THE ROLE OF WILDLIFE ICONS AS MAJOR TOURIST ATTRACTIONS

Case Studies: Monkey Mia dolphins and Hervey Bay whale watching

By Amanda Smith, David Newsome, Diane Lee and Natalie Stoeckl

SUSTAINABLE TOURISM CRC

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ABBREVIATIONS AND ACRONYMS

4WD	Four-wheel drive vehicle
CALM	Department of Conservation and Land Management, Western Australia
IFAW	International Fund for Animal Welfare
QPWS	Queensland Parks and Wildlife Service
STCRC	Sustainable Tourism Cooperative Research Centre
TWA	Tourism Western Australia

ABSTRACT

This study investigated the issues surrounding iconic wildlife in terms of both visitor perceptions and experiences and also in terms of the economic contribution of visitors to the destination. The methods employed consisted of a literature review and development and distribution of questionnaires to visitors and tour operators and an interview of managers at Monkey Mia, Western Australia and Hervey Bay, Queensland. It was found that the absence of dolphins from Monkey Mia would greatly detract from visitor satisfaction, with the opportunity to experience dolphins close up being the best part of the overall experience. Managers were of the view that there would be an economic impact on local businesses and on the tourism industry and staffing levels would have to be reduced both at CALM and at the resort. Operators indicated that they would change their itinerary and would consider no longer coming to Monkey Mia. Management felt that Monkey Mia would lose its identity if the dolphins were no longer present and there would be a reduction in visitor numbers. Similar findings were indicated at Hervey Bay in that an absence of whales would greatly detract from the visitor experience, while seeing whales close up, including along side of the boat, was the best part of the their experience. Managers and tour operators generally thought that if it was not possible to take a whale watching tour then tourists would still come to Hervey Bay but there would be a reduction in the number of visitors. Some operators indicated that a long-term absence of whales from Hervey Bay would result in them having to close their business and that there would be a large impact on local businesses and accommodation providers. Economic analysis shows that the residents of the Gascoyne are more dependent on wildlife icons for their livelihood than the residents of Hervey Bay, although the total visitor expenditure that is attributable to wildlife icons is approximately equal in both regions. This study highlights the importance of maintaining the icon and a high quality experience through interpretation and management of potential impacts. More importantly there is a need to diversify the tourism product that is currently available at both icon sites in order to alleviate problems that may arise as a result of dependence on wildlife icons.

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SUMMARY

Objectives of Study

Monkey Mia in Western Australia and Hervey Bay in Queensland were selected for this study. Each site utilises iconic marine wildlife in the form of dolphins and whales with the chosen destinations representing conditions on each side of the Australian continent. The study aimed to conduct empirical research in order to evaluate the following:

- The dependency of a regional tourism product on iconic wildlife
- To determine what other opportunities are viable if the situation surrounding a tourism 'icon' changes and the icon declines/disappears
- To determine what other alternatives are available should impacts become unacceptable or visitor experiences become degraded.

A secondary objective to support the above findings includes:

- An examination of the wider expenditure patterns of iconic wildlife visitors.

Methodology

The methods employed consisted of a literature review and development and distribution of questionnaires to visitors and tour operators and an interview of managers at Monkey Mia, Western Australia and Hervey Bay, Queensland.

Visitor Surveys were used to establish how, and to what extent, existing recreational opportunities within Monkey Mia Reserve and Hervey Bay were being used and conducted. Surveys were organized into four parts: Part I – most recent visit characteristics, Part II – purpose for visiting Monkey Mia/Hervey Bay, Part III – expenditure and Part IV – visitor characteristics. Questions in the survey addressed visit and visitor characteristics, visitor perceptions of current conditions, information about the dolphin/whale interaction experience, and information about expenditure.

Perceptions of tour operators travelling to and operating in Monkey Mia were sought via mail-back questionnaire. Nine tour operators of 20 that utilise Monkey Mia as part of their tour agreed to be surveyed. The Monkey Mia tour operator survey was organised into two parts. Part I – information about your tour and Part II – dolphins at Monkey Mia, which addressed the uncertainty of the wildlife tourism icon and how operators would be affected, what strategies they would put in place, how industry would react, and what other products or opportunities are available should the wildlife icon (Monkey Mia dolphins) decline or disappear.

For Hervey Bay the perceptions of commercial whale watching tour operators were sought by mail-back questionnaire. Of the 12 whale watching tour operators that utilise Hervey Bay, four agreed to be surveyed. The tour operator survey was organised into five sections: Part I – information about your tour; general tourism at Hervey Bay; whale watching at Hervey Bay; whale watching regulations at Hervey Bay; and the importance of whales to the local community and to individual businesses

Management interviews were of representatives from Conservation and Land Management (CALM), Monkey Mia Resort, Shire of Shark Bay and Yadgalah Aboriginal Corporation in Monkey Mia and from Queensland Parks and Wildlife Service (QPWS) and Fraser Coast South Burnett Regional Tourism Board Ltd in Hervey Bay. These groups are collectively referred to in this document as 'managers' or 'management'. Management and other important stakeholder interviews were conducted at a location and time convenient to each interviewee and lasted approximately one hour. A series of standardised questions were asked during a face-to-face interview. The interviews were semi structured which allowed interviewees the freedom to expand on their responses based on their individual experiences. Each interview was conducted in a conversational mode therefore the schedule of the questions was treated with some flexibility. The questions were open ended with the length and depth of response varying between questions and interviewee. Respondents were given considerable liberty in responding to questions and the interviewer who participated actively during the interview provided explanation or further expansion where required.

Key Findings

Managers of the Monkey Mia site suggested that if dolphin viewing was not available other experiences such as wildlife cruises, the stromatolites and interpretive walks would need to be promoted along with the possible development of a nocturnal wildlife viewing facility at a site in nearby Francois Peron National Park. Scope also remains for developing interpretive walks focusing of geological features, Aboriginal culture and birds. An expansion of the nature based tourism product could readily embrace bird watching, intertidal ecology, aspects of the natural vegetation and geotourism (tourism based on geological attractions). Such an approach could be achieved initially through appropriate marketing and product development. Product development based on other less well-known wildlife, appreciation of the wider ecosystem and geotourism requires trained and knowledgeable tour operators and guides.

Possible actions to reduce overcrowding problems include converting the existing jetty to a sole purpose viewing facility where only a ranger feeds the dolphins, adding an above water platform or constructing an underwater viewing facility akin to that currently operational at the end of Busselton Jetty south of Perth.

The way forward involves a wider nature based tourism plan that aims to set up workshops between management and tour operators followed by specific courses in expanding the product beyond dolphins. This would include courses in interpreting local native vegetation, intertidal ecology and landscape evolution. A second component would identify sites of interest and targeted areas that are likely to be frequently visited. Consultation with management needs to take environmental fragility into account along with an assessment of potential environmental impact. Sites may then be targeted for tourist usage and the necessary management put into place. Such actions may involve site hardening such as the development of walkways and infrastructure development such as the construction of viewing platforms. An appraisal of existing trails and infrastructure would help to determine the need for any additional developments in relation to expanding the nature based product at Shark Bay.

A strategy of alternative product development could also be applied to Hervey Bay with a greater focus being applied to nearby Fraser Island. The development of a visitor centre focusing on the wider marine ecosystem, whale biology, human relationships with whales and the management of tourism could be a focal point for promoting additional nature based tourism experiences in the region. A marketing strategy needs to be developed that accounts for management that is designed to mitigate negative impacts. Such a strategy needs to employ accurate expectations and contain information on what management is doing to reduce impacts and explain why.

In relation to disturbance of whales at Hervey Bay, the issue is of how many tour operator licenses should be agreed upon given that the visitor is dependent on tour operators for the experience that they desire. For example research is needed to determine if there are an optimum number of boats at a particular viewing experience in terms of potential impact on the animals and visitor satisfaction. The challenge will be to achieve this in the light of desired close contact, a situation that will need to be monitored for animal welfare as well as visitor satisfaction. Through licensing and education programs the viewing of whales may best be managed through tour operators. Queensland Parks and Wildlife Service may need to police the activities of private recreational vessels that may compete with official licensed operations. In the future an increased boat traffic seeking close encounters with whales may result in negative environmental impacts. This potential scenario needs to be monitored carefully through gaining accurate figures on boat traffic; visitor numbers and whale encounter data. An adaptive management system needs to be employed that is responsive to such monitoring data (e.g. Newsome, Dowling & Moore 2005).

Future Action

Shackley (2001) notes that in the case of wildlife attractions it is not possible to make universal guidelines as every case is site specific according to local environmental conditions, existing management and conservation strategies and the extent to which compliance with existing codes of conduct might occur. Shackley (2001) also observed that a number of case studies show that there is a lack of recognition of aspects of the wider ecosystem and that there remains a dearth of alternatives to the main animal attraction. A review of relevant literature and the case studies presented here lead to the conclusion that the following information would be immediately beneficial to the management of a particular wildlife icon site. Planning, management and long term sustainability entails a wider appreciation of visitor attitudes and changing directions in visitor satisfaction and definition of best practice at individual wildlife icon sites.

Existing wildlife icon sites require an assessment of the nature of the interaction opportunity and degree of manipulation that may be taking place. Visitor surveys can reveal public reaction to existing operations. Where a significant percentage of visitors find an existing operation unsatisfactory or otherwise this data can be used to judge public acceptance of revised management actions.

It is important therefore to establish the extent to which alteration of viewing experiences such as the provision of viewing platforms and restriction of access will impact on visitor experience. Before any plans for perceived rejuvenation and/or controls (such as further infrastructure developments) of destination product are instigated research should determine the potential impact on the quality of visitor experience.

Such information is important, as the modification of existing operations has been recommended in case of a number of significant existing wildlife attractions elsewhere in the world (see Shackley 2001). Moreover, where tourism involves searching for wildlife, sustainability is seen as depending on developing more stationary sites, limiting access where the sighting occurs, more efficient coordination of tourism operations, and better education of visitors (Shackley 2001).

Best practice situations need to be clarified. Defining best practice requires a review of opportunities, facilities and an assessment of the nature of the viewing experience. The viewing experience may be classified according to three possible situations: (1) the sighting, (2) close contact and (3) feeding wildlife. Situations 2 and 3 potentially constitute the greatest impact on wildlife as a result of increased vigilance, disruption of normal activities, stress, increased incidents of disease and risks to the visitor. Best practice could be fostered through marketing of natural experiences, certification of tour operators and development of an impact database.

Best practice wildlife tourism consists of the following:

- A natural experience.
- Quality interpretation
- Conservation initiatives
- Understanding impacts
- Adaptive management

Because each wildlife viewing situation is different involving many different environments, different tolerances of a wide range of species, sometimes distance viewing, sometimes close viewing, possible close contact with habituated species and structured feeding scenarios it is impossible to fully generalise across all areas. The common theme that emerges throughout however is the need for icon site diversification in the form of de-emphasising a single target species and in most cases reducing the emphasis on feeding and touching. A central conclusion to this work therefore is identification of the need to conduct nature based tourism product feasibility studies that eventually lead to a programme of product diversification at all wildlife icon sites. For example at Monkey Mia, due to large numbers of people and the possibility of conflict and overcrowding problems, the existing viewing arrangement is in need of review.

A central question in relation to wildlife icons is an understanding of how sustainability of the wildlife icon site can be improved. Additional research needs to be carried out with regard to auditing additional icon sites for impacts, visitor satisfaction, management effectiveness and opportunities for additional nature based attractions. In particular such research could explore the best protocols for wildlife impact assessment. All icon sites require a statement of best practice in relation to the promotion of natural experiences, well thought out and researched interpretive programs, value adding through linkage with conservation initiatives, the development of impact databases, monitoring systems and adaptive management.

Chapter 1

Introduction

Background

Natural resources are an important basis for the development of a tourism industry (Gunn 1993). A number of studies have indicated that one of the major motivational factors influencing visitors decision to travel to Australia, is the desire of tourists to experience aspects of the natural and cultural heritage (Allcock, Jones, Lane & Grant 1994; Burns & Murphy 1998; Kim 1994).

In Australia there are well-established tourism industries of international significance that are focused on charismatic or endangered species of animal, often referred to as iconic wildlife settings. For the purposes of this study, a brief exploration for a definition of a 'tourism icon' was undertaken. The term is commonly referred to in tourism literature (Corkeron 2004; Tremblay 2002) but a singular definition is elusive. It may be suggested that the term has moved into the tourism lexicon with a general understanding of the notion but without a clear definitive meaning.

Dictionary definitions of an 'icon' include:

1. *A representation in painting, enamel etc of some sacred personage, itself venerated as sacred* (Macquarie University 1994).
2. *An image, figure, or representation; a picture, 'cut' or illustration in a book; especially applied to the 'figures' of animals, plants, etc in books of Natural History* (Oxford University Press 2004).

In order to provide a working rationale for the term 'wildlife icon', it may be suggested that 'iconic' tourism sites and experiences have evolved around the notion of the sacred experience, enhanced by MacCannell's (1976) thesis of the modern tourist as being on a pilgrimage, moving from the 'profane' everyday routine to the 'sacred' experience of being a tourist (Graburn 1989). It may be argued that post-modern tourists have incorporated the sacred pilgrimage into 'a must see' focus for the purpose of their travels. Tourism Western Australia, is the government arm of tourism marketing in Western Australia and have defined their notion of a tourist icon where they state, '…the iconic significance of an attraction came from its ability to create a sense of awe in tourists, draw large numbers of visitors and be readily identifiable as West Australian'(Lam 2005). (MacCannell 1976)

Tremblay (2002), in his discussion of wildlife icons, notes the long spiritual relationship between resident human populations and animal species. He supports the notion that some species are representative (and therefore key images) of scarce natural environments. He suggests that wildlife icons are further enhanced by anthropomorphism, where tourists are able to empathise with attributed 'human like' qualities. The red back spider may be endemic and therefore unique in terms of Australian fauna but is not considered a wildlife icon, similarly the box jellyfish of northern Australia is not considered as iconic marine wildlife. Dolphins, with their long history of spirituality and associated anthropomorphism, have become a prime focus for wildlife icon research (O'Neill, Barnard & Lee 2004). Corkeron (2004) noted the emergence of whales as developing 'iconic value for the conservation movement in the 1970's' (p.848) and discussed the ecocentric, anthropomorphic approaches to the value of whales in a wider economic sense. Whilst not advocating whale watching, Corkeron suggested that, 'perhaps whales can have their iconic value refashioned. Perhaps the whale watching industry can use whales to help spread new messages about marine conservation' (p.848).

This report focuses on two Australian sites based on iconic wildlife experiences. Monkey Mia in Western Australia has developed as a tourist site, based on interaction with bottlenose dolphins. Hervey Bay in Queensland has enhanced its tourism opportunities through a focus on the annual arrival of lactating humpback whales and their calves. Both sites appear dependent on the 'sacredness' and images of their wildlife interaction, i.e. the notion of iconic wildlife.

This study aims to evaluate iconic wildlife in terms of intrinsic values through visitor perceptions and experiences and extrinsic values in terms of the economic contribution of visitors to the destination. Ecocentric approaches to the value of wildlife were not addressed in the study but it can be argued that by taking an anthropocentric view of the value of wildlife to the tourism industry, the study aimed to add to the ecocentric view rather than detract from it. Wildlife has a right to a healthy environment. History has shown that wildlife does not need 'management'; it is the interaction between humans and wildlife that needs to be managed. The mass movement of people through travel requires management. Tourist sites dependent on single icons require

management and those sites dependent on wildlife icons require very careful management.

The research aims to be of value to destinations reliant on a tourism icon, with a focus on those dependent on wildlife icons, which are wild and unpredictable by nature. Questions address the dependence of a site on a singular sacred pilgrimage to the icon, the extrinsic and intrinsic value of the icon to tourism in the Region based on the post-modern tourist's experience of the iconic nature of the destination. Researchers in the study believe in the importance of the management between humans and wildlife, findings aim to enhance both human and wildlife opportunities. Under current global conditions and particularly in tourism settings, each exist together and where symbiotic relationships can be developed (in the sense that one helps the other to exist) there is potential for positive outcomes in terms of both anthropocentric and ecocentric outlooks.

In this study, wildlife tourism icons include dolphins and whales. In Australia a substantial tourism industry has grown around viewing and interaction with these species resulting in icon dependent destinations. The sustainability of these operations has in recent times been questioned in relation to various influencing factors such as coral bleaching events, hunting in international waters, lobbying by animal rights groups and the impacts of tourism. Moreover, there is growing visitor dissatisfaction with management styles, over crowding and public concerns regarding proposed tourism developments. Managers are often faced with a lack of biological data and visitor wants and needs associated with the problem of potential negative environmental impacts, increasing tourism pressures and the lack of a well-defined policy on feeding wildlife. These factors at wildlife icons sites such as Monkey Mia call for an investigation into stakeholder attitudes and perceptions of such attractions, an exploration of new ways of managing tourism focused on icon species and an examination of alternatives should impacts, in terms of both wildlife and visitor, become unacceptable.

Aims and Objectives

With a focus on iconic tourism wildlife at two different but comparable sites, the aims of this study are to conduct empirical research in order to evaluate the following:

- The dependency of a regional tourism product on iconic wildlife
- What other opportunities are viable if the situation surrounding a tourism 'icon' changes and the icon declines/disappears
- What other alternatives are available should impacts become unacceptable or visitor experiences become degraded.

A secondary objective to support the above findings includes:

- An examination of the wider expenditure patterns of iconic wildlife visitors.

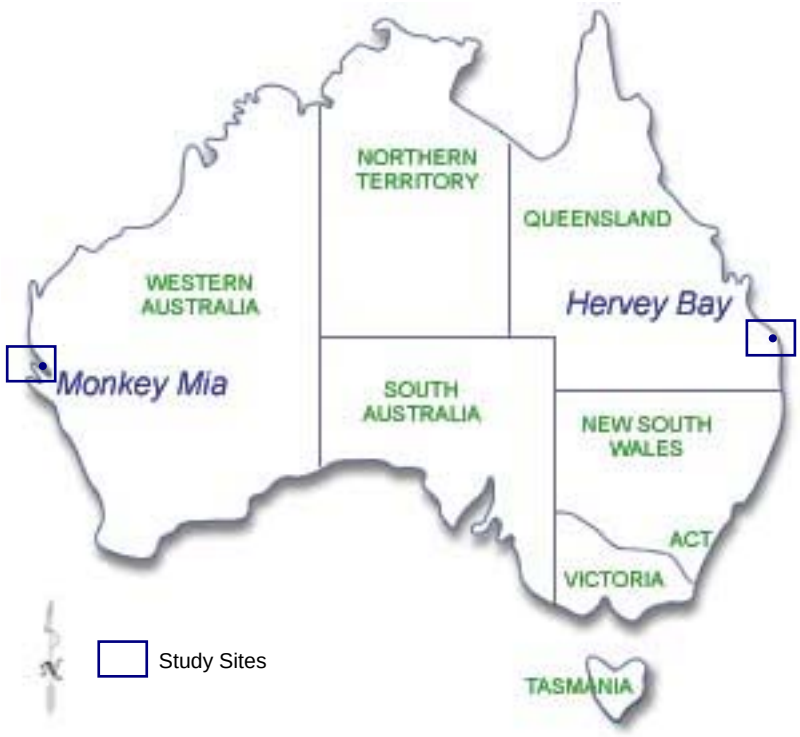
Chapter 2

Methodology

Selection of Study Sites

There are a number of sites within Australia that may be regarded as iconic wildlife sites such as the Northern Territory and crocodiles (Ryan 1998; Tremblay 2002); Phillip Island, Victoria and fairy penguins (Head 2000; Phillip Island Nature Park 2005); Fraser Island, Queensland and dingoes (Lawrance & Higginbottom 2002); Monkey Mia, Western Australia and dolphins (CALM 1993); and Hervey Bay and humpback whales (Corkeron 1995; Corkeron, Brown, Slade & Bryden 1994). In order to provide comparative sites with variety in conditions of their tourism product, Monkey Mia in Western Australia and Hervey Bay in Queensland were chosen (Figure 1). Each site utilises iconic marine wildlife of the order Cetacea (dolphins and whales) and the destinations represent conditions on each side of the Australian continent.

Figure 1: Location of study sites, Monkey Mia, Western Australia and Hervey Bay, Queensland



The Monkey Mia site in Western Australia is one example of a multi-million dollar tourism industry that has developed surrounding the viewing and feeding of wild dolphins. Local authorities report that dolphin tourism is the prime attraction for some 100,000 visitors to Shark Bay Region each year (CALM 1993). As many as 700 people can be in attendance at the Monkey Mia Dolphin Interaction Area each day and it is estimated that the population of the current food-provisioned dolphins is worth approximately $A30 million (CALM 1993; IFAW 2004). The problem is that the habituated dolphins are now mature adults and research has shown that careful management and supervision by researchers is necessary if new dolphins are to be introduced to the food-provisioned scheme (Mann & Kemps 2003). Furthermore, animal rights groups are opposed to the manipulation of wild dolphins for tourism purposes. In recent years visitor experience has also been clouded by over crowding, regimentation of feeding, loss of naturalness and a perception that the site is becoming over-developed.

These are issues that are faced by other species promoted as icons both in Western Australia and at the national level. The apparent reliance on just a few species or sites makes the Shark Bay and Exmouth Regions in

Western Australia of particular significance. As yet no one has explored how important dugongs are to tourism in the Shark Bay area. For example, information is needed as to the extent that dugong tourism is a viable alternative to feeding dolphins at Monkey Mia.

Whales are a major international tourist attraction and provide income for operators and the wider tourism community based in Hervey Bay. The question remains unanswered as to how viable the tourism industry will be if the whales stop visiting the region? Information is needed on the ability of the area to diversify its nature-based tourism experiences. In order to cater for increasing tourism demand there is a need to develop further sustainable wildlife tourism experiences

Methodology Overview

The methods applied in undertaking the before-mentioned study consisted of a literature review and development and distribution of questionnaires to visitors and tour operators and an interview of managers from various organisations at Monkey Mia, Western Australia and Hervey Bay, Queensland.

