



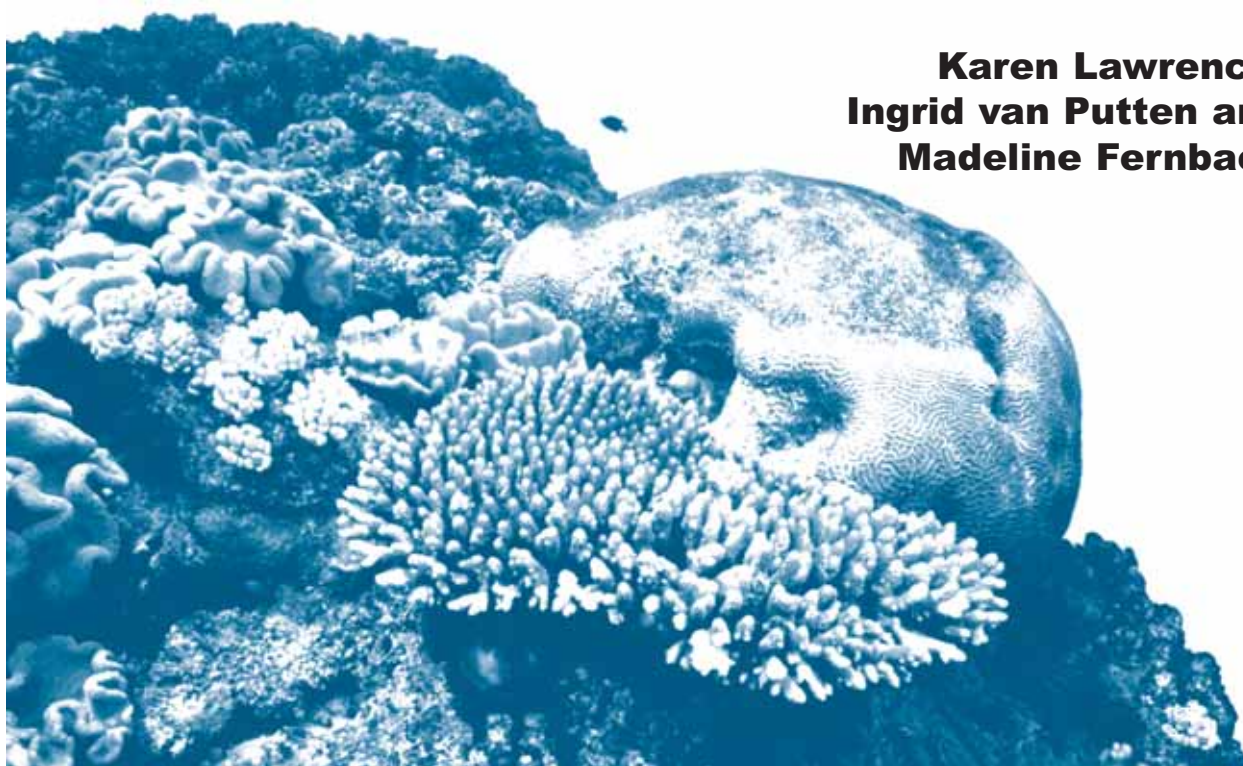
Australian Government

Great Barrier Reef  
Marine Park Authority

RESEARCH PUBLICATION NO. 101

# **Profiles of Recreational Use of the Great Barrier Reef Marine Park**

**Karen Lawrence,  
Ingrid van Putten and  
Madeline Fernbach**



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**Karen Lawrence, Ingrid van Putten  
and Madeline Fernbach**

Social and Economic Information  
Science Coordination Group



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Published by the Great Barrier Reef Marine Park Authority

ISBN 978 1 921682 00 1 (pdf)

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**The National Library of Australia Cataloguing-in-Publication entry :**

Lawrence, Karen.

Profiles of recreational use of the Great Barrier Reef Marine Park [electronic resource] / Karen Lawrence, Ingrid van Putten, Madeline Fernbach.

