



## Lancelin Coast WA07.01.02

### 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 Ledge Point to Wedge Island Point.

### 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 shores have been subject to recent erosion.

### Other comments

Common landform assemblages:

Broad, coarse-grained sandy beach with some active dunes and unstable blowout areas (86%); Variable width sandy beach formed in areas protected by offshore reefs - may include some beachrock as low cliffs or headlands (9%).



Geomorphological features include offshore limestone reefs, limestone platforms, limestone headlands, narrow beaches, dunes.

This compartment has a SW aspect.

### **Confidence in sources**

Moderate confidence: Coastal landforms are well described in available management literature. However, 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, 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](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](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](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 Rottnest 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](http://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>