Management Interviews

Perceptions of managers at Monkey Mia, Western Australia were sought via personal interviews carried out in July 2004. All of those who were approached agreed to be interviewed. Management staff from the Department of Conservation and Land Management (CALM) (N=2) working in the study areas were contacted to be interviewed. Participants were staff that had a working and detailed knowledge of the study area and wildlife (dolphin) interaction (Appendix A). Additionally, the Shire of Shark Bay President, Manager of Yadgalah Aboriginal Corporation, and the Manager of Monkey Mia Resort were also interviewed. Perceptions of managers at Hervey Bay, Queensland were also sought via personal interviews carried out in August 2004. Management staff from the Queensland Parks and Wildlife Service (QPWS) (N=1) working in the study area and Fraser Coast South Burnett Regional Tourism Board Ltd (N=1) were contacted to be interviewed. Participants were staff that had a working and detailed knowledge of the study area and wildlife (whale) interaction.

Interviewees were initially contacted by email that included a request to participate and background information relating to the study. Participants were then contacted via telephone to establish a time to be interviewed. Participants were forwarded further background information that described the study, research objectives and the full set of interview questions closer to the time of the scheduled interview.

Interviews were conducted at a location and time convenient to each interviewee and lasted approximately one hour. Interviewees' permission and signed releases were obtained for the interviews to be recorded on tape in accordance with approval from Murdoch University Ethics Committee. The interview was recorded both in written form and by tape recorder. Notes were written down recording key words and concepts during the interview and a more detailed summary of the interview was completed immediately after each interview. Recorded notes were transcribed at a later date.

A series of standardised questions were asked during a face-to-face interview (Appendix B). The interviews were semi structured which allowed interviewees the freedom to expand on their responses based on their individual experiences (Frankfort-Nachmias & Nachmias 1992; Sarantankos 1993). Each interview was conducted in a conversational mode therefore the schedule of the questions was treated with some flexibility. The questions were open ended with the length and depth of response varying between questions and interviewee. Respondents were given considerable liberty in responding to questions and the interviewer who participated actively during the interview provided explanation or further expansion where required. The interviewer avoided personal bias, leading questions and suggestive questioning and conducted interviews as per informal guidelines recommended in Frankfort-Nachmias and Nachmias (1992) and Sarantankos (1993).

Visitor Survey

A written questionnaire was chosen to survey visitors rather than interviews because of the lower costs involved and to avoid personal influence and bias. Further, it was desirable that anonymity of respondents was maintained (Frankfort-Nachmias & Nachmias 1992). A combination of open- and closed-ended questions was included. Additionally, ranking was elicited so that the degree of importance relating to certain conditions could be obtained (Frankfort-Nachmias & Nachmias 1992). Leading or threatening questions were avoided. Onsite surveys were chosen as the most resource effective for the purposes of this study and to provide a more accurate recall of visitor experiences.

The Visitor Survey was used to establish how, and to what extent, existing recreational opportunities within Monkey Mia Reserve and Hervey Bay were being used and conducted (Appendix C). The visitor survey was organized into four parts: Part I – most recent visit characteristics, Part II – purpose for visiting Monkey

Mia/Hervey Bay, Part III – expenditure, and Part IV – visitor characteristics. Hervey Bay had an additional part that asked about the whale watching tour.

A sample of the population of visitors to Monkey Mia was surveyed onsite during the peak period for visitation (Western Australian July school holidays). Visitors involved in the dolphin interaction at Monkey Mia at the time of survey were approached by the researcher once the interaction was complete and asked if they would fill out a questionnaire. The survey was completed independently by visitors whilst in the Reserve and collected on site. The study population included people 18 years and over. Sampling was conducted over the course of six days (11th to 16th July 2004) between 8.00am and 1.00pm, including both weekdays and weekends. For Hervey Bay, a sample of the population of visitors involved in whale watching during the peak period for visitation were surveyed onsite. A range of experiences were sampled which included large and small vessels, half and full day trips on four of the eleven vessels operating in the Bay. All visitors at the time of survey were approached by the researcher on the return journey back to the harbour while still on board a whale watching vessel and asked if they would fill out a questionnaire. The survey was completed independently by visitors whilst in Hervey Bay and collected onsite. The study population included people 18 years and over. Sampling was conducted over the course of six days (23rd to 28th August 2004) including both weekdays and weekends.

The onsite survey approach had a high response rate at Monkey Mia (98.9%) and Hervey Bay (91.8%) therefore confidence is assured that a broad sample population of users were surveyed. At Monkey Mia, using a confidence level of 95% with a population of 2,342 (CALM visitor figures for total number of dolphin viewing visitors during survey period) a confidence interval of 4.84 was obtained. At Hervey Bay, using a confidence level of 95% with a population of 6,093 (QPWS visitor figures for total Hervey Bay whale watching passengers during survey period) a confidence interval of 5.39 was obtained.

Tour Operator Survey

For Monkey Mia, perceptions of tour operators travelling to and operating in Monkey Mia, Western Australia were sought via mail-back questionnaire in July 2004. The Monkey Mia tour operator survey was organised into two parts: Part I – information about your tour and Part II – dolphins at Monkey Mia, which addressed the uncertainty of the wildlife tourism icon and how operators would be affected, what strategies they would put in place, how industry would react, and what other products or opportunities are available should the wildlife icon (Monkey Mia dolphins) decline or disappear (Appendix D).

Staff involved in the development and planning of tours was contacted to be surveyed. All know operators utilising Monkey Mia as part of their tour (N=20) were initially contacted by email that included a request to participate and background information relating to the study. Operators were then contacted via telephone to establish a contact person after which further background information that described the study, research objectives and the questionnaire were forwarded via email to be completed and to be returned by either email or fax. A reminder to complete the survey was made a month later (August 2004) via telephone to encourage the return of questionnaires.

For Hervey Bay, perceptions of commercial whale watching tour operators were sought by mail-back questionnaire in August 2004. The Hervey Bay tour operator survey was organised into five sections: Part I – information about your tour; general tourism at Hervey Bay; whale watching at Hervey Bay; whale watching regulations at Hervey Bay; and the importance of whales to the local community and to individual businesses (Appendix D). All tour operators (N=12) involved in whale watching tours in Hervey Bay were initially contacted via email to request participation and given background information relating to the study. The questionnaire was also attached to the email. Participants were then contacted by telephone, given further background information that described the study, research objectives, and a verbal consent was sought at this time. Those that agreed to participate in the survey were requested to complete and return the survey via email or post. Surveys that had not been returned were requested while onsite in August 2004.

Generating Estimates of Regional Expenditure (Visitor Survey)

One of the aims of this research was to determine how reliant the residents of Hervey Bay and Shark Bay were on the wildlife icons for their livelihood. Clearly, if there are many different industries in an area, each generating substantial amounts of work, then income from icon tourism may simply supplement existing incomes. But if there are few industries, icon tourism may be of central importance. It is, therefore, important to look at how much the regions earn from icon tourism, relative to their total income.

Information was needed about how many tourists come to the region to see the icon, and how much they spend while there to estimate how much an region earns from icon tourism. The visitor survey collected information about visitor expenditure, and about reasons for visiting the region.

Many surveys typically ask respondents to nominate expenditure on various categories of goods while on

holidays. Questions such as 'How much did you spend on each of the following during your visit in the region?' can be quite taxing for respondents. Perhaps not surprisingly, surveys tend to have low response rates on questions about expenditure and the answers are not always very accurate (Breen, Bull & Walo 2001). In an attempt to overcome that problem and reduce respondent 'stress' visitors were asked to indicate the approximate amount that they and their personal travel group had spent per day on different categories of goods. This was done by asking them to tick an appropriate expenditure category, as per the example in Table 1.

Table 1: Amount spent ($A per day) while respondents were at wildlife icon

Item – Cost PER DAY	**$<20**	**$21-50**	**$51-100**	**$101-150**	**$>150**
Drinks or food from a takeaway	►	►	►	►	►
Meal in a café or 'family' restaurant	►	►	►	►	►
Groceries	►	►	►	►	►
Other supplies (e.g. film, maps, camping equipment, etc).	►	►	►	►	►
Drinks at a bar, hotel or nightclub	►	►	►	►	►
Tickets to local attractions/tours	►	►	►	►	►
Souvenirs	►	►	►	►	►
Other (please specify)	►	►	►	►	►
Item	**$<50**	**$51-100**	**$101-150**	**$151-200**	**>$200**
Accommodation	►	►	►	►	►
Hire cars	►	►	►	►	►
Fuel	►	►	►	►	►

When estimating expenditure, the mid-point of each expenditure category (e.g. $35 for the range $21 to $50; $75 for the range $51 to 100 etc.) was used, although the lowest amount (e.g. $150) for the top category was used. If respondents had ticked at least one box in the table but left other rows blank, then it was noted that they had spent $0 on that item.

This information is often reported in studies of regional tourism i.e. how much visitors spend on different types of goods and services while they are in a particular area. This is not a good estimate of the regional income that is generated by the wildlife icon. Some tourists, for example, may have come to Monkey Mia or Hervey Bay to visit friends or relatives. If they hadn't had the option of interacting with the wildlife icon, they may have simply spent their money doing something else. So one cannot rightfully say their expenditure is attributable or *caused* by the wildlife icon (rather, it is attributable to the fact that their friends and relatives live in the region).

In other words, total visitor expenditure doesn't tell a full and accurate story about the importance of the icon to the regional economy. To find out about that, it is necessary to determine how much visitor expenditure is directly attributable, or caused, by the icon. In order to calculate this, the following steps were taken:

First, respondents were asked to answer the following question(s):

- 'If whale-watching at Hervey Bay did not exist would you have still taken this trip to the Hervey Bay Region? (please mark one box only)'.
- If dolphin viewing at Monkey Mia did not exist would you have still taken this trip to the Shark Bay Region?

Table 2 shows the example response options.

Table 2: Example of response options if there were no whale-watching or dolphin viewing

a. Yes, we would have spent the same amount of time/number of days in Hervey Bay / Shark Bay	☐
b. Yes, but we would have spent less time/fewer days in Hervey Bay / Shark Bay	☐
c. No, we would have travelled elsewhere	☐
d. No, we would not have taken this trip	☐
e. Don't know	☐

Second, it was noted that visitors selecting option (a) would have come to the region with, or without, the icon, and may have spent the same amount of money (albeit on different things). Their expenditure was not accounted on the grounds that it was not *caused* by the icon. It was also noted that visitors who selected options *c and d* would not have travelled to the region at all if the icon had not been there, therefore all of their expenditure was counted (calling it EXP_{C+D}). It was also noted that visitors selecting option *b,* would not have stayed in the region for quite so long if they had not been able to interact with the wildlife icon, meaning that some, but not all, of their expenditure is attributable to the icon (called it EXP_B). It was therefore decided that the total amount of visitor expenditure that is attributable to, or *caused* by the icon would be more than EXP_{C+D} but less than $EXP_{C+D} + EXP_B$.

Third, an annual estimate of visitor expenditure that is attributable to the icon was generated by assuming that the sample of visitors was representative of the total population of visitors. Noting that the proportion of total regional icon visitor expenditure that is directly attributable to the whale is likely to be between:

$$P_{C+D} = EXP_{C+D} / \text{Expenditure by all visitors}$$

$$\text{and} \quad P_{B+C+D} = EXP_{B+C+D} / \text{Expenditure by all visitors}$$

Estimating the total annual expenditure of all icon visitors, as:

$$E_{Icon} = \frac{\text{Total respondent expenditure}}{\text{Number of respondents}} \times \text{Estimated number of icon visitors}$$

And then estimating the range of regional annual expenditure of Icon visitors that is directly attributable to the wildlife icon as between

$$(E_{Icon} \times P_{C+D}) \quad \text{and} \quad (E_{Icon} \times P_{B+C+D})$$

The figures derived should be considered as an estimate. The sample obtained for the purposes of this project were collected over a single survey period. Consequently, reported expenditure and responses to the hypothetical question regarding 'action' if the wildlife icon had not been at the destination from the sample of visitors may not provide a true representation of responses across the entire visitor population. Also, respondents may not have reported their expenditure correctly in the survey, or may have provided misleading information about what they would, or would not, do regarding time spent in the region if the icon had not been there. Nonetheless, the methodology is robust, and the estimates that are derived from it are 'plausible' when compared to other, similar studies, e.g. Breen et al. (2001), Hoyt (2001) and Suh and Gartner (2004).

Chapter 3

Case Study 1: Monkey Mia, Western Australia

Monkey Mia is located on the eastern shore of the Peron Peninsula, 25 km east of Denham and 856 km (9.5 hour drive) north of the capital city of Perth, in the Shark Bay World Heritage Area, Western Australia (CALM 1993) (Figures 2 and 3). Monkey Mia has high conservation and economic values for the Region and is one of the major attractions for visitors to Shark Bay (CALM 1993). Monkey Mia is renowned for the bottlenose dolphins (*Tursiops truncates)* that have been entering the shallows of the bay since the 1960s to interact with people on the beach and also to take fish from humans (CALM 1993). While the dolphins of Monkey Mia provide a focus for tourism in Shark Bay, they remain only a small part of the total spectrum of recreational opportunities in the Region. Recreational fishing is also a popular pursuit and includes boat, net and shore-based fishing (CALM 1996).

Monkey Mia consists of the terrestrial reserve, the Monkey Mia Reserve which covers an area of 477 ha, adjoining Shark Bay Marine Park at the high water mark, and the Shark Bay Marine Park which consists of 748,725 ha of A Class Marine Park Reserve[1]. Shark Bay is a large embayment, approximately 13,000 km^2 in area, with the majority of the marine reserves being less than 15m deep. There is a series of broad gulfs, narrow inlets and basins which are partly cut off from the Indian Ocean (CALM 1996). The Monkey Mia Reserve consists of three C Class[2] reserves that are collectively known as Monkey Mia. The main part of the Reserve is managed with the purpose of 'recreation', 3.75 ha is vested in the Shire of Shark Bay for the purpose of 'caravan park, chalets and camping', this is the land that the Monkey Mia Resort and its facilities are located upon. The final reserve is an unvested C Class Reserve of 0.4 ha that contains an historic gravesite (CALM 1993). The Reserve was jointly vested in the Executive Director, Department of Conservation and Land Management (CALM) and the Shire of Shark Bay in 1988 to recognise its recreational and environmental values (CALM 1993).

The terrestrial reserve is currently managed according to the Monkey Mia Reserve Draft Management Plan 1993 with access via the sealed Monkey Mia Road (Figure 3) (CALM 1993), while the marine park is managed according to the Shark Bay Marine Reserves Management Plan 1996-2006 (CALM 1996). The Midwest Region of CALM are responsible for the design of facilities, planning of recreation sites, the well-being of the dolphins (feeding and interaction policies), conserving natural values, and the preparation of interpretation and information material (CALM 1993).

[1] A Class Reserve: land shall forever remain dedicated to the purpose specified, until by Act of Parliament those lands are declassified (Bates 1995).
[2] C Class Reserve: land that may be revoked or altered by the minister (Bates 1995).

Figure 2: Map of Western Australia showing location of Monkey Mia and locality of Gascoyne Region

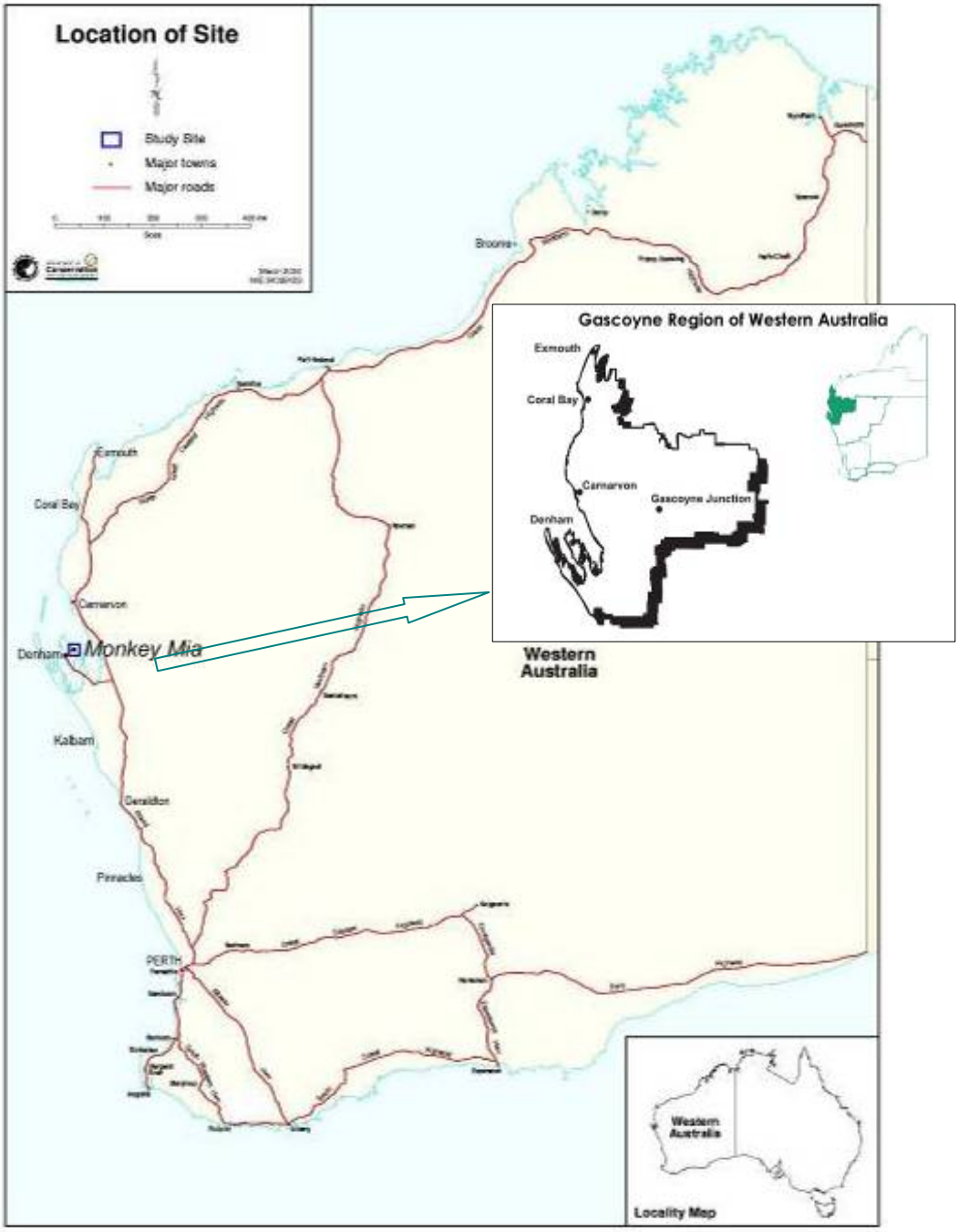
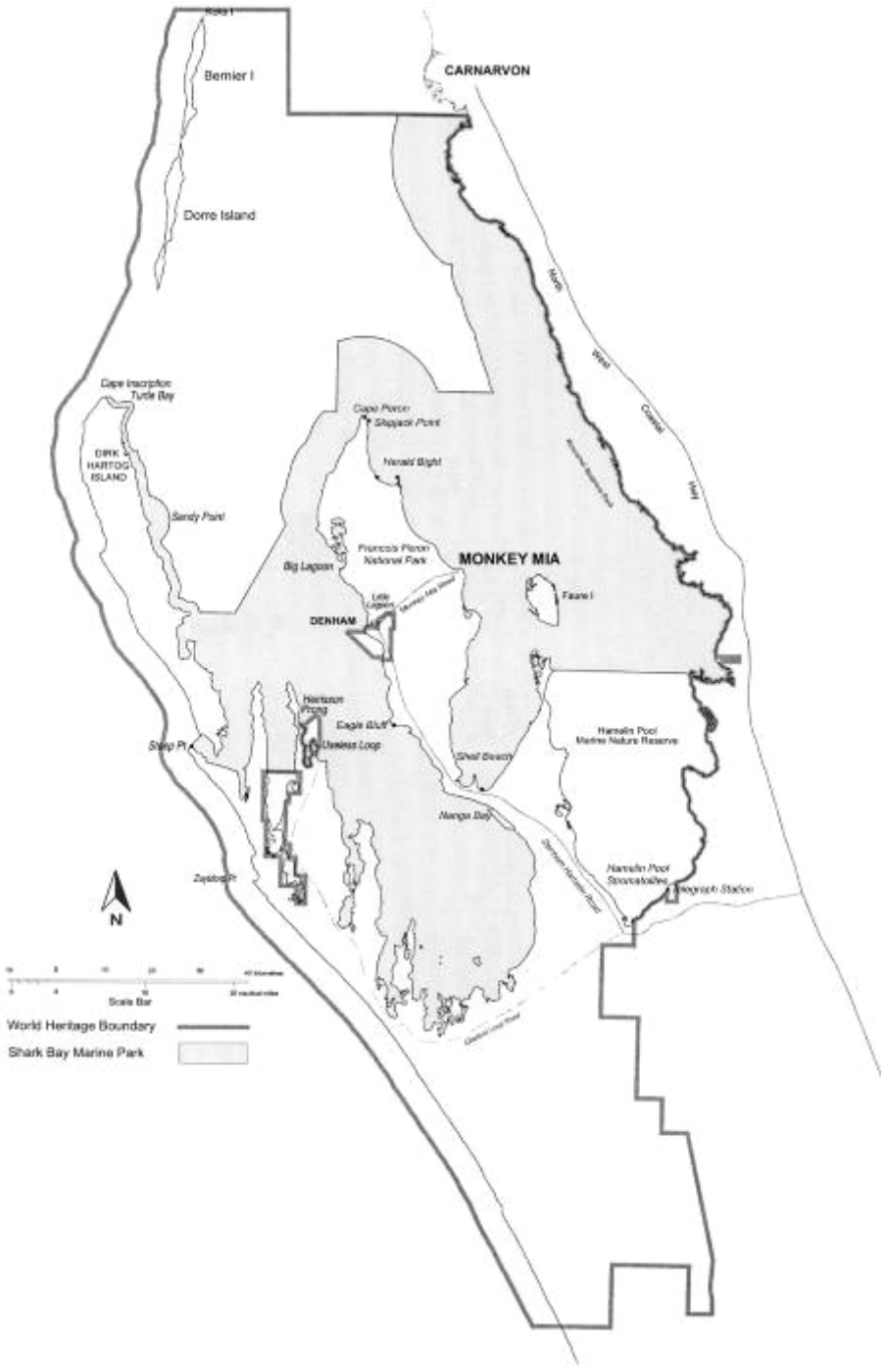


Figure 3: Map of Shark Bay showing location of Monkey Mia, Denham and World Heritage Area



Adapted from: (CALM 1996)

Marine Environment

The waters of Shark Bay Marine Park adjoining Monkey Mia are zoned for general use, which provides for commercial and recreational uses consistent with conservation of natural resources. Monkey Mia Recreation Zone is part of this area. This zone includes all waters up the high water mark within a radius of 800 m of the north west corner of the jetty at Monkey Mia (CALM 1996). No netting (including crab drop nets) or spear fishing are permitted. In addition, no jet skis, skiing or other high speed motorised water sports are permitted. The designated dolphin interaction area (between the jetty and 150 m west of the jetty) are gazetted as closed waters to all watercraft and all extracting activities are prohibited (Figure 4) (CALM 1996).

