CRC REEF RESEARCH TECHNICAL REPORT

UNDERSTANDING PUBLIC PERCEPTIONS OF THE GREAT BARRIER REEF AND ITS MANAGEMENT

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CRC Reef Research Centre

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FOREWORD

The Great Barrier Reef's status as a World Heritage Area recognises the region's outstanding universal value to the world's natural and cultural heritage. Such status places responsibility upon the people of Australia through the agency of the Great Barrier Reef Marine Park Authority to ensure the Great Barrier Reef is protected, used wisely, understood and enjoyed by all people now and in the future.

Successful management of the Great Barrier Reef Marine Park and World Heritage Area by the Great Barrier Reef Marine Park Authority requires the application of tools such as zoning provisions, plans of management, permitting and public education, interpretation and extension.

Important information to be considered by the Great Barrier Reef Marine Park Authority when developing, implementing and or assessing management strategies and tools is how people perceive the Great Barrier Reef, their experiences of it and their understanding of how and why it is managed.

The need for such information was identified at a workshop in 1997 between Great Barrier Reef Marine Park Authority staff and the CRC Reef Research project team for CRC Task 2.2.3. The study was undertaken as part of CRC Task 2.2.3 (Evaluation/Design for Interpretation).

The study involved interviewing people who live adjacent to the Great Barrier Reef as well as those who live in Sydney, Canberra and Melbourne. This is in recognition of the need for managers to understand the socially and geographically diverse communities of interest associated with the Great Barrier Reef. The report highlights the wide range of perceptions between those who have experienced the Reef firsthand and more remote residents of southern capital cities, who have not visited the Reef and are likely to base their opinions on television news reports.

The study upon which the report is based is the first of a series of similar studies that will be conducted by the CRC Reef Research Centre. This series will provide reef managers with regular updates on information about public perceptions of the Great Barrier Reef and its management and indicates further initiatives for inclusion in media and education strategies for the Authority and the CRC Reef Research Centre.

Such a regular reporting program to be undertaken by the CRC Reef Research Centre recognises the need for managers to be informed of shifts in public perception and provide an opportunity to assess the effectiveness of management strategies. Such a reporting series marked by this first report will ensure the Great Barrier Reef Marine Park and World Heritage Area continues to be managed in the interests of all people now and into the future.

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EXECUTIVE SUMMARY

This study is part of a larger brief within the CRC Reef Research Centre to contribute to the evaluation and design of effective communication activities with reef users and the wider community. The study is the result of discussions with Great Barrier Reef Marine Park Authority staff who identified the need to establish existing public levels of knowledge about the Great Barrier Reef.

The results described in this report are based on a 1003 person randomised telephone survey conducted with participants in Melbourne, Sydney, Brisbane, Canberra, as well as with residents of Queensland living adjacent to the Great Barrier Reef. The overall response rate from qualified persons contacted was 58%, a figure that lies within the acceptable boundaries of public surveying methodology on environmental topics.

The information collected through the telephone interviews included the respondents' experience with the Great Barrier Reef, reef images, an assessment of the perceived current and future state of the reef, threats to the reef, attitudes towards reef protection, respondents' information sources about the reef and some key sociodemographic measures.

The results of the study are presented in four segments. The first section details an overall sample response to the questions. The second section explores differences in responses according to the respondents' region of residence, while the third and fourth sections profile respectively visitors with and with out GBR experience and respondents who have an optimistic as opposed to a pessimistic view of the reef's future environmental status.

The results for the overall sample included the following key findings:

?? Responses of the total sample:

Forty-three percent of the total sample had been to the GBR between one and five times, with 40 % having never been. The three most popular reasons for not visiting were that respondents felt a GBR trip was too expensive, they were too old to go, or the GBR was simply not appealing.

The four most popular activities on the GBR were snorkelling, swimming, fishing and SCUBA diving.

The three words used most to describe an image of the reef were beautiful, splendid and unique, all of which can be related to World Heritage Values.

There is a tendency for respondents to be pessimistic about the future of the reef (see section below). Overall, the four core threats to the reef's future were seen as pollution, general human impact, tourism, and the Crown-of-Thorns starfish. The greatest impact is seen as coming from the Crown-of-Thorns, agricultural run-off, commercial fishing and urban/industrial activity. Ninety-one percent of the sample identified the reef as a World Heritage Area, with 69% believing the Australian government is responsible for it's management but 29% believing that the United Nations is responsible for management. The five key information sources overall were, in order, television, friends and relatives, personal experience, magazines and newspapers.

?? Regional differences

Sydney residents expressed greater interest in SCUBA diving than other groups with the common activities of snorkelling, swimming and fishing popular for all. In relation to the perceived state of the reef, Melbourne residents were most likely to say they did not know, while Canberra residents were the most pessimistic.

Residents living adjacent to the reef were the most likely to say that the reef is in a good or very good condition.

Local residents identify agricultural run-off and overfishing as the biggest threats. Sydney and Canberra residents see tourism and pollution as being the biggest threats and as having the most impact. These differences between regions are often of the order of 10 to 20 % of respondents.

?? Reef Experience differences

While GBR experience is greater for local residents, the general variable of GBR experience across Sydney, Brisbane, Canberra and Melbourne residents also produces some findings of note. Respondents who have been to the GBR are more likely to describe it as splendid or tremendous, but are slightly more pessimistic about its future health, perhaps because they give its current state a higher pristine rating than non-visitors.

Experienced GBR visitors are less concerned with both the threat of pollution/rubbish and tourism and show more accurate answers concerning what activities are permitted on the reef.

?? Optimists and Pessimists

For this study optimists are those who believe the reef will be in the same or a better condition than it is now in ten years time. By implication pessimists are those who believe it will be worse.

Experienced reef visitors are marginally more likely to be pessimists (62% to 58%).

Optimists tend to give the state of the reef as it is now a higher rating than pessimists.

The chief threats and impacts guiding pessimist's attitudes are pollution/rubbish and human impacts, particularly urban and industrial activity. Additionally, pessimists also rate all other items as somewhat more likely to cause impacts that do optimists.

1. INTRODUCTION

1.1 Background to CRC Reef Research Project 2.2.3

This project is titled "The Evaluation and Design of Great Barrier Reef Interpretation" and it has two main objectives:

A. The project aims to contribute to the development of effective reef interpretive activities through a combination of visitor research and evaluation of both existing and new interpretive activities.

B. The researchers hope to have the data derived from this research used by the various management agencies and operators in the planning and design of new interpretive activities and in the management of existing activities.

The terms interpretation, public education and extension are all used to describe activities which aim to communicate information to reef users and the broader public. While there are some subtle differences between these different types of communication activity there are also major areas of overlap. For the purposes of this report we will use the term interpretation in the broadest sense of communicating with reef users and the public. The technical definition being used in this project is that of the Society for Interpreting Britain's Heritage:

> *Interpretation is the process of communicating to people the significance of a place or object so that they enjoy it more, understand their heritage and environment better, and develop a positive attitude to conservation.*

Interpretation can be both an important natural resource management tool and a valuable component of visitor experiences in natural settings. Several important benefits of interpretation can be described, including:

a) the enhancement of visitor satisfaction with, and enjoyment of reef experiences,

b) the provision of both mental and physical access to the reef environment for visitors,

c) the creation of awareness of negative impacts on the reef environment and the education of people in sustainable environmental behaviours, and

d) the development of support for management agency actions and protection of the reef environment.

In order to achieve these benefits, however, interpretation must be effective. One of the keys to effective interpretation is to build upon what people already know. Thus one of the major components of this research project is a series of surveys which seek to examine existing

knowledge, perceptions and beliefs about the Great Barrier Reef (GBR) and it's management. These surveys should provide information to guide the design and content of GBR interpretation activities. Further, these surveys could establish baselines for use in the future evaluation of interpretive efforts.

1.2 Background to the 1997 Survey

On March 25 1997, the CRC Reef Research Project 2.2.3 team held a workshop with staff from the Great Barrier Reef Marine Park Authority (GBRMPA), where discussions were held on possible directions for research to be conducted by the CRC team. In particular, the meeting focussed on the development of a series of surveys to be conducted each year in the life of the project to establish existing levels of knowledge about topics important to interpretation of the Great Barrier Reef (GBR). This is the report of the results of the first of these surveys.

From the meeting with the GBRMPA staff, CRC researchers generated a list of topics of interest, as well as a list of potential groups to be studied (see Appendix A). The researchers incorporated these topics and groups into a series of research options. After consultation, it was decided that the first stage of the research would be a major telephone survey to be conducted with participants in the major population centres of Melbourne, Sydney, Brisbane, Canberra and the coastal regions of Queensland adjacent to the GBR. The topics to be examined in this survey were:

- understanding of the World Heritage status of the GBR,
- knowledge of what was allowed within the Great Barrier Reef Marine Park,
- perceptions of threats to the GBR, in particular knowledge and perceptions of negative impacts,
- perceptions of the GBR, including images of the GBR, reasons for it's protection, and it's current and likely future status, and
- major channels used for information about the GBR.

In addition it was decided to include questions to assess previous and planned visits to the GBR, and GBR activity preferences. These two variables, in addition to regional residence were considered to be likely to influence responses to other questions.

2. RESEARCH METHOD

2.1 The Sample

The population for this research project were all English speaking residents in the survey cities with telephones, and with numbers listed in the latest (1997) White Pages telephone directories during the survey period April to May 1997. Subjects were selected by randomly choosing a telephone number every calculated page from each directory. A target sample of 200 respondents was required from each region, so 400 numbers were selected to allow for rejections, fax numbers and numbers no longer available. The following gives an example of how the selections were made:
If a book had 1000 pages, 400 numbers were required so 400 was divided into 1000, and a telephone number was randomly selected every 2.5 pages of the directory.

The overall response rate from potential qualified respondents was 58%. This rate is within the acceptable boundaries set by Dillman (1991) who argued that survey response rates needed to be at least 50 %. This lower boundary was supported empirically by Dolsen and Machlis (1991). Further, an investigation of reported response rates for telephone surveys on environmental topics revealed a range from 45 % to 70 % (see Arcury & Johnson, 1987; Arcury & Christianson, 1993; Arcury et al, 1986; Baldassare & Katz, 1992; Ostman and Parker, 1987; Pope & Jones, 1990; and Tourangeau et al, 1989). Table 2.1 contains a breakdown of the reasons given for not participating in the study.

Of particular concern here are those people who stated that they were not interested enough in the GBR or its management to participate. It is likely that these people would fall in the 'don't know' or 'not interested' categories for many answers. Thus the survey results may overestimate levels of knowledge and concern about the GBR.

Table 2.1 Response rate for the Telephone Survey

Reason Given	GBR Area	Brisbane.	Sydney	Melbourne	Canberra	**Total**
Reasons unrelated to the topic – including language difficulties, inconvenient time ?	20	44	76	100	34	**274**
Reasons directly related to the topic – including not interested in or do not know enough about the GBR	26	88	62	99	36	**311**
No reason given	76	74	84	96	97	**427**
Total Reasons For Not Participating	122	206	222	295	167	**1012**
Total Actual Sample	**200**	**205**	**200**	**198**	**200**	**1003**

??? These categories are not usually considered in the calculation of response rates

A total of 1003 surveys were obtained for the study. Forty nine percent of the respondents were male, 51% female. Figure 2.1 shows the breakdown of age. As can seen the majority of the respondents (64%) were aged between 21 and 50. The domestic situation of respondents is displayed in Figure 2.2. The most common situation (32%) was that of a family with children at home, with a relatively even spread of respondents across the other situations.

A series of analyses of these demographic variables found no significant differences between the different survey regions.

