazard zones and made recommendations for the coastal risk management.

The project was led by WRL coastal engineer Alessio Mariani with support from James Carley (WRL), Dr Tom Shand (WRL), Duncan Rayner (WRL) and Doug Lord (Coastal Environment).



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