Figure 4: Monkey Mia including Dolphin Interaction Area, Visitor Centre, Monkey Mia Resort and Caravan Park

Adapted from Raffaele (2003)

Tides are the major cause of water movement in Shark Bay, varying between a spring range of 1.70 m and a neap range of 0.61 m at Carnarvon (CALM 1996). The waters at Monkey Mia are metahaline (40-56%) with minimum temperatures of 17°C to 18°C in August and a maximum temperature of 24°C to 26°C in February with little summer or winter difference between bottom and surface temperatures (CALM 1996).

Seagrass covers an area of over 4,000 km^2 of the Bay, with the 1,030 km^2 Wooramel Seagrass Bank being the largest known structure of its type in the world. There are 12 species of seagrass in Shark Bay, making it one of the most diverse seagrass assemblages in the world (CALM 1996). The most dominant species of seagrass is *Amphibolis antarctica* with Monkey Mia having a 20% to 60% seagrass coverage (CALM 1996).

Three hundred and twenty-three fish species have been recorded in Shark Bay. Of these, 83% are tropical species, 11% warm temperate and 6% cool temperate species (CALM 1996). In Monkey Mia, a survey conducted in 1977 that focussed on intertidal seagrass and adjacent sand flats recorded 58 species of fish, which is a large number of species compared to similar habitats elsewhere in the State and is probably due to the mix of tropical and temperate species (CALM 1996). There are also 218 species of bivalves and an abundance of sharks ranging from small school sharks (*Carcharihinus* spp.*)* to tiger sharks (*Galeocerdo cuvier)*, hammerhead sharks (family Sphyrnidae) and whalers (family Carcharhinidae*)* and rays including shovelnose rays (family Rhinobatidae), stingrays (e.g. family Dasyatidae) and manta rays (*Manta birostris)* (CALM 1996).

This mix of tropical and temperate species is due to the presence of the southward flowing Leeuwin Current, which brings in warm low salinity tropical water from the Western Australian continental slope and shelf. This current influences the distribution of marine fauna, is variable but mainly flows in autumn and winter (CALM 1996).

The most well known marine mammal of Monkey Mia is the bottlenose dolphin *(Tursiops truncates).* There are approximately 2,700 to 3,000 bottlenose dolphins that occur within Shark Bay Marine Park (Marsh 1994; Preen, Marsh, Lawler, Prince & Shepherd 1997). Of those, a group of up to eight dolphins visit the shore of Monkey Mia. Other marine mammals found in the adjacent water to Monkey Mia Reserve include the dugong (*Dugong dugon*), which is declared under the *Wildlife Conservation Act 1950* to be in need of special protection (CALM 1993, 1996; Government Gazette 2003). The dugong population is estimated at 10,000 and is one of the largest in the world (CALM 1996; Marsh 1994). Other marine mammals include: humpback whales (*Megaptera novaeangliae*), which use the Bay as a staging post in their migration along the coast and are sighted off the western shores of Dirk Hartog Island and the Zuytdorp Cliffs; southern right whales (*Eubalaena australis*) which are sighted occasionally; whale sharks (*Rhincodon typus*); and killer whales (*Orcinus orca*) which have been reported in South Passage and Sandy Point on the eastern coast of Dirk Hartog Island (CALM 1996). Two species of turtle inhabit the reserves, the green turtle (*Chelonia mydas*) and the loggerhead turtle (*Caretta caretta*). The hawksbill (*Eretmochelys imbricta*) and the leatherback turtle (*Dermochelys coriacea*) have been seen in the reserve but are uncommon (CALM 1996). Other reptiles include six species of sea snake, including the Shark Bay sea snake (*Aipysurus pooleorum)* which is unique to Shark Bay (CALM 1996).

Terrestrial Environment

Shark Bay has a semi-arid to arid climate, experiencing hot, dry summers and mild winters. Average summer

temperatures range from 20°C to 35°C and average winter temperatures range from 10°C to 20°C (CALM 1993, 2000). The average annual rainfall is low (200 mm) with most rain falling between May and July. The area is influenced by southerly winds for most of the year, with summer winds commonly blowing for several days at 25 km/hr. Periodic summer/autumn cyclones are infrequent, however winds of 70 km/hr to 110 km/hr can be generated, with gusts up to 180 km/hr (CALM 1993, 2000).

Unconsolidated red dunes composed of quartz sand overlaying the Peron Sandstone dominate the Reserve. This adjoins white quartz sand dunes forming a strip between the red dunes and the beach (CALM 1993). A section known as Red Bluff is where the red dunes meet the coast directly forming a short steep cliff. The Peron Sandstone breaks through the overlaying sands in several areas of the Reserve with the most noticeable being in the small caves close to Monkey Mia. The soils at Monkey Mia are prone to erosion. The area has a maximum elevation of approximately 30 m above sea level and is generally undulating (CALM 1993).

Monkey Mia Reserve is in the Carnarvon Botanical District containing four landform units: white coastal dunes, coastal sand plain, red sand plain and saltpans or birridas. The red sand plain is the dominant landform of the Reserve, comprising approximately 80% of the land area (CALM 1993). The vegetation is dominated by *Acacia ramulosa*. There are no declared rare flora on the Reserve, nor species on CALM's priority flora list (CALM 1993).

Monkey Mia Reserve is important habitat for the thick-billed grasswren (*Amytornis textilis)* (declared as priority taxa under CALM's threatened fauna database). Comprehensive surveys have been conducted for birds, but not for mammals, retiles and amphibians on Monkey Mia Reserve (CALM 1993). Native mammals known to occur on the Peron Peninsula are the common dunnart (*Sminthopsis dolichura),* Euro (*Macropus robustus*) that are known to occur on the Reserve, spinifex hopping mouse (*Notomys alexis*), sandy inland mouse (*Pseudomys hermannsburgensis*), greater long-eared bat (*Nyctophilius timoriensis*) and the white striped mastiff bat (*Nyctinomus australis*) (CALM 1993).

Aboriginal and Cultural Heritage

There is evidence that Aboriginal people (the Mulgana people) occupied Monkey Mia at least 1,000 years ago according to archaeological test excavations (Bowdler 1995). Evidence in the Shark Bay area indicates a longer occupation (18,000 to 30,000 years ago), with sites indicating a predominantly seafood diet being dated to around 6,000 years ago (CALM 1996) (Figure 5). Five Aboriginal sites that include rock shelters, midden sites, quarries and artefact scatters have been identified in the Monkey Mia Reserve. These sites are located very close to the shoreline and animal skeletal remains indicate that the Mulgana people lived predominantly near the sea. While there is evidence that some land mammals were exploited, the main food source was of a marine origin such as crabs and shellfish with the exploitation of dugongs and turtles being a relatively recent phenomenon, falling within the last 100 years (Bowdler 1990, 1995).

Figure 5: Timeline of events at Shark Bay and Monkey Mia

1000s	Evidence of Aboriginal occupation (Mulgana people) at Monkey Mia
1616	Dirk Hartog landed at Cape Inscription (Dirk Hartog Island) as the first known visit of a European to Western Australia
1697	William de Vlamingh visited Cape Inscription replacing Hartog's plate and replacing it with his own
1699	William Dampier named the area 'Sharks Bay'
1772	Fracois de T. Allouran landed at Cape Inscription claiming the area for France
1792	Whaling in the area until 1963
1801	Baudin's French expedition explored the area
1818	De Freycinet explored the area
1850's	Guano mining, establishment of commercial pearl shell collection and fishing industry
1890s	Monkey Mia settled by pearlers and given its name
1912	Cannery and processing works established at Monkey Mia
1930s	Pearling industry collapsed and fishing became Shark Bay's main industry
1960s	Four fish processing plants operating in the area
	Bottlenose dolphins hand fed at Monkey Mia by local fishers
1975	Caravan park established
1985	Denham-Hamelin Road sealed and information centre constructed
1988	Denham-Monkey Mia Road sealed, car park re-developed, toilets installed and landscaping implemented
1989	Caravan park re-developed and upgraded, Monkey Mia Resort built
1990	Waters adjoining Monkey Mia Reserve declared Marine Park
1991	Shark Bay listed as World Heritage Area
2001	Monkey Mia Visitor Centre officially opened
2003	Monkey Mia Resort upgraded to included backpackers/youth hostel accommodation

Shark Bay has a long standing European history containing the site where Dirk Hartog erected his plate at Cape Inscription (Dirk Hartog Island) recording the first known visit of a European to Western Australian soil on 25 October 1616 (CALM 1996, 2000; Shire of Shark Bay 1998). There were subsequent visits by the Dutch navigator William de Vlamingh in 1697 and Englishman William Dampier in 1699 who explored the area for seven days and named the area 'Sharks Bay' (CALM 1996). Following from this, Frenchman François de T. Allouran landed at Cape Inscription in 1772 and claimed the area for France by burying two French coins and a parchment in a bottle. In 1801, Baudin's French expedition explored the area followed by De Freycinet in 1818 (CALM 1996). As a result many of Shark Bay's islands, bays and landmarks are named after the French who explored the area (CALM 1996).

Whaling occurred in the area from 1792 to 1963 but there are no known land sites associated with the industry. Commercial pearl shell collection started in the 1850s as did guano mining on Shark Bay's islands (CALM 1996). In 1890 Monkey Mia was settled by pearlers and given its name. The reserve was originally gazetted in 1890 for the purpose of 'Government Requirement', following a request by a pearler for land to depasture sheep. Monkey Mia was used as a base for the pearling and fishing industries, which at the time had a population of 135 (CALM 1993). Aboriginal people also have been closely involved in the pearling, fishing and pastoral industries since the 1850s (CALM 2000). Chinese, Malay and British settlers also worked in the pearling industry and by the early 1900s these ethnic groups had become integrated with the Aboriginal inhabitants (CALM 2000). The pearling industry collapsed in the Depression and fishing became Shark Bay's main industry (CALM 1996). A cannery and processing works were established at Monkey Mia in 1912 with

fishing reaching its peak in the 1960s when four fish processing plants were operating in the area (CALM 1996).

In the 1960s, local fishers began feeding bottlenose dolphins at Monkey Mia in the shallows of the bay when they returned with their catch. This attraction led to a caravan park being established in 1975 (CALM 1993). Visitation at this time was still relatively low, approximately 10,000 people, due to difficult access, lack of facilities and a lack of public awareness of its attractions (CALM 1993). In 1985 the Denham-Hamelin Road was sealed bringing more visitors to the Shark Bay Region (CALM 1993). At this time, an information centre was constructed at Monkey Mia and in 1986 a boat ramp, entrance tollbooth and barbecues were established (CALM 1993).

In 1988 a State Government grant provided monies for the Denham-Monkey Mia Road to be sealed, car parks and toilets to be developed and for landscaping (CALM 1993). At this time, an influx of visitors came to Monkey Mia over a short period of time as a result of improved access and an increased public awareness of dolphins interacting with people at Monkey Mia. As a response, the caravan park was redeveloped and upgraded in 1989/90 (CALM 1993). This redevelopment included the construction of the Monkey Mia Resort. In June 2001 the Monkey Mia Visitor Centre was completed to provide a focal point for visitors so that more could be learnt about the dolphins and other marine wildlife. In 2003, the Resort was further upgraded to included backpacker/youth hostel accommodation.

In 1991 Shark Bay was listed as a World Heritage Area. It was nominated on the basis of its natural values and was one of only 11 places on the World Heritage List, at the time of listing, to satisfy all four natural criteria. These criteria are as shown in Table 3.

Table 3: World Heritage Area Values and relative features in Shark Bay

World Heritage Area Value	Relating Feature in Shark Bay
1. Outstanding examples representing the major stages of Earth's evolutionary history;	▫ Stromatolites and hyper saline environment of Hamelin Pool
2. Outstanding examples representing significant ongoing geological processes, biological evolution and human interaction with the natural environment;	Examples: ▫ Hamelin Pool Stromatolites and Ooid shoals (limestone sands caused by precipitation of calcium carbonate from hyper saline waters) ▫ Faure Sill ▫ Wooramel Seagrass Bank
3. Certain unique, rare or superlative natural phenomena, formations or features of exceptional natural beauty;	Examples: ▫ Exceptional scenery including part of Zuytdorp Cliffs, Shell Beach, and the birradas, lagoons and coastal cliffs of Peron Peninsular;
4. The most important and significant habitats where threatened species of plants and animals of outstanding universal value from the point of view of science and conservation still survive.	Examples: ▫ The peninsulas and island provide refuge for migratory and threatened fauna, including 5 threatened mammal species on Bernier and Dorre Islands Nature Reserve, and breeding sites for seabirds. ▫ Diverse marine fauna including the dugong and a focal point for genetic divergence. ▫ The botanical transition zone between the Eucalypt dominated Southwest Botanical Province and the Acacia dominated Eremaean Botanical Province.

Source: CALM (1996, 2000)

Dolphin Interaction at Monkey Mia

Monkey Mia has the reputation of being the only reported case of dolphins regularly interacting with humans over a long period of time (Orams 1994, 1995, 1997a). As discussed previously, survey's conducted from 1989 to 1994 indicated that approximately 2,700 to 3,000 bottlenose dolphins occur within Shark Bay Marine Park (Marsh 1994; Preen et al. 1997). Of those, a small group of dolphins come to the shore of Monkey Mia. Five to eight dolphins are considered as 'regular' visitors to the shore, with about another 20 being infrequent visitors (CALM 1993). The 'regular' dolphins visit the beach at Monkey Mia on most days, although dolphin visits vary with season, tides, natural social activities and are reduced in summer during the breeding season (CALM 1993).

In the 1960s, local fishers began feeding bottlenose dolphins at Monkey Mia when they returned with their

catch, as mentioned previously (Figure 6). At least eleven adult dolphins (no more than seven adults at any one time) have visited Monkey Mia to accept fish hand-outs and touching from fishers and tourists standing in knee-deep water (Mann & Kemps 2003). Monkey Mia is the only area where a significant long-term relationship between a group of dolphins and humans has developed (Orams 1994).

Figure 6: Dolphin being fed from boats prior to regulations (pre 1994)

Photo: D. Charles

Hand feeding continued throughout the 1970s with fishers typically feeding fresh fish and some tourists feeding frozen bait fish to dolphins (Mann & Kemps 2003). Visitation to Monkey Mia was largely seasonal (March to August) due to cooler temperatures and calm waters (Mann & Kemps 2003). In 1981 frozen fish from Perth was defrosted and sold to the public, which caused a significant change to the feeding pattern due to a constant supply of fish year round (CALM 1993). Management of visitor interaction was initially undertaken by the proprietors of the caravan park (1975 to 1985). In 1986, Denham Shire Rangers were stationed in the area (Orams 1994, 1997a). The feeding situation remained the same until 1987 when freshly caught local fish were substituted for frozen fish (Figure 7) (CALM 1993). With increasing visitor numbers there was constant pressure from visitors for more fish to be provided to allow the opportunity to feed the dolphins resulting in increased amounts being offered to dolphins. This raised concerns over possible dependency and nutritional deficiencies with dolphins receiving up to 5 kg per day, their total daily requirement (CALM 1993). A total of 35 kg of fish per day was being used. This practice was reviewed and in September 1987 the total fish allowance was reduced to 21 kg to 28 kg per day and was further reduced in June 1988 to 15kg per day (CALM 1993).

Figure 7: Dolphin interaction at Monkey Mia in 1987

Source: (Edwards 1987)

In December 1988 the Dolphin Interaction Area was gazetted, which closes the water to navigation by all craft and swimming is not permitted in order to protect the dolphins from injury and to minimise disturbance to visitors in the interaction area (CALM 1993). The Dolphin Interaction Area is an area that extends approximately 45 m offshore from the high tide mark and 90 m west of the jetty. This area is marked with the use of buoys.

In February 1989 the sale of fish ceased and Shire rangers regulated the feeding of the 'regular' dolphins with visitors being selected by rangers to give designated dolphins fish. Feeding from boats was discouraged. The fish allowance was further reduced to 2 kg per day for each provisioned dolphin, which is based on providing one third of the dolphins average daily consumption (CALM 1993). Denham Shire rangers managed

the interaction from 1986 until 1996 when CALM took over management of the interaction and supply of fish.

With increasing popularity of visitors coming to Monkey Mia to interact with dolphins it was realised in the mid 1990s that there was a necessity to put in place management practices to deal with the issues involving dolphin interaction. Wilson (1994) reviewed dolphin management at Monkey Mia and recommended a range of measures so that management strategies ensured the sustainability of the dolphin-human interaction. Significant changes to feeding strategies and overall management were recommended. These changes were implemented in 1995 and included:

- Only adult female dolphins are provisioned. They are fed a maximum of 2 kg of fish per day, rather than averaging daily amounts over the entire month as done previously. Restricted to no more than three feeds per day. Feeding times vary between 8am and 1pm (this encourages dolphins to spend afternoons offshore, socialising and foraging for wild food) and are variable and dependent on when the dolphins come in-shore.
- Juvenile dolphins are not provisioned (up to four years old). At the age of 10 years, daughters of provisioned female dolphins may be considered for introduction into the feeding programme. As was the case with Piccolo in 2002.
- Male dolphins are not provisioned (this reduces the incidence of aggressive acts such as biting people during feeding or aggression to other dolphins that may occur with male dolphins, as reported in other locations by Orams (1997). Also, sons infrequently associate with their mothers post-weaning).
- No touching of dolphins permitted, and unregulated feeding (e.g. from boats) is strongly discouraged.
- Visitor information is given during the dolphin interaction. Rangers impart information over a PA system broadcast at the beach during the interaction about dolphin biology, behaviour, the feeding regime and information to prevent inappropriate dolphin interactions. They also provide information about other activities and attractions in the Shark Bay Region.
- Changes to feeding regime included: In preparation for feeding, rangers ask visitors to move out of the water; buckets are then bought down to the water and each ranger takes a bucket to a specific female (Figure 8). The feeding begins with rangers selecting one person at a time and asking them to approach each bucket. The ranger hands each person a fish and they feed it to the dolphin head-first. After they have given the fish to the dolphin, they are asked to leave the water immediately so the next person can be called. The last fish is offered to each dolphin simultaneously to avoid competition over buckets. After the final fish is offered, the buckets are tipped over and dipped in the water to show the dolphins that the feed is over. The entire feeding regime usually takes three to five minutes. The dolphins almost always leave the dolphin interaction area within five minutes after the feed.
- Pelicans are fed on the beach at the same time as the dolphins to reduce the incidence of pelicans competing with dolphins for provisioned fish (Figure 9).

(Kent & Coker 1992; Mann & Kemps 2003; Wilson 1994)

Figure 8: CALM Rangers preparing for dolphin feed (December 2004)

Photo: D. Lee

Figure 9: CALM Rangers feeding pelicans during dolphin interaction

Photo: A. Smith

Currently four adult females, Nicky (29 years), Surprise (24 years), Puck (28 years) and Piccolo (12 years) are provisioned. Their calves Yadgalah (2 years), Burda (2 years), India (7 months) and Eden (1 year) respectively also come inshore but are not provisioned. Kiya (7 years) and Shock (10 years) are also non-provisioned adult females that regularly come in to shore. Piccolo was introduced to the provisioning programme at the age of 10 years old in October 2002 (Samuels, Charles & Flaherty 2003b). The reasoning behind this is that by 10 years, female dolphins have established their social and hunting skills, their survival skills are well developed and it is considered that there will be little adverse effect to their natural behaviour and health if introduced to the feeds (Samuels et al. 2003b).

Alternative activities to viewing the beach dolphins are offered by two commercial operators. These operators give the opportunities for visitors to view other marine wildlife. The vessels (Shotover and Aristocat2) offer a variety of tours and currently take passengers to different sites to minimise congestion. Additionally, Monkey Mia Pearl operates tours to the pearl lease (The Blue Lagoon Pearl Farm) west of Monkey Mia. The trip is a 20 minute boat trip from Monkey Mia. The pearl farm offers a pontoon experience learning about seeding, cultivating and harvesting pearls.

Impacts on Dolphins from Provisioning

Concern for provisioned dolphins has been emerging as a result of developing research findings (Bejder & Samuels 2003; Mann & Kemps 2003; O'Neill et al. 2004). A number of deleterious effects of feeding have been documented for both dolphins and humans. These include alteration of natural foraging, resting and social behaviour, disruption to breeding behaviour and possible deleterious effects on reproductive success, loss of wariness of humans leading to injuries from boats or from people who may regard them as pests, indiscriminate acceptance of food possibly leading to ingestion of harmful or contaminated substances, deleterious effects on health and increased exposure to health risks, distribution and ranging patterns, or access to preferred habitat, and can result in aggressive behaviour (including biting of patrons, sexual aggression towards patrons, rough behaviour with patrons, pushing swimmers away from shore and butting swimmers in the chest) causing injury to humans (Bejder & Samuels 2003; Constantine 1999; Mann & Kemps 2003; Neil & Brieze 1998; Orams 1997a, b, 2002; Orams, Hill & Baglioni 1996; Samuels, Bejder, Constantine & Heinrich 2003a; Wilson 1994). Some of these impacts will be discussed in further detail below.