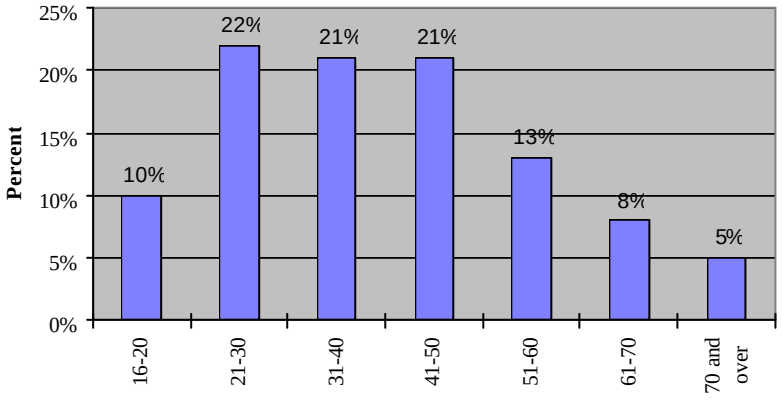

Figure 2.1 Respondents in each age group.

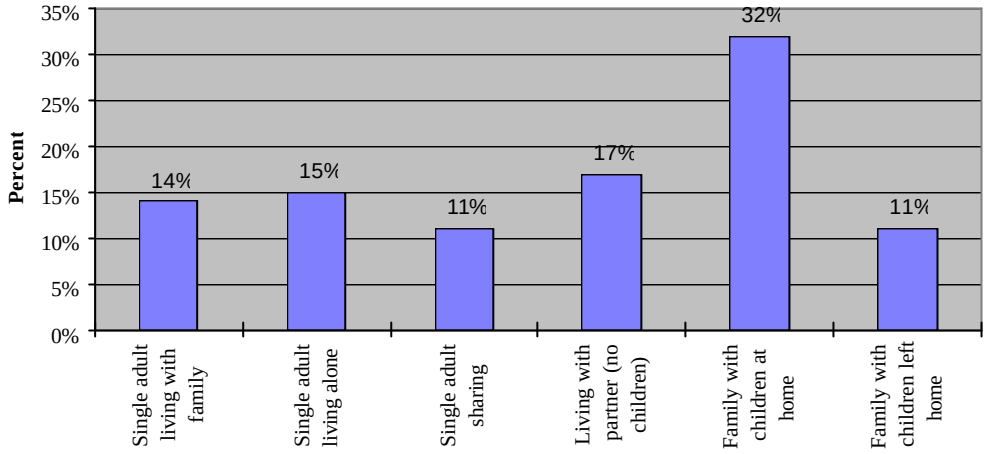

Figure 2.2 Domestic situation of respondents.

2.2 The Survey Questionnaire

A copy of the questionnaire is included in Appendix B. The questionnaire was designed to cover the topics and variables listed at the end of Section 1.2. More specifically, the survey began with an explanation of the term Great Barrier Reef. The Great Barrier Reef was defined as including the Reef area, it's islands and surrounding waters. This particular explanation was developed by GBRMPA staff and was included to clarify a potentially ambiguous concept. Several authors have suggested that one source of error in surveys arises when respondents seek to determine the researcher's intentions. This is particularly a problem with ambiguous words or phrases (Clark & Schober, 1991; Groves et al, 1991; Pearce, 1988). One solution is to define terms.

The first set of questions were designed to gather information about respondents' experience with the GBR. GBR experience was considered likely to be a major influence on responses to other questions. In addition to the number and timing of previous visits, and planned future visits, respondents were also asked to list three preferred reef activities. Activity participation was also thought to be an important respondent characteristic.

The next question was open-ended, seeking to investigate images of the GBR. This question was designed to gather overall impressions of the reef. It was followed by two structured questions asking for an assessment of the current condition of the GBR and it's likely state in 10 years. The structure of these two questions was similar to that used in standard assessments of environmental conditions (see Dunlap and Scarce, 1991).

Two questions were included to investigate perceptions of threats to the GBR. The first was an open-ended question and it was placed early in the survey (Question 5). The aim of this was to elicit unprompted "top of the head" responses. The second question (Question 10) asked visitors to rate the degree of impacts of various activities on the GBR. In between these two questions were questions assessing knowledge of activities allowed on the GBR, knowledge of the status of the GBR and perceptions of the implications of World Heritage listing. The format for these latter two questions was taken from Dunlap and Scarce (1991).

The survey also asked respondents to choose from four statements that best described their position with regard to protection of the Great Barrier Reef. In this question, respondents were given an option reflecting a lack of concern for the GBR. In a similar fashion in Questions 3, 4, 6, 7 and 10, respondents were given the option of saying they didn't know. This was a deliberate attempt to avoid the problem of "non attitudes". It has been found that survey respondents will often choose an answer from a response set that suggests they have an opinion or position when in fact they don't know or care about the issue (Converse, 1970). One option to avoid this problem is to explicitly include don't know options (Clark & Schober, 1991). Another feature of the survey design was altering the order of presentation of response items in Questions 6, 7, 10 and 11. Four different sequences were used to avoid any order effects. Finally, respondents were asked about sources of information about the Great Barrier Reef and for some sociodemographic details.

2.3 The Procedure

At the beginning of each survey session researchers were given a list of phone numbers and surveys to call throughout the session. A sheet with instructions and an introduction was followed by the interviewers (included as Appendix C). This provided the interviewers with a procedure to follow when calling a respondent. Briefly, they were required to identify themselves, who they were representing and what the survey was concerning. If a respondent was willing, then the survey was continued. Respondents were only identified by their telephone numbers; their names and addresses remained anonymous.

3. RESULTS

3.1 An Overview

The results of the survey are presented in four main sections. The first section provides the answers for the total sample for all the questions. The second section describes analyses of the relationships between regional residence and responses to the questions. The third section compares respondents according to their previous GBR experience. The final section profiles respondents based on their answers to the questions about current and future status of the GBR.

3.2 Responses for the Total Sample

Reef Experience

Respondents were asked whether they had previously been to the GBR. Table 3.1 shows that 40% have never been, and 43% had previously been between one and five times. Respondents who had previously been to the reef were then asked when their last visit was. As shown in Table 3.2, 39% had been to the GBR between one to five years ago and 24% had been in the last 12 months. These figures are consistent with those reported by AGB McNair in 1995. In this telephone survey 42% of the sample had been to the GBR and of these 45% had been sometime in the last five years.

Those who had not previously been to the GBR were then asked if they had any intentions to visit in the future. *Forty-one percent of respondents said they don't have any plans to visit* the GBR and *59% said that they do intend to visit* in the future. Respondents who said they intended to visit were then asked when they planned to go. The results, in Table 3.3 show that the majority, (58%) don't know when they will visit and 24% plan to go within the next 12 months.

Respondents who stated they had no intention to visit the GBR were asked if they had any specific reasons for not wanting to visit. Table 3.4 displays the three most popular reasons for not wanting to visit the GBR. Forty percent of respondents were of the belief that a GBR trip was too expensive and/or that they couldn't afford to visit.

Table 3.1 Have respondents previously been to the GBR?

Number of previous visits	Percent
Never been	40%
Been once	20%
Been 2-5 times	23%
Been 6-25 times	7%
Been >25 times	10%

Table 3.2 When was respondents' last visit to the GBR?

Last visit	Percent
In the last 12 months	**24%**
Between 1 and 5 years ago	**39%**
Between 6 and 10 years ago	17%
More than 10 years ago	19%

Table 3.3 When will respondents visit the GBR?

When will they visit	Percent
Don't know when	**58%**
Within 12 months	**24%**
In 1 to 5 years time	16%
More than 5 years time	2%

Table 3.4 Reasons for not planning to visit to the GBR.

Reason for not visiting	Percent
It is too expensive/can't afford it	**40%**
I'm too old	13%
It isn't an appealing destination	13%

Those respondents who had been, or planned to visit the reef were then asked to list the three activities they would most like to do when visiting the GBR. From Table 3.5 it can be seen the most popular activities to participate in whilst at the reef were; snorkelling (57%), swimming (35%), fishing (24%), and SCUBA diving (23%).

Table 3.5 Activities people would most like to do on the GBR.

Activities	Percent
Snorkelling	**57%**
Swimming	**35%**
Fishing	**24%**
SCUBA diving	**23%**
General sightseeing	18%
Glass bottom boat	14%
Coral/fish viewing	13%
Reef walking	10%
Sailing	8%
Visit islands	6%

NB: Responses may add to more than 100% due to multiple response question.

Images of the Great Barrier Reef

For this section respondents were asked to list three words or phrases that came to mind when asked to describe the GBR. The most popular words or phrases were identified as beautiful (41%), splendid (33%), and unique (20%). The ten most popular phrases or words identified are displayed in Table 3.6. Appendix D contains a complete listing of the responses given to this question.

It is interesting to note that within these ten most popular phrases or words are several which can be related to the World Heritage values of the GBR. The words beautiful, unique, pristine/untouched, large, wonder of the world and needs protection, are all consistent with the World Heritage status of the GBR.

Table 3.6 Words used to describe the GBR.

Words or phrases	Percent
Beautiful	**41%**
Splendid	**33%**
Unique	**20%**
Colourful	18%
Pristine/untouched	10%
Amazing/awesome	10%
Large/huge/big	10%
Wonder of the world	9%
Interesting	6%
Needs protection	6%

NB: Responses may add to more than 100% due to multiple responses

Perceived State of the Great Barrier Reef

The next series of questions related to respondents' perceptions of the state of the GBR environment. Firstly, respondents were asked what condition they felt the GBR was currently in. Figure 3.1 shows that the majority (55%), felt the GBR is in a good condition. The next question asked respondents how they thought the state of the GBR would be in ten years time. As shown in Figure 3.2, the majority (51%) felt it would be in a worse condition than it is now, in ten years. When combining the answers to these two questions, results indicate that 29% of respondents feel that the GBR is in a good condition now but will get worse and 15% feel it is in a good condition now and will stay the same. Results from this analysis are displayed in Table 3.7. Overall, these results tend to show that there is a tendency to be pessimistic about the future state of the GBR when it is compared to its current perceived condition.

This tendency to be pessimistic about the condition of the GBR environment needs to be considered in the context of other research results relevant to public perceptions of environmental quality. There is substantial evidence that environmental concern or pessimism has been steadily increasing in the last 25 years (Steel, 1996; Zimmerman, 1996; Krause, 1993). Finger (1994), for example, reports on a survey conducted in the USA, Canada, the Philippines, Portugal and Nigeria which found that more than 85% of respondents were personally concerned a great deal or a fair amount about environmental problems. In a similar review, Bloom (1995) reports on a survey of 29,618 people from 24 different countries which found that

30% of the sample rated the quality of the environment in their own country as poor and, 53% stated that the state of the environment had become worse in the last ten years. Finally Dunlap and Scarce (1991) reviewed a series of US surveys and found that in 1990, 55% of people thought the quality of the environment was worse than it was five years ago.

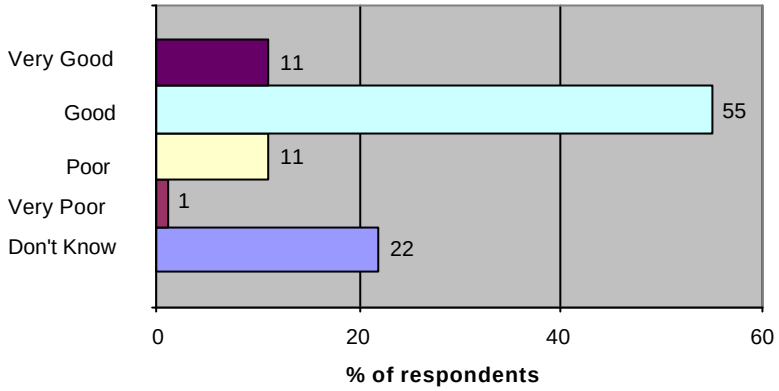

Figure 3.1 Perceived state of the GBR as it is now.

