

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Geoscience Australia's Urban Geoscience Division, through its Risk Modelling Project and Cities Perth Project, is assessing the risks to Perth communities from a variety of natural hazards such as tropical cyclones, floods, earthquakes and landslides. This study is focused at the regional scale and involves a number of collaborators including the Bureau of Meteorology, the Fire and Emergency Services Authority of Western Australia and the WA state government department for Planning and Infrastructure. The ultimate objective of this research is to provide policy makers and hazard managers with decision support tools that will enable the better implementation of mitigation strategies. Ultimately these strategies will reduce loss of life, property damage and economic disruption from natural hazards.

1.2 COASTAL HAZARDS

The south west coast of WA comprises a series of exposed limestone headlands that are prone to the development of cliff lines and large overhangs. Coastal processes such as wind and water erosion in conjunction with salt crystallisation, and carbonate dissolution, make these cliffs highly susceptible to collapse.

The damaging impact that these unstable cliffs can have on the community was demonstrated on the 27th of September 1996, when four adults and five children were killed in a rockfall at Huzzas Beach, Gracetown. They were sheltering under a large overhang at the base of a limestone cliff, when the overhang collapsed without warning. At the time of the tragedy, this was the largest death toll for a rock fall or landslide in Australia, and equal to the number of lives lost in the 1989 Newcastle earthquake.

This tragedy highlighted the significance of coastal cliff collapse as a serious hazard along the southwest coast of WA. In response to this tragedy the coroner determined in his report 'That all authorities and bodies having responsibility for the coastal region of Western Australia in areas where there are cliffs should develop or adopt appropriate cliff management policies'. Many Local Government Authorities (LGAs) responded by

employing geological and engineering consultants to investigate ‘site specific’ coastal limestone hazards. Some LGAs have acted to eliminate particularly hazardous areas by earthworks, blocking up caves, fencing and signage, but there are still areas that appear to have had little remedial work done.

1.3 PROJECT AIMS

As a part of the Geoscience Australia graduate program, this study has been conducted to investigate the nature of coastal hazards along the south west coast of WA, including the safety of the dune systems. This report is intended to provide a regional overview of coastal hazards along the south west coast, and is not designed to evaluate the stability of individual outcrops. This study was not intended to duplicate the work done by geological consultants, but to put these results into a regional context.