



Illawarra Coast (south) NSW02.04.03

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 Red Point to Bass Point.

Justification of sensitivity

Sensitivity rating is a 3, with the exception of Warilla Beach, which is rated higher at 4 or 5. Erosion on Warilla Beach has required seawall construction followed by beach nourishment, and appears to still be eroding.

Other comments

Perkins Beach, north of the entrance to Lake Illawarra, is a Holocene barrier that separates Lake Illawarra from the ocean. It comprises transgressive dunes at the northern end which have been mined and stabilised. Probabilistic erosion estimates have recently been undertaken for Windang Beach, at the southern end of this barrier (Hanslow et al., 2016).

Warilla Beach has been subject to extensive beach monitoring in the 1970s and 1980s (Clarke and Eliot, 1988). Development on the foredune at the southern end necessitated seawall construction; the beach has lost sand, both to mining and by ingress into the entrance to Lake Illawarra by a trapdoor mechanism, as tombolo periodically formed connecting Windang Island. With construction of training walls, 200,000 m³ of sand were pumped as nourishment for the beach, covering the



seawall, which is presently again being excavated as sand is lost from the beach. Shellharbour beaches appear stable.

Lake Illawarra entrance has been the subject of numerous investigations to ensure it remains open to the sea. Previously, sand from both northern and southern beach sources have built a large berm across the mouth, blocking the lake from the sea. There have been various attempts to build training walls to give effect to this purpose. Wollongong and Shellharbour councils now share management responsibility since the termination of the Lake Illawarra Authority.

Confidence in sources

Medium confidence: There has been little detailed study of this compartment, except on Warilla Beach.

Additional information (links and references)

Clarke, D.J., Eliot, I.G., 1988. Low-frequency changes of sediment volume on the beachface at Warilla Beach, New South Wales, 1975-1985. *Marine Geology* 79, 189-211.

Couriel, E., Young, S., Jayewardene, I., McPherson, B., Dooley, B., 2013. Case study: assessment of the entrance stability of the Lake Illawarra estuary, *Proceedings of Ports and Coasts*, Sydney.

Hanslow, D.J., Dela-Cruz, J., Morris, B.D., Kinsela, M.A., Foulsham, E., Linklater, M., Pritchard, T.R., 2016. Regional scale coastal mapping to underpin strategic land use planning in south east Australia. *Journal of Coastal Research*, Special Issue 75, 987-991.

Young, S., Couriel, E., Jayewardene, I., McPherson, B., Dooley, B., 2014. Case study: Assessment of the entrance stability of the Lake Illawarra Estuary. *Australian Journal of Civil Engineering* 12, 41-52.