



Bonny Hills NSW01.03.02

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 Tacking Point to Crowdy Head.

Justification of sensitivity

Sensitivity rating is a 5, although much of the compartment might appear as a 4 at present. There is limited supply of sediment from offshore, Pleistocene deposits are exposed in places on the shoreline, and there is an erosion hotspot at Lake Cathie.

Other comments

Within the area of Port Macquarie there are small pocket beaches backed by steep bluffs. Waves can erode these beaches and at present there is limited supply of sand to restore beach widths; this may not be the case under higher sea levels, indicating a possible future need for sand nourishment.

Lighthouse Beach, south of Tacking Point, comprises only a very narrow Holocene barrier, with the indurated Pleistocene inner barrier exposed by erosion on the beach (Chapman et al., 1982).



Lake Cathie Beach is experiencing erosion; it has little offshore sediment on the shoreface and coffee rock is exposed in the beach-dune (Kinsela et al., 2016). Council is making use of sand trapped in the entrance of Lake Cathie to nourish the beach to the south of the entrance covering the coffee rock.

Grants Beach is a stable Holocene barrier with transgressive dunes; sand supply at the southern end has been limited following construction of training walls at Camden Haven Inlet.

South of Perpendicular Point, Dunbogan Beach and Kylies Beach have undergone mining. They are backed by a Pleistocene inner barrier with only narrow Holocene sand accumulation. Cluffed dunes along these beaches were considered to imply erosion by Chapman et al. (1982).

Confidence in sources

Medium confidence: Studies at Lake Cathie indicate long-term recession which seems likely to continue. Rates of recession are influenced by the occurrence of coffee rock (Kinsella et al., 2016). Elsewhere, there has been little research since erosion was inferred by Chapman et al. (1982).

Additional information (links and references)

Chapman, D.M., Geary, M., Roy, P.S., Thom, B.G., 1982. Coastal Evolution and Coastal Erosion in New South Wales. Coastal Council of New South Wales, Sydney.

Kinsela, M.A., Morris, B.D., Daley, M.J.A., Hanslow, D.J., 2016. A flexible approach to forecasting coastline change on wave-dominated beaches. Journal of Coastal Research, Special Issue 75, 952-956.