Several incidences have been reported where dolphins, through habituation, have lost wariness therefore resulting in dolphins being harassed, injured and killed by humans. Of particular interest are situations where dolphins that have socialised with humans have been deliberately harmed. For example, Wilson (1994) commented on a sociable bottlenose dolphin at Bunbury in Western Australia that was reported to have been killed by a 'star-picket' thrown by a local fisherman. Additionally, a dolphin named 'Old Charlie' was reportedly shot at Monkey Mia in Western Australia (Orams 1997b). GBRMPA (2000) also reported an incidence in South Australia where two bottlenose dolphins that washed ashore had been shot. Killing cetaceans is prohibited under Commonwealth *Whale Protection Act 1989* and *Environmental Protection and Biodiversity Conservation Act 1999* and each State also has legislation which protects cetaceans (GBRMPA 2000).

Dolphins have also been known to cause injury to humans. Orams et al. (1996), Orams (1997a, 1997b, 2002), and Samuels et al. (2003) reported situations where dolphins that have become used to frequent human contact resulted in people being bitten, forceful contact or 'pushy' behaviour of dolphins towards tourists feeding them, swimmers being pulled under water or pulled out to sea, dolphins attempting to copulate with people, and causing injuries severe enough to require stitches and hospitalisation. An extreme case occurred in Brazil where a man who was harassing a wild dolphin was killed when the dolphin rammed him in the chest. Wilson (1994) also reported situations at Monkey Mia where dolphins became aggressive inflicting injuries on people.

One of the major threats to dolphins is when the health of the marine ecosystem is compromised, particularly in situations where human activities result in marine pollution (Orams 1997b). Deleterious effects on health were reported at Monkey Mia in 1989 as a result of a sewage leaching into the marine environment where dolphins were provisioned exposing them to human pathogens (Wilson 1994). The Environmental Protection Authority undertook an investigation in 1989 as a result of the death of a six week old dolphin calf (Koorda calf of Holey Fin) at Monkey Mia on January 23, 1989, which was closely followed over the next 18 days, by the absence of the two remaining calves, three adult males and a juvenile from the 'regular' group of dolphins that visit Monkey Mia, a total of seven dolphins (Environmental Protection Authority 1989). The calves were assumed to have died because they were still nursing from their mothers at the time of their disappearance and the adults presumed dead because they were never seen again by researchers involved in ongoing monitoring (Wilson 1994).

The disappearance of these dolphins represented a drastic departure from the beach feeding dolphins' normal behaviour during this time, while the behaviour and health of offshore dolphin populations seemed unchanged (Wilson 1994). The report suggested that considerable amounts of sewage were leaching into the marine environment that was likely to be coming from the septic systems from the Monkey Mia caravan park and the information centre and therefore the obvious source of contamination, however a causal link to the death and disappearance of the dolphins was not implied (Environmental Protection Authority 1989).

Orams (2000) also reported a case where nutritional health risks to provisioned dolphins in Florida, USA, were compromised when dolphins were illegally fed non-natural food such as bananas, potato chips and spoiled fish. There have also been reports of dolphins being directly harmed through humans feeding wild dolphins old bait, candy bars, bread, pretzels, beer, hooks baited with fish and golf balls (Constantine 1999; Orams 1997b). Anecdotal evidence given by Monkey Mia rangers also reports of similar inappropriate foods being fed to dolphins prior to the feeding regime that is now in place.

Feeding dolphins can have significant risks for calves born to provisioned dolphins. Historically, provisioned female dolphins were found to have significantly lower calf survivorship than wild-feeding females in Monkey Mia (Bejder & Samuels 2003; Mann, Connor, Barre & Heithaus 2000; Mann & Kemps 2003). Additionally, provisioned mothers were shown to socialise and forage significantly less often while in the provisioning area. A comparison conducted between provisioned and non-provisioned mothers and their offspring between 1985 and 1993 showed that calf survival for provisioned dolphins was 36% and for non-provisioned dolphins was 67% (Wilson 1994). An example of calf mortality of a provisioned dolphin was the death of Hobbit, calf of Holeyfin. Hobbit was killed by a tiger shark near the jetty while Holeyfin was being fed fish from tourists about 70 m away (Mann & Kemps 2003). Holeyfin subsequently defended Hobbit's carcass from the tiger shark, suggesting she might have prevented the death had she not been pre-occupied (Mann & Kemps 2003) (Figure 10). Other attacks on provisioned dolphin calves from sharks have been reported, Welcome was attacked in 1992 but survived and Finnick was attacked in 1993 but also survived (Wilson 1994).

Figure 10: The body of Hobbit after a shark attack, March 1994

Source: (D. Charles, CALM)

Prior to the changes in feeding practices, discussed previously, 11 of 12 nursing calves born to provisioned dolphins died between 1987 and 1994 (Mann et al. 2000; Mann & Kemps 2003). Since changes to feeding have

been implemented there has been a decrease in calf mortality to provisioned dolphins. In the seven years since the restrictions were in place, no nursing calves have died and all six have survived to weaning (Mann & Kemps 2003). Mann and Kemps (2003) suggested that the primary cause of the high calf mortality of provisioned dolphins was due to poor maternal care (neglect). The changes to feeding has been successful because it reduces the amount of time that mothers and calves spend in the provisioning area (from 2.7 to 2.8 visits per day in 1991-1994, to from 2.0 to 2.2 visits per day in 1995-1999), thus reducing the amount of time that calves were neglected.

It should also be noted that there are some potential positive benefits for dolphins associated with human/dolphin interactions. Orams (1997b) reports of the important part that play has in dolphins' behavioural routine. Consequently many dolphins find unusual objects and activities, such as interacting with humans, stimulating and an opportunity for play. Orams (1997b) also suggested that dolphins that are exposed to regular interaction with humans might learn to avoid risks, such as fast moving vessels, engine propellers and hooks. Samuels et al. (2003) reported a study that contradicted the statement by Orams (1997b) of dolphins avoiding risks with boats. Samuels et al. (2003) reported a situation where a spotted dolphin calf that was habituated to tour vessels suffered life-threatening wounds presumably from a boat propeller. Additionally, behavioural studies of dolphins interacting with boat based tours show that dolphins are often disturbed by the presence of tour vessels resulting in changes in behaviour including avoidance, and disruption to resting and socialising behaviours (Bejder 2005; Constantine 1999; Constantine, Brunton & Baker 2003; Constantine, Brunton & Dennis 2004; Lusseau 2003; Lusseau & Higham 2004; Nichols & Stone 2001).

Interacting with dolphins can also have many positive benefits for humans. These can be psychological, educational and economic benefits. Dolphins interacting with humans results in extremely positive feelings of enjoyment and connection with nature for humans and these experiences may result in humans adopting more environmentally responsible attitudes and practises that may have indirect long term conservation benefits for dolphins (Orams 1997b). Education programs associated with dolphin/human interactions can result in significant learning. For example, Orams (1997b) reported a study conducted at Tangalooma, Moreton Island, Queensland, Australia where dolphins are provisioned and a commentary is given, which revealed that tourists who received educational material as part of their experience with the dolphins improved their knowledge about dolphins and marine environmental issues.

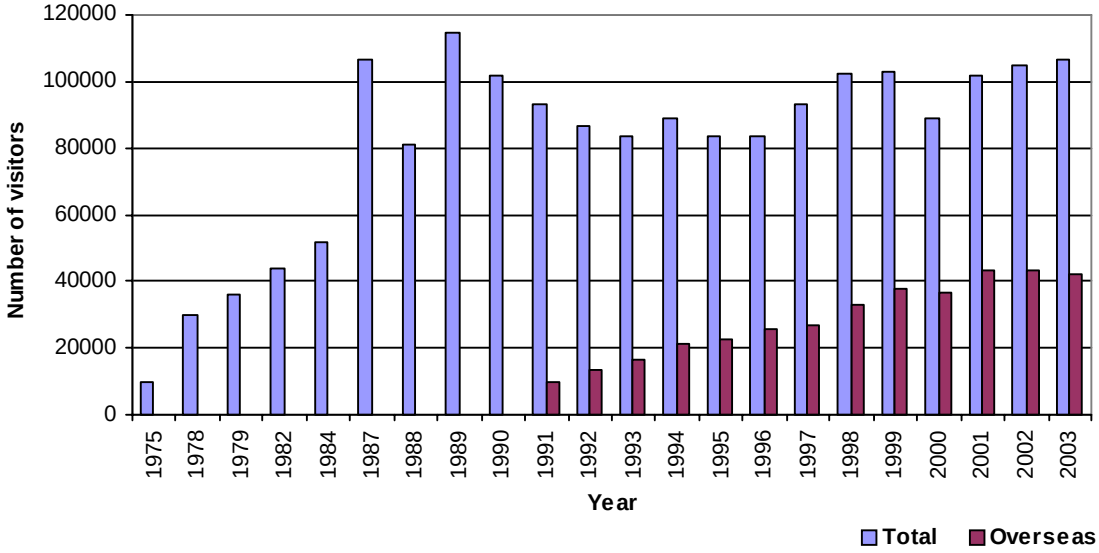
Economic benefits were highlighted in a report by Hoyt (2001) where it was stated that in 2001 whale watching, which also includes dolphin watching and other wild dolphin based tourism, occurred in over 87 countries and territories, attracting more than 9 million participants a year and was a $1 billion USD industry. In many places, whale watching provides valuable, sometimes crucial income to a community, with the creation of new jobs and businesses. It helps foster an appreciation of the importance of marine conservation and offers communities a sense of identity and considerable pride.

The political importance of recreation and tourism in natural areas is discussed by a number of authors (Butler & Butler 1992; Davis 1984; Hough 1987; McNeely & Thorsell 1988). When tourists visit natural areas they feel a part of nature and so will encourage the government to look after the natural environment thereby providing the conservation lobby with stronger support.

Current Recreation Use

Actual visitor numbers before 1987 are not available. However, estimates have been made using other road and tourism surveys. International visitor numbers are available from 1991 when CALM started to record this detail. Since 1977 visitor numbers per annum have ranged from 10,000 to 114,335 (Figure 11). The sharp increase in visitation from 1984 to 1987 is due to access to the Shark Bay Region being more amenable to two wheel drive vehicles and coaches with the sealing of Denham-Hamelin Road. The highest visitation at Monkey Mia was in 1989, which coincides with the sealing of Denham-Monkey Mia Road and the opening of Monkey Mia Resort and facilities. Since 1998, visitor numbers have stabilised with the mean visitor numbers per annum being 101,170 (Figure 11).

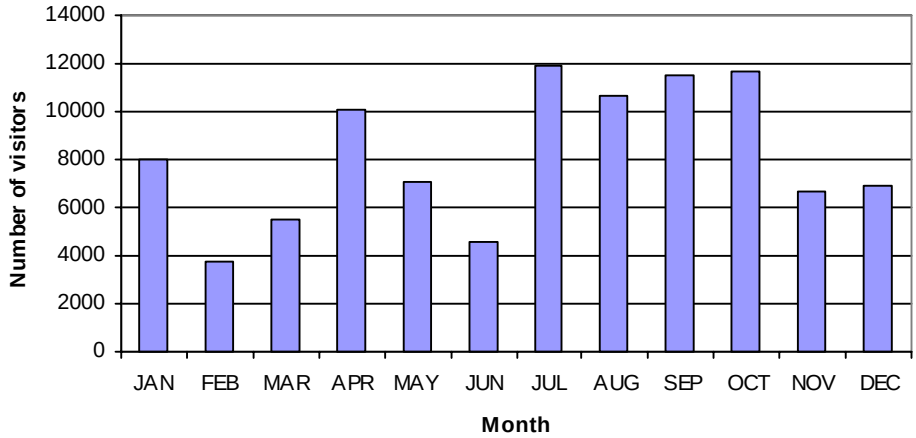
Figure 11: Annual visits to Monkey Mia Reserve (1975 to 2003)



Source: CALM VISTAT (CALM unpub.)

Monthly visitor figures over a three-year period (2000 to 2002) were averaged (Figure 12). Distinct peak periods occur during Western Australian school holidays. July is the most popular month and February is the least popular. The lower visitor numbers in the summer months (December to February) are in part, due to the hot and windy conditions experienced in the Region, while the mild winter (June to August) months are preferred.

Figure 12: Average monthly visits to Monkey Mia Reserve (2000 to 2002)



Source: CALM VISTAT (CALM unpub.)

Monkey Mia Visitor Survey Results

This section reports the results from the Monkey Mia Visitor Survey July 2004 (Appendix C). The results relating to the social survey are presented in the following parts: visit and visitor characteristics; other places visited and activities; reasons for visiting; and dolphin watching experience. A total of 360 Monkey Mia Visitor Surveys were distributed at Monkey Mia, of those 356 were returned, representing a response rate of 98.9%.

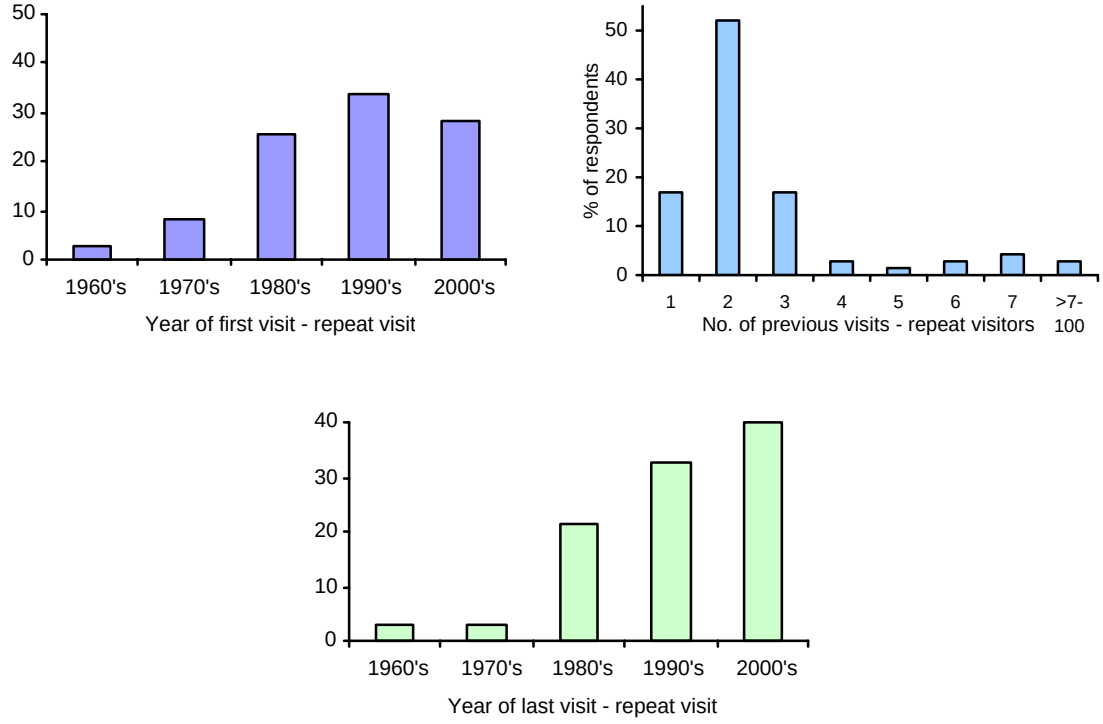
Visit and Visitor Characteristics

This section reports on the results of Part I and Part IV of the Monkey Mia Visitor Survey July 2004 (Appendix C). The questions in this section focused on respondents' most recent visit to Monkey Mia. Questions addressed characteristics such as previous visit history; length of stay of most recent visit; type and size of group; type of

transport and accommodation; and respondents' origin, age bracket and gender.

First time visitors to the Monkey Mia represented 70% of all respondents (N=356). Of those who had previously visited Monkey Mia (N=72), the year of first visit ranged from 1958 to 2004 with the majority of respondents visiting since the development of the resort in 1989. More than half of the repeat visitors had visited the Reserve on at least two occasions with the year of last visit since the development of resort in 1989 (Figure 13).

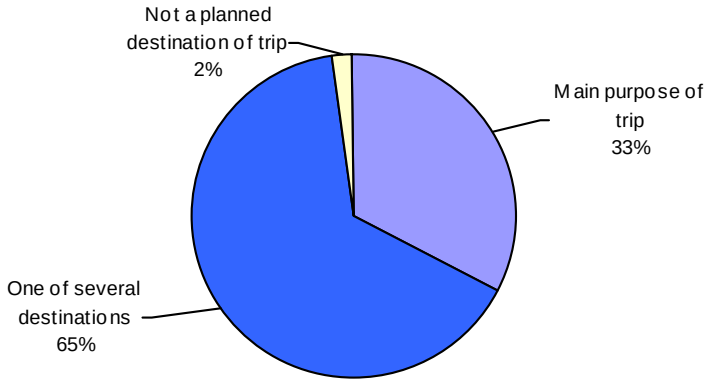
Figure 13: Year of first visit, number of previous visits and year of last visit to Monkey Mia for repeat visitors (N=71)



A number of social surveys of visitors have been conducted in the Monkey Mia and Shark Bay area. The earliest survey was conducted in 1988 at Monkey Mia by the Western Australian Tourist Commission (WATC 1988). A total of 177 visitors were surveyed at Monkey Mia over a four-day period (8th to 11th August, 1988). The findings above are similar to the WATC 1988 survey where the majority (72%) of the respondents were first time visitors to Monkey Mia and the Shark Bay Region (WATC 1988). More recent surveys were conducted by CALM over a six- to eight-day period at Monkey Mia in May 2002 (N=200), October 2002 (N=96) and June 2003 (N=86). Similarly, these surveys also found that the majority of respondents were first time visitors to Monkey Mia (CALM 2002a, b, 2003). Further, Smith and Newsome (2004) conducted a survey in December 2003 (N=207) over a six-day period and also found that the majority of visitors (85%) were first time visitors to Monkey Mia.

Findings of this current study indicated that the majority of respondents (65%) stated that Monkey Mia was one of several destinations on this trip, while 33% stated that it was the main purpose of the trip (Figure 14). These results indicate that Monkey Mia is part of a multi-destination trip by visitors.

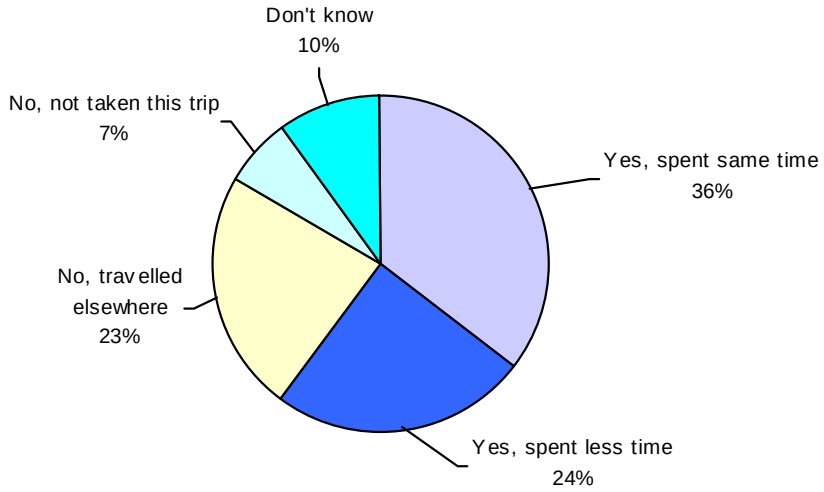
Figure 14: Travel patterns of visitors to Monkey Mia Reserve (N=348)



The study by Smith and Newsome (2004) support these findings with 75% of their respondents indicating that Monkey Mia was one of several destinations. However, a lower proportion (19%) stated that visiting Monkey Mia was the main purpose of their trip. This may be in part due to respondents in 2003 mostly being from overseas, the survey period not being during school holidays and in the lower visitation period of summer (December).

Respondents were asked whether they would they still have taken this trip to the Shark Bay Region if dolphin viewing at Monkey Mia did not exist. As shown in Figure 15, 36% of respondents would have taken the trip and spent the same amount of time/number of days in Shark Bay. A further 24% replied that they still would have taken the trip but would have spent less time/fewer days in Shark Bay while 23% would have travelled elsewhere. This suggests that 60% of the visitors surveyed would still have visited the Shark Bay Region in the absence of dolphins.

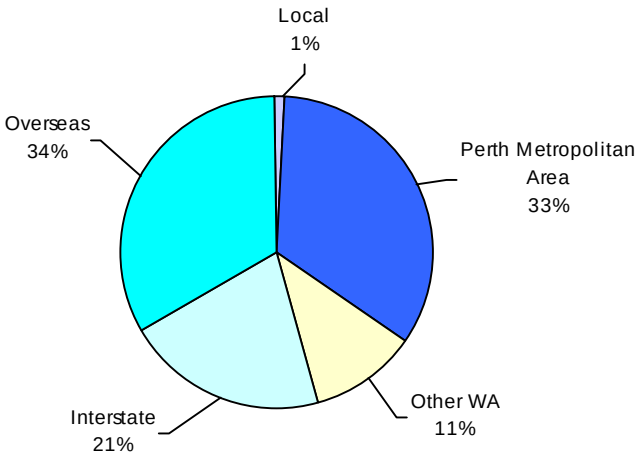
Figure 15: If dolphin viewing at Monkey Mia did not exist would you still have taken this trip (N=355)



Visitor Origin

The origin of visitors surveyed indicated that the majority of respondents normally live in Western Australia (45%) with 33% coming from the Perth Metropolitan Area (Figure 16). Thirty-four percent of respondents were from overseas of which 78% were from Europe with 50% coming from United Kingdom and 13% coming from Germany while 10% of respondents were from New Zealand, 7% were from Canada and 6% were from USA. Twenty-one percent of the respondents were interstate visitors from Victoria (16%), New South Wales (13%), South Australia (4%), Queensland (2%) and Tasmania (1%).

Figure 16: Respondents usual place of residence (N=353)



In the CALM surveys, the highest proportion of respondents were visiting Monkey Mia from overseas (49% in May 2002, 31% in October 2002 and in June 2003), followed by interstate visitors (30% in May 2002, 26% in October 2002 and 25% in June 2003). For Western Australia visitors, only 21% were represented in the May 2002 survey with 14% of visitors being from the Perth metropolitan area. In October 2002, 43% of respondents were Western Australian visitors with 32% being from the Perth metropolitan area. While in June 2003, 44% were Western Australians with 25% of visitors being from the Perth metropolitan area (CALM 2002a, 2002b, 2003). In December 2003, the majority of respondents were from overseas (62%) followed by Western Australia (26%) and interstate (12%) (Smith & Newsome 2004).

