



Hammelin Pool (west) WA09.03.03

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 Petit Point to Nilemah Coast (E).

Justification of sensitivity

The sensitivity rating is a 4 as the coast is currently stable but likely to start eroding. Tidal channels determine water exchange across the central part of the Faure Sill that connects 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:

The compartment includes the central part of the Faure Sill and the tidal channels connecting the open ocean waters of Shark Bay with the hypersaline waters of Hamelin Pool. Stromatolites and shell beaches are features of this compartment. Narrow sandy beaches include those with extensive beachrock (74%). Also present are beachrock



dominated beaches, with occasional sandy sections and which may have a low undercut beachrock cliff face (23%).

Geomorphological features include a hypersaline basin, beaches and dunes.

This compartment has a ENE 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