



Disaster Bay NSW02.06.10

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 Green Cape to Jane Spiers Beach Head.

Justification of sensitivity

Sensitivity rating is a 3 overall. Past progradation indicates it may have been a 1, but sources of sediment are uncertain as offshore may be in a disequilibrium state, implying further accretion (and a rating of 2) is possible.

Other comments

The Disaster Bay compartment is a sediment trap. It is bounded by Green Cape to the north - a prominent headland of Late Devonian rocks, jutting 6km south, ensuring that this compartment is unlikely to leak sediment to the north. The southern boundary is less prominent but Jane Spiers Beach Head marks a change in orientation of the rocky coast. The compartment comprises the southeast-facing Wonboyn barrier, which is divided into two sections by Bay Cliff. The offshore bottom is unconsolidated sediments, as shown by swath mapping. Radiocarbon dating of shell from within the 42 sand ridges of the strandplain, described by Thom et al.



(1981), more recently substantiated by unpublished OSL ages, indicates gradual progradation of this regressive beach sequence at an average rate of about 0.3 m/yr.

The Wonboyn River has a small catchment of 335 km² and any sediment that it delivers is deposited in Lake Wonboyn. The Merrica River drains only a small catchment and is largely occluded by a river mouth beach. With no apparent external sediment feed, the foredune ridge along this embayment will be a slow responder and may even continue to accrete if the offshore profile is in an overfit disequilibrium state. Further offshore investigation is required.

Confidence in sources

Medium confidence: Although Holocene history is documented, it remains difficult to forecast how this compartment will respond in future.

Additional information (links and references)

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.