



South Tasman TAS01.04.01

Regional Setting

This compartment extends from Tasman Island to Outer North Head.

This is an open coast which experiences micro tides (1.2m springs tidal range), and is exposed to high energy swells.

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).

Justification of sensitivity

The overall sensitivity rating for the beaches is 3. Erodible sandy beaches are deeply embayed, with little loss or gain of sand, and will probably be relatively late responders to sea-level rise. The remainder of the compartment (hard rocky coast) is resilient; most of this compartment comprises resilient hard rock shorelines.

Sand supply for the few beaches in this compartment is probably supplied from the Storm Bay continental shelf by aeolian transport during glacial low sea stands, and by wave transport during interglacial marine transgression phases. Negligible sand sources and little wave-induced sand supply are likely from offshore shelf areas ([Harris & Heap 2014](#)).

Little leakage of sand from deeply embayed beaches separated by large rocky promontories is likely. The main sand movement is likely to be offshore-onshore,



resulting in a prolonged capacity to recover from erosion events, and delayed recession response to sea-level rise. The status and history of these beaches is not well known, but they do not appear to be progressively receding at present.

Other comments

Infrastructure, including roads, is present behind some erodible beaches, such as those at Nubeena and Carnarvon Bays, and could be damaged by shoreline erosion despite the relatively limited potential for shoreline recession in most areas. Coastal slumping is a notable hazard between Outer North Head and Roaring Beach. However, little or no infrastructure is at risk in that area.

Coastal flooding has previously caused damage at the Port Arthur historical complex and has temporarily closed the main road behind Carnarvon Bay (July 2011). Limited areas around Port Arthur and Nubeena are susceptible to coastal flooding. However, for most of this compartment, the cliffed rocky coast makes inundation a negligible issue.

Confidence in sources

Moderate confidence: Only reconnaissance studies of coastal landforms and processes are available for this compartment.

Additional information (links and references)

Geological mapping (Tasmanian Geological Survey)

Harris, PT & Heap, A 2014, 'Geomorphology and Holocene Sedimentology of the Tasmanian Continental Margin', in KD Corbett, PG Quilty & CR Calver (eds), Geological Evolution of Tasmania, Geological Society of Australia (Tasmania Division), pp. 530-539.

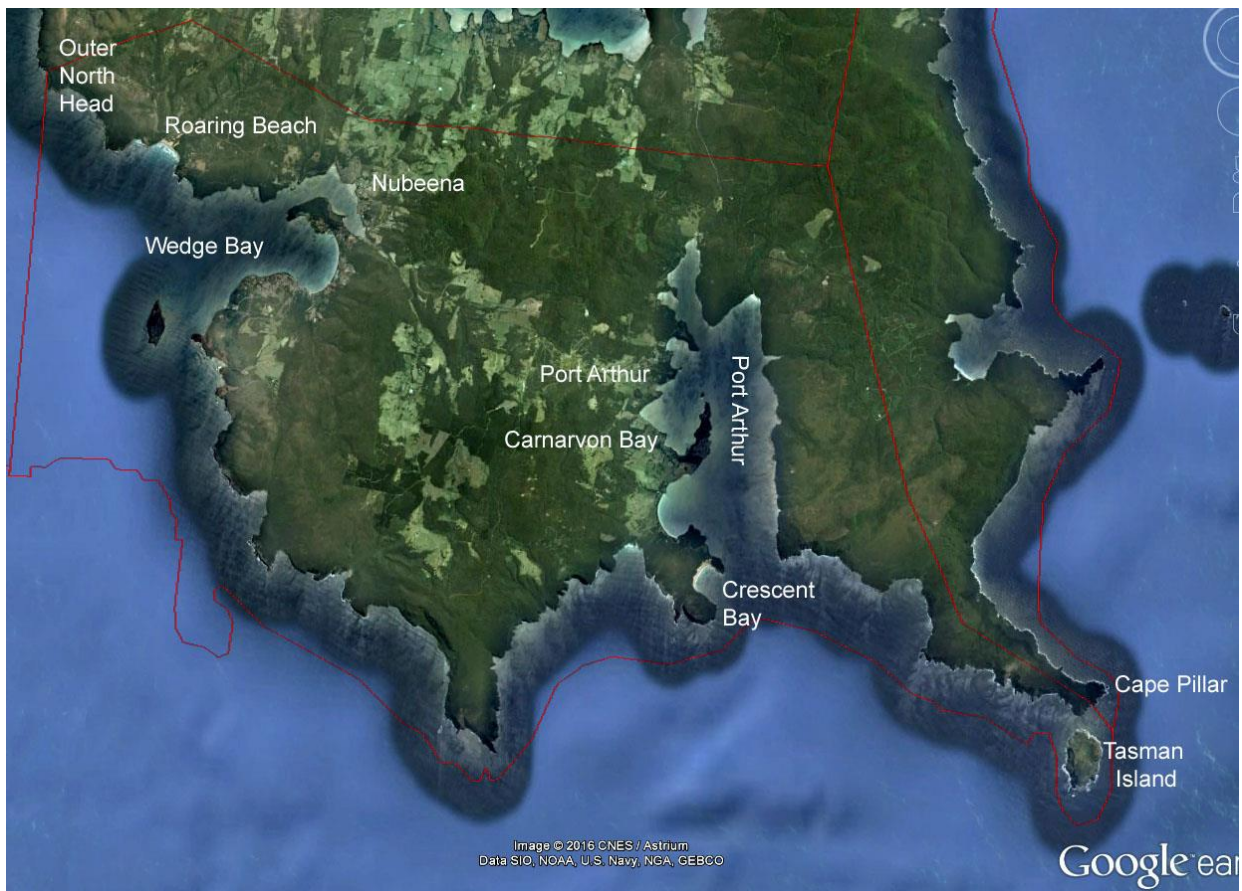


Figure 1: *Compartment TAS01.04.01 South Tasman.*