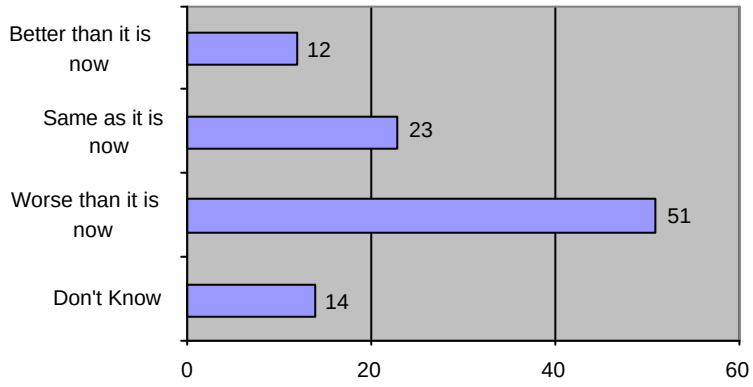

Figure 3.2 Perceived state of the GBR in ten years time.

Table 3.7 Condition of the GBR now and in ten years time.

Condition of the GBR	Percent
The GBR is good now but it will get worse	**29%**
The GBR is good now and will stay the same	**15%**
Don't know how it is now but it will get worse	11%
The GBR is poor now and it will get worse	8%
Don't know how it is now or how it will be	6%
The GBR is good now but don't know how it will be	6%
The GBR is good now and it will get better	6%
The GBR is very good now but it will get worse	4%
The GBR is very good now and it will stay the same	4%

Threats to the Great Barrier Reef

Respondents were asked in an open-ended question to indicate what they believed to be the three most serious threats to the GBR. The results, shown in Table 3.8 show that the greatest threats were perceived to be pollution/rubbish (55%), general human impact (38%), tourism/tourists (36%) and the Crown-of-Thorns (34%). Appendix E contains a complete list of the responses to this question. An examination of this complete list indicates that majority of respondents gave broad categories of responses with a smaller group giving more detailed and specific threats such as divers (1%), defence exercises (0.5%) and poor management (1.8%).

Next, respondents were asked to rate on a one to five scale (one being no impact to five being very large impact), the impact they felt various items or activities would have on the reef. Table 3.9 shows that respondents felt that the Crown-of-Thorns (44%), agricultural run-off (43%), commercial fishing (38%) and adjacent urban and industrial activity (37%) all would have a very large impact on the GBR environment.

Table 3.8 Most commonly perceived major threats to the GBR.

Threats	Percent
Pollution/rubbish	**50%**
General human impact	**42%**
Tourism/tourists	**31%**
Crown-of-Thorns	**30%**
Oil spills/shipping	23%
Overfishing	21%
Too much development	13%
Boats/anchors	9%
Agricultural run-off	9%
Mining	5%
Natural disasters	5%

NB: Percentages add to more than 100% as respondents were asked to indicate what they believed to be the three most serious threats.

Table 3.9 Perceived negative impacts of various activities on the GBR.

ACTIVITY	DON'T KNOW	NO IMPACT	SLIGHT IMPACT	MOD. IMPACT	LARGE IMPACT	VERY LARGE IMPACT
Crown-of-Thorns	7%	3%	8%	18%	21%	**44%**
Agricultural run-off	6%	3%	6%	18%	23%	**43%**
Commercial fishing	5%	4%	6%	19%	27%	**38%**
Adjacent urban & industrial run-off	4%	3%	6%	18%	30%	**37%**
Activities of tourists	2%	2%	11%	32%	31%	22%
Tourism Infrastructure	4%	2%	10%	31%	33%	20%
Recreational fishing	2%	9%	24%	38%	16%	10%

Perceptions of World Heritage Status

The next question asked respondents what they thought the GBR was, results are shown in Table 3.10. The majority of respondents felt the GBR was a World Heritage Area (91%), a Marine Park (91%), a National Park (79%), and a Biosphere reserve (53%). When respondents were asked if they thought the GBR was an Economic development zone, the majority (51%) said no, they didn't think it was. This high level of awareness of the world heritage status of the GBR is consistent with other research (AGB McNair, 1992; Moscardo et al, 1997).

Note: The GBR is a World Heritage Area and much of this World Heritage Area is included in a Marine Park. Several of the islands that form part of the GBR are also National Parks. The terms Biosphere reserve and Economic development zone were created by the researchers to test for response bias.

When asked who was responsible for managing World Heritage Areas (WHA's), 69% said they believed it was the responsibility of Australian governments, shown in Figure 3.3. A substantial minority (29%), however, believed the United Nations was responsible for managing WHA's. Fifty-eight percent of respondents agreed that 'World Heritage listing means that there are greater restrictions on human activities than in National Parks'. The remaining 42% agreed that 'World Heritage listing recognises the importance of an environment but permits economic activity to continue'.

These results suggest that the respondents do not have a clear understanding of the implications of world heritage listing or status. This is consistent with other evidence (Corbett & Lane, 1996). Moscardo et al (1997) in a survey of North Queensland residents and visitors found that:

?? 18% of respondents did not know if WHA's were more highly protected than National Parks (58% stated that the were),

?? 40% of respondents did not know if the United Nations imposed WHA's on other governments (25% believed that they did),

?? 26% of respondents did not know if Australian governments were responsible for managing Australia's WHA's (14% believed they were not), and

?? 33% of respondents did not know if world heritage listing meant that the area became the property of the United Nations (22% believed that it did).

Respondents were asked to nominate from a list of items, those they believed were allowed on the GBR. Table 3.11 shows that 97% felt tourism, 74% recreational fishing and 51% traditional hunting were all activities allowed on the GBR. Those activities the majority of respondents felt were not allowed on the GBR were commercial fishing (52%), aquaculture (48%), sewerage disposal (71%) and mining (79%).

Table 3.10 What is the Great Barrier Reef?

Designation	Don't know	Yes	No
World Heritage Area	5%	**91%**	4%
Marine Park	3%	**91%**	6%
National Park	9%	**79%**	12%
Biosphere Reserve	30%	**53%**	17%
Economic Development zone	15%	34%	**51%**

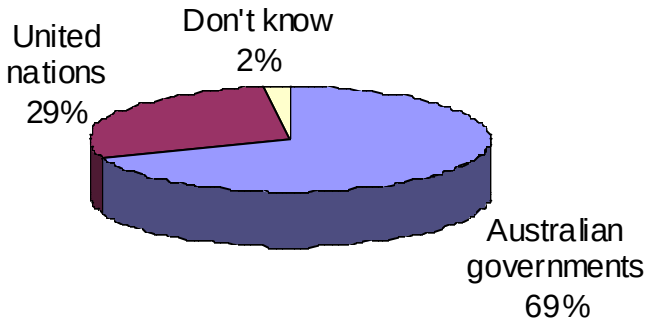

Figure 3.3 Who is responsible for managing World Heritage Areas?

Table 3.11 Knowledge of activities allowed on the GBR.

Activity	Don't know	Allowed	Not allowed
Tourism	1%	**97%**	2%
Recreational fishing	6%	**74%**	20%
Traditional hunting	13%	**51%**	36%
Commercial fishing	7%	41%	**52%**
Aquaculture	19%	33%	**48%**
Sewage disposal	9%	20%	**71%**
Mining	9%	12%	**79%**

Why should the Great Barrier Reef be Protected?

This section asked respondents to select from a list of statements the one they believed to be the best reason as to why the GBR should be protected. The responses are summarised in Figure 3.4. The majority of respondents felt that the GBR should be protected because it is 'A unique Australian Natural Environment' (77%). Again, these findings are consistent with both previous GBR focussed research (AGB McNair, 1995) and more general surveys about the environment (Dunlap & Scarce, 1991).

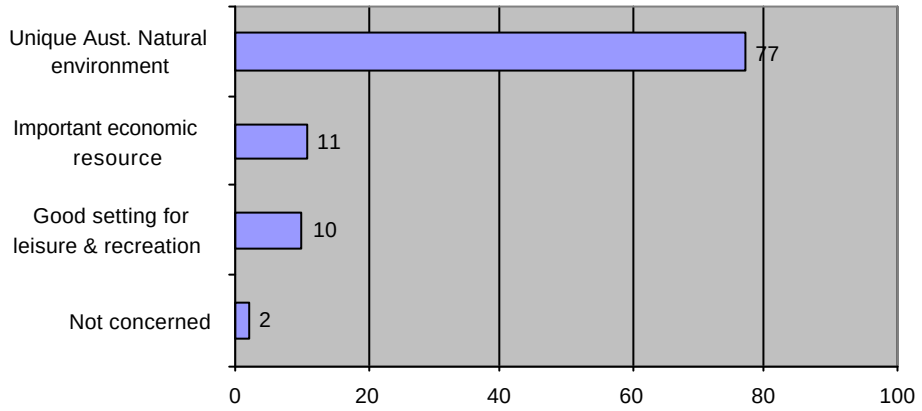

Figure 3.4 Why should the GBR be protected?

Use of Information Sources for the Great Barrier Reef

Respondents were asked to list from a given selection, the two information sources they felt were most important to them when obtaining information about the GBR. As shown in Table 3.12, television (59%), friends and relatives (37%), personal experience (36%) and magazines (33%) were all listed as important sources of information about the GBR. Television and newspapers are usually the most common media sources of information about environmental issues (Ostman & Parker, 1987; Zimmermann, 1996).

Table 3.12 Important sources of information about the GBR.

Sources of Information	Percent
Television	**59%**
Friends and relatives	**37%**
Personal Experience	**36%**
Magazines	**33%**
Newspapers	26%
Radio	8%
Internet	6%
Books/library	6%
Information/tourist centres	5%
Travel agents	4%
TV/radio advertising	4%

NB: Percentages add to more than 100% as respondents were asked select the two most important sources of information to them.

3.3. Comparison of Regional Differences in Responses

In this section of the report the responses of the five major survey areas were compared to examine regional differences in perceptions and beliefs about the GBR. The major regions were Brisbane, Sydney, Melbourne, Canberra and the Reef region (consisting of Cairns, Townsville, Mackay and Rockhampton). In this section and the following sections only statistically significant differences are reported. For all analyses a 0.01 significance level was set. That is, the researchers are accepting a 1 in 100 chance that a detected difference is the result of random variation. In all cases Chi-Square and Goodman and Kruskal's Tau were used to test for differences.

Reef Experience

To examine previous reef experience respondents were asked if they had previously visited the GBR. Table 3.13 shows that the Reef region sample was more likely to contain frequent visitors (29%), and to have the least amount of people who had never been to the GBR (16%). The further you move away from the GBR the less likely it becomes that people have visited the GBR. Table 3.14 shows that the Reef region sample also contained the most recent visitors (33% in the last 12 months). Visitors from other regions were mostly likely to have been 6-20 years ago.

Table 3.13 Previous GBR visits by residence of respondent.

Reef Experience	Reef region	Brisbane	Sydney	Canberra	Melb	TOTAL
Never Been	16%	**31%**	**48%**	**46%**	**61%**	40%
Been once	10%	**23%**	**21%**	**26%**	**20%**	20%
Been 2-5 times	**30%**	**25%**	**22%**	**21%**	15%	23%
Been 6-25 times	15%	9%	2%	4%	2%	7%
Been >25 times	**29%**	12%	7%	3%	2%	10%

NB: The GBR was defined as including reefs, islands and the waters surrounding the reefs and islands.

Table 3.14 Time of last visit by residence of respondent.

