



Scamander TAS01.02.03

Regional Setting

This compartment extends from St Helens Point to Red Rock Point.

The coast is micro-tidal, receives refracted south-westerly swells as well as more direct Tasman Sea swells, and is also highly exposed to seas generated by extra-tropical cyclones (East Coast Lows).

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 stable or possibly slightly gaining, and these beaches are probably late responders to sea-level rise. River discharge may cause beach erosion problems at Scamander. The sloping hard rock headlands are resilient.

Beach sand in this compartment is likely to have been mostly derived from shelf sands blown landwards during glacial low sea stands, and reworked landwards by wave action during post-glacial marine transgressions.

There is negligible present day sand supply from rivers, although sediment mobility modelling suggests there may be a small ongoing shore-wards supply of shelf sands today (Harris & Heap 2014). There is probably little or no alongshore leakage of



sand, into or out of the compartment around St Patricks Foreland or St Helens Point (Davies 1973), with sand on beaches north of St Helens Point having visibly different character (whiter silica grains with less weathering-derived iron oxide patina) to those south of St Helens Point. During the early twentieth century, there does appear to have been some northwards sand leakage out of the compartment into the large tidal sand-sink of Georges Bay, via active headland bypass dunes across St. Helens Point (the Peron Dunes). However, these dunes have since been partly stabilised with marram grass and other developments.

Within the compartment, several small rocky headlands probably do not prevent alongshore sand transport between beach embayments. However, it is likely that the dominant mode of sand transport is beach rotation within individual embayments, as swells generally drive a northwards sand drift. Stormy seas related to East Coast Lows (extra-tropical cyclones) may episodically reverse local sand movements. (Note that there is very little measured data on beach behaviour in this compartment, and it is not clear that any beach rotation in eastern Tasmania is caused by the same ENSO-driven cycling that dominates on NSW beaches, given the stronger influence of the refracted south-westerly swells on Tasmania's east coast).

Notwithstanding a lack of measured beach behaviour data for this compartment, there are no indications that any widespread progressive shoreline recession has occurred in this compartment in recent decades. Given the likely sand budget and beach behaviour (above), this beach probably does not have a declining sand budget, nor is one likely to be initiated in the near term future in response to sea-level rise. Hence, it is likely these beaches will be generally late responders to sea-level rise and will probably remain in a dynamic equilibrium (oscillating alongshore and cross-shore) for the medium term future.

Other comments

Migration of the Scamander River mouth results in some erosion of the beach. A series of coastal lagoons (ICOLLS) are intermittently closed by a sand bar, but some are occasionally opened mechanically to prevent flooding and putrefaction (Diana's Basin, Winkler's Lagoon, Henderson Lagoon).



Coastal inundation is a hazard for parts of this shore, which will become an increasing problem with ongoing sea-level rise.



Figure 1: Compartment TAS01.02.03 Scamander.



Confidence in sources

Medium to low confidence: Little coastal geomorphic information or previous relevant studies are available for this area.

Additional information

There is little information relevant to shoreline behaviour and sand budgets for this compartment.

The following references are relevant to the discussion above:

Davies, JL 1973, 'Sediment Movement on the Tasmanian Coast', in *1st Australian Conference on Coastal Engineering*, vol. Australia National Conference Publication No. 73/1, pp. 43-46.

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.