

SUMMARY

This report summarises the results of a study of dugongs and boat traffic in the Townsville-Cardwell region, with emphasis on the Hinchinbrook Dugong Protection Area (DPA). The study was commissioned by Commonwealth Environment Minister, Senator Hill and was intended to inform regional planners tasked with developing a boat traffic management plan for the Hinchinbrook area.

In 1994, the Townsville-Cardwell region supported 49% of dugongs occurring between Cooktown and Hervey Bay. It was the only significant region along that whole coast not to show a decline in dugong numbers since aerial surveys commenced in 1987. In an effort to protect remaining dugong 'populations', Dugong Protection Areas were established along the populated coast of Queensland in 1998. Within the Townsville-Cardwell region, the Hinchinbrook area and Cleveland Bay host two of the three largest DPAs that prohibit mesh-netting practices that most threaten dugongs. For the DPAs to live up to their name, all activities that threaten, directly or indirectly, the dugongs or their habitat will have to be carefully managed.

There is concern that in the Hinchinbrook DPA, marina-based developments in the Hinchinbrook Channel will increase boat traffic in the area, potentially threatening dugongs and compromise their habitat.

Boat traffic may adversely affect dugongs by: (i) increasing mortality through boat strike, (ii) alienating dugongs from areas of suitable habitat due to boat strikes, underwater noise or unintentional harassment, and (iii) limiting dugongs' access to nutritionally important near-intertidal seagrasses that may be safely accessed only at high tide.

This study provides the first detailed, year-round picture of dugong distribution, abundance and movement patterns in the region. It used repeated aerial surveys, satellite tracking, historical aerial surveys and other approaches to obtain independent data on habitat use.

The core dugong habitat in the region is centred on Missionary Bay in the Hinchinbrook area and eastern Cleveland Bay in the Townsville area. The tracking of 13 dugongs over 19 months demonstrated, however, that surrounding areas, such as Hinchinbrook Channel, the Lucinda coast and Bowling Green Bay are tightly linked to these core areas. Furthermore, there is considerable movement of dugongs between Missionary Bay and Cleveland Bay. The importance of Hinchinbrook Channel as dugong habitat was further supported by sightings reported by the public, a feeding trail survey, and data from 25 aerial surveys conducted primarily in the 1970s.

The aerial surveys and public sightings also indicate that Hinchinbrook Channel is an important habitat for Irrawaddy dolphins and Humpback dolphins. Both species are listed as Rare under Queensland legislation.

A comparison of sighting rates of dugongs, dolphins, turtles and manta rays during the 26 historical aerial surveys of Hinchinbrook Channel and Halifax Bay with the nine contemporary surveys of these areas indicates a reduction in dugong numbers, especially in Hinchinbrook Channel. The sighting rate of dugongs was significantly higher in the 1970s than during the surveys of 1997–98. Dugongs were seen 4.15 times more frequently in the 1970s. No other species showed a reduction in sighting rate between the 1970s and 1997–98. Several factors may be implicated in this apparent decline, including the known increase in boat traffic.

The areas of greatest dugong abundance in Missionary Bay and Cleveland Bay, as indicated by the recent aerial surveys and tracking, were also areas of low boat traffic. Such an apparent correlation does not prove causation. Nevertheless, there appears to have been a contraction of the area used by dugongs in Cleveland Bay since the 1970s and the areas that are now little used by dugongs are now well used by boats.

The number of boats estimated to be on the water in the Cleveland Bay and Hinchinbrook aerial survey blocks ranged from 4 to 88 and 13 to 63, respectively, on different surveys. The average for each area was 42.

Approximately 56% of boat movements in northern Hinchinbrook Channel were between the Cardwell area and Missionary Bay. Within Missionary Bay, about 26% of movements were between Cardwell and Goold/Garden Island. About 25% were between Cardwell and the Missionary Bay Creeks, about 10% were between Cardwell and Macushla, and about 7% were between Cardwell and Cape Richards.

Powerboats (small to large planing vessels), which are the type of vessel most likely to strike dugongs or turtles, accounted for 76% of boat movements in northern Hinchinbrook Channel and 84% of movements in Missionary Bay. By comparison, sailboats and trawler-like boats accounted for approximately 11% and 6% of movements in the northern channel and 10% and 3% in Missionary Bay.

Fast commercial passenger ferries operating between Cardwell and Cape Richards, Macushla and the No. 7 Creek/Thorsborne Trail accounted for 15% of boat movements in Missionary Bay. During weekdays this percentage increased considerably (to 39% during our sample periods).

On the basis of this information, a series of recommendations has been made for the regulation of boat traffic in the Hinchinbrook DPA. The aim of these recommendations is to protect the integrity of the dugong habitat, while allowing continued reasonable boating activity. If these suggestions are implemented, the inevitable increase in boat traffic in the Hinchinbrook DPA could be managed in an ecologically sustainable manner with respect to marine wildlife, and based on current information.

The dugong tracking has demonstrated that the boundaries of both the Hinchinbrook and Cleveland Bay DPAs should be amended to incorporate adjacent, integral areas of dugong habitat. The Hinchinbrook DPA 'A' should be extended to include the Lucinda coast (currently a DPA 'B' zone') and the Cleveland Bay DPA 'A' should be extended to include Bowling Green Bay (currently a DPA 'B' zone).

Summary of Recommendations

1. Develop an education and awareness program to foster an appreciation by boaters of the significance of the Hinchinbrook Dugong Protection Area, the threats posed to dugongs by boats and to encourage cautious driving by boaters.
2. Establish five Boating Management Areas (BMAs) within the Hinchinbrook Dugong Protection Area for the regulation of boating activity. The recommended boundaries of these areas and general restrictions are summarised in the following figure.
3. Install channel markers in the northern end of Hinchinbrook Channel to encourage boaters to use a single corridor.
4. Require boat-based commercial dugong watching to operate under a permit system.
5. Require operators of commercial passenger craft to report suspected boat strikes to the Queensland Environmental Protection Agency and the Great Barrier Reef Marine Park Authority.
6. Review the boat traffic management plan at set intervals.