Last Visit	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
< 6 months ago	**18%**	3%	3%	2%	1%	6%
> 6 months to 1 year	**15%**	8%	5%	8%	6%	8%
1 to 5 years	28%	**28%**	**24%**	20%	16%	23%
6 to 20 years	23%	**30%**	20%	**24%**	**16%**	23%
Haven't been to GBR	16%	31%	48%	46%	61%	40%

Respondents were then asked if they were planning to visit the GBR, results (shown in Table 3.15) show that most people who are planning to go are from Sydney (32%), Canberra (24%) and Melbourne (35%). Respondents who indicated they were not planning to visit the GBR were then asked to give reasons as to why they weren't planning to go. The results show that Canberra respondents were more likely than the rest to say they aren't planning to go because it is too expensive (62%). Brisbane and Reef region respondents were the most likely to say they won't go because they are too old (17% for both). Melbourne respondents were most likely to say they weren't planning to go because the GBR is not appealing (20%). The results from this analysis are shown in Table 3.16.

The next analysis of regional residence was of the activities respondents indicated they would most like to do whilst on the GBR. Table 3.17 shows that respondents from the Reef region were the most interested in snorkelling (59%), swimming (45%) and fishing (47%). Those from Sydney were the most interested in SCUBA diving (30%) and Coral/fish viewing (15%). The majority of respondents from all regions were interested in snorkelling, swimming and SCUBA diving as activities to participate in whilst at the GBR.

Table 3.15 Are you planning to visit the GBR by residence of respondent.

Are you going to visit the GBR	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Yes	16%	19%	**32%**	**24%**	**35%**	25%
No	13%	12%	17%	22%	25%	18%
Already been	**72%**	**69%**	51%	54%	40%	57%

Table 3.16 Main reasons for not visiting the GBR by residence of respondent.

Reasons for not visiting	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Too expensive/can't afford it	42%	25%	37%	**62%**	32%	41%
Too old	**17%**	**17%**	12%	9%	12%	13%
Not appealing	8%	17%	19%	5%	**20%**	13%

Table 3.17 Most popular activities on the GBR by residence of respondent.

Activity	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Snorkelling	**59%**	57%	**58%**	56%	55%	57%
Swimming	**45%**	34%	41%	27%	39%	35%
Fishing	**47%**	25%	18%	14%	11%	24%
SCUBA diving	15%	21%	**30%**	24%	24%	23%
Sightseeing	14%	18%	15%	23%	23%	18%
Glass bottom boat	13%	14%	8%	22%	19%	14%
Coral/fish viewing	18%	14%	**15%**	13%	8%	13%
Visit islands	4%	7%	6%	6%	7%	6%
Reef walking	12%	12%	6%	10%	8%	10%
Sailing	2%	10%	13%	10%	9%	8%

NB: Responses add to more than 100% due to multiple response question

Perceived State of the Great Barrier Reef

No significant differences found in a regional comparison of respondent perceptions of the state of the GBR in ten years time. Significant differences did emerge, however, in the perceptions of the current state of the GBR environment. Table 3.18 shows that Melbourne respondents were more likely to say they didn't know (29%), and Canberra respondents were more likely to

say the GBR is currently in a Poor condition (16%). Respondents from the Reef region were most likely to say the GBR is in a Good condition (64%) and Sydney respondents were the most likely to say the GBR is in a Very good condition (15%).

Table 3.18 Current state of the GBR environment by residence of respondent.

Activity	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Very Good	9%	9%	**16%**	11%	10%	11%
Good	**64%**	52%	58%	47%	53%	55%
Poor	8%	15%	11%	**16%**	7%	11%
Very poor		1%		1%	1%	1%
Don't know	18%	24%	16%	25%	**29%**	22%

Threats to the Great Barrier Reef

Respondents were next asked to indicate what they believed to be the three greatest threats to the GBR. An inspection of the results in Table 3.19 shows that Reef region respondents were more likely to see overfishing (42%) and agricultural run-off (20%) as threats to the GBR. These respondents were also less likely to see tourism and tourists (26%), Crown-of-Thorns (25%) and too much development (8%) as threats to the GBR. Canberra respondents were most likely to see Pollution (56%) as a threat. Sydney respondents were more likely to say that tourism and tourists (44%) and too much development (15%) were threats to the GBR.

Respondents were then asked to rate the impact they believed a given list of activities or actions had on the GBR. No significant differences were found between the survey regions for the perceived impacts of adjacent and urban industrial activity, recreational fishing, agricultural run-off, Crown-of-Thorns, tourism infrastructure and commercial development. A significant difference was found, however, in the perceived impact of tourist activities. As shown in Table 3.20, Reef region respondents saw tourist activities as having less of an impact on the GBR (41%, compared to 53% overall). Sydney and Canberra respondents saw tourist activities as having a higher level of impact on the GBR than the other regions (59% and 60% each respectively).

Table 3.19 Perceived major threats to the GBR by residence of respondent.

Threat	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Pollution/Rubbish	48%`	47%	51%	**56%**	44%	50%
General human impact	39%	40%	39%	47%	48%	42%
Tourism/tourists	**26%**	27%	**44%**	33%	25%	31%
Crown of thorns	**25%**	32%	29%	29%	34%	30%
Overfishing	**42%**	23%	20%	13%	12%	23%
Oil spills/shipping	30%	31%	19%	18%	17%	21%
Too much development	**8%**	9%	**15%**	15%	17%	13%
Agricultural run-off	**20%**	10%	6%	7%	3%	9%
Boats/anchors	10%	13%	7%	12%	4%	9%
Mining	3%	5%	8%	4%	7%	5%
Natural Disasters	7%	3%	6%	3%	7%	5%

Table 3.20 Perceived impact of tourist activities on the GBR by residence of respondent.

Impact	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
No Impact	3%	1%	1%	1%	4%	2%
Slight Impact	17%	13%	7%	8%	9%	11%
Medium Impact	37%	31%	31%	29%	32%	32%
Large Impact	**26%**	27%	**36%**	**31%**	34%	31%
Very Large Impact	**15%**	22%	**23%**	**28%**	20%	22%
Don't know	1%	4%	1%	1%	1%	2%

Great Barrier Reef Knowledge

Respondents were asked to nominate from a list of activities, those they believed were allowed on the GBR. There were no significant differences in the responses to whether tourism, traditional hunting, mining and aquaculture are allowed on the GBR. Significant differences were identified for sewerage disposal, recreational and commercial fishing, as shown in Table 3.21. For all three cases, Melbourne respondents were the most likely to say they didn't know, whilst Reef region respondents were most likely to correctly state that recreational and commercial fishing were allowed. Respondents from Sydney were more likely to believe commercial and recreational fishing were not allowed and that sewerage disposal was permitted on the GBR.

Table 3.21 Activities allowed on the GBR by residence of respondent.

Activity		Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Recreational Fishing	Yes	**84%**	**75%**	**74%**	**75%**	**63%**	**74%**
	No	**13%**	**18%**	**24%**	**18%**	**27%**	**20%**
	Don't know	**2%**	**8%**	**2%**	**6%**	**10%**	**6%**
Commercial fishing	Yes	**59%**	**33%**	**38%**	**41%**	**35%**	**41%**
	No	**37%**	**58%**	**59%**	**52%**	**55%**	**52%**
	Don't know	**4%**	**9%**	**3%**	**7%**	**10%**	**7%**
Sewerage Disposal	Yes	**19%**	**13%**	**23%**	**28%**	**16%**	**20%**
	No	**77%**	**77%**	**71%**	**62%**	**71%**	**71%**
	Don't know	**4%**	**10%**	**6%**	**10%**	**14%**	**9%**
Tourism	Yes	97%	96%	97%	99%	97%	97%
	No	2%	3%	2%		2%	2%
	Don't know	1%	1%	1%	1%	1%	1%
Traditional Hunting	Yes	60%	50%	47%	55%	43%	51%
	No	28%	36%	44%	33%	41%	36%
	Don't know	1%	14%	9%	12%	16%	13%
Aquaculture	Yes	36%	35%	34%	27%	33%	33%
	No	45%	44%	53%	51%	46%	48%
	Don't know	19%	21%	13%	22%	21%	19%
Mining	Yes	8%	11%	15%	15%	13%	12%
	No	84%	77%	81%	77%	75%	79%
	Don't know	8%	12%	4%	8%	12%	9%

Perceptions of World Heritage Status

Respondents were asked who they thought was responsible for managing World Heritage Areas. The results (shown in Table 3.22) show that respondents from Sydney (24%) were least likely to say the United Nations.

Table 3.22 Who manages World Heritage Areas by residence of respondent.

Management Agency	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
United Nations	29%	30%	**24%**	32%	31%	29%
Australian Gov't	**71%**	65%	**75%**	67%	67%	69%
Don't Know		5%	1%	1%	2%	2%

Why should the Great Barrier Reef be Protected?

For this section, respondents were asked to select from a list of four statements, the one they believed was the best to describe why the GBR deserved protection. Table 3.23 shows that respondents from Brisbane (82%), Sydney (83%) and Melbourne (82%) were more likely to feel the GBR deserved protection because it is 'A Unique Australian Natural Environment'. Those from Canberra and the Reef region were more likely to feel the GBR deserved protection because it is 'an Important Economic Resource' (18% and 15% each, respectively) and because it is a 'Good setting for Leisure and Recreation' (13% each).

Table 3.23 Why should the Great Barrier Reef be protected by residence of respondent.

Reason for protection	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Unique Australian Natural Environment	69%	**82%**	**83%**	68%	**82%**	77%
Important Economic Resource	**15%**	7%	5%	**18%**	10%	11%
Good setting for leisure and recreation	**13%**	10%	8%	**13%**	6%	10%
None, as I am not concerned about GBR	1%	1%	2%	1%	1%	1%
Don't know	2%		2%	1%	1%	1%

Use of Information Sources about the Great Barrier Reef

Respondents were asked to nominate, from a given selection, the two information sources they felt were most important to them about the GBR. The only significant difference indicated that personal experience was difference in its importance as a source of information. Table 3.24 shows that Reef region respondents were most likely to view personal experience as an important source of information.

Table 3.24 Importance of personal experience as a source of information by residence of respondent

Personal experience	Reef region	Brisbane	Sydney	Canberra	Melbourne	TOTAL
Rely on personal exp.	**46%**	35%	38%	28%	30%	35%
Not important	54%	65%	62%	72%	70%	65%

3.4. Relationship Between Reef Experience and Responses

The first question in the survey asked respondents whether they had previously visited the GBR. Sixty percent of respondents had been to the GBR and 40% had not been to the GBR.

Most popular Reef Activities

Activities respondents like to do or would like to do were compared between those who had and those who had not been to the GBR. As can be seen in Table 3.25, those who had been to the GBR were more likely to want to participate in activities such as Swimming (38%), Snorkelling (58%), Fishing (27%) and Coral/fish/wildlife viewing (54%). These respondents were also most likely to identify 'Other' activities as things to do (48%). The 'Other' category has a wide range of responses including things such as Holidaying, Photography, Fish feeding, Eating and Drinking. Alone, each of these items added to no more than 3% of responses. Respondents who hadn't been to the GBR were more likely to want to participate in SCUBA diving (29%) and Water Sports (13%).

Table 3.25 Comparison of desired GBR activities by respondents who had and hadn't previously been.

