Hammelin Pool (east) WA09.03.04

Regional Setting

The dominant regional processes are the Mediterranean to arid climate; the El Nino Southern Oscillation (driving sea-level variability); Southern Annular Mode (driving south-westerly swells and storms); strong sea breezes; micro to meso tidal, mainly diurnal; south-westerly swells; southerly seas; and carbonate sediments with moderate northerly longshore transport.

This coastline is susceptible to regional hazards, including extra-tropical cyclones, mid-latitude cyclones (depressions), storm surges, and river flooding (sub-regions only).

This coastal lowlands compartment extends from Nilemah Coast (E) to Wooramel Coast.

Justification of sensitivity

The sensitivity rating is a 4 as the shoreline is currently stable but likely to start eroding. Tidal channels determine water exchange across the eastern part of the Faure Sill and connect hypersaline Hamelin Pool with the open ocean. Closer to shore, large intertidal and subtidal terraces attached to salients are places where sediment appears to be lost into deeper water. These features are likely to change with future variation in climate.

Other comments

Common landform assemblages:

Around half (49%) of the coast is controlled by protection from offshore and onshore reef systems, with tidal flats of different extent, and with some sandy and/or fine grained beach material along the shore. Narrow sandy beach with extensive beachrock (34%) is common. Large tidal creek channels with complex relict sandy beaches, and some with

tidal flats between headlands (17%) are present. The outwash plain and delta of the Wooramel River merge with the northern side of the Faure Sill.

Geomorphological features include a hypersaline basin, irregular beaches and dunes, and an outwash plain.

This compartment has a WNW aspect.

Confidence in sources

Low confidence: Limited or no information describing landforms or coastal landform change over the historical period is available. The Faure Sill was recently subject to geological investigation. Interpretation of landform assemblages comes from satellite imagery and aerial photography.

Additional information (links and references)

Australian Beach Safety & Management Program (ABSAMP) database of over 12,000 beaches can be accessed at http://www.ozcoasts.gov.au/coastal/beach_intro.jsp (also see Surf Life Saving site)

Australian Maritime Safety Authority (AMSA). (2006) Oil Spills Response Atlas. Australian Government Canberra. Available at https://www.amsa.gov.au/environment/maritime-environmental-emergencies/national-plan/general-information/OSRA/index.asp

Baker C, Potter A, Tran M & Heap AD. (2008) Geomorphology and Sedimentology of the Northwest Marine Region of Australia. Geoscience Australia, Record 2008/07. Geoscience Australia, Canberra. 220pp.

Eliot I, Gozzard B, Eliot M, Stul T and McCormack G. (2012c) The Gascoyne Coast, Western Australia: Shires of Shark Bay to Exmouth. Geology, Geomorphology & Vulnerability. Damara WA Pty Ltd and Geological Survey of Western Australia, Innaloo, Western Australia. http://www.transport.wa.gov.au/mediaFiles/marine/MAC_R_ShiresOfSharkBayAndExmouthFullReport.pdf.

Eliot I, Nutt C, Gozzard B, Higgins M, Buckley E & Bowyer J. (2011). Coastal Compartments of Western Australia: A Physical Framework for Marine & Coastal Planning. Report to the Departments of Environment & Conservation, Planning and Transport. Damara WA Pty Ltd, Geological Survey of Western Australia and Department of Environment & Conservation, Western Australia

Gozzard JR. (2011d) WACoast –Gascoyne. Geological Survey of Western Australia

Short AD. (2005) Beaches of the Western Australian Coast: Eucla to Roebuck Bay: A guide to their nature, characteristics, surf and safety. Australian Beach Safety and Management Program. University of Sydney Coastal Studies Unit and Surf Life Saving Australia. Sydney University Press. Sydney, New South Wales.

Sharples C, Mount R, Pedersen T, Lacey M, Newton J, Jaskierniak D & Wallace L. (2009) The Australian Coastal Smartline Geomorphic and Stability Map. Version 1: Project Report. Geoscience Australia & Department of Climate Change, www.ozcoasts.gov.au/pdf/SmartlineProjectReport_2009_v1.pdf