



Tyers - Snowy VIC02.02.01

Regional Setting

This compartment extends from Cape Conran (hard rock granite promontory) to Red Bluff (soft sandstone promontory between Lakes Entrance and Lake Tyers Beach).

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 3. The sand budget is probably in equilibrium with alongshore gains from the west 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 shoreline re-working of local, Tertiary-age, semi-lithified sandy sediments underlying and backing the shoreline.

At the present day, sediment transport modelling (Harris & Heap 2014) suggests there is probably little sand being supplied to this compartment from the shelf directly offshore. However, a strong west to east alongshore sand drift transports sand into, through and out of the compartment (Short & Woodroffe 2009). It is unlikely that the main alongshore interruptions - Red Bluff, Point Ricardo and Cape Conran – are



sufficiently large as to significantly impede this alongshore sand movement. Whilst there may be some intermittent loss of sand into the estuarine lagoons of Lake Tyers and the Snowy River, 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 Red Bluff, and some tendency towards sand accumulation on the west (up-drift) side of Cape Conran (as has been observed in recent decades on the up-drift side of Red Bluff).

Other comments

Flooding hazards are likely to be significant in the estuarine parts of Lake Tyers and the Snowy River, 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 detailed studies of the Gippsland region coast.



Additional information

Relevant geological mapping is available on several scales. Bird (1993) provided a useful geomorphic description of this compartment.

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 VIC02.02.01 Tyers-Snowy. Red arrows indicate the dominant west to east alongshore drift of sand through this compartment.