Activity	Had been to GBR	Hadn't been to GBR
Swimming	**38%**	28%
Snorkelling	**58%**	44%
Fishing	**27%**	16%
Relax/enjoy/sunbake	29%	27%
SCUBA diving	18%	**29%**
Underwater observatory	2%	
Reef walking/ visit island	26%	22%
Sailing/boating/cruise	24%	24%
Glass bottom boat	16%	18%
Coral/fish/wildlife viewing	**54%**	29%
Water sports	6%	**13%**
Other	**48%**	8%

NB: Percentages will add to more than 100% due to multiple responses

Images of the Great Barrier Reef

Respondents were next asked to state what three words they would use to describe the GBR. A comparison of the responses of those who had been and hadn't been to the GBR are shown in Table 3.26. Respondents who had been to the GBR most often used words like Beautiful/pretty (51%), Splendid/tremendous (47%), Pristine/untouched (29%) and Unique/exotic (28%) to describe the GBR. Respondents who hadn't been were most likely to use words such as Beautiful/pretty (52%), Colourful (31%), Pristine/untouched (28%) and Unique/exotic (25%).

Table 3.26 Comparison of words to describe the GBR by respondents who had and hadn't previously been.

Word	Had been to the GBR	Hadn't been to the GBR
Beautiful/pretty/lovely	**51%**	**52%**
Splendid/tremendous	**47%**	24%
Colourful/colours	27%	**31%**
Pristine/untouched/peaceful	**29%**	**28%**
Unique/exotic/inspirational	**28%**	**25%**
Holiday place/tropical paradise	10%	**20%**
Amazing/awesome/great	17%	17%
Needs protection/valuable/ environmentally important	11%	14%
Large/huge/big	10%	13%
Wonder of world/Great Barrier Reef/World Heritage Area	11%	13%
Good weather	12%	12%
Diverse/varied/abundant life	12%	8%
Interesting/fascinating	11%	7%
Coral/Reef	3%	7%
Clear water/ocean	4%	6%
Other words (no single word added to more than 3% or words used)	17%	22%

NB: Percentages will add to more than 100% due to multiple responses

Perceived State of the Great Barrier Reef

Respondents were asked to indicate what they thought the state of the Reef would be like in ten years (see Table 3.27). Most of the respondents who had been to the GBR were believed that the GBR will be 'worse than it is now' (54%) in ten years time. Those who hadn't been to the GBR were more likely to think it would be better than it is now (16%).

Next, respondents were asked to rate how they would describe the current state of the environment. The results (displayed in Table 3.28) show that those who had been to the GBR were more likely to describe it's condition as Very good (13%) or Good (59%). Those who hadn't visited the GBR were more likely to say they didn't know the current state of the environment (31%).

Table 3.27 Comparison of the perceived state of the GBR in ten years time by respondents who had and hadn't previously been.

Statement	Had been to the GBR	Hadn't been to the GBR
Better than it is now	9%	**16%**
About the same as it is now	24%	21%
Worse than it is now	**54%**	48%
Don't Know	13%	15%

Table 3.28 Comparison of the current state of the GBR Environment by respondents who had and hadn't previously been.

Statement	Had been to the GBR	Hadn't been to the GBR
Very good	**13%**	7%
Good	**59%**	49%
Poor	11%	12%
Very poor	1%	1%
Don't know	16%	**31%**

Threats to the Great Barrier Reef

Respondents were asked to list what they believed to be the three most serious threats to the GBR. For both groups, the four most serious threats were listed as Pollution/rubbish, Human impact, Crown-of-Thorns and Tourism. The percentage of times each threat was listed by each group is compared in Table 3.29. Those who had been to the GBR were more likely to identify tourism/tourists, overfishing, agricultural run-off, oil spills/shipping and boats/anchors as potential threats.

The next series of questions asked respondents to rate the impacts certain activities have on the GBR (see Table 3.30). Those who had visited the GBR were more likely to believe that the Crown-of-Thorns would have a slight to large impact (51%). Those who hadn't visited the GBR were more likely to believe that the Crown-of-Thorns would have a very large impact (48%) or state that they did not know (11%). The next table (Table 3.31) displays a comparison of the impact it is perceived that Tourism infrastructure has on the GBR. Those who had visited were more likely to believe that Tourism infrastructure would have a slight impact (13%), whereas those who hadn't visited were more likely to believe Tourism infrastructure would have a large impact (37%).

Table 3.29 Comparison of threats to the Great Barrier Reef by respondents who had and hadn't previously been.

Threat to the Reef	Had been to the GBR	Hadn't been to the GBR
Pollution/rubbish	**46%**	**55%**
Human impact/general abuse	**42%**	**42%**
Crown-of-Thorns	**28%**	**32%**
Tourism/tourists	**32%**	**29%**
Oil spills/shipping	26%	19%
Overfishing	24%	16%
Too much development	13%	12%
Agricultural run-off	13%	4%
Boats/anchors	11%	7%
Mining	5%	6%
Natural Disasters	6%	4%

Table 3.30 Comparison of the impact of the Crown-of-Thorns on the GBR by respondents who had and hadn't previously been.

The impact of the Crown-of-Thorns on the GBR	Had been to the GBR	Hadn't been to the GBR
No impact	3%	2%
Slight impact	**9%**	5%
Medium impact	**20%**	15%
Large impact	**22%**	19%
Very large impact	41%	**48%**
Don't know	5%	**11%**

Table 3.31 Comparison of the impact of tourism infrastructure on the GBR by respondents who had and hadn't previously been.

The impact of tourism infrastructure on the GBR	Had been to the GBR	Hadn't been to the GBR
No impact	2%	1%
Slight impact	**13%**	6%
Medium impact	32%	29%
Large impact	31%	**37%**
Very large impact	20%	20%
Don't know	2%	6%

Great Barrier Reef Knowledge

Respondents were asked a series of questions regarding their knowledge of whether certain activities were allowed on the GBR. Significant differences were found between respondents who had and hadn't been to the GBR for whether Recreational fishing, Traditional hunting and Commercial fishing are permitted activities. Table 3.32 shows that those who had been to the GBR were more likely to correctly state that Recreational fishing was allowed on the GBR (79%). Those who hadn't been were more likely to say no (24%), or that they don't know (9%).

Table 3.33 shows that those who had been to the GBR were more likely to believe that Traditional hunting was allowed on the Reef (55%). Those who hadn't been were more likely to say that is wasn't allowed (40%), or that they don't know (15%).

Table 3.34 shows that those who had been to the GBR were more likely to correctly state that Commercial fishing was allowed on the GBR (46%). Respondents who haven't been were more likely to say it wasn't (57%), or that they don't know (9%).

In the next analysis, respondents were asked to indicate whether or not they believed the GBR was a National Park, Marine Park, and/or a World Heritage Area. The only significant difference found between respondents who had and who hadn't been to the GBR was in their belief of whether the GBR was a Marine park (Table 3.35). Those who had visited the Reef were more likely to think the GBR was a Marine park (93%), whereas those who hadn't visited were more likely to say it wasn't (8%), or that they didn't know (5%).

Table 3.32 Comparison of whether recreational fishing is allowed on the GBR by respondents who had and hadn't previously been.

Is recreational fishing allowed on the GBR	Had been to the GBR	Hadn't been to the GBR
Yes	**79%**	67%
No	17%	**24%**
Don't know	4%	**9%**

Table 3.33 Comparison of whether traditional hunting is allowed on the GBR by respondents who had and hadn't previously been.

Is traditional hunting allowed on the GBR	Had been to the GBR	Hadn't been to the GBR
Yes	**55%**	45%
No	34%	**40%**
Don't know	11%	**15%**

Table 3.34 Comparison of whether commercial fishing is allowed on the GBR by respondents who had and hadn't previously been.

Is commercial fishing allowed on the Reef	Had been to the GBR	Hadn't been to the GBR
Yes	**46%**	33%
No	50%	**57%**
Don't know	4%	**9%**

Table 3.35 Comparison of whether the GBR is believed to be a Marine Park by respondents who had and hadn't previously been.

Is the GBR a marine park	Had been to the GBR	Hadn't been to the GBR
Yes	**93%**	87%
No	5%	**8%**
Don't know	2%	**5%**

Use of information sources about the Great Barrier Reef.

The next series of questions asked respondents to list their most important sources of information about the GBR. The sources showing significant differences between those who had visited the GBR and those who hadn't are displayed in Table 3.36. Those who had been were more likely to view personal experience (52%) as an important source of information. Those who hadn't been before were more likely to view magazines (39%), friends and relatives (38%) and television (65%) as important sources of information about the GBR.

Table 3.36 Comparison of important sources of information about the GBR for respondents who had and hadn't previously been.

Important sources of information	Had been to the GBR	Hadn't been to the GBR
• Magazines are an important source of info on the GBR	28%	**39%**
• Personal experience is an important source of info on the GBR	**52%**	11%
• Friends and relatives are an important source of info on the GBR	31%	**38%**
• Television is an important source of information	54%	**65%**

NB: Percentages add to more than 100% due to multiple responses

3.5 Comparison of Optimists and Pessimists

This section is based on responses to questions asking respondents what they thought the GBR environment would be like in ten years time. The results indicated that 60% of respondents felt

it would be in a worse condition than it is now (for the purposes of this report these people will be referred to as Pessimists). The remaining 40% felt that the GBR would be in a better or the same condition as it is now (these people will be referred to as Optimists). In this section of the analysis these two groups of respondents will be compared to determine any differences that may exist between them.

Reef Experience

The first analysis looked at whether or not respondents had previously been to the GBR. Although differences were not significant, respondents who had been to the GBR were slightly more likely to be pessimists (62% compared with 58%). The results are displayed in Table 3.37.

Activities people like to do or would like to do on the GBR were compared. As can be seen in Table 3.38, pessimists were more likely to identify activities such as Snorkelling (46%), Swimming (29%) and Coral/fish/wildlife viewing (28%). Optimists also identified Snorkelling (49%), Swimming (30%), Coral/fish/wildlife viewing (28%), as well as Relaxing/sunbaking (26%) as the activities they would most like to participate in when visiting the GBR.

Table 3.37 Had respondents previously visited the GBR by pessimists and optimists.

Have you been to the GBR	Worse than now (pessimists)	Better or same (optimists)
Yes	62%	58%
No	38%	42%

Table 3.38 Comparison of desired GBR activities by pessimists and optimists.

Activity to do on the GBR	Worse than now (pessimists)	Better or same (optimists)
Swimming	**29%**	**30%**
Snorkelling	**46%**	**49%**
Fishing	20%	21%
Relax/Enjoy/Sunbake	22%	**26%**
Scuba diving	21%	19%
Underwater observatory	1%	4%
Reef walking/walking on island/exploring/visit island	20%	19%
Sailing/boating/cruise	19%	20%
Glass bottom boat	14%	12%
Coral/fish/wildlife viewing	**28%**	**28%**
Water sports	7%	6%
Other (separately not greater than 3% of responses for each item)	14%	13%

NB: Percentages will add to more than 100% due to multiple responses

Images of the Great Barrier Reef

Respondents were asked to state what three words they would use to describe the GBR. Pessimists are compared with the Optimists in Table 3.39. Both groups most often used words such as Beautiful/pretty and Splendid/tremendous to describe the GBR. However, the group identified as pessimists were more likely to describe it as Colourful (29%), Needing protection/valuable/important environment (24%), and a Wonder of the world/GBR/World Heritage area (14%). Optimists were slightly more likely to use Unique/exotic/inspirational (36%) and Amazing/awesome/great (23%) as descriptors.

Table 3.39 Comparison of words to describe the GBR by pessimists and optimists.