The results that the majority of respondents were Western Australians is similar to other studies conducted in non-marine based studies elsewhere in Western Australia. Other Western Australian studies found that visitors generally live relatively close to the area visited and are often from urban areas (Morin, Moore & Schmidt 1997; Smith 2003; Smith & Newsome 2002). Alternatively, and in contrast with studies conducted in Monkey Mia and Shark Bay since 1995, other Australian dolphin interaction and viewing studies show that the majority of respondents were from overseas and interstate (Mayes & Richins 2004; O'Neill et al. 2004; Smith & Newsome 2004). The higher proportion of Western Australians in this study however could be, in part, due to the survey being conducted during the Western Australian July school holidays.

Travel Party

Respondents were most likely to visit with family (31%) as a couple (30%), with friends (13%) or as part of a tour group (13%) (Figure 17). Groups mostly consisted of two persons (39%) followed by four (19%) and one (10%) person. The majority of groups consisted of two adults (55%) with no children (67%) (Table 4). Cross tabulation between type of group and group size showed that the number of adults in a group sized larger than 10 people were mostly part of a tour group and that groups that included children were smaller than seven people.

Figure 17: Type and size of group with whom respondents visited Monkey Mia (N=353)

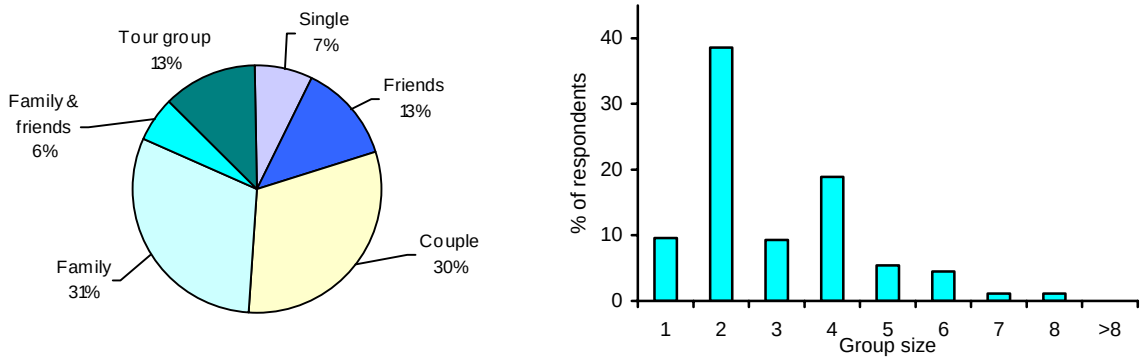


Table 4: Construct of group including total group size and group composition of respondents at Monkey Mia (N=355)

Total number of adults	% of group	Total number of children	% of group
		0*	67
1	12	1	9
2	55	2	13
3	9	3	4
4	12	4	4
5	2	5	2
6	2	6	2
7	1	7	-
8	1	8	-
9	1	9	-
10	1	10	-
>10	7.6	>10	-

*Most groups had no children

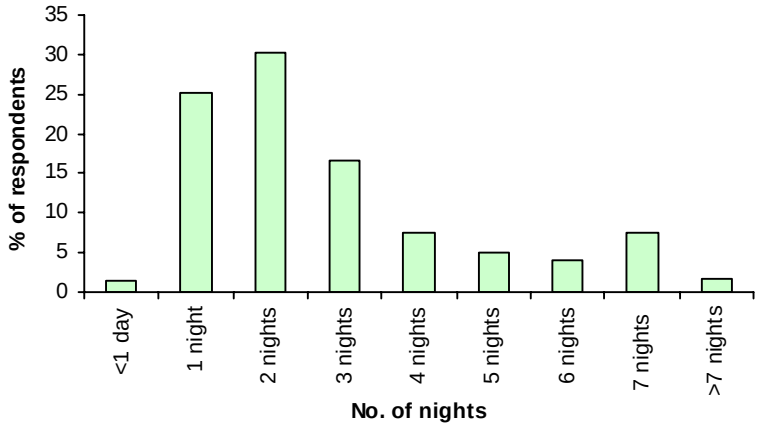
The 1988 WATC survey also found that travelling group sizes were two persons (58%) consisting of two adults followed by three to four persons (25%) with family groups represented by 16% of the survey sample (WATC 1988). A further visitor survey conducted in October and November 1995 to assist with tourism marketing strategies and infrastructure planning by assessing visitor satisfaction to the Shark Bay area (N=752) found that the highest proportion of respondents were travelling as couples (38%) followed by family group (25%) or with friends (19%) with the most common travel group size was two people (46%), then four people (15%) (Reark Research 1995). The surveys in the CALM Monkey Mia Reserve Visitor Survey Program also showed that the majority of visitors to the Reserve came in friendship or family groups (CALM 2002a, 2002b, 2003). The survey conducted by Murdoch University in 2003 had a higher proportion of respondents visiting in couple (40%) or friendship (19%) groups than this current survey with groups consisting of two persons (58%) followed by four (12%) and three persons (10%) (Smith & Newsome 2004).

Findings of this current study are consistent with other natural area studies where party size is generally small, with the majority of visitor parties comprising from two to four people and most individuals participating as family, friendship, or mixed family and friendship groups (Hall & Shelby 1998; Lucas 1990c; Morin et al. 1997; Polley 2002; Roggenbuck & Lucas 1987; Smith 2003; Smith & Newsome 2002). Hammitt and Cole (1998) found that the type of group in which one participated and the structure of the members within the group are determinants of outdoor recreation behaviour and can influence the amount and type of impacts occurring to the natural area. It was found that organised and friendship groups often use resources differently than family groups with friendship groups being more likely to succumb to peer group pressure and engage in activities such as vandalism.

Duration of Visit

The length of stay during the respondents' most recent visit to the Shark Bay Region was typically for two nights (30%) followed by one night (25%) with a range of one to 90 nights (Figure 18). The average length of stay was two nights.

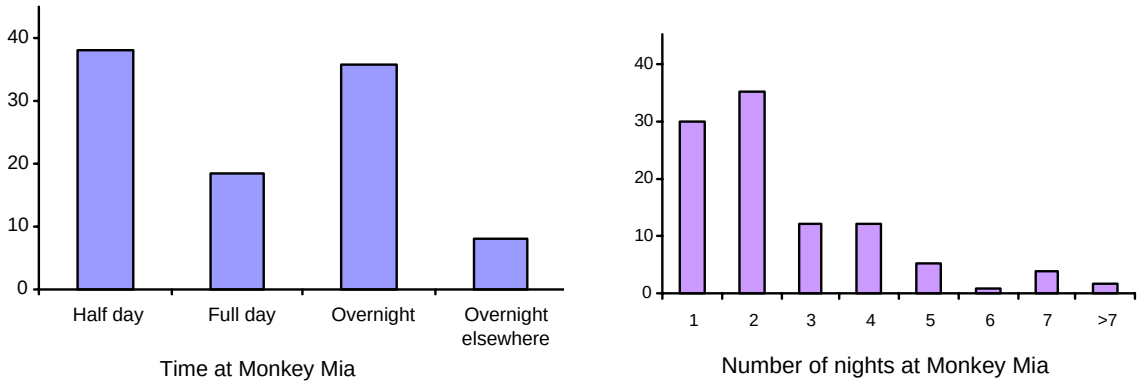
Figure 18: Length of stay in Shark Bay Region during most recent visit (N=341)



Similarly, the WATC (1988) survey found that respondents generally stayed two to three nights (45%) followed by one night (16%) in Shark Bay. Very few respondents visited for more than four nights and 13% of respondents were day visitors to Shark Bay. Smith and Newsome (2004) found that respondents visited the Shark Bay Region typically for one night (49%) followed by two to three nights (38%). Very few respondents visited for a day or less or for more than five nights.

Respondents were also asked to indicate how long they planned to stay in Monkey Mia and if staying overnight at Monkey Mia respondents were asked to indicate the number of nights. The majority of respondents spent half a day (38%) followed by overnight (36%) (Figure 19). Of those that stayed overnight, 65% stayed one to two nights.

Figure 19: Time spent and number of nights stayed at Monkey Mia (N=354)

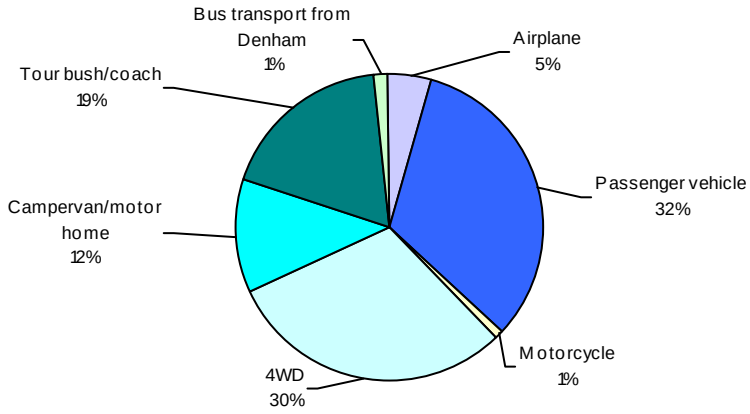


From these results it would appear that most visitors stay in the Shark Bay Region for a short period of time. This indicates that management can focus on short stay visitors or alternatively promote other aspects of the Region to encourage visitors to stay longer. As a result, applying management techniques that limit use such as decreasing length of stay would be ineffective.

Transport to Region

Respondents were most likely to visit the Shark Bay Region by passenger vehicle (32%), four-wheel drive (4WD) (30%) or tour bus (19%) (Figure 20). Results indicated that Western Australian respondents were most likely to travel to the Region by 4WD (46%) or passenger vehicle (39%) while interstate respondents were most likely to travel by 4WD (29%), tour bus (21%) or passenger vehicle (19%) and overseas respondents were most likely to travel by tour bus (40%), passenger vehicle (30%) and campervan/motor home (15%).

Figure 20: Main means of transport to Monkey Mia/Shark Bay (N=354)

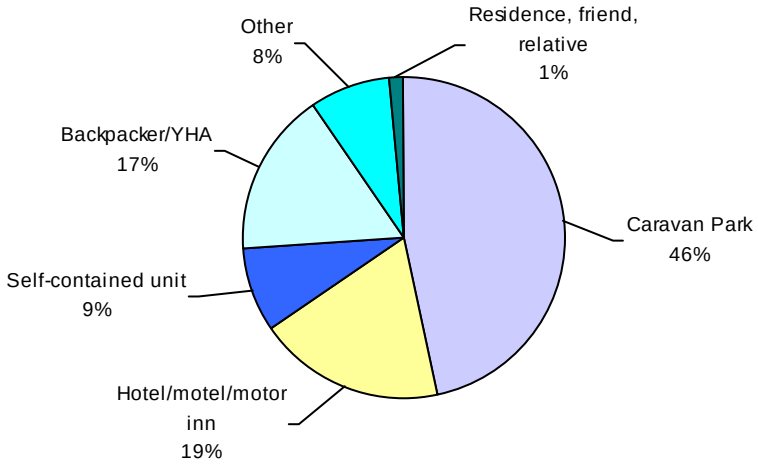


Similar to the above results, Reark Research (1995) showed that 29% of respondents visited Shark Bay in a private or rented vehicle and 31% of respondents visited by coach. Respondents in the Smith and Newsome (2004) study were most likely to visit the Monkey Mia/Shark Bay Region via passenger vehicle (36%), tour bush or coach (25%) or by 4WD vehicle (18%). Very few respondents travelled by airplane or motorcycle. Additionally, the results showed that overseas visitors generally travelled via passenger vehicle (32%), tour bus/coach (27%) and campervan/motor home (22%). Interstate visitors generally visited via passenger vehicle (38%), campervan/motor home (27%) or 4WD (23%), while Western Australians generally travelled via passenger vehicle (40%), 4WD (38%) and tour bus/coach (19%).

Accommodation

Whilst staying in the Shark Bay Region (Figure 21) caravan park accommodation (46%) was the preferred style for the majority of respondents followed by motel/hotel/motor inn accommodation (19%) and backpacker/YHA accommodation (17%). Thirty-nine percent of respondents stayed at the Monkey Mia Resort with 15% of respondents staying in either a tent (7%) or caravan (8%). Fifty-one percent of respondents stayed in accommodation in the Denham townsite with 26% staying in caravan park accommodation (Appendix E).

Figure 21: Type of accommodation stayed in while visiting Monkey Mia/Shark Bay (N=345)



Results indicated that Western Australian respondents were more likely to stay in caravan park accommodation (50%; 23% in a tent site) followed by hotel/motel/motor inn (18%) and self-contained units in Denham (16%). Western Australian respondents were also more likely to book accommodation in Denham than Monkey Mia. Interstate respondents generally stayed in caravan park accommodation (57%; 40% in a caravan), hotel/motel/motor inn (17%) and backpacker/YHA accommodation (14%). They were more likely to stay in Denham caravan parks and backpacker accommodation but in Monkey Mia hotel/motel accommodation. Finally,

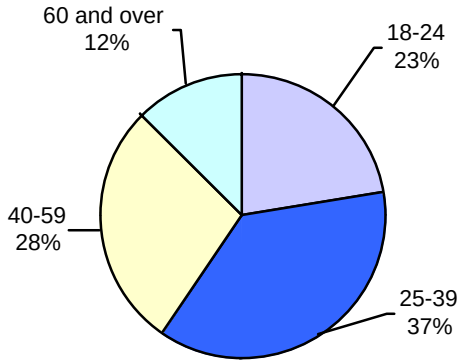
overseas respondents generally stayed in backpacker/YHA accommodation (33%), caravan parks (24%; 11% in a tent) and hotel/motel/motor inn (21%) accommodation. Backpacker and caravan park accommodation was evenly apportioned between Denham and Monkey Mia although they were more likely to stay in Monkey Mia hotel/motel accommodation.

Smith and Newsome (2004) found that the majority of respondents stayed in a caravan park (46%) while visiting the Monkey Mia/Shark Bay Region. This was followed by a stay at the Monkey Mia Resort (21%), self-catering accommodation (12%) and hotel/motel/motor inn (11%) in Denham. While the majority of overseas respondents stayed in a caravan park, they also stayed at Monkey Mia resort (24%) and hotel/motel/motor inn (12%) accommodation in Denham. Interstate visitors also mostly stated at a caravan park (58%) or Monkey Mia Resort (27%), while Western Australian respondents showed a larger range of accommodation preferences with 35% staying at a caravan park, 27% staying in self-catering accommodation in Denham and 16% staying at Monkey Mia Resort.

Demographics

The most common age group of respondents was the 25 to 39 year age bracket (37%) followed by 40 to 59 years (28%) and 18 to 24 years (23%) (Figure 22). There was a higher proportion of female respondents with a ratio of 57:43 female to male.

Figure 22: Age groups of Monkey Mia respondents (N=347)



In the Reark Research (1995) survey, the highest proportion of survey respondents were in the 30 to 49 age bracket (37%) followed by the 50 years or more age bracket (33%). Similar to the results for this study, the CALM surveys had the highest proportion of respondents in the 25 to 39 age bracket followed by the 40 to 59 age bracket (CALM 2002a, 2002b, 2003). Smith and Newsome (2004) found that the highest proportion of survey respondents contributed to the 25 to 39 year age bracket (47%) followed by the 16 to 24 year age bracket (26%). There was also a higher proportion of female respondents with a ratio of 58:42 female to male. To verify these figures, at each of the dolphin feeds during the survey period a count was taken of the number of people participating in the interaction and the number of males and females were also counted. These counts found on average a 57:43 female to male ratio (Smith & Newsome 2004).

Visitors to Monkey Mia tend to be in varying age brackets depending upon the time of visit. This current study, the study conducted in 2003 by Smith and Newsome (2004) and the CALM surveys tend to show the highest proportion of visitors being in the 25 to 39 age bracket while the Reark survey shows respondents being slightly older although there is overlap between categories (CALM 2002a, 2002b, 2003; Reark Research 1995; Smith & Newsome 2004). These findings are similar to findings from studies conducted in the southwest of Western Australia (Morin et al. 1997; Smith 2003). Similarly, respondents in Australian dolphin interaction and viewing studies elsewhere also showed respondents were on average under 30, i.e. at the Dolphin Discovery Centre in Bunbury, Western Australia (N=223) (O'Neill et al. 2004) and in Port Phillip Bay in Victoria, Australia (N=100) (Mayes & Richins 2004).

The above results further indicate a higher proportion of female survey respondents. The Reark survey reported a 57:43 female to male ratio, while the CALM surveys similarly found the ratio of female to male respondents was 58:42 in June 2003 and 56:44 in October 2003 and May 2002 (CALM 2002a, 2002b, 2003; Reark Research 1995) and Smith and Newsome (2004) found a 58:42 female to male ratio. This trend is consistent with other ecotourism surveys conducted since the mid 1990's which have shown a pattern of disproportionately high female representation (Weaver 2001). Other Australian studies that examined dolphin

watching and interaction reported similar findings to the Monkey Mia study in that there was a higher proportion of females to males (Mayes & Richins 2004; O'Neill et al. 2004).

Profession

As shown in Table 5, a relatively large proportion of respondents were 'white-collar' workers. The second largest group were students, followed by retirees.

Table 5: Occupation of Monkey Mia respondents (N=343)

Occupation (N=343)	Frequency	Percent
WHITE COLLAR		
Professional	100	29.1
Manager/Administrator	47	13.7
Para-professional	12	3.4
Total	**159**	**46.2**
BLUE COLLAR		
Tradesperson	16	4.7
Machine operator	6	1.7
Labourer & related	4	1.2
Farming	3	0.9
Factory worker	1	0.3
Postman	1	0.3
Total	**31**	**9.1**
Student	65	18.7
Retired	40	11.5
Home duties	20	5.8
Sales & personal services	18	5.3
Unemployed	9	2.6
Traveller	5	1.4
Self-employed	1	0.3

Bulbeck (1999) surveyed visitors to nine animal encounter sites in Australia and New Zealand (N=384). It was revealed that visitors to 'authentic' (sites where wild animals visit) animal encounter sites, such as Monkey Mia, were better educated and more likely to be professionals than visitors to zoos. It was suggested that the animal encounter sites were more costly to access because of their distance to urban centres, hence the higher proportion of professionals.

(Bulbeck 1999)

Other Places Visited and Activities

Questions addressed in this section relate to other destinations visited while on the trip, other sites respondents visited while visiting Shark Bay and the activities that they participated in while visiting Monkey Mia. Respondents generally visited a number of different places and sites and participated in numerous activities.

Respondents were asked if they were they only visiting Shark Bay and if not, how long they were away from their usual place of residence and what other places they had or intended to visit whilst on this trip. As expected, most visitors were on a multi-destination trip with 76% of respondents stating that Shark Bay was not the only place they were visiting while on this trip. The previous night's accommodation reflected 24 different places (Appendix F), with Kalbarri, Geraldton, Carnarvon, Coral Bay and Perth being key destinations of visitation (Table 6). Findings of this current study indicated that respondents were away from their usual place of residence on average for 14 nights with a range of two to 1068 nights (about 3 years).

Table 6: Place where previous night was spent before travelling to Shark Bay (N=219)

Place stayed previous night before Shark Bay	Percent
Kalbarri	39.7
Geraldton	14.6
Carnarvon	9.1
Coral Bay	8.2
Perth	8.2
Exmouth	6.8
Dongara	2.3

The most frequently visited or planned to visit places while away on the current trip included Kalbarri, Exmouth, Geraldton, Pinnacles and Coral Bay (Table 7). On average respondents visited each of these places for a night with exception to Coral Bay and Exmouth where respondents stayed for two nights on average. A list of 18 other places was also visited by 15.2% of respondents (Appendix G). On average respondents spent seven nights with a range of one to 250 nights (about 8 months) at these other places. These results further indicate that Shark Bay is part of a multi-destination trip.

Table 7: Places visited (or planned to visit) on current trip away from 'home' and amount of time spent (or planned to spend) there (N=356)

Place visited/ plan to visit	Yes visited/ plan to visit	Number of nights								
		<1	1	2	3	4	5	6	7	>7
Percentage of respondents										
Kalbarri	47.8	-	23.6	7.0	3.7	1.7	1.4	0.3	1.7	1.2
Exmouth	37.1	0.3	7.9	8.1	6.7	1.7	2.2	1.1	2.0	0.9
Geraldton	36.5	1.2	19.4	3.9	1.7	0.6	-	-	0.6	0.3
Pinnacles	36.0	4.0	14.3	1.4	0.3	-	-	-	-	-
Coral Bay	32.6	0.9	6.7	6.5	3.7	0.3	1.1	0.3	0.8	0.9
Carnarvon	28.4	0.3	12.9	3.4	3.1	0.	0.3	-	-	0.9
Onslow	2.8	-	1.7	-	-	-	-	-	-	-
Other	15.2	1.1	1.7	1.1	0.6	0.6	-	0.6	0.8	5.4

Results indicated that Western Australians visited Kalbarri followed by Geraldton, Exmouth and Carnarvon while Interstate visitors visited Geraldton followed by Kalbarri, Carnarvon and the Pinnacles. Overseas respondents were most likely to visit the Pinnacles followed by Kalbarri, Exmouth and Coral Bay.

Respondents were also asked to indicate which other sites they had visited or planned to visit and how much time they had or planned to spend at each site during this visit to Shark Bay. The sites that were most frequently visited or planned to visit were Shell Beach, Denham township, Hamelin Pool, Eagle Bluff and the Telegraph Station/Little Lagoon (Table 8, Figure 23). On average respondents visited these sites for one hour with exception to Peron Homestead (1.5 hours), Nanga Bay and Station (2 hours), Francois Peron National Park (2 hours) and Denham township (3 hours). Nineteen percent of respondents stayed in Denham township for longer than six hours. The range of time spent was from less than an hour to seven days. This would be due to people staying in Denham while visiting Shark Bay. Similarly, overnight stays are available at Nanga Bay and Station, therefore the number of hours spent ranged from less than one hour to seven days. These results highlight that respondents not only visit Monkey Mia while in the Shark Bay Region but also visit numerous other sites.

