



Jurien Bay WA07.01.04

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 mixed sand and rock coast compartment extends from Thirsty Point to North Head.

Justification of sensitivity

The sensitivity rating is a 4 as the shoreline is currently stable but likely to start eroding.

The compartment has been a major depositional area, with nested active blowouts and sand sheets indicating recurrent phases of erosion in the late Holocene. Accumulation along the shore is concentrated in cusped forelands and tombolos, as well as in foredunes. Their southern shores have been subject to recent erosion.

Other comments

Common landform assemblages:

Broad sandy beach with well vegetated primary dune, often backed by parallel beach ridges or stabilised parabolic dunes (25%); Arcuate sandy beach, which may be cusped or crenulate, formed between or in association with resistant headlands



(19%); Major creeks or rivers incised into sediments; some tidal flats developed in areas afforded protection or where extensive deposition occurs (18%); Broad coarse-grained sandy beach with some active dunes and unstable blowout areas (16%).

Geomorphological features include offshore limestone reefs, tombolos, beaches and dunes, Hill River

This compartment has a WSW aspect.

Confidence in sources

Moderate confidence: Coastal landforms are well described in available management literature. However, neither sediment movement along the rocky coast and especially through the offshore reef chain, nor the sediment budget for the coast is well known. More detail is available for the embayments north and south of Island Point, Jurien. Interpretation of landform assemblages from satellite imagery and aerial photography, as well as site visits and published information describing the results of field survey and numerical modelling of water circulation.

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>



Eliot I, Gozzard B, Eliot M, Stul T and McCormack G. (2012a) The Coast of the Shires of Gingin and Dandaragan, Western Australia: 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_ShiresOfGinginAndDandaraganFullReport.pdf

Eliot I, Gozzard B, Eliot M, Stul T and McCormack G. (2012b) The Mid-West Coast, Western Australia: Shires of Coorow to Northampton. 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_ShiresOfCoorowAndNorthamptonFullReport.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. (2011a) WACoast – Cape Naturaliste to Lancelin. Geological Survey of Western Australia

Gozzard JR. (2011c) WACoast –Lancelin to Kalbarri. Geological Survey of Western Australia

Richardson L, Mathews E & Heap A. (2005) Geomorphology and Sedimentology of the South Western Planning Area of Australia: Review and synthesis of relevant literature in support of Regional Marine Planning. Geoscience Australia Report Record 2005/17

Searle DJ & Semeniuk V. (1985) The natural sectors of the Rottneest Shelf coast adjoining the Swan Coastal plain. Journal of the Royal Society of Western Australia. 67: 116-136



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

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

Stul T, Gozzard JR, Eliot IG and Eliot MJ (2014a) Coastal Sediment Cells for the Mid-West Region between the Moore River and Glenfield Beach, Western Australia. Report prepared by Seashore Engineering Pty Ltd and Geological Survey of Western Australia for the Western Australian Department of Transport, Fremantle. <http://www.transport.wa.gov.au/mediaFiles/marine/MAC-R-MidWest-CoastalSedimentCellsL.pdf>