ISBN 978 1 921682 00 1 (pdf)

Research publication (Great Barrier Reef Marine Park Authority : Online) ; 101

Marine parks and reserves--Queensland--Great Barrier Reef Marine Park--Recreational use.  
Great Barrier Reef Marine Park (Qld.)--Recreational use.

Van Putten, Ingrid.

Fernbach, Madeline.

Great Barrier Reef Marine Park Authority.

333.9164

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## EXECUTIVE SUMMARY

This report presents findings from two independent reports on recreational activity in the Great Barrier Reef Marine Park. Although not all results are directly comparable due to slightly differing methodologies this report provides an insight into recreational activity in the Marine Park. The line of questioning in the 2008 report will be used as a benchmark for future research into recreational activity.

- In 2003, 49 per cent of residents living within 50km of the Great Barrier Reef Marine Park had visited the Marine Park. An estimated 4.9 million visits were made to the Marine Park by these residents.
- In 2008, 55 per cent of residents living within 50km of the Great Barrier Reef Marine Park had visited the Marine Park. The estimated number of visits made to the Marine Park is 12.5 million (This figure is not comparable with 2003 due to different wording of question).
- More than 50 per cent of people who made an independent recreational visit to the Marine Park did so more than seven times per annum (and up to 50 or more times).
- The proportion of independent recreational visits to the Marine Park that were vessel based has increased from 55 per cent in 2003 to 64 per cent in 2008.
- The majority of vessel based trips were on motorised vessels, increasing slightly from 79 per cent in 2003 to 82 per cent in 2008.
- The majority (65 per cent in 2003 and 63 per cent in 2008) of independent recreational vessel based trips were undertaken in a group of between two and four people.
- An increasing number of independent recreational visitors were from the area between Cairns and Townsville and the Cairns and Townsville urban centres themselves (increasing from 40 per cent in 2003 to 45 per cent in 2008). Consequently 40 per cent in 2003 and 48 per cent in 2008 of vessel based trips departed from this same area between Cairns and Townsville.
- The main destination for off-shore trips was the islands (41 per cent in 2003 and 39 per cent in 2008). The proportion of respondents travelling to reef/shoals/cay/rocks/wrecks has increased from 19 per cent in 2003 to 31 per cent in 2008.
- Swimming, fishing, and motorised boating were the most popular activities undertaken in the Marine Park.
- Over 78 per cent of independent recreational visits to the Marine Park are for one day or less.
- The vast majority of recreational visitors to the Marine Park do not perceive the park to be overcrowded.
- An increasing number of independent recreational visitors to the Marine Park will return to the places they visited (83 per cent in 2003 and 96 per cent in 2008).

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## INTRODUCTION

In 2003 a study was undertaken by Norris *et al*, funded by the CRC Reef Research Centre, to investigate recreational use of the Great Barrier Reef Marine Park. In 2008 the Office of Economic and Statistical Research (OESR) was commissioned by the Great Barrier Reef Marine Park Authority to undertake a follow up survey of Queensland households (May 2008).

The aims of this report were to:

- ❑ Gain an understanding of independent recreation in the Great Barrier Reef Marine Park
- ❑ Develop profiles of the demographic, psychological, behavioural, temporal and spatial characteristics of independent recreational visitation to the Great Barrier Reef Marine Park
- ❑ Understand any changes that have occurred in independent recreation between 2003 and 2008
- ❑ Provide a baseline understanding of recreational use of the Great Barrier Reef Marine Park to aid future research and provide management direction.

## METHODOLOGY

To ensure compatibility between the two studies, enabling meaningful comparisons of changes over time, the methodology of both surveys was similar where possible. However, some of the wording was not the same, meaning that comparison of some sections is not recommended. The wording used in the 2008 survey was chosen specifically to collect data that can be used as a benchmark for future recreational research.

