



## Croajingalong VIC01.01.02

### Regional Setting

This compartment extends from Rame Head to Cape Conran.

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 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 interglacial high sea stands, 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, although sediment transport modelling (Harris & Heap 2014) suggests there may be a small to moderate ongoing supply of sand from the shelf directly onshore. However, the dominant sand movement in this compartment is a strong west to 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, indeed, there is active wind-driven transport of sand across the largest promontory (Cape Everard) in headland bypass dunes. There may be some minor intermittent loss of sand from the coastal system into coastal lagoon sinks at Sydenham Inlet and Tamboon Inlet, and some landwards loss of sand in active transgressive dunes between Cape Everard and Petrel Point. 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 Cape Everard and Cape Conran, 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 Sydenham Inlet and Tamboon Inlet, particularly when coastal storm surges co-occur with catchment flooding associated with deep low pressure systems in the Bemm and Cann Rivers.

### **Confidence in sources**

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



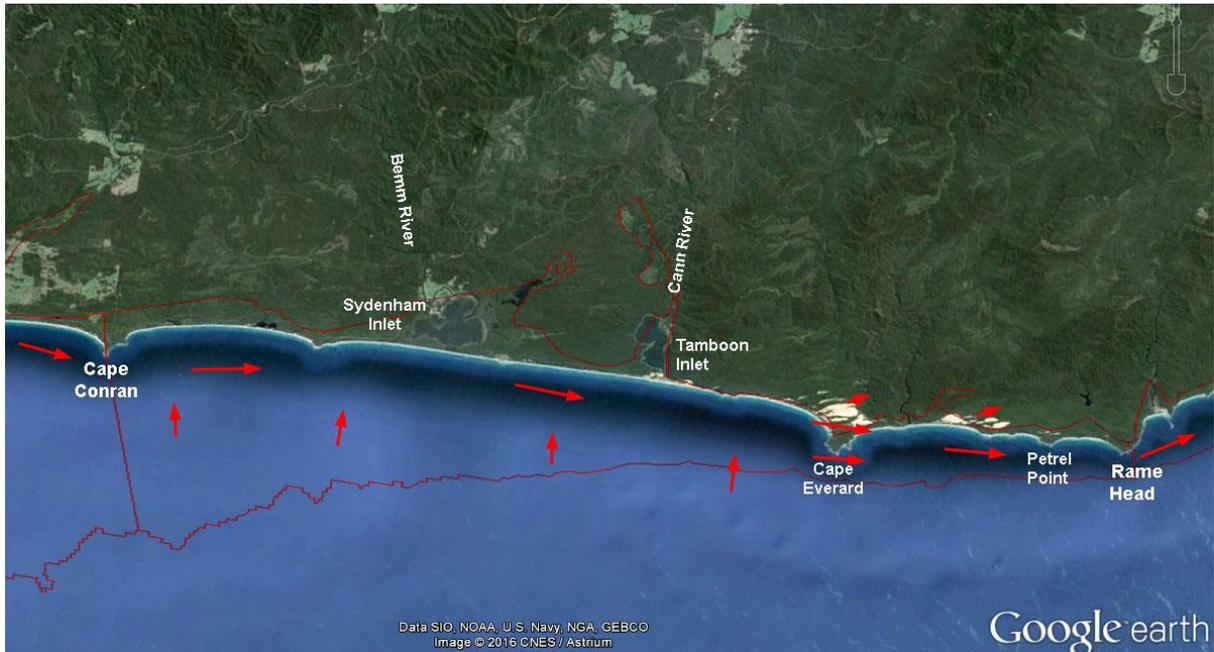
### **Additional information (links and references)**

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 VIC01.01.02 Croajingalong. Red arrows indicate the main movements of sand into, through and out of this compartment.