Shoalhaven River NSW02.04.05

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 Black Head to Beecroft Head.

Justification of sensitivity

Sensitivity rating varies from a 5 at Culburra, to a 3 at the southern end of the compartment. Seven Mile Beach has prograded in the past and its future dynamics are linked to Shoalhaven River behaviour.

Other comments

The Shoalhaven compartment comprises a prograded beach-ridge plain that backs Seven Mile Beach, north of the Shoalhaven Heads (Thom et al. 1981; see also summary of other work in Thom et al., 1986). A receded barrier has undergone erosion along Culburra Beach (which appears very sensitive), south of the Heads, and a stationary barrier at the southern end of the compartment. The Heads only open episodically following substantial storms in the catchment, and sand returns to choke the river channel in the post storm/flood period. The Shoalhaven discharges at present through Berrys Canal to exit at Crookhaven Heads. The beach adjacent to

the Heads undergoes dynamic changes following periods of entrance opening, with erosion and recession of the beach as sand returns to close the entrance. A lesser sediment delivery from the river is likely since construction of Tallowa Dam (Carvalho and Woodroffe, 2014). Lake Wollumboola is intermittently open and is sensitive; increased openings in the future could disturb sensitive ecological conditions relevant to bird habitat. The extensive estuarine plains east of Nowra are likely to be vulnerable to inundation but have not been assessed as part of this project.

Confidence in sources

Medium confidence: Ongoing study of this compartment will elucidate current sediment dynamics, but future behaviour is linked to behaviour and management implementation associated with the Shoalhaven River.

Additional information (links and references)

Carvalho, R.C. and Woodroffe, C.D., 2014. The sediment budget as a management tool: the Shoalhaven Coastal Compartment, south-eastern NSW, Australia. 23rd NSW Coastal Conference. Ulladulla, NSW.

Thom, B.G., Bowman, G.M., Gillespie, R., Temple, R., Barbetti, M., 1981. Radiocarbon dating of Holocene beach-ridge sequences in southeast Australia. Geography Department, Faculty of Military Studies, University of NSW, Duntroon, Canberra.

Thom, B.G., Roy, P.S., Short, A.D., Hudson, J., Davis, R.A., 1986. Modern coastal and estuarine environments of deposition in southeastern Australia. Department of Geography, University of Sydney, 12th International Sedimentology Conference. Guide to Excursion 4A, p. 279.

Wright, L.D., 1970. The influence of sediment availability on patterns of beach ridge development in the vicinity of the Shoalhaven River delta, N.S.W. The Australian Geographer 11, 336-348.