

Water Research Laboratory Eurobodalla Shire Council coastal hazard assessment

Project partner: Umwelt

Year: 2011-2017

WRL Technical Report: Eurobodalla coastal hazard assessment (2017/09)

Clients: Eurobodalla Shire Council & NSW OEH

Project reference: 2011063, 2012068, 2014105

Eurobodalla Shire Council, located on the NSW south coast, commissioned WRL to prepare a coastal hazard assessment for 17 of their most vulnerable beaches. This study area comprises Durras Beach (south) to Broulee Beach, including Batemans Bay. This assessment forms Stage 2 of their Coastal Management Program, following a scoping study in Stage 1 (prepared by Umwelt), which prioritised those beaches with public and private assets potentially at high risk from coastal hazards. The principal coastal deliverables were:

- Conceptual sediment transport models (figure 1)
- Erosion/recession hazard maps
- Coastal inundation hazard maps

During site inspections at each beach, WRL's coastal engineers collected sand samples that were dried and mechanically sieved in our laboratory to determine their particle size distribution. Additional samples were treated with hydrochloric acid to determine their percentage of carbonate content (which provides an indication of whether the sand originated directly adjacent to each beach).

Short-term beach erosion volumes were determined considering analysis of historical photogrammetry (stereo aerial photographs dating back to 1942), numerical erosion modelling and consensus values from a panel of experts with experience of coastal processes on the Eurobodalla coast.

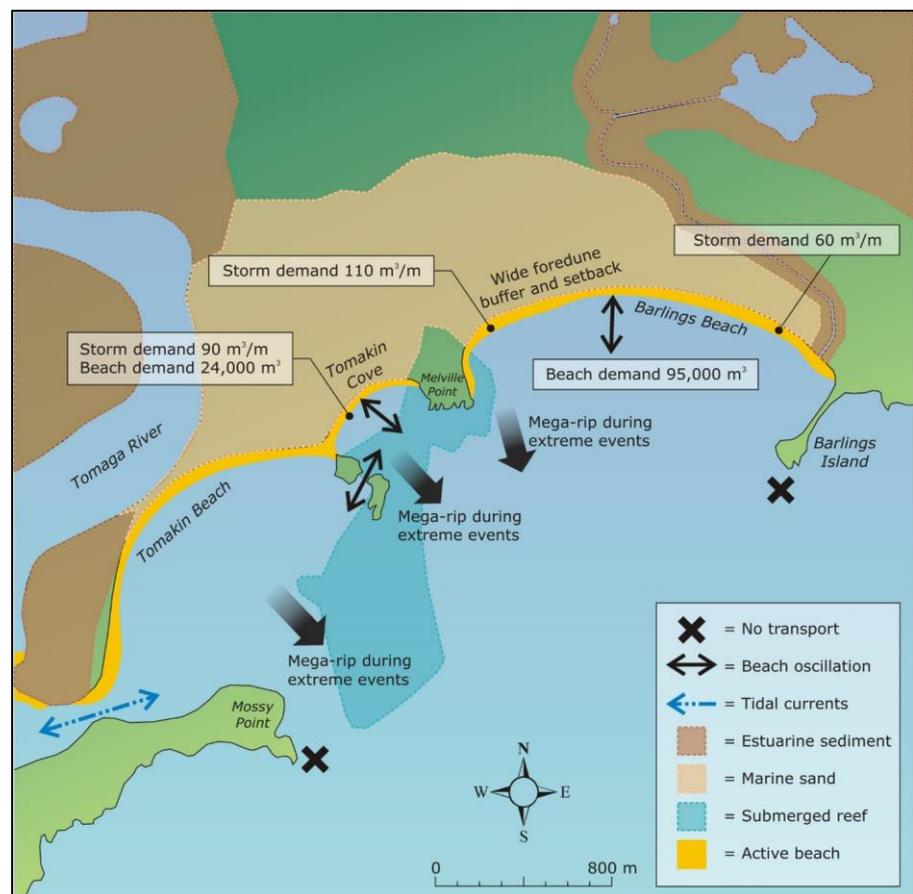


Figure 1: Conceptual model of sediment movement and storm demand at Barlings Beach and Tomakin Cove

The numerical model was calibrated against survey measurements of the erosion event of record, the May-June 1974 storm sequence, at the nearby Bengello Beach (just north of Moruya airport, figure 2).

Erosion/recession maps were prepared for each beach using a probabilistic or deterministic approach, depending on the number of assets potentially at risk from this coastal hazard.

WRL's coastal engineers had previously surveyed the high-water marks associated with wave action in the study area on a sandy beach (Malua Bay) after a major storm in August 1986, and over a seawall (Caseys Beach) after the June 2016 storm (figure 3).

Coastal inundation modelling in this assessment was calibrated against these field measurements of debris

lines indicating the maximum wave runup distance and areas exposed to wave overtopping.



Figure 2: Bengello Beach survey area, 25 May 1974 (source: McLean et al., 2010)



Figure 3: Calibration of coastal inundation methodology at Caseys Beach