Table 8: Sites visited (or planned to visit) while in Shark Bay and amount of time spent (or planned to spend) at each site (N=356)

Sites visited/ plan to visit	Yes visited/ plan to visit	Number of hours							
		<1	1	2	3	4	5	6	>6
Percentage of respondents									
Shell Beach	70.8	9.6	33.1	11.8	1.7	1.4	-	-	-
Denham township, foreshore & jetty's	65.4	1.7	10.1	11.5	3.7	5.6	0.8	1.4	18.7
Hamelin Pool (stromatolites)	63.2	7.6	30.6	13.5	1.1	0.8	-	0.3	-
Eagle Bluff	32.6	8.2	12.9	3.4	0.8	0.3	-	0.6	0.3
Telegraph Station	24.4	6.7	11.2	2.0	-	-	-	-	-
Little Lagoon	24.4	5.4	7.6	2.5	0.6	1.4	-	-	-
Pearl Farm	19.1	0.3	8.7	4.2	0.8	0.3	0.6	-	0.3
Ocean Park	19.1	1.4	7.3	4.2	0.6	-	-	-	-
Francois Peron National Park	18.8	1.1	2.5	3.4	1.7	2.2	-	0.8	2.0
Nanga Bay and Station	17.1	1.4	4.2	2.8	0.3	0.3	-	-	3.2
Peron Homestead (incl. visitor centre & hot tub)	14.6	1.1	4.2	3.1	1.4	0.6	-	0.3	-
Big Lagoon	12.9	0.8	4.2	2.0	0.8	0.6	-	0.3	0.3
Steep Point	3.9	-	1.4	-	-	0.3	-	-	0.9
Skipjack Point	3.7	-	0.8	0.6	-	-	-	-	-
Herald Bight	3.7	0.8	1.4	-	-	-	-	-	0.3
Other	1.1	-	0.3	0.6	-	-	-	-	-

Similar to the above results, Reark Research (1995) found that the most commonly visited destinations within the Shark Bay area were Monkey Mia (98%), Denham (82%) and Shell Beach (61%). The high visitation to Shell Beach is not surprising. Shell Beach Conservation Park is one of the Regions most visited features with 135,000 visitors recorded in 1997/98 (CALM 2000).

Figure 23: Shark Bay attractions (a) Shell Beach, (b) Denham Town (c) Hamelin Pool and (d) Eagle Bluff

(a)

(b)

(c)

(d)

Source: (Break Loose 2005; Jackson 2004; Shark Bay Coaches & Tours 2005)

Respondents generally participated in a wide variety of activities. The most commonly participated activities

included viewing dolphins/dolphin interaction, relaxing, photography, viewing marine wildlife and visiting restaurants and café's (Table 9).

Table 9: Activities participated in by respondents at Monkey Mia

Activities participated in at Monkey Mia	% of respondents (N=356)
Viewing dolphins/dolphin interaction	**96**
Relaxing	**72**
Photography	**68**
Viewing marine wildlife	**56**
Visiting restaurants and café's	**45**
Lazing on the beach	**43**
Walking/hiking	**41**
Camping/Caravanning	**39**
Picnic/barbeque	**38**
Swimming	**34**
Viewing terrestrial (land-based) wildlife	**33**
Organised cruise of Shark Bay Marine Park	**24**
Snorkelling/diving	**23**
Fishing	**19**
Bird watching	**19**
Boating	**15**
Commercial tour (please specify what type)	**9**
Other	**3**
Abseiling	0.3
Bird/beach walking	0.3
Canoeing/kayaking	0.6
Reading	0.3
Talk by research staff	0.6
Viewing information centre & touch pool	0.3
Visited friends	0.6
Commercial Tour	**6**
Aristocat	0.8
Camel ride	0.3
Fishing charter	0.3
Glass bottom boat	0.3
Pearl Farm	4.2
Sightseeing	0.3
Tourism/dolphin research	0.3

Rearck Research (1995) found that the most commonly undertaken activities in Shark Bay included: dolphin viewing (91%), filming/photography (71%), sightseeing (67%) and swimming (58%) (Reark Research 1995). In 2003, the Murdoch University study found that the majority of respondents participated in viewing dolphins/dolphin interaction (95%), photography (69%), swimming (55%), viewing marine wildlife (46%) and camping/caravanning (42%) (Smith & Newsome 2004). In this current study, swimming in the December 2003 study was replaced by relaxing due to the cooler weather and water temperatures in July.

Activities undertaken were quite varied although, as expected, most visitors came to Monkey Mia to see the dolphins. Even though the major activity at Monkey Mia was dolphin viewing, respondents also participated in a

wide variety of other activities. Activities that were rated as important were activities that were fairly passive forms of recreation. These findings are consistent with other natural area studies that show that visitors participate in a wide variety of activities that are generally passive forms of recreation (Chin, Moore, Wallington & Dowling 2000; Lucas 1990a; Morin et al. 1997; Roggenbuck & Lucas 1987; Smith 2003; Smith & Newsome 2002). Hammitt and Cole (1998) commented that visitors attracted to natural areas to experience and observe nature and for passive forms of recreation, are likely to produce fewer impacts than the individual who visits the area for adventure or as simply a means to escape the home and work environment.

Respondents were also asked to list any other activities that they would liked to have been involved in that are not currently available at Shark Bay. A total of 32 activities were listed and are detailed in Appendix H. The majority (86%) of respondents either listed no activities or commented that none were needed. Other activities listed included, wildlife based (2%), dolphin based (3%), water based (4%) and land based (6%) activities.

Reasons for Visiting

The following section reports on Part II from the Monkey Mia Visitor Survey July 2004 (Appendix C). Survey respondents were asked to indicate how important each reason for visiting Shark Bay was, ranging from not important to extremely important (Table 10).

Of the various possible reasons for visiting Shark Bay, 'seeing dolphins in their natural environment' was ranked as extremely important by the majority of respondents. When the results for very and extremely important were combined, respondents identified 'seeing dolphins in their natural environment', 'the opportunity to see dolphins', 'to be in & enjoy a natural environment', 'being able to get close to dolphins' and 'to escape everyday routines' as the most important reasons for visiting Shark Bay (Table 10).

Table 10: Percentage of respondents' reasons for visiting Shark Bay (N=356)

Reasons for visiting Shark Bay	Not important	Minor importance	Important	Very important	Extremely important
Seeing dolphins in their natural environment	0.6	2.6	17.7	33.7	45.3
The opportunity to see dolphins	0.6	3.5	23.4	29.2	43.4
Being able to get close to dolphins	1.5	7.3	31.7	26.4	33.1
To escape everyday routines	8.5	5.5	29.8	26.1	30.1
To be in & enjoy a natural environment	0.6	1.6	34.5	34.8	28.6
Holiday, tourism	3.3	8.3	36.0	28.9	23.5
To spend time with companion(s)	9.3	10.8	36.0	25.2	18.6
To visit a World Heritage Area	5.6	19.3	37.7	19.9	17.4
To view dugongs	8.0	18.8	35.7	20.4	17.2
To learn about nature (environmental education)	2.5	16.3	40.0	25.6	15.6
Being able to feed dolphins	19.0	27.3	20.5	17.8	15.4
To view marine wildlife	4.3	9.3	39.1	34.8	12.4
To visit Monkey Mia Resort and it's facilities including the visitor centre	16.5	31.7	38.6	9.0	4.2
To view terrestrial (land-based) wildlife	9.5	28.2	40.5	17.7	4.1
To go on a wildlife cruise	31.8	30.5	25.5	10.3	1.9
Other					
CALM volunteer					0.3
History on development/settlement				0.3	
Temperature				0.3	

The least important reasons for visiting Shark Bay from the combined results of not at all important and minor importance were: 'to go on a wildlife cruise', 'to visit Monkey Mia Resort & it's facilities', 'being able to

feed dolphins', 'to view terrestrial wildlife' and 'to view dugongs' (Table 10). Whilst 19% of respondents indicated that being able to feed dolphins was not an important reason for visiting Shark Bay, 46% of those surveyed indicated that it was important to extremely important.

In support of these findings, WATC (1998) found that the majority of respondents (94%) indicated that 'holiday' was the main purpose of their visit to the Shark Bay area with 70% mentioning the main reason was 'to see the dolphins'. Reark Research (1995) found the main reason for respondents to visit the Shark Bay area was 'to see the dolphins' (69%) followed by 'sightseeing' (12%).

The CALM Monkey Mia Reserve Visitor Survey Program (CALM 2002a, 2002b, 2003) indicated that 65% of respondents in May 2002, 76% in October 2002 and 88% of respondents in June 2003 visited Monkey Mia to see dolphins. The second most popular reason to visit Monkey Mia was holiday/tourism. The majority of the respondents had been involved in at least one dolphin interaction experience and showed that they were generally satisfied with this experience (CALM 2002a, 2002b, 2003).

Smith and Newsome (2004) asked respondents a similar question. Of the various possible reasons for visiting Monkey Mia, 'to view the dolphins' was ranked as extremely important by the majority of respondents. When the results for very and extremely important were combined, respondents identified 'to view the dolphins', 'to be in and enjoy a natural environment', 'relaxing', 'to view wildlife' and 'to escape everyday routines' as the most important reasons for visiting Monkey Mia. The least important reasons for visiting Monkey Mia from the combined results of not at all important and minor importance were: 'fishing', 'to visit the Monkey Mia Resort and its facilities', 'to go on a cruise', and 'to visit the Monkey Mia Visitor Centre' (Smith & Newsome 2004).

The following section reports on Part II of the Monkey Mia Visitor Survey July 2004 (Appendix C). This is related to questions that asked respondents to determine if a range of items added or detracted to the quality of their experience. A list of 12 items were given and respondents were asked to indicate whether these items added or detracted to their experience at Monkey Mia. The attributes that would most detract from the quality of the visitor experience when the results for 'detract' and 'greatly detract' were combined, were the 'absence of dolphins' (93%), '>200 people in the dolphin interaction area' (88%), degraded condition of natural environment' (86%), 'no staff present' (80%), advanced booking to view dolphins' (74%), '>100 people in dolphin interaction area' (68%) and 'very few sighting of other wildlife' (68%) were (Table 11).

Table 11: Percentage of respondents that indicated items affecting their quality of visit (N=356)

ITEM	Greatly detract	Detract	No influence	Add	Greatly add
>200 people in dolphin interaction area	64.5	23.2	10.4	0.6	1.2
Absence of dolphins	61.3	31.5	5.4	1.2	0.6
Degraded condition of natural environment	53.8	32.5	11.6	0.9	1.2
No staff present	38.1	41.9	15.6	2.7	1.8
Advanced booking to view dolphins (no guarantee of dolphin interaction)	35.7	38.1	22.3	3.0	0.9
>100 people in dolphin interaction area	29.5	38.6	23.5	6.0	2.4
Prevent provisioning (feeding) of dolphins	20.9	34.7	29.1	8.5	6.8
No entry in to water permitted in Dolphin Interaction Area during dolphin feed	20.9	33.0	33.9	5.9	6.2
Seeing dolphins from viewing stadium located on beach with only rangers feeding	20.6	38.2	22.7	11.3	7.2
Very few sightings of other wildlife	19.2	48.8	26.6	4.4	0.9
No physical contact with dolphin	17.6	28.4	42.5	6.5	5.0
Time limits on encounters with dolphins	10.4	32.6	46.6	9.2	1.2

In order to manage visitor numbers at the dolphin feed, a number of actions were suggested. When asked to comment, 74% and 59% of respondents respectively indicated that advanced booking to view dolphins and a

viewing stadium located on the beach with only rangers feeding would detract from the visitor experience (Table 11). Smith and Newsome (2004) surveyed visitors to Monkey Mia about a wide range of available facilities and asked visitors to respond about the use of such facilities, importance of facilities in relation to reason for visiting and whether facilities added or detracted to the quality of the visit. Surveyed visitors used a wide range of the available facilities and rated the presence of these facilities as being of minor importance in relation to the reasons for visiting Monkey Mia. Most of the facilities such as toilets, beach shelters, lawns and the Monkey Mia Visitor Centre were seen to enhance the visitor experience. This may be because of the convenience such facilities offer the visitor. Important reasons for respondents visiting Monkey Mia were natural attributes and not built facilities (Smith & Newsome 2004). Smith and Newsome (2004) also asked visitors to Monkey Mia about their preferred natural area experience. Respondents indicated that they preferred natural areas with a very natural landscape with limited facilities.

Smith and Newsome (2004) showed that the current facilities did not have a negative impact on the quality of the visitor experience or the way in which visitors interact with the dolphins. The lack of support for a viewing stadium and advanced booking to view dolphins may be because the dolphin experience would be changed including the close contact presently experienced and the possibility of attending up to three dolphin interactions in a single day (dependent on the natural behaviour of the dolphins). As discussed previously, the most important reasons for visiting Shark Bay was seeing dolphins in their natural environment, the opportunity to see dolphins, to be in and enjoy a natural environment, and being able to get close to dolphins. This emphasises that the experience currently offered is part of what attracts visitors to Monkey Mia, in particular the attraction to a natural experience, even though dolphins are hand fed, and development or management actions that would alter this interaction may change the experience.

Interestingly, respondents stated that more than 100 people in the dolphin interaction area detracted from their experience, with 65% saying that more than 200 people great detracted (Table 12). The time of the survey coincided with the period of peak visitation during the Western Australian school holidays. On average 232 people were at the first feed of the day which generally occurs between 8.00am and 8.30am, with 153 at the second feed and 143 at the third feed with a range of 82 to 291 during the survey period (Figure 24b). In off-peak periods visitor numbers can still remain relatively high at the first morning feed. In December 2003 the average number of people during the six-day survey period at the first feed was 112, second feed 84, and the third feed 41 with a range of 30 to 189 (Figure 24a). In December there were days where dolphins only turned up for a single feed and it is not uncommon during the breeding season (December to March) for dolphins not to show up at all (CALM 1993; Smith & Newsome 2004). The CALM surveys showed that the majority of respondents had been involved in at least one dolphin interaction experience and showed that they were generally satisfied with this experience (CALM 2002a, 2002b, 2003). However the above results indicate that the number of people in the dolphin interaction area detracted from the surveyed visitors' experience.

Figure 24: Dolphin interaction at Monkey Mia in (a) December 2003 (approx. 95 people) and (b) July 2004 (approx. 290 people)

(a) (b)

Photos: A. Smith

Dolphin Watching Experience

The following section reports on Part II of the Monkey Mia Visitor Survey July 2004 (Appendix C). This is related to questions that asked respondents about their dolphin watching experience. Respondents were asked to describe the best and worst part of their wildlife experience. A list of 67 reasons was given for the best (Appendix I) and 51 reasons were given for the worst (Appendix J) part of the wildlife experience. These reasons were categorised for analysis. The majority of respondents commented that the best part of the wildlife experience was dolphin related (85%) (Table 12). A variety of reasons were given but the majority related to the dolphin interaction and experience and seeing dolphins so close (Appendix I). Responses in regards to the worst

part of the wildlife experience were none (34%), about the site (25%) followed by visitor behaviour (23%) (Table 12). In relation to the site comments, the majority of respondents commented on cooler weather and cold water while visitor behaviour related to too many people or poor behaviour (Appendix J).

Table 12: Best and worst part of wildlife experience

Best Part of Wildlife Experience (N=294)	**% of Respondents**
Dolphin Related	84.9
Natural Environment	11.2
The Site	8.8
Other Marine Wildlife	6.8
Other Tourism Attractions (Human-Made)	2.4
Terrestrial Wildlife	2.0
Other	1.0
Worst Part of Wildlife Experience (N=219)	**% of Respondents**
None	34.2
The Site	25.3
Visitor Behaviour	22.8
Dolphin Related	10.5
Other Marine Wildlife	6.4
Other	5.0
Terrestrial Wildlife	2.7

Bulbeck (1999) also found that visitors referred to being close to, touching or feeding the dolphins at Monkey Mia. A number of people felt privileged and awed that wild animals chose to interact with humans. Bentrupperbaumer (2005) stated that animals that display similar emotions and cognitive processing abilities to humans tend to create more interest for wildlife viewing. Additionally, dolphins may be regarded as charismatic which incorporates such things as cuteness, approachability of the animal, playfulness and the animals tendency to relate to humans thus making them more appealing for viewing (Tremblay 2002) (Figure 25).

(Bentrupperbaumer 2005; Bulbeck 1999)

Figure 25: Dolphin interaction at Monkey Mia showing close-up interaction with Rangers and visitors

Photos: D. Charles & A. Smith

Bentrupperbaumer (2005) also suggested that for some wildlife tourists, just being in the presence of other animal species is sufficient to satisfy their need at the time. Bulbeck (1999) gave anecdotal evidence of this where comments by visitor such as 'I was uplifted by the presence of dolphins', 'their childlike trust and innocence', 'the magic and privilege of being together with dolphins in the way they were intended to be [in their natural environment]'. Similar comments were heard during dolphin interactions in July 2004: 'she's [Nikky] looking at me'. The researchers observed people waving and speaking to the dolphins saying 'hello' or 'you are so beautiful'.

In relation to the worst part of the wildlife experience and comments about inappropriate behaviour, Smith and Newsome (2004) also found that respondents commented on inappropriate behaviour during the dolphin interaction that were related to unacceptable visitor behaviour e.g. 'people being pushy during dolphin feed' and

'loud inappropriate talking during the dolphin feed'. In reviewing responses about worst experiences in this current study (Appendix J) negative comments were made about behaviour e.g. 'children were overwhelmed by pushy adults', 'poor behaviour of other visitors', and 'people ignoring the ranger'. Encounters with other visitors are important in affecting the quality of the visitor experience. Negative perceptions of the presence, behaviour and characteristics of other people depending on the normative behaviour and conditions accepted for the situation and setting can potentially result in visitor conflict (Cessford 2000; Lucas 1990b). Conflicting groups are typically visitors that are sharing sites and are competing for access to their desired recreation experiences (Cessford 2000; Cole & McCool 2000). Conflicts may also arise between people involved in the same activity but who differ in terms of the primary qualities they expect to experience (Cessford 2000; Cole & McCool 2000; Kearsley & Coughlan 1999; Manning & Lime 2000). While findings relating to inappropriate behaviour during the dolphin interaction is consistent with recreation literature on crowding and conflict, the behaviour of other visitors are one of the most important social conditions to visitors (B.C. Forest Service 1995; Hammitt & Cole 1998; Lucas 1990c; Manning & Lime 2000). Smith and Newsome (2004) found that visitors to Monkey Mia generally preferred a natural area experience where meeting others is fairly likely to highly unlikely. This supports the notion that behaviour is an important aspect of social conditions and that respondents are fairly tolerant of meeting other visitors providing the numbers are not beyond an individual's social norms.

Respondents were asked to rate their visit to Monkey Mia overall on a five-point Likert scale from much worse than expected to much better than expected. The majority of respondents indicated that the visit was better to much better than expected (59%) and 38% of respondents indicated that the visit was about the same as expected (Table 13).

Table 13: Percentage of respondents' overall rating of their visit to Monkey Mia (n=343)

Much worse than expected (1)	Worse than expected (2)	About the same as expected (3)	Better than expected (4)	Much better than expected (5)
1	2	38	45	14

In contrast, WATC (1988) found that the majority of respondents (58%) indicated that the visit was the same as they expected or better (29%) when asked if their visit to Shark Bay met their expectations. In the CALM surveys, the majority of respondents in the surveys indicated that they were generally satisfied with their overall visit to Monkey Mia (CALM 2002a, 2002b, 2003). Smith and Newsome (2004) found that the majority of respondents indicated that the visit was the same as they expected before arriving at Monkey Mia (Smith & Newsome 2004).

The high level of satisfaction indicates that even though visitors felt that more than 100 people would detract from their experience, that the weather was cool and that the behaviour of some other visitors was seen to detract from the wildlife experience, that during the dolphin interaction visitors were fairly tolerant of other visitors that they encountered, considering visitor numbers were higher than 100 at each feed. Also it may be assumed that other conditions did not overall affect their visit and the visit exceeded their expectations.

In summary, visitors to Monkey Mia were generally first time visitors with Monkey Mia being part of a multi-destination trip. If dolphin viewing did not exist at Monkey Mia, the majority of respondents indicated that they still would have taken the trip to the Shark Bay Region. Respondents were most likely to visit Monkey Mia with family or as part of a couple in a group of two to four persons aged in the 25 to 39 year age bracket. Respondents were mostly 'white-collar' workers (managers, professionals or para-professionals) implying they were of a relatively high socio-economic status. There was a higher proportion of females to males and the majority of respondents were from Western Australia and overseas with the lowest proportion of respondents coming from interstate. These visitors mainly travelled to the Region by passenger vehicle and four-wheel drive and stayed in caravan park or hotel/motel accommodation. Visitors generally stayed in the Shark Bay Region for one to two nights and spent half a day at Monkey Mia.

While in Shark Bay, respondents generally visited other destinations in the Region with Shell Beach, Denham township and Hamelin Pool (stromatolites) being the most frequently visited. While visiting Monkey Mia, respondents generally participated in a wide variety of activities, with seeing dolphins in their natural environment being the most important reason for visiting Shark Bay. The absence of dolphins from Monkey Mia would greatly detract from the visitor experience while the dolphin interaction and experience and seeing dolphins so close was the best part of visitors' wildlife experience. The majority of respondents indicated that the visit to Monkey Mia was better than expected.

Monkey Mia Management Interviews and Tour Operator Surveys

This section reports the results from the management interviews and tour operator surveys (Appendix B and D). Management interviewees were from Conservation and Land Management (CALM), Monkey Mia Resort (the Resort), Shire of Shark Bay (the Shire) and Yadgalah Aboriginal Corporation.

Nine tour operators of 20 that utilise Monkey Mia as part of their tour agreed to be surveyed, representing a response rate of 45%. Respondents offered a variety of tours with the majority (N=5) of respondents offering coach-based tours. Other tours included 4WD tours, safari adventure tours, tag-along tours and a boat tour. The majority of the operators were based in Western Australia (N=7), one of which was based in Shark Bay and two operators were based elsewhere in Australia. Generally operators stay at Monkey Mia for a full day (N=3) or overnight (N=3) and two operators stay for a half day. Operators generally stayed in the Shark Bay area for one night (N=5) to two nights (N=3). While staying in Shark Bay operators utilise a range of accommodation including Monkey Mia backpackers (N=2), Monkey Mia Resort Garden Villas (N=2), Monkey Mia tent site (N=1), Denham tent site (N=1), Denham motel (N=1) and Nanga Resort (N=1). The boat tour does not offer overnight stays and operates a variety of short tours from the Monkey Mia jetty.

