CHAPTER 4

The ecology of molluscs in Australian saltmarshes

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Introduction

In quiet waters at the interface of land and sea, species of terrestrial and marine origin merge to form the resident assemblage that constitutes intertidal saltmarshes around the globe. The dominant marine animal residents of coastal saltmarsh are benthic invertebrates, including a diverse collection of snails, crabs and bivalves that rely on the sediments, vascular plants and algae as providers of food and habitat across this marginal intertidal landscape. Exposure of the saltmarsh when not submerged by the tides provides sunlight for plant growth, and places for birds and mammals to rest and feed. Inundation of the saltmarsh at high tide brings other transient visitors, particularly fish and prawns that feed on benthic invertebrates, and permits the flux of nutrients and larvae into and out of the marsh. In this dynamic setting, the marine benthic invertebrates of saltmarshes make their living and play a vital role linking the species and food webs of marine and terrestrial ecosystems.

This chapter reviews the ecology of the molluscan component of the marine benthic fauna of Australian saltmarshes. The molluscs of saltmarshes comprise a diverse range of interesting species, including snails, slugs, and occasional bivalves and limpets. The most abundant, species-rich and widely studied group of molluscs are the coiled shelled gastropods (snails), and we still know relatively little about the ecology of this group. Indeed, Richardson *et al*. (1998), in their comprehensive study of crustacean and molluscan assemblages of Tasmanian saltmarshes, stated that: 'Almost nothing is known of the autecology of the typical saltmarsh gastropods … in Australia apart from habitat notes in taxonomic works …' (p. 797, 1998). This statement is alarming because it was published only about a decade ago! Indeed, Fairweather in 1990 found that saltmarshes were the least studied (in terms of publication numbers in the primary literature) of all coastal, marine habitats in Australia and yet they are amongst the most endangered (e.g. Adam 2002; Laegdsgaard 2006).

Any understanding of the ecology of molluscs living in Australian saltmarshes must be strongly linked to the features of the marsh (e.g. sediments and plants) upon which they depend for food and shelter, as well as the habitats in the surrounding landscape. Saltmarshes of Australia are different from those in many regions of the world because they share the intertidal landscape with mangrove forests, except in Tasmania and parts of Victoria, South Australia and the southern region of Western Australia, where there are no mangroves (Adam 1990). Indeed, most Australian saltmarshes are bordered on their landward sides by terrestrial habitat, which has often been impacted by humans, and their seaward sides by mud flats or