Yuraygir NSW01.02.01

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 Yamba Point to Wooli.

Justification of sensitivity

Sensitivity rating is 4, with localised erosion hotspots already rated at 5. Large sections of this compartment are located in a National Park.

Other comments

South of the Clarence River, the coast is largely rocky but with various embayed beaches forming discrete tertiary compartments. Many of the beaches are backed by Pleistocene dunes, as at Angourie (Chapman et al., 1982).

There is local erosion, as at the southern end of a tertiary compartment at Brooms Head, where low-lying land at the entrance of a creek with limited accumulation of little Holocene sediment is potentially subject to both overwash and long-term recession. Clarence Valley Council is developing a management strategy for this settlement.

The tertiary compartment from Brooms Head to Sandon contains broad Holocene and Pleistocene transgressive dunes. At its southern end, the Sandon River enters

and the narrow barrier separating it from the sea is sensitive, especially where the road comes close to the shoreline near Clay Head.

There are several tertiary compartments south of Sandon comprising a thin Holocene barrier in front of extensive Pleistocene dunes in Yuraygir National Park. Wooli Beach, which has extensive transgressive dunes at its northern end, has been subjected to periodic wave erosion. This is a well-established stationary Holocene barrier following the classification of Thom (1974; see revision in Roy et al., 1994). There are properties on the foredune. While the foredune is periodically undercut, the overall foredune structure could be resilient for some time into the future with or without sand nourishment (sensitivity 3?). The barrier is backed by the southerly diverted Wooli River, with low-lying backbarrier flat. At its southern end near the river mouth, there is a very thick exposure of coffee rock formed in dune sands of Pleistocene age that extends into the next compartment to the south.

Confidence in sources

Medium confidence: Although little research has been done since the synthesis by Chapman et al. (1982), there is continued interest in the medium to long term future of settlements at Brooms Head and Wooli, subject to continued investigation by council and concerned residents.

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.

Roy, P.S., Cowell, P.J., Ferland, M.A., Thom, B.G., 1994. Wave-dominated coasts, In: Carter, R.W.G., Woodroffe, C.D. (Eds.), Coastal Evolution: Late Quaternary Shoreline Morphodynamics. Cambridge University Press, pp. 121-186.

Thom, B.G., 1974. Coastal erosion in eastern Australia. Search 5, 198-209.