The trip to Monkey Mia is part of a multi-destination trip by operators. Other places visited include: Kalbarri (N=8) for up to one night, Pinnacles (N=6) for half a day to one night, Geraldton (N=5) for up to two nights, Coral Bay (N=5) for up to five nights, Exmouth (N=4) for one night and Carnarvon (N=4) for up to two nights. While in Shark Bay operators also take visitors to other destinations within the Bay. These include: Hamelin Pool (N=8) for up to two hours, Shell Beach (N=8) for up to one hour; Denham town (N=7) for up to one hour with one operator staying overnight, Eagle Bluff (N=4) for up to one hour and Telegraph Station (N=4) for up to half an hour. Individual operators also visited Francois Peron National Park for six hours, Peron Homestead for two hours, Little Lagoon for half an hour, the Pearl Farm for one hour, Nanga Bay and Station, Steep Point for 24 hours and Ocean Park for three quarts of an hour.

Dolphin Watching at Monkey Mia

Managers and operators were asked if they felt that there were better ways of managing visitors' interaction with dolphins at Monkey Mia. CALM representatives generally felt that the best management practice is what is currently in place. It was stated that at present, with the current visitor levels, the practices are adequate. These practices would however need to be reviewed if visitor numbers were to increase. An increase in visitor numbers would mean that there would need to be more restrictions placed on visitors.

Options that could be considered with increasing visitor numbers would be to include a viewing platform on the existing jetty (Figure 26). Representatives from Yadgalah Aboriginal Corp., CALM and the Resort supported this option. CALM representatives commented that the existing jetty would become a viewing platform, with disabled access, that would offer a better vantage point of the dolphins. As a result the close contact experience would not occur. To overcome this problem, it may be possible for feeding to occur from a second platform added to the existing jetty that sits in the water. If the existing jetty were converted to a sole-use viewing platform commercial operations would be affected. It was suggested by representatives from CALM, Yadgalah Aboriginal Corp., and the Resort to change where commercial operators conduct business. It was suggested that a new jetty be built further west of the existing jetty, with one of the CALM representatives suggesting it be moved further south. CALM representatives suggested that moving commercial operators would also reduce the present conflict between private and commercial vessels. The Resort representative stated that if a purpose built commercial jetty was built that was designed to attract visitors it might create better opportunities for boat operators. Additionally, the Resort would like to see all boats and moorings from the beach area moved further west to make the beach next to the interaction area a more inviting environment for visitors and more suitable for swimming.

Figure 26: The existing jetty showing commercial vessels using the jetty and people viewing the dolphins

Photos: D. Charles

A second option was to include an underwater viewing platform on the existing jetty. Representatives from CALM, the Shire, and the Resort mentioned this. CALM representatives commented that while there are potential issues with turbidity, that these issues should be overcome because dolphins swim very close to the jetty. Turbidity problems would be further overcome if commercial operations were moved to a second jetty.

The Shire representative felt that at present the dolphin interaction is too regimented and that not enough people are allowed to feed the dolphins. The Shire representative also commented that there were too many people at the current interactions for the number of dolphins that are being fed. The Shire representative further commented that it would be preferable if CALM had a less regimented presence, perhaps less official looking uniforms. Since people are paying for entry into the Reserve to view dolphins, the slightest thing will upset visitors. The representative from the Shire commented that Monkey Mia is a tourist icon but the CALM culture does not encourage this aspect. The Resort representative also felt that aspects of the current interpretation during the dolphin interaction were too regimented and that the commentary varies greatly, according to which CALM staff member is running the interaction and felt that sometimes inexperienced staff were giving the presentation. The Resort representative would like the interaction to be a positive experience with greater emphasis being placed on natural dolphin behaviour such as sponge carrying and less on negative aspects such as stories of people putting cigarette butts in dolphin blowholes. The Resort representative would also like the interpretation to focus on other aspects of Shark Bay such as other marine wildlife and World Heritage values. The Resort representative also commented that wildlife cruise interpretation is variable. It was considered preferable for CALM to either put in place interpretation guidelines for the wildlife cruise operators because the quality of information given on the vessels varies between vessels and skippers, or for a CALM staff member to go on board the afternoon cruises and offer either interpretation to the vessel staff or to passengers.

The representative from the Shire would like other opportunities and aspects of Monkey Mia being promoted so that the sole focus of visiting Monkey Mia is not the dolphins. The Shire representative suggested more active promotion of Pearl Farm tours, allowing the resort to expand tourism opportunities i.e. fish feeding, promotion of the calm waters that are excellent for boating, promotion of the wild and remote aspects of Monkey Mia, promote the atmosphere and to emphasise more the wild nature of the dolphins that come in to the beach.

Similar to dolphin watching visitors', managers and operators were asked to determine if a range of items added or detracted to the visitors' experience (Table 14). When the results for 'detract' and 'greatly detract' were combined, operators felt that 'degraded condition of natural environment' (N=8), 'no staff present' (N=8), 'time limits on encounters with dolphins' (N=7), 'absence of dolphins' (N=7), and 'prevent provisioning of dolphins' (N=7) would detract from the visitor experience.

Table 14: Items that add or detract to the quality of the visitors' experience at Monkey Mia

Items	
• Prevent provisioning (feeding) of dolphins • Seeing dolphins from viewing stadium located on beach with only rangers feeding • Absence of dolphins • Very few sightings of other wildlife • Degraded condition of natural environment • >100 people in dolphin interaction area	• >200 people in dolphin interaction area • No staff present • Time limits on encounters with dolphins • Advanced booking to view dolphins (no guarantee of dolphin interaction) • No physical contact with dolphin • No entry in to water permitted in Dolphin Interaction Area during dolphin feed

Similarly, when the results for 'detract' and 'greatly detract' were combined, managers felt that 'absence of dolphins' (N=5), 'no staff present' (N=5), 'time limits on encounters with dolphins' (N=5), 'degraded condition of natural environment' (N=4) and 'prevent provisioning of dolphins' (N=4) would detract from the visitor experience (Table 13). These findings were similar to the visitor surveys although more emphasis was placed on the number of people in the dolphin interaction area by visitors. It was briefly mentioned by CALM and Resort representatives that the number of people was considered less of an issue due to the current numbers at a dolphin interaction session, in peak periods, exceeding 200 people.

The Importance of Dolphins to the Local Community and to Individual Businesses

Managers and operators were asked how their operations would be affected and how industry would react if dolphins at Monkey Mia did not turn up tomorrow, a week, a month or a season. Both CALM and the Monkey Mia Resort representatives considered it preferable that other opportunities that are available in Shark Bay were promoted now so that so much pressure is not placed on the dolphins to bring visitors into Shark Bay. If other opportunities were adequately promoted the disappearance of the dolphins would not have as big an impact on the Region.

Operators commented that if dolphins did not turn up for a day that there would be no effect or change to operations or the industry. If dolphins did not turn up for a week, operators (N=4) commented that still there would be no change to operations although there would be some concern to industry (Table 15). Other comments included: very disappointed (N=1), unfortunate (N=1), and advise clients (N=1) in regards to how operations would be affected. In regards to how industry would react if dolphins did not turn up for a week additional comments were as presented in Table 16.

Table 15: Number of respondents that indicated how operator operations would be affected if the dolphins at Monkey Mia were not present for a week, month or season

Response	Operators (N=9)
WEEK	
Advise clients, follow up calls by reservation department	1
No change	4
Unfortunate	1
Very disappointed	1
MONTH	
Advise clients, follow up calls by reservation department	1
If it were the same month every year, change itinerary	1
No effect	1
Not good	1
Slight change	1
Some drop-off of business	1
Would consider stopping running tour	1
Would not come to SB	2
SEASON	
Disastrous	1
No effect	1
Not viable	1
Large change	1
Review coach tour, would not go to MM as this is the key attraction	1
Would not come to SB/stop running tour	4

Table 16: Number of respondents that indicated how tourism industry would react and what actions would be put in place if the dolphins at Monkey Mia were not present for a week, month or season

Response	Operators (N=9)
WEEK	
Concerned but no action/no change	3
Ask questions	1
Enquiries re situation from agents & clients, follow up calls by reservation team	1
Find alternate destinations	1
Survey population to determine that dolphins had disappeared	1
Would not come	1
MONTH	
Discuss with CALM	1
Enquiries re what alternative tourism to be offered as no dolphins	1
Provision other dolphins (push for feeding)	1
Reduce time at beach	1
If it were the same month every year, change itinerary	1
Find alternate destinations	1
Would consider changing itinerary	1
Would not come to SB/Would not come	2
SEASON	
Would not come/ Stop going to MM Would not come to SB /	3
Re-work itinerary, include other SB attractions	2
Cease tours pending on passenger numbers/Unable to operate	2
Enquiries re what alternative tourism to be offered as no dolphins	1
Find alternate destinations	1
IF MONKEY MIA BEACH FEEDING DOLPHINS DIED	
Be very sad/shocked/devastated	3
Would not come to SB/ Stop going to MM/Would not come	3
Disastrous, dolphins at MM are the icon of SB	1
Find alternate destinations	1
Loose well over 90% of international tourists to SB	1
Release/fax stream to agents and clients & follow up to explain situation & advise alternative touring	1
Stop going to MM unless there were other unique marine attractions that made long trip worthwhile	1
Visitor no's would decrease alarmingly affecting our tours and the future of running tours to MM	1

If dolphins were absent for longer periods of time, such as a month or a season, operators expressed concern. Operators commented that if the dolphins were missing for a month then they may change their itinerary, consider not coming to Monkey Mia/Shark Bay and advise clients (Table 15). A season evoked similar responses. Operators commented that they would stop coming to Monkey Mia/Shark Bay (N=5) or that it was no longer viable (N=1) with only one operator commenting that there would be no change (Table 15). Similar responses were given as to how industry would react if dolphins were not present for a month or season with the addition of making enquiries with CALM and pushing for additional dolphins to be fed (Table 16). When asked how industry would react and what actions would be put in place if the existing population of beach feeding dolphins at Monkey Mia died, operators generally commented that they would be very sad, shocked and devastated, and would stop coming, find alternative destinations, and that there would be a large decrease in visitor numbers (Table 16).

Managers also felt that operations would not be affected if dolphins were not present for a day, therefore no

actions would be put in place (Tables 17 and 18). Similarly, the absence of beach feeding dolphins for a week would have no effect. It was however commented that visitors would start to ask questions which would be handled by CALM staff and that CALM and researchers would start to enquire about the whereabouts of the dolphins. CALM representatives commented that it is common for individual dolphins not to come into the beach for one to two days and this is a frequent occurrence in December. Additionally, individual dolphins can go missing from beach visits for up to four to five weeks particularly during the breeding season (November to April).

Table 17: Number of respondents that indicated how management operations would be affected if the dolphins at Monkey Mia were not present for a week, month or season

Response	Managers (N=5)
TOMORROW	
No effect	5
Visitors annoyed, CALM deal with visitors	1
WEEK	
No effect	3
Would start finding out what was happening	2
Operators would start to question	1
MONTH	
Economic impact	2
Look at reasons why dolphins weren't coming to the beach	2
Operators would start to alter their routes	2
Cancellations at the resort	1
Visitation may start to drop off	1
SEASON	
Consider reducing staff levels	2
Have an impact on town	2
Concern	1
Consider changing visitor centre to concentrate on other aspects of the area	1
Devastating for resort	1
Economic impact	1

Table 18: Number of respondents that indicated how management would react and what actions would be put in place if the dolphins at Monkey Mia were not present tomorrow, for a week, month or season

Response	Managers (N=5)
TOMORROW	
No effect	5
WEEK	
No effect	4
Would start finding out what was happening (researchers & CALM)	2
Keep public informed	1
MONTH	
Board discussions held to discuss options	2
Conduct surveys to try and locate animals	2
Look at reasons why dolphins weren't coming to the beach	2
CALM would be dealing with visitor enquiries	1
Community would probably want more dolphins to be introduced	1
SEASON	
Conduct surveys to try and locate animals	2
Consider reducing staff at resort	1
Issue press release	1
Reduce CALM staff	1
Would greatly affect business	1
Would not charge entry fees	1
IF MONKEY MIA BEACH FEEDING DOLPHINS DIED	
Would not introduce new animals into the feeding regime	2
CALM office would be closed	1
Denham would be powerless, dolphins are an important part of the economy	1
Have staff on site to ensure other dolphins were not fed illegally	1
Large economic impact	1
Loss of identity	1
Monkey Mia may become a site where dolphins were viewed by vessels	1
Plan for economic future of SB now before this happens	1
Pressure to feed more dolphins	1
Resort would have to put something in place	1
Sense of loss/sadness	1
Visitor centre would close	1
Visitor numbers may initially decline, but with other promotion would still survive	1

If dolphins were absent for a month or a season, managers commented that this would have an economic impact on local businesses and the tourism industry (Table 17). It was commented that if it were for a month, operators may alter their routes, there would be cancellations at the Monkey Mia Resort and visitation may start to drop off. If it were for a season, Resort and CALM representatives commented that they would consider reducing staffing levels and CALM would consider changing the visitor centre to concentrate on other aspect of the area. Additionally, further research would be conducted to assess the reasons why the dolphins weren't coming in to the beach.

A series of actions would be taken if dolphins were absent for a month or a season. Managers commented on holding board discussions to discuss options, surveys would be conducted to try and locate the dolphins and to examine the reasons why the dolphins weren't coming to the beach, staff numbers would be reduced, and CALM representatives commented that they would consider not charging entry fees if dolphins were missing for a season. Additionally, CALM would be dealing with visitor enquiries and the community would probably want more dolphins to be introduced (Table 18).

If the beach feeding dolphins at Monkey Mia died, CALM representatives commented that new dolphins would not be recruited into a feeding program even though there would likely be political pressures to do so. A full enquiry would need to be conducted as to the reasons why the initial beach feeding dolphins died and recruitment would not even be considered until this was fully understood. Monkey Mia would likely become a site where dolphin viewing occurred from vessels. Managers also commented that it would have a large economic impact, there would be a sense of loss and sadness, Monkey Mia would suffer a loss of identity, and that there would be a reduction in visitor numbers (Table 18).

General Tourism at Shark Bay

Managers and operators were asked if they thought visitors would still come to Shark Bay if there were no dolphins at Monkey Mia. Operators gave a variety of responses. One operator said that they thought that visitors would still come while two operators thought that visitors would still come but there would be a reduction in visitors. Two operators thought that visitors would still possibly come but other wildlife experiences would need to be promoted to attract visitors and one operator thought that visitors would not come mostly because they felt that international visitors primarily came for the dolphin encounter. Managers were more optimistic and said that they thought visitors would still come however numbers may be reduced. Managers felt that Shark Bay would need to become adaptable and market other attractions in the Region. Representatives from the Shire and the Resort commented that recreational fisherman would not be affected by an absence of dolphins at Monkey Mia and would continue to visit. The Resort representative also commented on the necessity for organisations such as Tourism Western Australia (TWA) not to focus solely on dolphins to market Shark Bay but to concentrate on aspects such as the World Heritage values (Table 3). Shark Bay should be promoted as a destination that can be visited year round. It was stated that Shark Bay needs to re-invent itself. The pressure needs to be taken off the dolphins. The Resort sees itself as part of a regional destination and considers itself a quality tourism product in its own right.

Managers and operators were also asked if they thought that visitors would still come to Shark Bay if they could no longer hand-feed the dolphins at Monkey Mia. Five operators felt that visitors would still come. Operators commented that as long as dolphins still regularly turned up on the beach, and visitors could observe feeding then visitors would still come as there is already limited interaction with dolphins at feeding time. One operator felt that visitors would no longer come and another commented that there would be a reduction in visitor numbers.

The Resort, Yadgalah Aboriginal Corp. and a representative from CALM felt that visitors would still come if they could no longer hand feed the dolphins at Monkey Mia. CALM commented that it would however depend on how it was promoted. It was felt that there may be an initial drop off of visitors. Yadgalah Aboriginal Corp. also felt that promotion was important and would need to focus on the wild nature of the dolphins, highlighting that the dolphins come in on their own terms. It was also stated that other aspects of Shark Bay would need to be better promoted if hand feeding by visitors was to cease. The Resort commented that Shark Bay needs to reinvent itself. World Heritage values, the uniqueness of the area, the diverse marine wildlife and the intimate dolphin experience should be better promoted. Marketing should not be solely reliant on the dolphin interaction. In contrast, one of the CALM representatives and the Shire commented that if feeding stopped then the dolphins would stop coming because the dolphins are habituated. Both commented that there would be a decline in visitation as a result.

Managers and operators were asked what other opportunities in Shark Bay were available or offered to visitors other than dolphin watching and of these opportunities which did they enjoy the most or the least. A variety of responses were listed as shown in Table 19. The majority of operators mentioned wildlife cruises and interpretive walks as alternative opportunities. Operators commented that visitors most enjoyed cruises and marine observation (N=2), fishing (N=1), tranquillity (N=1), and all of them if professionally presented (N=1). Managers mostly commented on Dirk Hartog Island (Figure 28) and associated opportunities, World Heritage Area values, and Shell Beach. Managers commented that visitors would most enjoy scenic values, World Heritage Area values, level of diversity, and snorkelling/SCUBA.

Table 19: Number of respondents that indicated alternative opportunities in Shark Bay other than dolphin watching

Opportunity	Operators	Managers
Aboriginal tours	-	2
Climate (good weather)	-	1
Close up interaction with wildlife	-	2
Corals	-	1
Dirk Hartog Island (including cliffs, nesting turtles, Inscription Point, soft corals)	-	4
Dugongs	1	2
Eagle Bluff	-	1
Fishing	1	1
Forre Island	-	1
Four-wheel drive	1	1
Francois Peron/Peron Peninsular	1	1
Historical significance of Shark Bay	-	1
Interpretive walks	3	1
Little Lagoon	-	1
Marine watching	-	1
Project Eden	-	2
Reptiles	-	1
Seagrass and associated wildlife e.g. turtles & sea snakes	-	1
Shark watching/catching cruises	1	-
Shell Beach	-	3
Snorkel tours/snorkelling	1	1
Steep Point/South Passage	-	1
Stromatolites	-	2
Tagging, counting, monitoring opportunities	1	-
Underwater glass submarines	1	-
Water sports	1	1
Whale sharks near Dirk Hartog	-	2
Whale watching near Dirk Hartog and Peron	-	2
Wildlife cruises (including dugong and dolphin watching)	6	1
World Heritage Ares values	-	4

Figure 27: Aerial view of Cape Inscription – Dirk Hartog Island

Source: (Lighthouses of Australia Inc. 2004)

When asked to comment on what opportunities visitors would enjoy the least. Operators commented that visitors would least enjoy too much commercialism (N=1), no dolphins (N=1) and walks (N=1) while managers didn't generally comment on this question. One of the CALM representatives mentioned that visitors would enjoy stromatolites the least because they only appeal to some and the relevance of them is often misunderstood. Better interpretation and education of the significance of stromatolites may help to increase understanding.

In conducting a regional promotional campaign, managers and operators were asked to comment on what they thought should be advertised as a good reason to visit Shark Bay. Respondents gave a variety of reasons as to what should be promoted as part of a regional promotional campaign as indicated in Table 20. Operators generally commented on marine opportunities such as dolphins, dugongs, marine life and fishing while mangers commented on aspects such as World Heritage Area values, cultural history and Dirk Hartog Island. A representative from CALM and the Shire mentioned that one of the keys to promoting Shark Bay was that you can get all of these things (as per Table 19) in one place, you don't have to travel elsewhere.

Table 20: Number of respondents that indicated opportunities in Shark Bay that should be promoted in a regional campaign as a good reason to visit

Opportunity	Operators	Managers
Artesian spa	1	-
Beach	1	1
Boating opportunities	1	-
Climate (good weather)	1	-
Conservation values	-	1
Cruises	1	-
Cultural history	-	2
Dirk Hartog Island	-	2
Dolphins	2	-
Dugongs	2	1
Fishing	2	-
Indigenous aspect	-	1
Landscape (colours)	1	-
Marine life	1	1
Most important behavioural research site in the world for dolphins	1	-
Most Westerly town	1	-
Natural beauty/scenery	1	1
Relaxation, ambience, peace & quiet, serenity	1	1
Scuba lessons	1	-
Sharks/Tiger sharks	2	-
Shell Beach	-	1
Species diversity	1	-
Stromatolites	-	1
Swimming with creatures	1	-
Unique landscape	1	1
Variety of accommodation	1	-
Wildlife	1	1
World Heritage Area values	-	3

Managers and operators were asked to comment on what could be developed in the Shark Bay Region that would be complimentary to existing options that might make the whole Region more attractive as a destination. Operators gave a variety of responses which included a visitor centre in Denham with information on other regional activities (N=1), better marketing to the international market (N=1), better use of World Heritage status (N=1), boating (N=1), fishing (N=1), better use of features that are heritage sites (N=1), including a marine research facility (N=1) and adding a tourism attraction such as those on the Gold Coast (N=1).

Managers gave a more diverse set of responses as to what could be developed in Shark Bay that would be complementary to existing options. A general comment was that at present the Region was not adequately promoted. Traditionally, promotion has focussed on dolphins and not the diversity of experiences that are available, as detailed in Tables 19 and 20. CALM, the Resort and Yadgalah Aboriginal Corp. commented on the importance of promoting and developing tourism on Dirk Hartog Island because of its European and Aboriginal cultural history and also natural beauty and scenery. Representatives from CALM, the Resort and the Shire also commented on the inclusion of a nocturnal house in Francois Peron National Park. A nocturnal house would offer a unique experience for visitors, offering viewing in a controlled environment of some of the endangered animals in Shark Bay that are difficult to view. A World Heritage Area interpretive centre was also suggested by representatives from the Resort and Yadgalah Aboriginal Corp., in order to better promote World Heritage values and also the cultural/historical aspect of Shark Bay. Further, the Resort stated that there should be

stronger Aboriginal interpretation offered and that there were plans at the time of interview to work with Yadgalah Aboriginal Corp. to promote cultural tours and bush tucker walks. The Resort was also interested in incorporating an Aboriginal cultural centre at the Monkey Mia site.

