



Yanchep Coast WA06.02.03

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 compartment extends from Pinnaroo Point to Guilderton.

Justification of sensitivity

The sensitivity rating is a 3 as the shoreline is currently stable and likely to remain stable.

This is a mainly rocky coast with beaches and dunes over-riding calcarenite pavement reefs, rock platforms and lithified eolian sediments. The pattern of reefs directly affects coastal dynamics, the formation of local sediment cells and the distribution of sediment derived from on and offshore.

Other comments

Common landform assemblages:

Broad gently-sloping coarse grained sandy beach with some active dunes and unstable blowout areas (42%); Broad smooth sloping sandy beach with well vegetated primary dune, often backed by parallel beach ridges or stabilised parabolic



dunes (35%); Variable width sandy beach formed in areas protected by offshore reefs; may include some beachrock as low cliffs or headlands (22%). Geomorphological features include shore parallel offshore limestone reefs, limestone headlands, forelands, beaches and dunes, Moore River.

This compartment has a SW aspect.

Confidence in sources

Moderate Confidence: Coastal landforms are well described in available management literature. Neither sediment movement along the rocky coast and through the reefs, nor the sediment budget for the coast is well known. Interpretation of landform assemblages comes from satellite imagery, marine LiDAR imagery and aerial photography, as well as site visits and published information.

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>

Brearley A. (2005) Ernest Hodgkin's Swanland: Estuaries and Coastal Lagoons of Southwestern Australia, University of Western Australia Press, Crawley



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

Eliot M. (2013) Application of Geomorphic Frameworks to Sea-level Rise Impact Assessment. Report 193-01-Rev 0. Prepared for Geoscience Australia. Damara WA Pty Ltd, Innaloo, Western Australia

Gozzard JR. (2011a) WACoast – Cape Naturaliste to Lancelin. Geological Survey of Western Australia

Gozzard JR. (2011b) WACoast –Rottneest Island. Geological Survey of Western Australia

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

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

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 (2015) Coastal Sediment Cells for the Vlamingh Region between Cape Naturaliste and Moore River, 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_CoastalSedimentCellsReport.pdf