Word to describe the GBR	Worse than now (pessimists)	Better or same (optimists)
Beautiful/pretty/lovely	**51%**	**53%**
Splendid/tremendous	**37%**	**37%**
Colourful/colours	**29%**	15%
Pristine/untouched/peaceful	18%	17%
Unique/exotic/inspirational	**26%**	**35%**
Holiday place/tropical paradise	16%	16%
Amazing/awesome/great	18%	**23%**
Needs protection/valuable/environmentally important	**24%**	16%
Large/huge/big	10%	14%
Wonder of world/Great Barrier Reef/World Heritage Area	**14%**	10%
Good weather	12%	10%
Diverse/varied/abundant life	11%	10%
Interesting/fascinating	7%	9%
Coral/Reef	5%	3%
Clear water/ocean	6%	4%
Other words (no more than 3% of words)	15%	13%

NB: Percentages will add to more than 100% due to multiple responses

Perceived State of the Great Barrier Reef

Respondents were asked to rate how they would describe the current state of the environment in the GBR. The majority of both groups perceived the reef to be currently in a 'Good' state. The results displayed in Table 3.40, shows the pessimists were more likely to feel the Reef is currently in a Poor condition (15%). In this instance the optimists more likely than the pessimists to feel the GBR was currently in a Very good condition (15%).

Table 3.40 Comparison of the current state of the GBR by pessimists and optimists.

Condition of the GBR	Worse than now (pessimists)	Better or same (optimists)
Very good	8%	**15%**
Good	55%	60%
Poor	**15%**	8%
Very poor	2%	1%
Don't know	20%	16%

Threats to the Great Barrier Reef

Respondents were asked to list what they believed to be the three most serious threats to the GBR. Pessimists were less likely to identify Crown-of-Thorns and Oil spills/shipping as threats but more likely to identify Pollution/rubbish, human impact/general abuse and too much development as major threats to the GBR. The percentages given by each group are compared in Table 3.41.

A series of question regarding the impacts certain activities have on the GBR was then asked. Only those results with significant differences between the two groups will be presented for the purposes of this report. Results showing a comparison of the perceived impact of adjacent urban and industrial activity are displayed in Table 3.42. As shown pessimists were more likely to believe that adjacent urban and industrial activity would have a very large impact (46%). Optimists were more likely to believe that adjacent urban and industrial activity would have a medium impact on the GBR (27%).

The next analysis compared the perceived impact of Recreational fishing on the GBR, the results are displayed in Table 3.43. As shown the pessimists were more likely to perceive Recreational fishing would have a very large impact (20%). Optimists in comparison, were more likely to feel that Recreational fishing would have a slight impact on the GBR (29%).

Table 3.41 Comparison of perceived threats to the GBR by pessimists and optimists.

Threat to the Reef	Worse than now (pessimists)	Better or same (optimists)
Pollution/rubbish	**51%**	**46%**
Human impact/general abuse	**43%**	**39%**
Crown-of-Thorns	**27%**	**35%**
Tourism/tourists	**32%**	**33%**
Oil spills/shipping	21%	**28%**
Overfishing	21%	20%
Too much development	**16%**	10%
Agricultural run-off	11%	8%
Boats/anchors	10%	8%
Mining	6%	5%
Natural Disasters	4%	7%

Table 3.42 Comparison of the impact of adjacent urban and industrial activity by pessimists and optimists.

The impact of adjacent urban and industrial activity	Worse than now (pessimists)	Better or same (optimists)
No impact	3%	3%
Slight impact	6%	6%
Medium impact	14%	**27%**
Large impact	29%	30%
Very large impact	**46%**	31%
Don't know	2%	3%

Table 3.43 Comparison of the impact of Recreational fishing on the GBR by pessimists and optimists.

The impact of recreational fishing on the GBR	Worse than now (pessimists)	Better or same (optimists)
No impact	7%	10%
Slight impact	21%	**30%**
Medium impact	40%	39%
Large impact	**20%**	11%
Very large impact	10%	9%
Don't know	2%	1%

The impact of Agricultural run-off was the next comparison, results are displayed in Table 3.44. As shown, pessimists were more likely to believe that Agricultural run-off would have a very large impact (51%). Optimists on the other hand were more likely to believe that Agricultural run-off would have a large impact on the GBR (28%).

The next analysis compared the impact of Tourist activities on the GBR. As shown in Table 3.45, pessimists were more likely to believe that Tourist activities would have a large (34%) or very large impact (25%) and optimists were more likely to believe Tourist activities would have only a slight (16%) to medium (36%) impact on the GBR.

The next analysis compared the impact of Tourism infrastructure on the GBR. As shown in Table 3.46, again pessimists were more likely to believe tourism infrastructure would have a large (36%) or very large impact (24%). Respondents classed as optimists were more likely to believe tourism infrastructure would have a slight (13%) to medium (35%) impact on the GBR.

The final comparison compared the impact of Commercial fishing on the GBR. The results are shown in Table 3.47. Again the pessimists were more likely to believe Commercial fishing would have a very large impact (43%) when compared with the optimists who were more likely to believe Commercial fishing would have a slight impact (10%) on the GBR.

All of the analyses concerning impacts of activities on the GBR indicated that pessimists were more likely to say these activities would have greater impacts on the GBR. The optimists on the other hand were more likely to believe these activities wouldn't have such harmful impacts on the GBR.

Table 3.44 Comparison of the impact of Agricultural run-off on the GBR by pessimists and optimists.

The impact of agricultural run-off on the GBR	Worse than now (pessimists)	Better or same (optimists)
No impact	2%	4%
Slight impact	4%	7%
Medium impact	17%	21%
Large impact	21%	**28%**
Very large impact	**51%**	35%
Don't know	5%	5%

Table 3.45 Comparison of the impact of Tourist activities on the GBR by pessimists and optimists.

The impact of tourist activities on the GBR	Worse than now (pessimists)	Better or same (optimists)
No impact	2%	1%
Slight impact	8%	**16%**
Medium impact	30%	**36%**
Large impact	**34%**	28%
Very large impact	**25%**	18%
Don't know	1%	1%

Table 3.46 Comparison of the impact of tourism infrastructure on the GBR by pessimists and optimists.

The impact of tourism infrastructure on the GBR	Worse than now (pessimists)	Better or same (optimists)
No impact	1%	2%
Slight impact	7%	**13%**
Medium impact	29%	**35%**
Large impact	**36%**	30%
Very large impact	**24%**	16%
Don't know	3%	4%

Table 3.47 Comparison of the impact of commercial fishing on the GBR by pessimists and optimists.

The impact of commercial fishing on the GBR	Worse than now (pessimists)	Better or same (optimists)
No impact	3%	5%
Slight impact	4%	**10%**
Medium impact	19%	21%
Large impact	28%	27%
Very large impact	**43%**	32%
Don't know	2%	5%

Why should the Great Barrier Reef be Protected?

Respondents were asked to select from four choices, the reason they felt best described why the GBR deserved protection. Table 3.48 shows that the pessimists were more likely to believe the Reef needed protection because it is 'A Unique Australian Natural Environment' (80%). In

comparison the optimists were more likely to feel the Reef deserved protection 'because it is a very good setting for leisure and recreation' (13%).

Table 3.48 Comparison of which statement best describes why the GBR deserves protection by pessimists and optimists.

Why does the GBR deserve protection	Worse than now (pessimists)	Better or same (optimists)
Unique Australian natural environment	**80%**	73%
Important economic resource	11%	10%
Very good setting for leisure and recreation	7%	**13%**
None, as I am not concerned about protection of the GBR	1%	2%
Don't Know	1%	2%

4. SUMMARY OF KEY RESULTS

4.1. Responses for the Total Sample

- Total sample of 1003 (58% response rate).
- 60% have visited GBR, 16% have not visited and do not intend to visit.
- The most common reason given for not visiting the GBR is expense.
- The five most popular GBR activities are snorkelling, swimming, fishing, diving and sightseeing.
- The three most common words used to describe the GBR are beautiful, splendid and unique.
- 55% believe that the GBR is currently in good condition, but 51% believe it will be in a worse condition in 10 years time.
- The five most serious perceived threats to the GBR are pollution, general human impacts, tourism, Crown-of-Thorns and oil spills/shipping.
- When asked to think about specific threats the largest impact ratings were given to Crown-of-Thorns, Agricultural Run-off, Commercial fishing and Adjacent development.
- 91% of respondents knew the GBR was a WHA and a marine park.
- 58% believe that World Heritage listing means that there are greater restrictions on human activities than in National Parks.

?? A majority of respondents believed that commercial fishing, aquaculture, sewerage disposal and mining are not allowed on the GBR.

?? A large majority of respondents believe that the GBR should be protected because it is a unique Australian natural environment. There was little support for protection for economic or recreational reasons.

?? The most important sources of information about the GBR are television, friends and relatives, personal experience, magazines and newspapers.

4.2. Regional Differences

Overall the majority of differences lay between Reef Region residents and the rest of the sample. **Reef Region Residents:**

?? Had greater and more recent GBR experience.

?? Were more likely to list fishing as a preferred GBR activity.

?? Were more likely to describe the current state of the GBR as good.

?? Were more likely to see overfishing and agricultural run-off as threats to the GBR and less likely to see tourism, Crown-of-Thorns and development as threats.

?? Generally had more accurate knowledge of permitted activities and world heritage status.

?? Were less likely to say the GBR should be protected because it is a unique Australian environment.

4.3. Reef Experience

?? 60% of respondents had been to the GBR.

?? Those who haven't been to the GBR were more likely to describe it as a holiday place and as colourful, and less likely to describe it as splendid or unique.

?? Those who had been to the GBR were more likely to say the state of the GBR would be worse in 10 years time.

?? Those who had been to the GBR were more likely to identify tourism, overfishing, agricultural run-off, oil spills/shipping and boats/anchors as major threats .

?? Those who had been to the GBR gave a lower rating for the impacts of tourism infrastructure, and Crown-of-Thorns.

?? Those who had been to the GBR generally had more accurate knowledge of the status of the GBR and permissible activities.

4.4. Optimists and Pessimists

?? 60% of respondents believed that the GBR would be in worse condition in 10 years time. These respondents were labelled pessimists. Respondents who believed the GBR would be in the same or better condition were labelled Optimists.

?? Pessimists were more likely to describe the GBR as colourful, valuable or in need of protection and as a World Heritage Area.

?? Pessimists were less likely to see Crown-of-Thorns and oil spills/shipping as serious threats and more likely to see pollution/rubbish, human impacts and too much development as serious threats to the GBR.

?? Pessimists gave greater impact ratings for adjacent urban and industrial activity, recreational fishing, agricultural run-off, tourist activities, tourism infrastructure and commercial fishing.

?? Pessimists were more likely to believe that the GBR deserved protection because it was a Unique Australian Natural environment.

5. CONCLUSIONS AND FUTURE DIRECTIONS

The goal of the GBRMPA is

> *To provide for the protection, wise use, understanding and enjoyment of the Great Barrier Reef in perpetuity through the care and development of the Great Barrier Reef Marine Park. (GBRMPA, 1999).*

In interpretation theory it is commonly argued that protection depends to a very large extent upon wise use, which in turn depends upon understanding what is being protected and how it can be protected. Understanding is both a core component and an outcome of successful protected area management. Interpretation, extension and public education are all core management tools for enhancing understanding. This survey had the goal of investigating current levels of community understanding of the status of the GBR, of threats to the GBR, of allowable activities, and of the implications of World Heritage status. Two main uses of this information were identified in the planning of this study. The first was to enhance managers' understanding of levels of community knowledge about the GBR to assist in the development of more effective communication activities. The second was to provide a baseline for levels of knowledge and perceptions that could be used in the future to evaluate the success of communication activities aimed at improving understanding of such things as allowable

activities, World Heritage status and threats to the GBR. It could also be argued that there is third use of the information collected in this survey and that is to provide some broad community feedback on the achievements of the GBRMPA. All three of these uses will now be discussed in more detail.

5.1 Implications for the Design of Communication Activities

There is a substantial and growing body of literature which provides insights and research results to guide the design of effective communication activities (see Moscardo, 1996 and 1999). Much of this research has concentrated on comparisons of different media or different structural features of communication activities. Thus there have been comparisons of self-guided trials with guided walks, static displays with audio-visual presentations, and audio-visual presentations with interactive computer displays. Other examples include studies examining the use of questions as titles for signs and the effectiveness of different types of typeface in written material. While this research is valuable and necessary for improving the effectiveness of communication activities and products, it could be argued that this attention on the medium has come at the expense of attention to the message.

