Manning NSW01.03.03

Regional Setting

The dominant regional processes influencing coastal geomorphology in this region are the humid warm to cool temperate climate, micro-tides, south-easterly Tasman Sea swells, easterly seas, dominantly quartz (terrigenous) sediments with northerly longshore transport in the northern part, and the El Nino Southern Oscillation (driving beach erosion/accretion cycles, cyclone frequency).

Regional hazards or processes driving large scale rapid coastal changes include: East Coast Lows (extra-tropical cyclones), mid-latitude cyclones (depressions), and storm surges (<1m).

This compartment extends from Crowdy Point to Black Head.

Justification of sensitivity

Sensitivity rating is 4 overall, although much of the compartment is ranked higher at 5. The compartment is sediment starved, with much available sand being fed into the entrances of the Manning to form flood tide deltas. The Holocene barrier (Mitchell Island) is narrow and appears to be receding. There is little evidence of sand supply to this compartment from the south (Roy, et al., 1997, Figure 2), and little sediment delivered from the shelf. Erosion hotspots such as Old Bar are already a 5.

Other comments

Between Harrington and Crowdy Head, narrow Holocene barriers with limited transgressive dunes may be receiving sand as a result of periodic river discharge and reworking of the flood tide delta. Low-lying areas that could be subject to both marine and flood inundation occur around the Manning River mouth, for instance at Manning Point.

This compartment contains the town of Old Bar. Here, Pleistocene sands are being eroded and veneered with Holocene dune and beach sands locally mixed with gravel. Indurated sand and bedrock outcrops in places on the beach and offshore locally controlling sediment thickness on the beach, including at the critical beach-dune interface (Nichol et al., 2016; see Figures 1 and 2). This sediment compartment is sediment starved and prone to erosion; much is sensitivity rating 4, and erosion hotspots such as Old Bar are ranking at a 5.

Confidence in sources

Medium to high confidence: Erosion at Old Bar has been studied for some time (PWD, 1981; Royal Haskoning, 2014). Other sections of coast are relatively poorly studied although more recent unpublished work as part of the development of a CZMP for Council is assisting the understanding of this sensitive area.

Additional information (links and references)

Nichol, S.L., McPherson, A., Davies, G., Jiang, W., Howard, F., Baldock, T., Callaghan, D., Gravois, U., 2016. A framework for modelling shoreline response to clustered storm events: A case study from southeast Australia. Journal of Coastal Research, Special Issue 75, 1197-1201.

PWD, 1981. Old Bar Coastal ErosionStudy. Unpublished consulting report Sinclair Knight and Partners, 186pp.

Roy, P.S., Zhuang, W.-Y., Birch, G.F., Cowell, P.J., Li, C., 1997. Quaternary geology of the Forster-Tuncurry coast and shelf, southeast Australia, NSW Geological Survey Report p. 405.

Royal Haskoning DHV, 2014. Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar, report to Greater Taree Council http://www.gtcc.nsw.gov.au/assets/Main-Site/Files/FP-Strategic-Environment/Hazard-Definition-Study-Amendment-OldBar-2014.pdf

Figure 1. Erosion at Old Bar (photo A. Short).

Figure 2: Erosion and ad hoc protection works at Old Bar (photo C. Woodroffe)