



Mallacoota VIC01.01.01

Regional Setting

This compartment extends from Cape Howe to Rame Head.

It is directly exposed to and dominated by south-easterly Tasman Sea swells, and experiences micro-tides.

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

Sensitivity rating is a 3. The sand budget is probably in equilibrium with alongshore gains from the SW and likely to remain so; these beaches are likely to be late responders to sea-level rise which mostly will show little shoreline recession for decades.

The source of beach and dune sand for this compartment is a combination of shelf sands worked landwards by waves during post-glacial marine transgressions, and wave re-working of local Tertiary-age soft sandstones at the shoreline.

At the present day, there is no significant supply of sand to this coast from rivers, and sediment transport modelling (Harris & Heap 2014) suggests there is unlikely to be significant ongoing supply of sand from the shelf directly offshore. However, the dominant sand movement in this compartment is a strong, south-west to north-east,



alongshore sand drift; into, through and out of this compartment (Short & Woodroffe 2009). The rocky promontories along this coast do not prevent this alongshore transport and there is also active wind-driven transport of sand out of the compartment across Cape Howe in large headland bypass dunes. Beyond Cape Howe, the sand appears to be transported offshore to accumulate in a large inner-shelf sand body (Short & Woodroffe 2009). There may also be some intermittent loss of sand into flood-tide deltas at Mallacoota Inlet. However, there is probably little or no net loss from the compartment as sand is being gained from alongshore drift. Owing to the strong alongshore drift of sand into and out of this compartment, the sand budget is probably in equilibrium.

Given the sand supply and exposure to persistent swells, the beaches in this compartment are likely to be stable late responders to sea-level rise that will continue to recover from erosion events without progressive shoreline recession for some decades into the future. However, with increasing frequency of beach erosion events as a result of sea-level rise, there may be some medium-term tendency towards recession on the east (down-drift) side of promontories, such as: Rame Head, Sandpatch Point and Little Rame Head, and some tendency towards sand accumulation on the west (up-drift) side of the promontories.

Other comments

Flooding hazards are likely to be significant at Wingan and Mallacoota Inlets, particularly when coastal storm surges coincide with catchment flooding associated with deep low pressure systems.

Confidence in sources

Medium to high confidence: Based on previous studies of the Gippsland region coast (e.g. Bird, 1993).



Additional information

Relevant geological mapping is available on several scales. Bird (1993) provided a useful geomorphic description of this compartment and references previous studies. The following sources have been referred to in the text above:

Bird, ECF 1993, *The Coast of Victoria: the Shaping of Scenery*, Melbourne University Press, Melbourne.

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.

Short, AD & Woodroffe, CD 2009, *The Coast of Australia*, Cambridge University Press.

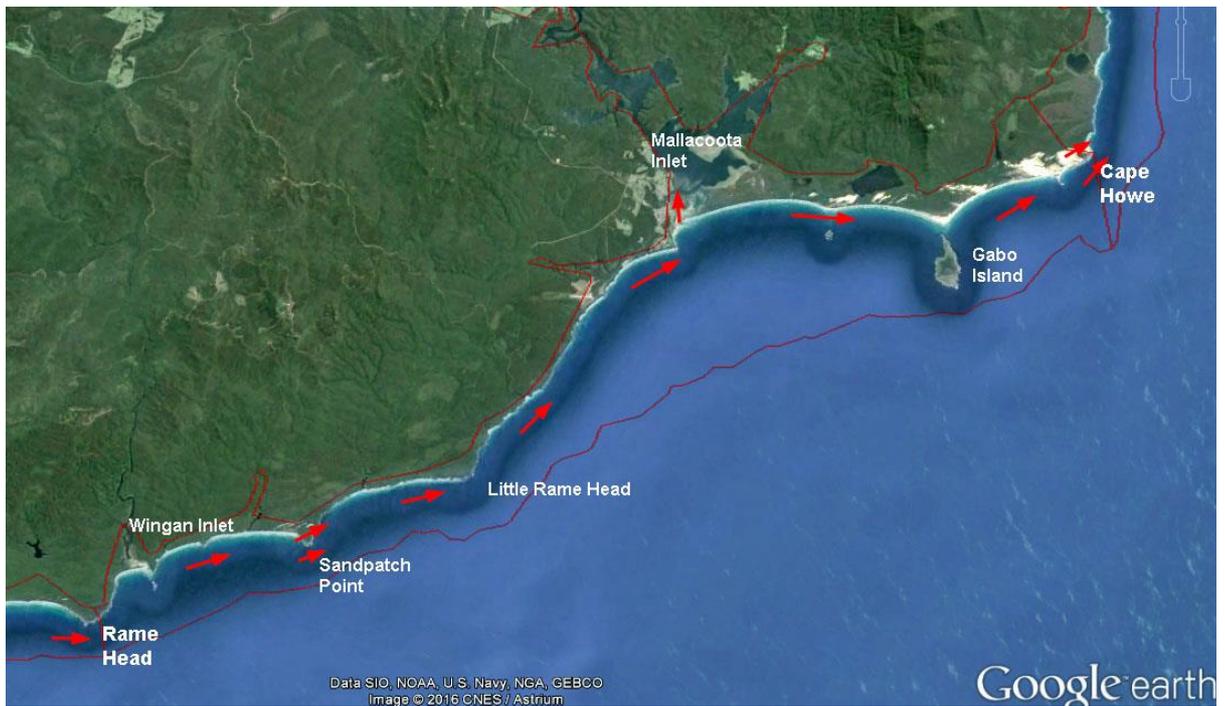


Figure 1: Compartment VIC01.01.01 Mallacoota. Red arrows indicate the main movements of sand into, through and out of this compartment.