Increasingly there have been calls to consider in more detail how existing beliefs and knowledge influence people's responses to new information or arguments (Moscardo, Verbeek and Woods, 1998, Ballantyne, Packer and Beckmann, 1998). Such arguments are based on what is often referred to as constructivist theory. This theory, which has widespread support in psychology and education, proposes the following set of principles.

1. People build complex knowledge systems to explain the world.
2. People learn new information by changing or adding to their existing knowledge systems.
3. These knowledge systems are stable and resistant to change.
4. There is a strong tendency to selectively choose new information to fit existing beliefs and attitudes.
5. There is considerable evidence that for many topics people have existing knowledge systems that are not consistent with accepted scientific explanations. These have been referred to as misconceptions, naive or alternative theories (Munson, 1994).

According to a constructivist approach there are three possible communication situations that can be identified. The first is where both parties have similar knowledge systems and share the same assumptions and attitudes and so can easily understand what the other is saying. This

situation could be likened to preaching to the converted. The second situation is one in which the two parties share so little in terms of common knowledge and beliefs that they do not understand each other at all. In this case the audience goes away no wiser than before the communication experience. In the third situation the two parties have different and often conflicting sets of beliefs. In this case the audience can either reject the message of the communicator outright or selectively process the information communicated so that their existing beliefs and knowledge systems remain unaltered. If a communicator assumes that the first situation exists and in reality one of the latter two operate then the communication will not be successful. Clearly communicators need to understand the nature of these existing knowledge systems or naïve theories if they wish to be effective at providing new information and better understanding.

In the present study two sets of questions are of particular relevance to this issue of understanding existing knowledge systems. The first were questions related to the World Heritage status of the GBR. The results from this study indicated high recognition of the World Heritage status of the GBR but limited and often inaccurate perceptions of the implications of World Heritage listing. A majority of the respondents, for example, believe that world heritage listing means greater restrictions on human activity than in other protected areas. A substantial minority also believed that World Heritage listing gives management responsibility to the United Nations over Australian governments. The existence of such confusion over World Heritage status and listing represents a major challenge. It is likely that beliefs that World Heritage listing means international control and management are associated with lessened supported for an agency responsible for a World Heritage area. It is also probable that if people believe there are greater restrictions on human activities than in other protected areas they may be concerned to see other activities, such as commercial fishing, taking place in area they believe to be World Heritage. Alternatively they may conclude that if they can see an activity such as Commercial fishing taking place in an area, that the area must not be part of the WHA and so may behave in a less appropriate manner. Communications about World Heritage status need to directly address these misconceptions. People need to be told that World Heritage listing is recognition of the importance of an area but that ownership and control remain within Australia. The concept of multiple use also needs to be more clearly explained.

The second set of questions of relevance here were those that examined perceived threats to the GBR. The three most popular responses to the open-ended question, what do you think are the three most serious threats to the GBR? were pollution/rubbish, general human impact and

tourism/tourists. Only 21% of respondents gave overfishing as a problem and only 9% specifically referred to agricultural run-off.

In the present study the answers were not probed for more detail and so it is not possible to state exactly what sort of pollution or human impact are being suggested. This issue will be addressed further in the recommendations for further research at the end of this chapter. A set of more structured questions provides, however, some more insight into these perceived threats. In the structured questions the Crown–of-Thorns was given the most serious rating for negative impacts followed by agricultural run-off and commercial fishing. In this structured question the lowest impact ratings were given for recreational fishing. This would suggest that the overfishing referred to in the open-ended question is commercial rather than recreational and might suggest that some of the pollution and human impact answers were referring to agricultural practices.

It is not the role of the present report to suggest which of these activities do have the greatest impacts on the GBR, but it is worth considering the implications for communication activities. For example, if evidence suggested that recreational fishing has, or has the potential for, major negative impacts, then any management regulation or action would have to be backed by a communication activity that attempted to change perceptions of the threat posed by recreational fishing. It would be difficult to expect support for restrictions upon recreational fishing if the public perception is that this is the least serious activity in terms of its negative impacts. In asimilar hashio only 9% of the respondents gave boats and anchors as a serious threat to the GBR. Support for restrictions to, or increased regulation of, anchoring and boating would require a communication campaign raising levels of concern over the potential impacts of these activities.

In addition to information on the nature of peoples' existing knowledge systems the survey also included a question assessing major information sources. When word of mouth and person experience are excluded, the three most commonly used sources of information about the GBR were Television, Magazines and Newspapers. Very small numbers of respondents listed radio, the internet and tourist information sources as used to gather GBR information. These results would suggest that wherever possible communication activities use television, magazines and newspapers as major media.

5.2 Implications for Evaluating Future Communication Activities

The results provide a baseline of information on the levels and types of knowledge with regard to the World Heritage Status of the GBR, the general state of the GBR environment and threats to the GBR. Should the GBRMPA or any other organisation conduct any communication activities with the aim of changing public knowledge in any of these areas the results of the present study could be used to judge post communication levels and types of knowledge. For example, a public education campaign designed to improve public understanding of the implications of World Heritage listing could be evaluated by comparing post campaign responses to questions about World Heritage listing to the responses gathered in this study. Increasingly agencies will be expected to be able demonstrate the effectiveness of their activities and communication activities are unlikely to be exempt from these pressures. The existence of this baseline data offers a major opportunity to conduct future evaluations in a cost effective manner.

5.3 More General Implications

It was suggested in the beginning of this chapter that this study has also provided some community feedback on the effectiveness of the GBRMPA in more general terms. This was not an original aim of the study but the results of the questions on why the GBR should be protected and the on the current and future status of the GBR are of sufficient interest to warrant further discussion. In the first instance the clear majority of the respondents did support the statement that the GBR should be protected because it is a Unique Australian Natural Environment. This gives support to management actions which place protection of the environment as a primary goal. Further support can be found in the open-ended question assessing major threats to the GBR. Only 17 respondents (1.8%) gave poor management as a response.

The questions assessing the current and likely future state of the GBR suggest a more complex set of issues. In the first instance the majority of respondents (66%), and especially those that have been to the GBR, believe that the GBR is currently in good or very good condition and only 12% stated that they thought it was currently in poor or very poor condition. It could be argued that this is in general a positive reflection on current management. The majority of respondents were however pessimistic about the future of the GBR with 51% stating that they believed that the GBR would be in a worst state in 10 years time than it is now. The question that arises is why are these people pessimistic. Firstly it must be remembered that it is very

common in public opinion surveys for people to be pessimistic about the future environmental status of any area. Thus it may be that these people are generally pessimistic about a range of environments, not just the GBR. Secondly, pessimists gave more detailed answers to the open-ended question on major threats suggesting that the may be better informed about the region. Arguably it is necessary to have some level of concern over the future status of an area to motivate action to protect it. Thus some degree of pessimism may be a good factor for successful management of a protected area. But it may also be that the pessimists have less confidence in the GBRMPA and other management agencies. This latter possibility cannot be explored with the current data but clearly provides a direction for further research.

5.4 Directions for Further Research

The most important set of questions arising from this study that require further research attention are those related to understanding the differences between pessimists and optimists. Specifically it would be useful to know if pessimists have different levels of knowledge of management activities and/or different perceptions of the success of management actions. It would also be valuable to examine the possibility that pessimism is related to a greater propensity to engage in minimal impact behaviours. If this were the case then it could be argued that some level of pessimism about the future environmental status of the GBR would be a useful motivating factor to encourage wise use.

Secondly it would be valuable to explore in more detail people's perceptions of threats to the GBR. The open–ended question did not probe general answers and so it is possible that the results reported in this study underestimate concerns about factors such as agricultural run-off. It would be recommended in further research that answers to these open–ended questions be probed for more specific detail.

Finally the present set of results indicated substantial differences in the perceptions of residents living in regions adjacent to the GBR. The aim of this study was to gather information from both these and other Australian areas and so the sample size for the Reef region is of necessity somewhat limited. In particular it was not possible to examine in detail differences in the knowledge systems and perceptions of particular groups such as recreational fishers or farmers. It is likely that a study which focussed on Reef region residents and which allowed for more detailed examination of the responses of various types of regional residents would provide additional information of value to the GBRMPA and other management agencies.

Post Script

These recommendations were discussed at a workshop with GBRMPA staff and a second telephone survey was develop to look specifically at Reef region residents, including farmers located in catchment areas, and to identify different types of users such as recreational fishers. In addition to a more detailed local sample, this second survey probed answers to open-ended questions in more detail and included many more questions on knowledge and perceptions of management actions and perceptions of their current or likely future success. In addition, more detailed questions on knowledge and use of minimal impact behaviours and of patterns of use of media were included. At this time the survey has been completed and analyses of the responses are currently being undertaken.

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APPENDIX A: LIST OF TOPICS CONSIDERED TO BE IMPORTANT FOR RESEARCH

A. World Heritage
What does world heritage mean in terms of who owns, and **is responsible for the GBRWHA**?
Why is the GBR a WHA?

B. Multiple Use
What do people think the term multiple use means?
What uses do they think are allowed in the GBR?
What uses do they think should be allowed/restricted in the GBR?

C. Reasonable Use
What sorts of development in the GBR are acceptable or reasonable use?
What sorts of activities are acceptable or reasonable use?

D. Zones
Do people understand that a zoning system is in place.
What do they think a zoning system involves.

E. Image of the GBRMPA.
Do people know who manages the GBR?
Do they believe that it is being well managed?
What are the activities do they believe the management agency should be responsible for?

F. Understanding Impacts on the GBR.
What things do they believe have negative impacts on the GBR?
This could involve ratings of seriousness/threat of the various impact sources.
Do people believe that their individual actions can have an impact on the GBR? If so, what are these actions?

G. Perceptions of the GBR itself.
Is it under threat? Is it fragile? Is it important to them? **Is it more important as an economic resource or a natural environment?**

H. Preferences for Information Sources.
What are the major channels used for information about the GBR.
What sorts of information sources/products would be preferred.
These questions could include ratings of usefulness/likely use of such things as publications/posters/TV/CD-ROMs/internet/visitor centres/travelling exhibitions/ or any other option used or considered by the GBRMPA.

J. Ownership/Rights of Use
Who owns the GBR?
Who should be able to use the GBR?
Who is responsible for looking after it?

NOTE: THOSE TOPICS IN BOLD WERE THOSE CHOSEN FOR INCLUSION IN THE 1997 SURVEY

APPENDIX B: SURVEY QUESTIONNAIRE

Just before I start the questions I would like to make it clear that when I use the words the Great Barrier Reef it includes the reef, its islands and surrounding waters.

1. How many times have you been to the Great Barrier Reef?

<table>
<tr><td colspan="2">__ Never been</td><td>_____
Record the number of times they have been.

If they say lots/too many to count,etc
write in frequent visitor in the space and any reason they give for frequent visits</td></tr>
<tr><td colspan="2">1a. Are you planning to visit the Great Barrier Reef?</td><td>1b. When was your last visit?

Record the date of the last visit_____</td></tr>
<tr><td>___ Yes

1ab. When are you planning to go?

_____ Record date

1aba. Please tell us the three activities that you would most like to do when you visit the Great Barrier Reef ?

_____
_____
_____</td><td>___No

1ac. Are there any particular reasons why you are not going
to visit the Great Barrier Reef?

_____
_____
_____</td><td>1bb. Please tell us the three activities that you most like to do when visiting the Great Barrier Reef?

