



Macleay NSW01.02.05

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 Nambucca North Head to Laggery Point.

Justification of sensitivity

Sensitivity rating is a 3. The beaches are considered stable in the absence of reported evidence of sustained erosion.

Other comments

This compartment consists of several large infilled embayments with dual Holocene prograded barriers (Thom, 1974; Hails, 1968). Low-lying deltaic plains of the Nambucca River and Macleay River occur behind the barriers. In particular, the Macleay flood plain has been subjected to extensive flood mitigation works and investigations of impacts of inundation.



Middle Beach, south of Scotts Head, is anchored by bedrock and is stable. The beach to the south has been stable since the Macleay River mouth has been fixed by training walls. However, it will require littoral feed from the south to prevent recession in the medium to long term. An arm of the Macleay River runs behind this barrier. A major ebb tide delta has formed offshore from the river mouth. Southwest Rocks provides a major headland, protecting the beaches to its north within Trial Bay. Sand is accumulating on two beaches within the bay. At present, a wide incipient foredune indicates accretion. The rock bound Horseshoe Bay that separates the accreting beaches is now sand filled, although historic photos show periods of shingle and gravel. It appears that Trial Bay experiences periods of sand accretion from offshore sources and perhaps from the south around Southwest Rocks. Investigations on sand transport have been undertaken in the past by PWD near Southwest Rocks (Nielsen, 1980). This is an area requiring further investigation as the shoreline may remain resilient to change as sea level rises if the sand supply is maintained.

Confidence in sources

Low confidence: Recent observations indicate abundant sand supply in the vicinity of Trial Bay.

Additional information (links and references)

Hails, J.R., 1968. The Late Quaternary history of part of the mid-North Coast, New South Wales. Transactions of the Institute of British Geographers 44, 133-149.

Nielson, A.F., 1980. South West Rocks Creek – hydraulic investigations of boatharbour proposal. NSW PWD, Coastal Engineering Branch, report 79020.

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