

19. Dugongs

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1 TAXONOMY, DISTRIBUTION AND BIOLOGY

The Order Sirenia (manatees and dugongs) consists of two Families—the Trichechidae (manatees), which comprise four species, and the Dugongidae, the sole extant member of which is the dugong (*Dugong dugon*). The dugong is the most abundant and widespread of the Sirenia. They are classified as vulnerable to extinction in the World Conservation Union (IUCN) Red Data Book of Threatened Species (Bryden et al. 1998). The closest non-Sirenian relative of the dugong is the elephant (Marsh et al. 2000).

Dugongs are large herbivorous marine mammals. They inhabit tropical and subtropical coastal and inland waters in the Indo-West Pacific, between about 26–27° north and south of the equator. With relatively thin blubber layers compared to cetaceans and pinnipeds, they are intolerant of cold and are generally found in waters at and above 18°C. At the southern end of their distribution in Australia, dugongs may undertake seasonal movements that assist with thermoregulation (Bryden et al. 1998; Packard et al. 1984).

The most important dugong habitat in Australia is Torres Strait (Blanshard 2001), but dugongs are found from Moreton Bay in the east to Shark Bay in the west (Marsh et al. 2000). Aerial surveys have indicated that dugongs are the most numerous marine mammal in the in-shore waters of northern Australia. However, evidence suggests that dugong numbers have declined along most of the urbanised coast of eastern

Queensland since the mid 1980s (Bryden et al. 1998). Habitat loss, drowning in gill or shark nets and traditional hunting have been implicated in the decline (Marsh 1997).

Dugongs are long-lived. The age-determination method developed for pinnipeds and toothed cetaceans has been adapted for dugongs, enabling their age to be determined from the number of growth layer groups in the tusks (Marsh 1980). The oldest dugong whose tusks have been examined for age determination was estimated as 73 yr old when she died (Marsh et al. 2000).

2 ANATOMY AND PHYSIOLOGY

Adult dugongs typically range from 2.4–3.0 m in length and 250–420 kg in weight. Females are slightly larger than males. There are reports of animals up to 3.31 m in length and weighing up to 600 kg (Blanshard 2001; Bryden et al. 1998). The relationship between body weight and length has been described by the equation:

$$y = (-34.251) - 14.976x + 55.218x^2$$

where y is the body weight (kg) and x is the body length from the tip of the snout to the notch in the tail fluke (in metres) (Spain & Heinsohn 1975). A selection of predicted body weights, together with an indication of the likely stage of maturity at certain body lengths, is presented in Table 19.1. Body length is an unsatisfactory indication of age except in young animals (Marsh et al. 1984a).