Both studies conducted structured phone surveys to collect empirical data. In the case of Norris *et al* (2003, unpublished), the population was randomly selected from telephone numbers listed in the Cairns, Townsville, Mackay, Rockhampton and Bundaberg 2002/2003 White Pages. Survey respondents for the OESR (2008) study were randomly selected using Random Digit Dialling technique from phone numbers in the Far North, Northern, Mackay, Fitzroy and Wide Bay-Burnett Statistical Divisions. All areas covered in the 2003 survey were also included in the 2008 survey.

The geographical range from which the sample was collected differed slightly between the two surveys. In the Norris *et al* (2003) study the sample was restricted to respondents who lived within 50 km of the Great Barrier Reef Marine Park. In the OESR (2008) study respondents were selected from the whole catchment area (N=1497) including people who lived more than 50 km from the coast. To adjust the 2008 sample to allow comparison with the 2003 study, for this report a 50 km inclusion zone was established using postcodes. The postcode areas that were less than 50 km from the Marine Park were identified and the sample was restricted to respondents from only those areas (N=1139).

The total sample for the Norris *et al* (2003) study was 1369 while the sample for the OESR (2008) study of those living within 50km of the coast was 1139. This report compares results for respondents who resided within 50 km of the Great Barrier Reef Marine Park.

## **Population of the Great Barrier Reef catchment area**

To be able to deduce Marine Park visitation on the basis of the visitation reported by survey respondents, an estimate of the population in the area 50 km from the Marine Park had to be obtained. The estimated resident population for the Statistical Subdivisions used in Norris *et al* (2003) was 720 000. This figure included people from all ages. The population figure has since been revised slightly upwards, to 722 000 (from the OESR website, 2008) but the original Norris *et al* figures will be used for 2003 population estimates to maintain consistency.

In 2008, the total population residing in the Statistical Divisions (as distinct from 50 km from the Marine Park) was estimated as 1 139 000 (from the OESR website, 2008).<sup>1</sup> The estimated population living within 50 km from the Marine Park is 813 000 (the population figures are for 2007 as 2008 were not available at the time of writing). The figure used in this current study is likely to be a conservative estimate given the net growth of the Queensland population. Population figures are shown in Appendix 1.

In summary, the estimated resident population for 2003 and 2008 are 720 000 and 813 000 respectively for people living within 50 km from the Marine Park. These population estimates will be used as the basis for estimating the number of independent recreational visits to the Great Barrier Reef Marine Park.

## **Distinction between tourists and non-tourist recreation**

In this current study the focus is on non-tourist recreation as distinct from tourism. The definition of independent recreational visitation is “*an independent visit for fun to the Marine Park*” (Fernbach 2008, p.11). Tourism activities generally incur a fee (Environmental Management Charge) as they are undertaken with tourism operators. The collection of the Environment Management Charge allows a database of tourism activities to be recorded. In contrast, recreational activities are less well defined and monitored, which potentially impacts on the effectiveness of managing these activities.

To enable the inclusion of only recreational activities for analysis in the 2008 study, and therefore excluding *tourists*, survey respondents were asked to indicate how many times they paid for activities in the Marine Park. The proportion of activities that were not paid for represented independent recreational activities. In the 2008 study, 94 per cent of reported visits to the Marine Park were unpaid visits and were therefore classified as independent recreational activities.

## **SUMMARY OF THE RESULTS**

### **Estimated visitation to the Great Barrier Reef Marine Park**

In 2003, 1369 residents in coastal areas less than 50 km from the Marine Park were interviewed and of these 672 respondents had visited the Marine Park (49 per cent). The total number of visits to the Marine Park from the 2003 report was estimated to be 4.9 million visits.

When asking this question in 2003 the boundaries of the Marine Park were read out indicating the area extends from the shoreline to beyond the edge of the reef, yet no

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<sup>1</sup> Even though respondents included only people over 18 years of age, which was 808 764 in 2008 for the statistical divisions, it is assumed that persons under the age of 18 years visit the Marine Park in the same proportions as those aged over 18 years. This can be justified using the findings of a 2007 community survey undertaken on behalf of GBRMPA in the GBR catchments (Young and Temperton 2007). There were no significant differences in Marine Park visitation between the general population and singles or couples with children. It is therefore acceptable to assume that persons aged under 18 visit the Marine Park in the same proportion as those over 18.

activities were specified. As a result of previous research about the definition of recreation (Fernbach 2008), in 2008 going swimming and going to the beach were included in the question. It is possible that by mentioning swimming and going to the beach this has prompted more people to remember doing these activities. Therefore, a direct comparison with the 2003 data is not recommended. It is recommended that for future research the wording from the 2008 project be repeated to enable a direct comparison.

