



Incorporating dugong habitats into the marine protected area design for the Great Barrier Reef Marine Park, Queensland, Australia

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Abstract

Dugong habitats were considered in the design for the new zoning network for the Great Barrier Reef Marine Park as part of the Representative Areas Program. One of the specific design guidelines developed as part of the biophysical operational principles recommended that 50% of all high priority dugong habitats should be incorporated in the network of no-take areas. The high priority dugong habitat incorporated in no-take protection increased from 1396 to 3476 km² (or 16.9–42.0% of all identified sites). Although this increase in protection fell short of the recommended 50%, overall the level of protection afforded by the *Great Barrier Reef Marine Park Zoning Plan 2003* increased for all the locations identified.

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1. Introduction

Dugongs (*Dugong dugon* or sea cows) were highlighted in the World Heritage nomination for the Great Barrier Reef [1]. The Great Barrier Reef Marine Park (Marine Park) is one of the world's largest marine protected areas (344,400 km²) and contains globally important populations of dugongs [2] with an estimated population size of about 14,000 dugongs [3,4]. Despite this population size, there is a need to continue to address impacts [2] on dugongs for a number of reasons, particularly as there is good evidence that dugong numbers are now substantially less than in the 1960s along the urban coast of Queensland, south of Cooktown [5,6].

Although there is considerable controversy about the effectiveness of using high profile species as a basis for designing protected areas (e.g. see Refs. [7–10]), marine megafauna are being used increasingly in the justification for

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