_____
_____
_____</td></tr>
</table>

2. What three words or phrases would you use to describe the Great Barrier Reef?

_____
_____
_____

3. Thinking about the Great Barrier Reef in 10 years time. Would you say that the state of that environment will be:

____Better than it is now
____About the same as it is now
____Worse than it is now
____Or you don't know.

4. Thinking about the state of the Great Barrier Reef environment as it is now. How would you describe its condition?

____ Very good
____ Good
____ Poor
____ Very poor
____ Or that you don't know.

5. What do you think are the three most serious threats to the Great Barrier Reef?

_____
_____
_____

6. I am now going to read out a list of activities and I would like you to tell me if you think that are allowed on the Great Barrier Reef?

Traditional hunting ___Yes ____No ___Don't Know

(If they ask, traditional hunting refers to Aboriginal and Torres Strait Islander people catching animals that were traditionally hunted)

Aquaculture ___Yes ____No ___Don't Know

(If they ask, aquaculture refers to the commercial farming of things such as oysters and clams)

Commercial fishing ___Yes ____No ___Don't Know
Mining ___Yes ____No ___Don't Know
Sewerage disposal ___Yes ____No ___Don't Know
Recreational fishing ___Yes ____No ___Don't Know
Tourism ___Yes ____No ___Don't Know

(If they ask, tourism includes resorts on islands and on the coast, and trips out to the reef where people can go diving, snorkelling and coral viewing)

7. Now I have a list of descriptions of the Great Barrier Reef and again as I read them out I would like you tell me if you think they apply.

World heritage area	___Yes	____No	___Don't Know
Biosphere reserve	___Yes	____No	___Don't Know
Marine park	___Yes	____No	___Don't Know
National Park	___Yes	____No	___Don't Know
Economic development zone	___Yes	____No	___Don't Know

8. Which of the following two statements do you think is the most accurate:

___World heritage listing recognises the importance of an environment but permits economic activity to continue.

___World heritage listing means that there are greater restrictions on human activities than in national parks.

9. Who do you think is responsible for managing world heritage areas?

____ the United Nations

____ Australian governments

10. Now I am going to read out a number of things, which have been suggested as having negative impacts on the Great Barrier Reef. Could you give each of them a score in terms of how big an impact you believe each one has on the Great Barrier Reef. The scores can go from 0, which means no impact to 4, which means a very large impact.

The activities of tourists _____Score ____Don't Know
(If they ask, this refers to things such as snorkelling, diving and reefwalking)

Crown-of-Thorns _____Score ____Don't know
(If they ask, this is a starfish that eats coral)

Infrastructure for tourism _____Score ____Don't know
(If they ask this includes pontoons, or large platforms anchored on the reef, resorts and marinas and the boats that take people out)

Commercial fishing _____Score ____Don't know

Adjacent urban and industrial activity _____Score ____Don't know
(If they ask, this refers to the activities of residents and industries which are along the coast near the Great Barrier Reef)

Recreational fishing _____Score ____Don't know

Agricultural run-off _____Score ____Don't know
(If they ask, this refers to chemicals such as fertilisers and pesticides and soil which is washed into the sea from farms)

11. Which of the following four statements best describes why you think that the Great Barrier Reef should be protected

___ because it is a very good setting for leisure and recreation.
___ because it is a unique Australian natural environment.
___ because it is an important economic resource for Australia.
___ None as I am not very concerned about the protection of the GBR

12a. I am now going to list some places where you can get information about the Great Barrier Reef? Can you tell me which two are the most important for you?

___Friends or relatives
___Television
___Radio
___Newspapers
___Magazines
___Internet
___Personal experience

12b. Are there any other sources of information about the Great Barrier Reef that are important to you?

_____
_____

Finally we need a few details about you so that we can understand how different groups of people think.

13. Could you tell us which age group fits you best

___ less than 21 years
___ 21 to 30 years
___ 31 to 40 years
___ 41 to 50 years
___ 51 to 60 years
___ 61 to 70 years
___ more than 70 years

14. Which of the following best describes your domestic circumstances?

___ Single adult living with members of your family
___ Single adult living alone'
___ Single adult sharing with others
___ Living with spouse/partner with no children
___ A family with children still at home
___ A family with children not living at home.

15. How many people aged 16 years or older live in your household?

_____

If there are 4 or more people aged 16 years:

We are trying to get as broad a cross section as possible can I get someone else in the house to do the survey please.

Before they go say

Thank you very much for their help, the results of the study will be used by the Great Barrier Reef Marine Park Authority in the development of their management and planning for the Great Barrier Reef.

If there is someone else to do the survey start with the introduction and a new survey form Write on this form and the next - *same residence*.

If there is no one eligible, hangup and go to the next number.

APPENDIX C: INTERVIEWER INSTRUCTION SHEET

1. Take the call sheet and dial the number after dialling access code

ie dial *61*247951#0 then area code and then the number

2. What to do if you don't get an answer

If you get a Telstra message or disconnected signal write disconnected on call sheet and move on to the next number.

If you get a busy signal write busy in What Happened column and fill in Date and Time. In the Further Action column write call back and set aside to call back in about 30 minutes. If still busy on second attempt fill out second contact line on call sheet with Date, Time, still busy in What Happened column and call next session in the Further Action column.

If you get an answering machine, hang up and fill in first contact with Date, Time, answering machine in What Happened column and call next session in the Further Action column.

3. When you get an answer

Give the introduction and request their participation.

Good morning/afternoon/evening, my name is _____ and I am working for the Cooperative Research Centre for Reef Research at James Cook University. The Reef Research Centre is conducting a nationwide survey about public use of, and attitudes towards, the Great Barrier Reef. The results of the survey will be used to guide the development of policy for managing this area. The survey should take less than 10 minutes and any answers given will be confidential. As a token of appreciation for your time we are entering the phone numbers of those who participate into a draw for five books about the Great Barrier Reef.
Participation is voluntary but we would greatly appreciate it if you could spend the time giving us your opinions. Would you like to have your say in the management of this area by answering some questions ?

If they agree start the survey then go through it.

If you have difficulty communicating with the respondent because of Language difficulties, hearing problems or it's a small child. Apologise for intruding and hang up. Record on the call sheet Date, Time, and the nature of the communication problem in the What Happened column.

If they refuse, there is a two step process of

1. giving more information/ another option (see attached sheet) and asking again if they will participate, and

2 if they still refuse recording the reasons given for refusal.

If no reason is given for either the first or second request you can ask the following

It would be very helpful for us to know why you don't want to participate.

Then record this answer.

For every refusal we need a reason if possible

FURTHER INFORMATION/ANSWERS TO QUESTIONS

A. Responses to initial refusals

1. **If they refuse and say they are busy/its not a convenient time,** you can ask if you can call back at a more convenient time. If they agree, keep a time record this in the call sheet with new time and day written in the Further Action column. If they still refuse write refusal - and the reason given in the What Happened

2. **If they refuse and say they have never been to the GBR,** you can say That doesn't matter, we are interested in the opinions of all Australians and you don't have to have been there to answer the questions. Remember this answer if they agree so that you can skip the very first question. If they still refuse write refusal - and the reason given in the What Happened

3. **If they refuse and say they don't know enough about the GBR**, you can say That doesn't matter, we aren't testing your knowledge we are interested in your opinions about what should be done. If they still refuse write refusal - and the reason given in the What Happened

4. **If they refuse and say they are not interested in the GBR**, you can say We would still like to ask you the questions, it is important that we get a broad cross section of views on the topic. If they still refuse write refusal - and the reason given in the What Happened

5. **If they refuse and say they don't like doing surveys**. Apologise for intruding and hang up. Record on the call sheet Date, Time, and put refusal - don't like surveys in the What Happened column.

B. Requests for more information

You can repeat any of the information in the introduction if asked to.
Other information that may be requested could include

A. What is the cooperative research centre? It is a federal government funded research centre based at James Cook University and it is mainly concerned with research to assist better management of the reef.

B. Are we working for the Great Barrier Reef Marine Park Authority? No we are independent but they will be getting and using the results.

C. Can they get verification that this is a real survey?/If they would like to get the results Get them to call Gianna Moscardo at the Department of Tourism on 077 814254 in office hours for verification or further information.

D. What sort of questions will be asked? You can tell them that questions are mainly about patterns of use of the Great Barrier Reef, attitudes towards its management and perceptions of its current status.

E. How did they get picked?/How will the answers be kept confidential? Residential telephone numbers were picked at random from the white pages telephone book. You didn't pick the numbers a separate research team just wrote down a list of telephone numbers so you don't have any names only a number. No numbers are recorded on the survey forms so no one can ever tell who answered the questions.

F. What about the draw for the books? The telephone numbers are on separate pieces of paper and these will be put in a big box and in about three weeks time five numbers will be drawn out, then we will call the number and get an address to send the book to.

APPENDIX D: WORDS USED TO DESCRIBE THE GBR

Response	*F*	%
Beautiful/pretty	404	40.48
Splendid/tremendous	334	33.46
Unique/pristine	194	19.43
Colourful	176	17.63
Untouched	103	10.32
Big/large	101	10.12
Wonder of World	87	8.71
Interesting	67	6.71
Needs protection	59	5.91
Colourful fish	53	5.31
Holiday place	50	5.01
Abundant life	49	4.90
Great	47	4.70
Warm/hot	45	4.50
Good weather	44	4.40
Clear water/ocean	44	4.40
Lovely/nice	42	4.20
Coral/reef	42	4.20
Fun/enjoyable	41	4.10
Relaxing	39	3.90
Tropical paradise	38	3.80
Endangered	37	3.70
Peaceful	36	3.60
Diverse/varied	31	3.10
Valuable	25	2.50
Important	25	2.50
Australia	24	2.40
Picturesque	19	1.90
Blue	18	1.80
Wet/watery	17	1.70
Exotic	17	1.70
Inspirational	15	1.50
Worth seeing	14	1.40
Unappreciated	13	1.30
Fragile	13	1.30
Expensive	11	1.10
Educational	11	1.10
World Heritage Area	11	1.10
Scenic	9	0.90
Ecosystem	8	0.80
Scary/dangerous	8	0.80
Fishing	7	0.70
Remote	6	0.60

Response	*F*	%
Calm	5	0.50
Adventurous	5	0.50
Overpopulated	5	0.50
Cool	4	0.40
Touristy	4	0.40
Diving/snorkelling	4	0.40
Nice beaches	3	0.30
Sand	3	0.30
Wildlife	3	0.30
Memorable	3	0.30
Fresh	3	0.30
Shiny/sparkling	2	0.20
Islands	2	0.20
Everyone should have access	2	0.20
Rugged	2	0.20
Best	1	0.10
Not overcommercialised	1	0.10
Salty	1	0.10
Mysterious	1	0.10
Powerful	1	0.10
Great Barrier Reef	1	0.10
National Park	1	0.10
Overrated	1	0.10

APPENDIX E: MAJOR THREATS TO THE GBR: RESPONSES TO THE OPEN-ENDED QUESTION

MAJOR THREATS	No. of Respondents	% of Respondents
Pollution/rubbish	476	50.6
Human impact/general abuse	406	42.3
Tourism/tourists	297	30.9
Crown-of-Thorns	285	29.7
Oil spills/shipping	220	22.9
Overfishing	219	22.8
Too much development	122	12.7
Boats/anchors	89	9.3
Agricultural run-off	89	9.3
Mining	49	5.1
Natural Disasters	49	5.1
Sewage	32	3.3
Overpopulation	32	3.3
Environmental damage (unspecified)	30	3.1
Lack of education/awareness	19	2.0
Poor management	17	1.8
Governments (unspecified)	13	1.4
Global issues (unspecified)	12	1.3
Divers	10	1.0
Introduced species	6	0.6
Defence exercises	5	0.5
Algal growth	1	0.1
Aquaculture	1	0.1