In 2008, a total of 1139 residents of the same coastal area were interviewed and of these 622 respondents had visited the Marine Park (55 per cent). The 622 respondents undertook 18 603 visits to the Marine Park in 2008. It was established that 94 per cent of these visits were for independent recreation, meaning that 17 487 visits were made. Therefore, the average number of visits to the Marine Park for the whole sample is 15.35 visits per person per year. Based on this figure, the estimated number of visits to the Marine Park for recreational activity in 2008 was 12.5 million (see table 1).

**Table 1. Visitation to the Marine Park in 2008.**

Study year	% of respondents who visited the GBRMP in past 12 months	Total resident population within 50km of GBR coast	Estimated resident population who visited the GBRMP	Average number of visits to the GBRMP per resident	Total annual number of visits to the GBRMP
2008	55%	813 000	447 000	15.35	12 480 000

In 2003, respondents who had visited the Marine Park were asked if their trip was vessel-based or not vessel-based. Of those who had visited the Marine Park 55 per cent had been on a vessel-based trip and 45 per cent had been on a not vessel-based trip.

In 2008, respondents who had visited the Marine Park were asked on their most recent trip what type of vessel they had travelled on, and not vessel-based was an appropriate answer. On their most recent trip to the Marine Park 66 per cent had been on a vessel-based trip and 34 per cent had been on a not vessel-based trip.

These particular results provide confidence in the visitation data for both survey years. This is because if respondents were influenced by the wording of the question in relation to the boundary of the Marine Park and remembering activities undertaken it would be expected that the proportion of non vessel-based trips for 2008 would have increased, whereas it has actually decreased.

The increase in visitation can be explained by a number of factors:

- Increased population from 720 000 (2003) to 813 000 (2008)
- Increased proportion of visits from 49 per cent (2003) to 55 per cent (2008)
- Increased average number of visits from 13.83 visits per person (2003) to 15.35 visits per person (2008).

While these increases are all quite modest when considered in isolation, the cumulative impact amounts to quite a significant increase in visitation. Intuitively we expect that recreational activity would increase from 2003 to 2008. This is based on factors such as higher than national average population growth of the Great Barrier Reef region, high disposable incomes due to the mining sector, and people choosing to retire to the



region for the lifestyle. However, some of this increase could also be due to different methodologies. For this reason these two values should not be compared directly. Therefore, it is recommended that the Great Barrier Reef Marine Park Authority repeat the questions in the 2008 study using the same methodology within a five year time frame to begin establishing a recreational activity pattern.

### ***Visitation by the whole catchment***

The estimated total number of independent recreational visits for the whole catchment in 2008 was also calculated. Using the above method, the total estimated number of independent recreational visits by local residents in the Marine Park catchment area in 2008 was 14.6 million visits (see Appendix 2).

### **Frequency of visitation**

The breakdown of the total number of independent recreational visits to the Marine Park (17 487 visits) is shown in the table below (see table 2).

**Table 2. Annual visitation to the Marine Park by independent recreational visitors.**

Number of Visits	% of all independent recreational visitors (2003)	% of all independent recreational visitors (2008)	Number of independent recreational visits (2008)
One	11%	12%	71
Two	12%	12%	145
Three	8%	7%	121
Four	6%	3%	68
Five	5%	7%	211
Six	8%	7%	248
Seven – 10	10%	9%	449
11-49	27%	26%	3 214
50 or more	13%	17%	12 960

Table 2 shows that in 2003 (50 per cent) and in 2008 (52 per cent) at least half of all respondents who had visited the Marine Park visited more than seven times, and up to 50 or more times.

