Aust. J. Mar. Freshwater Res., 1993, **44**, 19–31

Seagrasses Between Cape York and Hervey Bay, Queensland, Australia

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Abstract

The area of seagrasses in waters adjacent to the Queensland coast between Cape York and Hervey Bay is approximately 4000 km^2. Seagrasses were found near estuaries, in coastal bays and associated with islands, at sites that provided shelter from the south-easterly trade winds and Pacific Ocean swells. Of the seagrass meadows mapped, 37% had a bottom vegetation cover greater than 50%. Two large continuous areas (total of approximately 2500 km^2) of seagrass of predominantly *Halophila* species were found in deep water in Hervey Bay and between Barrow Point and Lookout Point and may be part of a much larger area of deep-water seagrass habitat not yet surveyed in the Great Barrier Reef province. Fourteen seagrass species were found in the surveyed region, and most were typical of the northern Australian and Indo-West Pacific region. The opportunistic *Halophila* and *Halodule* species were most common, with *Halophila ovalis* (R. Br.) Hook. f. and *Halodule uninervis* (Forsk.) Aschers. each being found in more than 15% of samples. High species richness occurred at depths of less than 6 m, predominantly in sheltered bays at coastal and island locations. Low species richness at estuary-associated sites may be due to stresses caused by low salinity during monsoonal runoff periods or exposure at low tides. *Zostera capricorni* Aschers. was restricted to these areas and may have a competitive advantage over other species with lesser tolerance to varying salinity. Species richness decreased with an increase in both latitude and depth. The latitudinal limits of recorded distributions for some of these tropical seagrasses were confirmed. Seagrass biomass decreased with increasing depth, but parameters of seagrass abundance showed no correlation with latitude, being dependent on a complex of site-related factors. High seagrass biomass occurred at sheltered sites, including estuary-associated, coastal-bay and island-associated sites. The maximum recorded above-ground biomass was 102·9 g m^{-2} for *Zostera capricorni* at Upstart Bay. Shoot densities reached 13 806 shoots m^{-2} for *Halophila ovalis* at Escape River, and the highest leaf area index was 1·81 for *Zostera capricorni* at Upstart Bay.

Introduction

With over 30 (more than half) of the world's seagrass species, Australia's seagrass resources are considered unusually rich (Larkum and den Hartog 1989). Despite a recent surge in research activity, studies of northern Australian seagrasses have remained relatively few in number, as is evident in the treatise on Australian seagrass studies (Larkum *et al.* 1989). Large regions of northern and north-western Australia are still unsurveyed for seagrasses (Poiner *et al.* 1989).

In tropical Australia, seagrasses are essential food for dugong, *Dugong dugon* (Müller), and green sea turtles, *Chelonia mydas* Linnaeus, and are important habitat for juveniles of a number of commercial penaeid prawn species. The importance of seagrass habitat for

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