Illawarra Coast (north) NSW02.04.01

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 Port Hacking Point to Bellambi Point.

Justification of sensitivity

Sensitivity rating is a 4. Beaches appear resilient, with apparent stability despite storm cut and subsequent fill. However, erosion and recession are considered likely on several beaches, with limited sand supplies from offshore or onshore available to maintain beach position as sea level rises.

Other comments

The rocky coastline of the Royal National Park contains several small pocket beaches, but much of the sand along this coast is stored offshore in shelf sand bodies (Field and Roy, 1985). Stanwell Park Beach undergoes periodic changes that have been related to El Niño-Southern Oscillation variation, which causes changes in storminess (Bryant, 1988). The rocky coast continues with exposure of the Permian Illawarra Coal Measures, and only small pocket beaches south until Sandon Point, where Pleistocene sediments are exposed at MacCauley's Beach (at the

southern end of Thirroul Beach) by erosion (Jankowski et al., 2015). The coastal plain becomes wider, and the beaches backed by broader accumulations of sand. Bulli Beach is a receded barrier that was severely eroded in 1974, exposing mangrove stumps in the beach (Jones et al., 1979). Sand has been accumulating on Woonona beach and other southern Illawarra beaches, resulting in local beach reshaping around surf clubs (Beardsmore et al., 2014). Bellambi Point forms a prominent headland at the southern end of this secondary compartment; erosion on Bellambi Beach is reported with medium confidence by Chapman et al. (1982).

Figure *1* *Bulli Beach with muddy peat exposed on the beachface following storm associated with an east coast low in early June 2016. Similar peats were exposed by the 1974 storms and radiocarbon dates of more than 6000 years old (Jones et al., 1979) indicate that this is a receded barrier.*

Confidence in sources

Medium confidence: Beach storm cut and post-recovery fill masks longer-term trends.

Additional information (links and references)

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Field, M., Roy, P.S., 1985. Offshore transport and sand-body formation: evidence from a steep, high-energy, shoreface, southeastern Australia. Journal of Sedimentary Petrology 54, 1292-1302.

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