### **Demographic characteristics of visitors to the Marine Park**

In 2003, of those respondents who said they had been on a vessel-based trip to the Marine Park 60 per cent were male. In 2008, 54 per cent of those respondents who said they had visited the Marine Park on a vessel-based trip were male.

### **Vessel use by independent recreational visitors**

Participants in both surveys who indicated they had visited the Great Barrier Reef Marine Park were asked to outline the type of vessel they used on their most recent trip. In both studies the majority of vessel based trips were on motorised vessels (79 per cent in 2003 and 82 per cent in 2008) (see table 3).

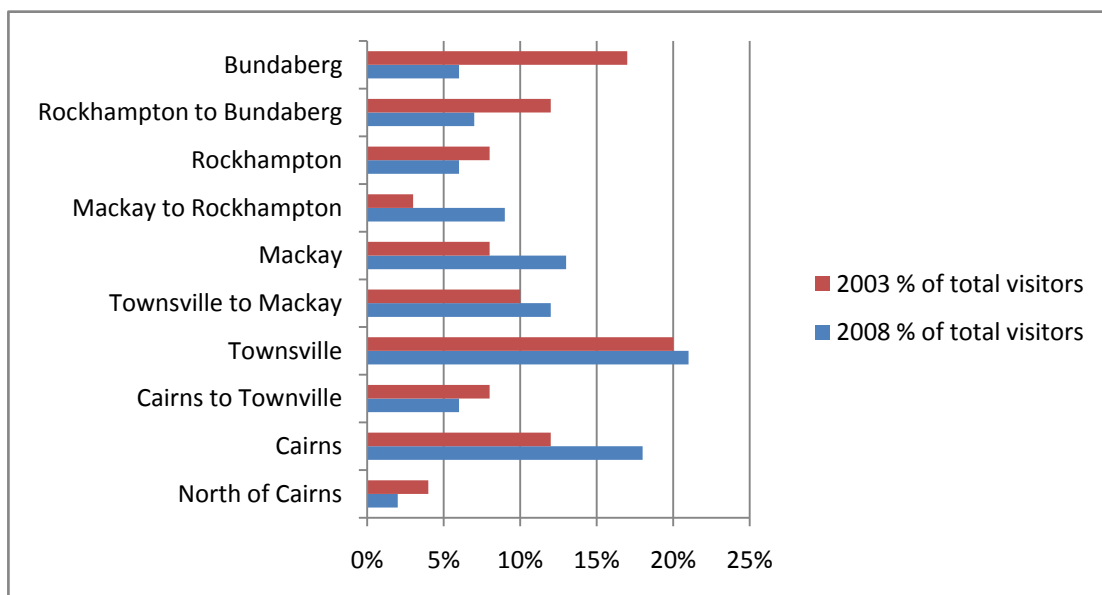
**Table 3. Type of vessel used on most recent trip to the Marine Park.**

	% of vessel based trips in the GBRMP (2003)	% of vessel based trips in the GBRMP (2008)
Motorised	79%	82%
Sailing boat	12%	8%
Non-motorised boat	5%	2%
Jetski	3%	2%
Other	1%	6%

There has been a decrease in vessel based trips using sailing boats from 12 per cent in 2003 to eight per cent in 2008. Of those respondents who had been on a vessel-based trip in 2003 and 2008, 60 per cent and 51 per cent respectively had been on a vessel between three and six metres in length. In both studies the majority of respondents (65 per cent in 2003 and 63 per cent in 2008) on these vessel-based trips had been in groups of between two and four people.

### Geographic origin of respondents

To assess if there were any changes or areas along the coast from which more recreational visitation was occurring, the postcode where respondents lived was analysed (see figure 1).



