



Australian Government

Great Barrier Reef
Marine Park Authority

POSITION STATEMENT

**Great Barrier Reef Marine Park Authority
Position Statement on conservation
of dugongs in the Great Barrier Reef
Marine Park**



Great Barrier Reef Marine Park Authority Position Statement on conservation of dugongs in the Great Barrier Reef Marine Park

Aims:

- Provide a brief background including current status, conservation issues and the need for special management of dugongs
- Provide a guiding statement on the Great Barrier Reef Marine Park Authority's management intent in relation to dugong conservation in the Great Barrier Reef Marine Park.

DISCLAIMERS

- *This position statement should be read in conjunction with, and subject to, the **Great Barrier Reef Marine Park Act 1975** and to the extent relevant, all instruments made thereunder.*
- *Nothing in this position statement is intended to extinguish any native title rights and interests, and in particular, nothing in this position statement is intended to affect the operation of section 211 of the **Native Title Act 1993**.*

Summary statement

This statement outlines the Great Barrier Reef Marine Park Authority's (GBRMPA) position on the conservation and management of the dugong in the Great Barrier Reef Marine Park (Marine Park). Dugong populations are seriously depleted along the urban coast of the Great Barrier Reef, south of Cooktown. There is also evidence that unsustainable harvesting of dugongs appears to be occurring in the Torres Strait and may also be occurring in remote northern Cape York waters.

Protection and recovery of the dugong requires a reduction in human threats to dugongs and their habitats. The GBRMPA is working with stakeholders and other Australian and Queensland government agencies to ensure that dugong populations are able to recover in the Marine Park and that dugong habitat is improved.

Dugong management areas

For the Marine Park, two dugong management areas are recognised, based on the nature and scale of human impacts on dugong populations and their habitats:

1. Remote coast (north of Cooktown to the northern boundary of the Great Barrier Reef Marine Park)
2. Urban coast (from Cooktown south to the southern boundary of the Great Barrier Reef Marine Park).

Management objective

The primary management intent for dugong conservation in the Great Barrier Reef Marine Park is to facilitate the recovery of dugong populations such that they fulfil their ecological role within the Great Barrier Reef ecosystem. Subject to the fulfilment of this primary objective, to allow for sustainable traditional use of marine resources.

To achieve this goal:

1. On the urban coast of the Marine Park (from Cooktown south), the mortality of dugongs from all human-related causes should be reduced to as close to zero as possible (for example less than 10 dugongs per year) to facilitate population recovery and where possible allow for future sustainable traditional use of marine resources

2. On the remote coast of the Marine Park (north of Cooktown), the mortality of dugongs from all human-related causes should be reduced to a sufficiently low level to facilitate population recovery and where possible allow for future sustainable traditional use of marine resources.
3. Throughout the Marine Park, the quality and extent of habitat for dugongs should be protected, including feeding, calving and mating areas and migratory pathways.

Background

Significance of the dugong

The Great Barrier Reef region supports globally significant populations of the dugong (*Dugong dugon*)¹. The significance of the Great Barrier Reef Region for dugongs was one of the reasons for its World Heritage listing². Dugongs have a high biodiversity conservation value because they are the only surviving species in the Family Dugongidae and are the only herbivorous mammal that is strictly marine. This large herbivore plays a fundamental ecological role in the functioning of coastal marine habitats, particularly seagrass systems³, and the status of dugong populations is an indicator of ecosystem health⁴. In addition, dugongs have high cultural, social and spiritual significance for Indigenous Australians and feature in Indigenous stories and art. Like other marine mammals, dugongs also have a high public profile reflecting the interest from the general public in their conservation and welfare.

Australia has international, national, and state obligations to conserve dugongs. The dugong is listed as vulnerable to extinction at a global scale by The World Conservation Union. In Australia, the dugong is protected under the *Environment Protection and Biodiversity Conservation Act 1999* (the *EPBC Act*) as both a *listed migratory species* and a *listed marine species*. The dugong is a protected species in the Great Barrier Reef under the *Great Barrier Reef Marine Park Zoning Plan 2003*. The Queensland Government's *Nature Conservation Act 1992* lists the dugong as vulnerable in Queensland waters.

Need for special management of dugongs

Dugong conservation is a high priority for the GBRMPA. Dugongs need special management to halt and reverse the decline in dugong numbers in the Marine Park.