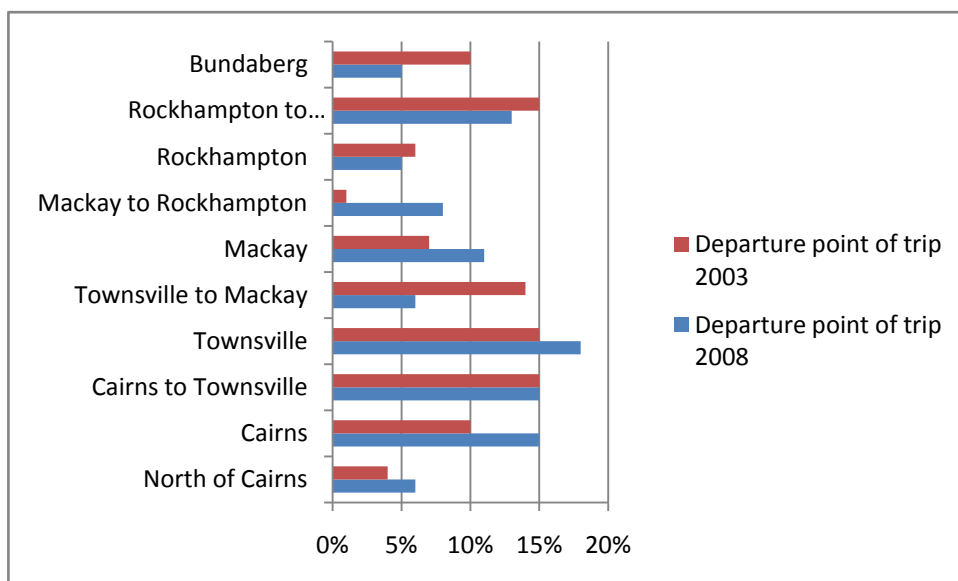
**Figure 1.** Geographic origin of respondents who visited the Marine Park.

Figure 1 shows that in 2003 around 40 per cent of visitors to the Marine Park were from the area between Cairns and Townsville (including the urban centres). In 2008 this had risen to 45 per cent of total visitors. There was an increase in the proportion of visitors from Mackay (up five per cent) and from between Mackay and Rockhampton (up six per cent). There is also a decline in the proportion of people visiting from the Bundaberg region (see Appendix 3 for actual figures).

### Destinations of vessel-based trips

Participants who had visited the Marine Park on a vessel based trip were asked where their most recent trip had departed from. Figure 2 shows that for respondents who

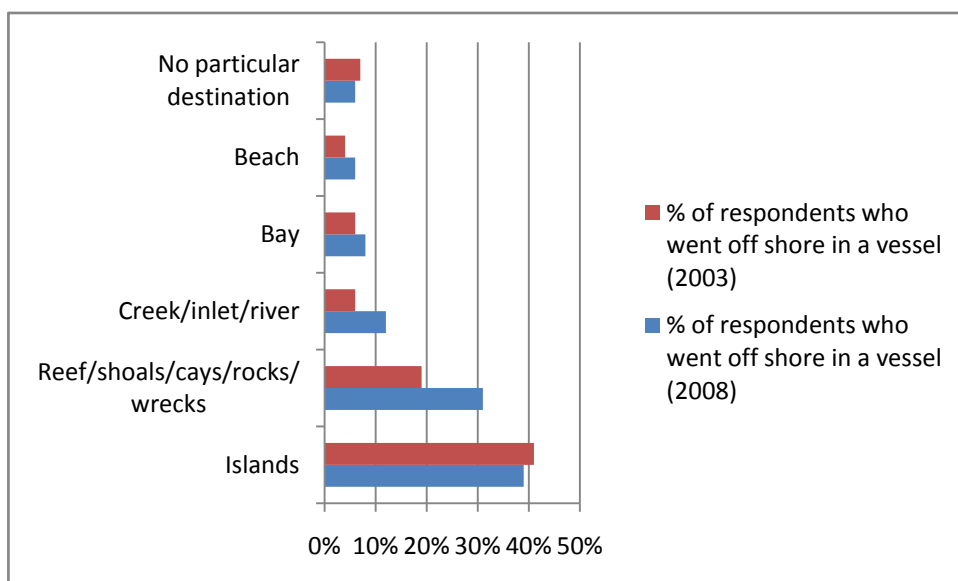
undertake vessel based trips, around 40 per cent in 2003 and 48 per cent in 2008 departed from the area between Cairns and Townsville (see Appendix 4 for actual figures).



**Figure 2.** Departure point of recent vessel-based trip.

The most substantial decrease in the area being used was between Townsville and Mackay (14 per cent in 2003 down to six per cent in 2008). The most substantial increase was between Mackay and Rockhampton (one per cent in 2003 to eight per cent in 2008).

Survey respondents were asked what the main destination of their off-shore vessel based trip was (see figure 3). Some changes between 2003 and 2008 can be observed, most noticeably is the increase in visitation to the reef/shoals/cay/rocks/wrecks (from 19 per cent in 2003 to 31 per cent in 2008) (see Appendix 5 for actual figures).



**Figure 3.** Main destination of vessel-based trip.

### Activities in the Marine Park

Visitors to the Marine Park were asked to indicate which activities they had undertaken while visiting the park. Table 4 below shows that the most commonly undertaken activity in the Marine Park in both 2003 and 2008 was swimming (more than 61 per cent of visitors).

**Table 4. Most common activities undertaken in the Marine Park.**

	% of visitors to the Marine Park <sup>2</sup> (2003)	% of visitors to the Marine Park (2008)
Swimming	69%	61%
Fishing	54%	56%
Motorised boat	46%	59%
Snorkelling	26%	24%
Sailing	10%	8%
Diving	4%	5%
Jetski	3%	4%

An increase in motorised boating from 46 per cent in 2003 to 59 per cent in 2008 can be observed. There has also been a slight decrease in sailing activity from 10 per cent in 2003 to eight per cent in 2008.

### Most common activities on most recent trip

Participants whose most recent trip was vessel-based, were also asked which activities they had undertaken on their most recent trip to the Marine Park (in contrast to table 4 which shows all activities they had participated in for all trips to the Marine Park in the last 12 months).

In both studies the most popular activity undertaken on the most recent vessel based trip to the Marine Park was fishing (66 per cent in 2003 and 63 per cent in 2008). In 2003, the next most popular activities were relaxing (44 per cent), socialising including eating and drinking (41 per cent) and swimming (21 per cent). In 2008, the results were very similar with eating/drinking (35 per cent) being next on the list, followed by swimming (30 per cent) and relaxing (29 per cent). In this question multiple responses were allowed.

### Duration of visits to the Marine Park

Survey respondents were asked to indicate how long they stayed away when they went on their vessel based trip. Table 5 shows the average length of respondents' vessel based trips to the Marine Park.

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<sup>2</sup> multiple responses allowed

**Table 5. Length of vessel based trip to the Marine Park.**

	% of respondents who went offshore in a vessel (2003)	% of respondents who went offshore in a vessel (2008)
Half a day or less	42%	41%
Full day	37%	37%
Overnight	8%	10%
2 to 3 nights	8%	8%
4 nights or more	5%	3%

The most common length of trip was half a day or less, closely followed by a full day trip. This pattern has not changed over time.

### **Perceived crowding on their trip**

To ascertain perceptions of 'crowding' in the Marine Park, participants were asked if the number of people excluding their own party was too few, about right, or it didn't matter. The majority of respondents (89 per cent in both studies) thought the number of people around them was about the right amount or it didn't matter. Thus, perceptions of crowding by other people are relatively low and have not changed over time. Similarly, when asked about the perceived crowding by other vessels, the majority (89 per cent in 2003 and 87 per cent in 2008) thought the number of vessels was about the right amount or it didn't matter.

### **Perceived satisfaction with their trip**

Participants were asked a suite of questions to establish their satisfaction with their trip. When asked about the number of wildlife encounters, 70 per cent in 2003 and 72 per cent in 2008 thought there were about the right amount or it didn't matter. Thus, respondents to the surveys were relatively satisfied with the number of wildlife encounters on their trip.