Dugongs are vulnerable to human impacts because of their life history and their dependence on seagrasses that are restricted to mostly near-shore coastal habitats. As long-lived and slow breeding animals, dugong populations can be rapidly depleted and are slow to recover. Even a slight reduction in adult survivorship can cause a critical decline in a dugong population. In optimum conditions (for example low natural mortality and no human-induced mortality), a dugong population can only increase at about five percent per year. Dugongs are seagrass specialists, and the health of dugong herds also depends on the health of coastal seagrass meadows. The vulnerability of dugongs is also a function of their value as a marine resource.

Dugongs can move over long distances (hundreds of kilometres)⁵ and genetic studies suggest that dugong populations in the Marine Park may be connected with dugongs in neighbouring regions⁶. This means that complementary management arrangements are required at the state, national and international levels to ensure dugongs are protected throughout their range.

Current status

Although dugong numbers along the remote coast (north of Cooktown) showed no significant change in surveys between 1985 and 2000⁷, there is concern that an unsustainable level of harvest may be occurring in the area⁸.

Along the urban coast of Queensland from Cooktown to the Queensland-New South Wales border dugong numbers have declined dramatically at a regional scale in the past 45 years. The evidence for a long-term decline comes from anecdotal information and records of dugong by-catch from the Queensland Shark Control Program. A hindcasting study suggests that dugong numbers have declined by more than 90 percent since 1962⁹. Anecdotal evidence indicates that historic population sizes of dugongs may have been much higher still¹⁰. The latest population estimates indicate that the population may no longer be declining¹¹.

Key pressures

Dugongs have been and remain at risk from many human-related activities. The key pressures of greatest relevance to dugong populations in the Marine Park appear to be (in alphabetical order):

- Boating activity
- Climate change
- Defence activity
- Disease
- Habitat degradation (resulting from trawling and inappropriate anchoring practices)
- Illegal activities (for example poaching, illegal netting)
- Incidental drowning in commercial fishing (gill or mesh) nets and shark nets set for bathers protection
- Ingestion of or entanglement in marine debris
- Poor water quality
- Unsustainable Indigenous hunting.

The cumulative effects of these pressures have caused the serious decline in dugong numbers along the urban coast and are putting pressure on the dugongs along the remote coast of the Marine Park.

Management approach

The GBRMPA manages human activities that impact on dugongs occurring in the Marine Park, including both current activities and predicted future activities. To the extent that it is consistent with protecting the natural values of the Great Barrier Reef, including dugongs, the Authority provides for ecologically sustainable use of the Marine Park.

Management agencies including the GBRMPA are attempting to address all known human-related pressures on dugongs. Relevant management actions have included:

- *Turtle and Dugong Conservation Strategy for the Great Barrier Reef Marine Park*
- Establishment of 16 Dugong Protection Areas along the urban coast of the Great Barrier Reef and Hervey Bay
- Review of the Queensland Shark Control Program
- A substantial increase in protection for key dugong habitats in the Great Barrier Reef Marine Park resulting from rezoning
- Efforts to improve water quality in the Great Barrier Reef lagoon through the *Reef Water Quality Protection Plan*
- A national partnership approach to assist Indigenous communities to achieve sustainable harvests of turtles and dugongs being developed by the Marine And Coastal Committee Taskforce
- Developing relationships and management arrangements with Traditional Owners (for example *Traditional Use of Marine Resources Agreements* (TUMRAs))

- Promotion of community understanding and awareness of the conservation needs of dugongs through an ongoing education programme
- A policy for the direct take of protected species (including dugong) in the Great Barrier Reef Marine Park
- A national tourism code of conduct for dugong watching
- A prioritised set of dugong research information needs
- Phasing out the use of high explosives in most of the Great Barrier Reef Marine Park
- Monitoring of dugong mortality along the Queensland coast by Queensland Parks and Wildlife Service via the Marine Wildlife Stranding Program
- Implementing voluntary vessel transit lanes in important dugong habitat (for example Missionary Bay)
- Increased surveillance and enforcement.

Future management

Because of the cumulative effects of human impacts on dugongs, all potentially threatening human-related activities must be addressed and important dugong habitat must be protected to facilitate the recovery of dugongs.