In 2003, participants who travelled into the Marine Park in a vessel were asked if there were any off-shore destinations they would not return to. Eighty-three per cent said there were no such places. In 2008, 96 per cent of participants who had been offshore in a vessel said they would return to the same destination. Thus, satisfaction with off-shore destinations appears to have increased by 13 per cent over the past five years (from high to very high).

In the 2008 survey respondents were asked to agree or disagree with a number of statements to determine their attitudes towards the Marine Park. Ninety-two percent of participants thought that the Marine Park was more than just a place for catching fish and 98 per cent reported that the Marine Park was a special and unique environment. Sixty three percent of participants thought there were many things they could do to improve the health of the Marine Park. However, only 58 per cent of participants agreed or strongly agreed that their activity in the Marine Park could make a difference to the environment.

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# Appendix 1

## Population

(S – Shire Council, C – City Council)

	<b>2003</b>	<b>2007</b>
Atherton (S)	10 786	11 936
Bowen (S)	12 625	13 370
Broadsound (S)	6 573	7 407
Bundaberg (C)	45 257	49 311
Burdekin (S)	18 445	18 192
Burnett (S)	24 412	28 795
Cairns (C)	119 959	140 913
Calliope (S)	15 474	18 166
Cardwell (S)	10 599	10 157
Cook (S)	3 737	3 728
Douglas (S)	10 695	11 190
Eacham (S)	6 473	6 777
Fitzroy (S)	10 197	11 797
Gladstone (C)	27 633	31 867
Hinchinbrook (S)	12 325	12 194
Johnstone (S)	19 534	19 702
Livingstone (S)	27 096	31 679
Mackay (C)	78 244	92 183
Mareeba (S)	18 670	19 805
Mirani (S)	5 333	5 990
Miriam Vale (S)	4 549	5 523
Rockhampton (C)	59 359	63 169
Sarina (S)	10 071	11 440
Thuringowa (C)	54 730	65 782
Townsville (C)	93 653	103 702
Whitsunday (S)	16 004	18 610
TOTAL	722 433	813 385

## Appendix 2

### Visitation to the Marine Park

Study year	% of respondents who visited the GBRMP in past 12 months	Total resident population	Estimated resident population who visited the GBRMP	Average number of visits to the GBRMP per resident	Total annual number of visits to the GBRMP
2008 (within 50km of the MP)	55%	813 000	447 000	15.35	12 480 000
2008 (whole catchment)	48%	1 139 000	547 000	12.78	14 560 000

## Appendix 3

### Geographic origin of survey respondents who visited the Marine Park

	% of total visitors (2003)	% of total visitors (2008)
North of Cairns	4%	2%
Cairns	12%	18%
Between Cairns and Townsville	8%	6%
Townsville	20%	21%
Between Townsville and Mackay (inc Whitsundays)	10%	12%
Mackay	8%	13%
Between Mackay and Rockhampton	3%	9%
Rockhampton	8%	6%
Between Rockhampton and Bundaberg	12%	7%
Bundaberg	17%	6%

## Appendix 4

### Departure point of most recent vessel based trip

	Departure point of most recent vessel based trip (%) (2003)	Departure point of most recent vessel based trip (%) (2008)
North of Cairns	4%	6%
Cairns	10%	15%
Between Cairns and Townsville	15%	15%
Townsville	15%	18%
Between Townsville and Mackay (inc Whitsundays)	14%	6%
Mackay	7%	11%
Between Mackay and Rockhampton	1%	8%
Rockhampton	6%	5%
Between Rockhampton and Bundaberg	15%	13%
Bundaberg	10%	5%



## Appendix 5

The main destination of vessel-based trips

	% of respondents who went off shore in a vessel (2003)	% of respondents who went off shore in a vessel (2008)
Islands	41%	39%
Reef/shoals/cays/rocks/wrecks	19%	31%
Creek/inlet/river	6%	12%
Bay	6%	8%
Beach	4%	6%
No particular destination	7%	6%