Priority actions include:

1. Reducing the number of dugong deaths from illegal take (poaching by non-Native Title Holders)
2. Improving netting management arrangements in the Great Barrier Reef Marine Park to minimise as far as possible the number of dugong deaths from incidental capture in fishing nets (including those set for bather protection)
3. Working with Traditional Owners to ensure their cultural harvest of dugongs is sustainable
4. Reducing the number of dugongs killed or injured by boat strike
5. Implementing the Reef Water Quality Protection Plan to ensure seagrass habitats are able to support recovering dugong populations
6. Raising community awareness and support for the conservation of dugongs and their seagrass habitats, and promotion of the EPA Hotline to help contribute data to the Marine Wildlife Stranding Program
7. Assessing the effectiveness of management actions for dugong conservation in the Great Barrier Reef Marine Park, including ongoing monitoring of causes of death and minimum mortality rates via the Marine Wildlife Stranding Program.

Further Information

Please contact the Species Conservation Unit at the Great Barrier Reef Marine Park Authority on: 1800 990 177 or visit www.gbrmpa.gov.au.

For more information about dugongs in the Great Barrier Reef, visit the [State of the Great Barrier Reef Online](#).

Sources

Note: see Bibliography for citations

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- ¹ Great Barrier Reef Marine Park Authority 1981
 - ² Great Barrier Reef Marine Park Authority 1981
 - ³ Aragones et al 2006
 - ⁴ Aragones et al 2006
 - ⁵ Sheppard et al 2006; Marsh and Rathburn 1990; Preen 1992; Preen 2001
 - ⁶ McDonald 2006; Tikel 1998
 - ⁷ Marsh and Lawler 2002
 - ⁸ Heinsohn et al 2004
 - ⁹ Marsh et al 2001; Marsh et al 2005
 - ¹⁰ Jackson et al 2001
 - ¹¹ Marsh et al (in review)

Bibliography

Aragones, L.V., Lawler, I. R., Foley, W. J. & Marsh, H. 2006, Dugong grazing and turtle cropping: grazing optimisation in tropical seagrass system, *Oecologia* 149, 635-647.

Great Barrier Reef Marine Park Authority, 1981, *Nomination of the Great Barrier Reef by the Commonwealth of Australia for inclusion on the World Heritage List*, UNESCO, 37 pp.

Heinsohn, R., Lacy, R. C., Lindenmayer, D. B., Marsh, H., Kwan, D. & Lawler, I. 2004, Unsustainable harvest of dugongs in Torres Strait and Cape York (Australia) waters: two case studies using population viability analysis, *Animal Conservation*, 7, 417-425.

Jackson et al 2001. Historical Overfishing and the Recent Collapse of Coastal Ecosystems, *Science* 27 July 2001: Vol. 293. no. 5530, pp. 629 – 637.

Marsh, H., Lawler, I., Hodgson, A. & Grech, A. (in review). Is dugong management in the coastal waters of urban Queensland effective species conservation, *Animal Conservation*.

Marsh, H. and Rathburn, G.B. 1990, Development and application of conventional and satellite radio tracking techniques for studying dugong movements and habitat use, *Australian Wildlife Research* 17: 83-100.

Marsh, H., De'ath, G., Gribble, N. & Lane, B., 2001, *Shark control records hindcast serious decline in dugong numbers off the urban coast of Queensland*, Research Publication No. 70, Great Barrier Reef Marine Park Authority, Townsville.

Marsh, H. & Lawler, I. 2002, Dugong distribution and abundance in the northern Great Barrier Reef Marine Park November 2000, Research Publication No. 77, Great Barrier Reef Marine Park Authority, Townsville.

Marsh, H, De'ath, G, Gribble, N & Lane, B., 2005, Historical marine population estimates: triggers or targets for conservation? The dugong case study, *Ecological Applications* 15(2), 481-492.

McDonald, B. 2006, Population genetics of dugongs around Australia: implications of gene flow and migration, PhD Thesis, School of Tropical Environment Science and Geography, James Cook University, Townsville, Queensland.

Preen, A.R. 1992, Interactions between dugongs and seagrass in a subtropical environment, Unpublished PhD thesis, James Cook University, Townsville.

Preen, A.R. 2001, Dugongs, boats, dolphins and turtles in the Townsville-Cardwell region and recommendations for a boat-traffic management plan for the Hinchinbrook Dugong Protection Area, Research Publication No. 67, Great Barrier Reef Marine Park Authority, Townsville.

Sheppard J. K., Preen A. R., Marsh H., Lawler I. R., Whiting S. D. & Jones R. E. 2006, Movement heterogeneity of dugongs, *Dugong dugon* Müller over large spatial scales, *Journal of Experimental Marine Biology & Ecology* 334, 64-83.

Tikel, D. 1998, Using a genetic approach to optimise dugong (*Dugong dugon*) conservation management, PhD Thesis, School of Tropical Environment Studies and Geography, James Cook University. Townsville.