In summary, the survey of tour operators and interviews of managers showed similar findings to visitors in relation to the absence of dolphins. Managers and operators generally thought that if there were no dolphins at Monkey Mia then tourists would still come to Shark Bay but there would be a reduction in the number of visitors. Most of those surveyed also commented that if dolphin viewing was not available, other wildlife experiences and attractions in the region would need to be promoted. In the event of a short term absence of dolphins, for example a day or a week, managers and operators commented that there would be little change to operations.

There was however a differing opinion when tour operators and managers were asked how their operations would be affected and how industry would react if dolphins at Monkey Mia did not turn up for a month or a season or if the dolphins died. Manager and operators expressed concern if dolphins were absent for long periods of time. Operators commented that they would probably change their itinerary and would consider no longer coming to Monkey Mia with only a single operator commenting that there would be no change. Operators gave similar responses if the dolphins were to die with the additional comment that there would be a large decrease in visitor numbers.

Managers commented that while it was common for individual dolphins to go missing from beach visits for up to four to five weeks, particularly during the breeding season (November to April), that if the dolphins went missing for longer periods, then there would be an economic impact on local businesses and the tourism industry. There would be an enquiry into the reasons why the dolphins were missing and surveys would be conducted to try and locate the dolphins. Additionally, in the event of dolphin absence for long periods of time, staffing levels would be reduced both at CALM and at the Resort. If the dolphins died, CALM commented that new dolphins would not be recruited into the feeding program, even though there would be community and political pressure to do so, without a full enquiry as to the reasons why the initial beach feeding dolphins died and recruitment would not be considered until this was fully understood. Managers felt that Monkey Mia would suffer a loss of identity if the dolphins no longer visited the beach, there would be a reduction in visitor numbers and the site and visitor centre would change focus to promoting other marine wildlife with dolphin viewing occurring from boats.

Managers and operators provided alternatives to the current dolphin interaction such as converting the existing jetty to a sole-purpose viewing platform, with the possibility of a second platform sitting in the water to still enable close contact with dolphins. Additionally, an underwater viewing platform could be included. Commercial operations would be moved to a new purpose-built jetty promoting wildlife cruises. The Shire and Resort also felt that the dolphin interaction could be less regimented and more of a positive experience.

Other experiences that should be promoted in Shark Bay other than dolphin watching included wildlife cruises, World Heritage Area values including Hamelin Pool Stromatolites, Dirk Hartog Island, interpretive walks and Shell Beach. Similarly, a Regional promotional campaign should promote: World Heritage Area values; marine wildlife i.e. dolphins, dugongs, sharks and other marine opportunities i.e. fishing; the cultural history of Shark Bay; and Dirk Hartog Island.

Other opportunities that could be developed to make the Region more attractive as a destination included Dirk Hartog Island; a nocturnal house in Francois Peron National Park; and a World Heritage Area interpretive centre in Denham that includes cultural/historical aspects of Shark Bay, both European and Aboriginal.

Chapter 4

Case Study 2: Hervey Bay Marine Park, Queensland

The town of Hervey Bay is located 295 km north of Brisbane (3.5 hour drive). Hervey Bay is an easily accessible holiday destination with a population approaching 50,000 residents (Hervey Bay City Council 2004). Located on the southern tip of the famous Great Barrier Reef, Hervey Bay has 60 km of water frontage and around 600 acres of reef just off shore from the Urangan Harbour. Lying parallel to Hervey Bay on its eastern side is the world heritage listed Fraser Island, the world's largest sand island, which is 126 km long and extents north and south bridging the continental shelf (Figures 28 and 29) (Queensland Government 1994). Hervey Bay has the reputation as being the whale watch capital of the world, which is enhanced by a pristine marine environment, and expansive sheltered waters where humpback whales (*Megaptera novaeangliae)* rest and play on their return journey to Antarctic waters (Queensland Government 1994). While the humpback whale migration is an important focus for tourism in Hervey Bay, it remains only a small part of the total spectrum of opportunities in the Region. Hervey Bay also has safe, sandy swimming beaches and is regarded as a recreational fishing area of national significance. Hervey Bay offers a range of boat-based recreation opportunities including sailing, sailboarding, pleasure boating, skiing, canoeing and boat-based camping. Opportunities exist for scuba diving on coastal fringing reefs of the Woongarra coast, coral beds, sponge gardens, rock shelves around the islands at the northern end of the Great Sandy Strait and on the artificial reef off Woody Island (Figure 30) (Queensland Government 1994).

Figure 28: Map of Queensland showing study site

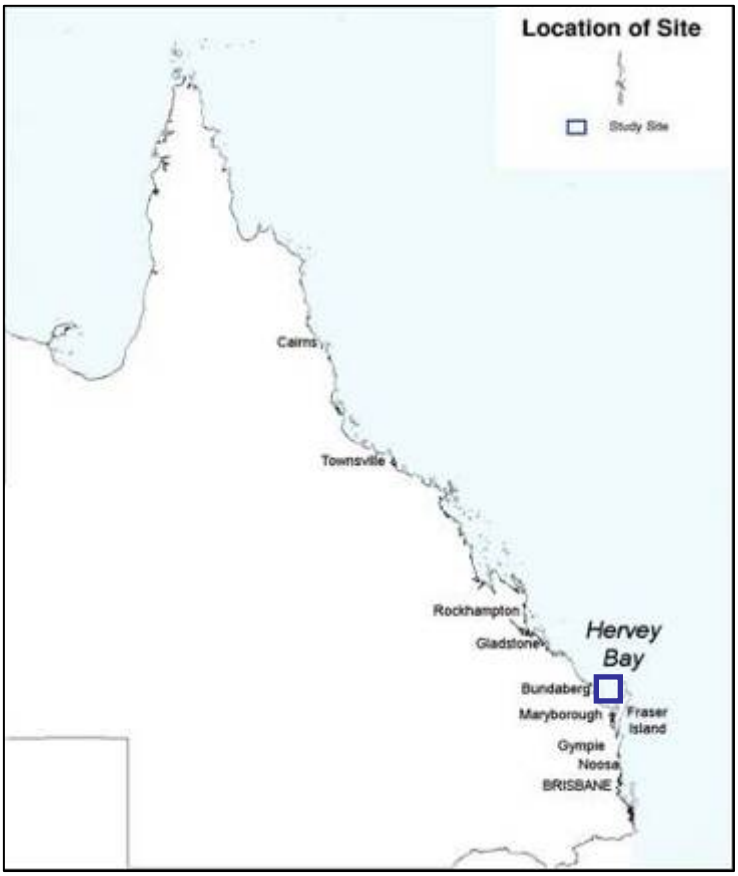
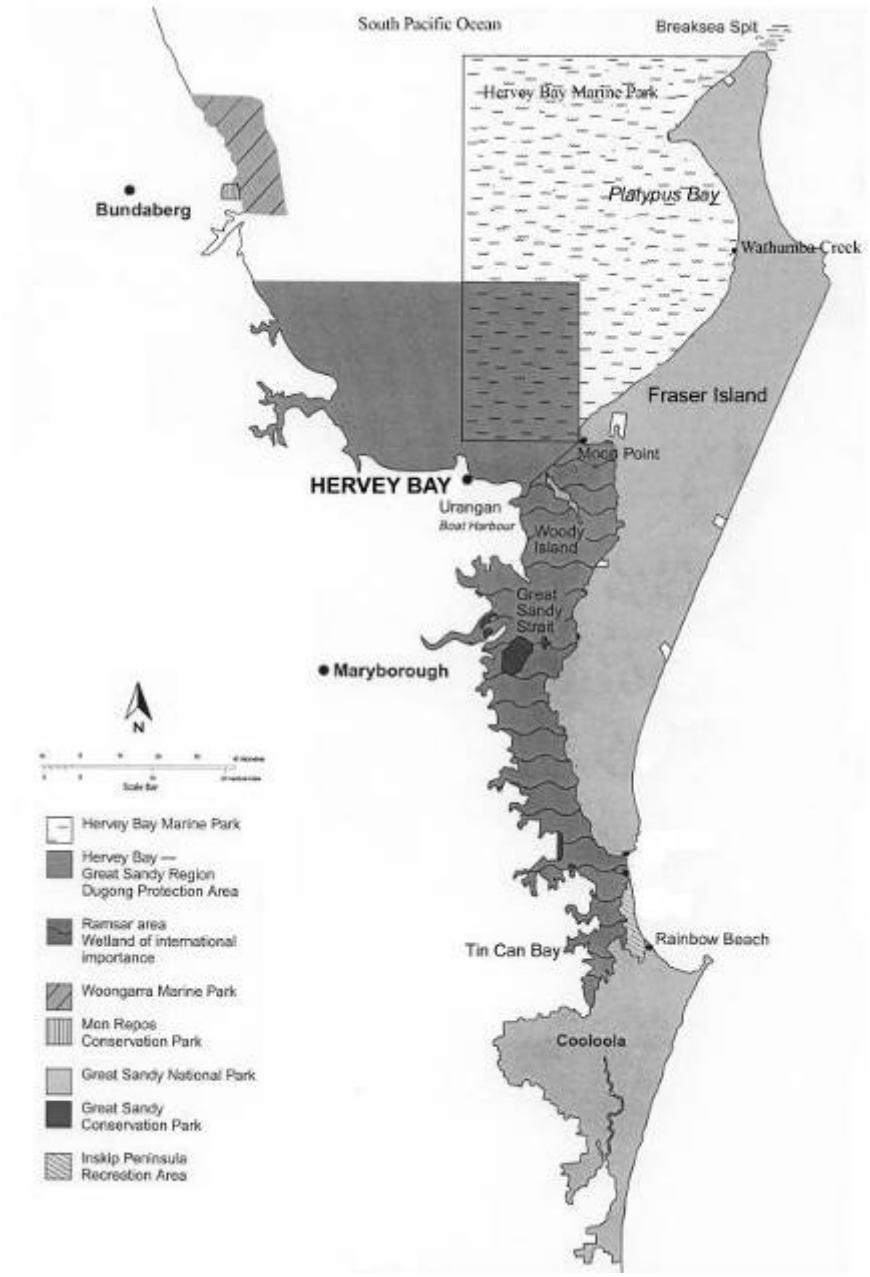


Figure 29: Hervey Bay including Platypus Bay and Fraser Island



Adapted from: (Queensland Government 1994)

Figure 30: Aerial view of Hervey Bay

Source: (Hervey Bay Tourism Bureau 2004)

The focus of this study is the Hervey Bay Marine Park where whale watching occurs (Figures 28 and 29). Hervey Bay Marine Park covers an area of approximately 170,000 ha of the eastern half of the Bay. Hervey Bay Marine Park was proclaimed in 1989 to manage use consistent with conservation of the area and to ensure the protection of humpback whales (Queensland Government 1994). Between 1st August and 30th November each year a whale management and monitoring area is designated over the marine park to manage and monitor human activities in the vicinity of humpback whales. Primary management action has been to limit the number and activities of commercial whale watching vessels to avoid harassment of the whales (Queensland Government 1994). Hervey Bay Marine Park is currently managed by the Queensland Parks and Wildlife Service in Maryborough according to the Great Sandy Region Management Plan 1994 to 2010 (Queensland Government 1994). Marine areas within the Great Sandy Region are policed by water police based in Hervey Bay and patrolled daily by the Department of Environment and Heritage during the whale watching season. The area is also patrolled by Boating and Fisheries Patrol officers (Queensland Government 1994).

Marine Environment

Hervey Bay Marine Park (latitude 25°S) is a large shallow embayment (most of the Bay is less than 18 m deep) with a sand or mud floor (Queensland Government 2002a). Hervey Bay is a north-opening bay that is generally protected from southerly and easterly oceanic swell movement by Fraser Island (Murphy 2001). Much of the Region comprises marine and intertidal areas which provide a wide range of marine-based recreation opportunities. Urangan Boat Harbour, where commercial whale watching operates from, includes government moorings, trawler berths and marina berths (Figure 31). Barges operate from Urangan Boat Harbour to Kingfisher Bay, and Urangan Boat Harbour to Moon Point as access to Fraser Island (Queensland Government 1994).

Figure 31: Urangan Boat Harbour, Hervey Bay

Hervey Bay has a sub-tropical climate, experiencing warm, humid summers and mild winters. The average summer temperature is 30°C and average winter temperature is 15°C. Most rain falls during the period November to March with the rest of the year providing clear days and cool nights (Hervey Bay Tourism Bureau 2004).

The Great Sandy Strait is one of the least disturbed large estuaries in southern Queensland comprising one-third tidal mudflats and sandflats with the remainder consisting of mangroves, seagrass, salt marsh, sandy spits and forested islands (Queensland Government 1994). Seagrass beds in Hervey Bay and the Great Sandy Strait covered almost 100,000 ha in 1992 and extended to depths of about 30 m (Queensland Government 1994). Hervey Bay contains the largest seagrass bed in Eastern Australia with seven seagrass species (*Cymodocea serrulata, Halodule uninervis, Halophila decipens, Halophila ovalis, Halophila spinulosa, Syringodium isoetifolium* and *Zostera capricorni*), which were relatively abundant in 1992 but suffered depletion in recent years as a result of siltation and pollution (Queensland Government 1994, 2002b). The seagrass beds of Great Sandy Strait and Hervey Bay are ephemeral and subject to considerable variation in density and spatial distribution (Queensland Government 1994). The coral reefs of the Region are considered as the most southerly coastal fringing reefs of the eastern Australian mainland (Queensland Government 2002b).

While no comprehensive studies have been conducted of the fish fauna of the Region, many species representing temperate estuarine, tropical estuarine, pelagic and coral reef associated assemblages are present (Queensland Government 1994). The Great Sandy Region has been identified as one of the most important

recreational fishing areas in Queensland. Recreational fishing occurs on most beaches and in most sheltered waterways of the Region at some time of the year (Queensland Government 1994). In 2001, the Region attracted 300,000 visits per year by recreational fisherman (Murphy 2001).

The habitats of a number of internationally and nationally threatened marine animals occur within the Hervey Bay Region. The marine areas, associated tidal wetlands of Hervey Bay and the Great Sandy Strait and adjacent beaches seasonally support and harbour a diversity of marine life including populations of humpback whales (*Megaptera novaeangliae*) which are prescribed as 'vulnerable' in the Nature Conservation (Wildlife) Regulation 1994, dugong (*Dugong dugon*) which suffered in a reduction in the population from an estimated 1,800 in 1988 to about 200 in 1992 as a result of a significant depletion of seagrass beds in the Region in early 1992, and dolphins (Queensland Government 1994, 2002b). The dugong is also prescribed as 'vulnerable' in the Nature Conservation (Wildlife) Regulation 1994. Three species of dolphins are resident in the area: the common dolphin (*Delphinus delphis*), bottlenose dolphin (*Tursiops truncateus*) and the Indo-Pacific hump-back dolphin (*Sousa chinensis*) which is listed as 'rare' in the Nature Conservation (Wildlife) Regulation 1994 (Queensland Government 2002b).

Hervey Bay is an important stopover for humpback whales (*Megaptera novaeangliae*) on their annual southern migration (Queensland Government 1994). Hervey Bay appears to be a resting area for mother-calf pairs in Platypus Bay which are vital to the continued recovery of the population (Queensland Government 1994).

Six species of turtle are found in Hervey Bay and the Great Sandy Strait: the endangered loggerhead (*Caretta caretta*), the vulnerable green (*Chelonia mydas*), the vulnerable hawksbill (*Eretmochelys imbricata*), flatback (*Natator depressa*), Pacific ridley (*Lepidochelys olivacae*) and leatherback (*Dermochelys coriacea*) (Queensland Government 1994). Virtually all the known courtship and mating of the loggerhead turtle population of the south-west Pacific area occurs in Hervey Bay with the Great Sandy Strait being important feeding area for juvenile turtles. Mon Repos is the largest mainland rookery for the species (Queensland Government 1994).

The Great Sandy Region provides habitat for raptors of conservation concern, including the peregrine falcon (*Falco peregrinus*), osprey (*Pandion haliaetus*) and white-breasted sea-eagle (*Haliaeetus leucogaster*) (Queensland Government 1994). It is also significant habitat for transequatorial migratory wading birds that depend upon the Region for roosting and staging during their annual migrations. Eighteen of the 24 migratory wader species listed under the Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA) use the Region (Queensland Government 1994).

Aboriginal and Cultural Heritage

Aboriginal people first occupied south-east Queensland at least 20,000 years ago. Fraser Island and Cooloola have existed in their present form for approximately 6,000 years following establishment of present-day sea levels. Archaeological research to date indicates Aboriginal use of the Great Sandy Region extends back more than 5,500 years (Figure 32) (Queensland Government 1994, 2002b). Shell middens, stone artefact scatters, fish traps, scarred trees bora rings, stone quarries and burials are of archaeological, social and spiritual significance with the Region. Shell middens are evidence of food preparation and contain remains of a seafood diet (Discover Hervey Bay 2004; Queensland Government 1994).

Figure 32: Timeline of events at Hervey Bay

3,500bd	Evidence of Aboriginal occupation in the Great Sandy Region
1770ad	Exploration by Captain James Cook
1799	Exploration by Captain Matthew Flinders
1802	Flinders landed at Sandy Cape mapping much of the Bay
1847	Maryborough settled as a wool port
1850s	The first settlement of Hervey Bay occurred
1859	First subdivision of land around Hervey Bay took place
1860s	Scandinavian settlers moved into the area
1880s	Sugar was introduced to the area
1896	The Bay was connected to Maryborough by railway
1917	Urangan Pier was completed
1920s	Hervey Bay's local industries included sugar cane, citrus and pineapple plantations, cattle and fishing
1930s	Completion of a fully bituminised road connecting Maryborough and Urangan
1977	Hervey Bay named a town
1984	Hervey Bay named a city
1987	Whale watching in Hervey Bay began
1989	Hervey Bay Marine Park declared

The accepted history of European involvement in the Great Sandy Region commences with its sighting and exploration by Captain James Cook in May 1770 and Captain Matthew Flinders in 1799, but may go back as far as a voyage by the Portuguese explorer de Menonca around 1521 (Figure 32) (Queensland Government 1994). Further exploration of the area was not to continue until 1802 when Matthew Flinders landed at Sandy Cape, and in the following months proceeded to map much of the Bay (Hervey Bay Tourism Bureau 2004). The first European settlement of Hervey Bay occurred in the 1850s. Hervey Bay was originally part of a cattle station, the Toogoom Run, which was settled in 1854. By 1859 the first subdivision of land around Hervey Bay took place (Discover Hervey Bay 2004).

In the 1870s many Scandinavian settlers moved into the area and for a short time Hervey Bay became known as Aarlborg. At this time the area was used for dairy farming (Discover Hervey Bay 2004). In the 1880s sugar was introduced to the area and the Kanakas (Pacific Islander people) were brought from the South Pacific islands to work on the sugar plantations (Queensland Government 1994). A monument serves as a reminder that thousands of these virtual slaves were brought to Australia as conscripted labour from 1863 to 1906 (Discover Hervey Bay 2004).

In 1896 the Bay was connected to Maryborough by railway and in 1917 the 1.4 km Urangan Pier was completed and Urangan became an important port for the export of sugar and later coal (Figures 32 and 33) (Hervey Bay Tourism Bureau 2004). Hervey Bay was considered to be part of the Port of Maryborough, which served as an immigration port for free settlers and was second only to Sydney on the eastern seaboard. Maryborough is one of Queensland's oldest cities, being first settled by Europeans in 1847 as a wool port (Discover Hervey Bay 2004).

Figure 33: Urangan Pier, Hervey Bay

Source: (Hervey Bay City Council 2004)

During the 1920s Hervey Bay's local industries included sugar cane, citrus and pineapple plantations, cattle and fishing (Hervey Bay Tourism Bureau 2004). The 1930s saw the completion of a fully bituminised road connecting Maryborough and Urangan providing further impetus to local growth (Hervey Bay Tourism Bureau 2004). Hervey Bay was also an area where Maryborough businessmen took up waterfront blocks of lands for weekend retreats. A number of villages began to develop throughout the area and were individually named: Polson's Point which became Point Vernon; Barilba which became Pialba; Torquay; Urangan; and, Gatakers Bay. It was not until September 1977 that the combined villages were declared the Town of Hervey Bay and the area was finally named a city in February 1984 (Discover Hervey Bay 2004).

Whale watching in Hervey Bay began in September 1987. A new university in the city started taking its first students in 1997 and a new public hospital serves the city. Today, tourism and commerce are the backbone of Hervey Bay's economy, and the town now has a human population of around 50,000 (Hervey Bay Tourism Bureau 2004).

Whale Watching in Hervey Bay Marine Park

Humpback whales have been coming to Hervey Bay on their annual southward migration from the Barrier Reef breeding grounds to Antarctica each winter for centuries. Captain Cook, when he sailed by Fraser Island in 1770 remarked on the grampuses he saw (Queensland Government 1994). Commercial whale watching began in Hervey Bay in 1987 when the initiative was taken by a charter fishing boat owner, who saw his passengers were far more interested in the whales they saw than in the fishing (Corkeron 1995; Corkeron et al. 1994; Queensland Government 2003). The first season ran from August to 9th September 1987 and received considerable media coverage and support from Sea World, Queensland (Scott 2003). Brian Perry operated two boats in the second year, one a larger capacity vessel (188) and carried approximately 11,000 people throughout the season. In 1989, there were 21 operators offering whale watching tours (Scott 2003).

The Hervey Bay Marine Park was declared in 1989 to conserve the natural resources of the tidal lands and waters of Hervey Bay. The Marine Park is zoned to manage people's activities in the vicinity of humpback whales and to monitor the effect of such activities to protect the whales (Queensland Government 1994). Hervey Bay is among the best places in the world to observe humpback whales. The Hervey Bay commercial whale watching industry is an important segment of the tourism industry contributing more than $A2.5 million a year to the regional economy. In 1993, approximately 53,000 passengers were carried on whale watching tours. The current total permit capacity significantly exceeds the level of passengers being carried (Queensland Government 1994).

Humpbacks have been recorded in Hervey Bay during the months of July to November. The whales are part of the Antarctic Area Group V Stock (Corkeron 1995). In 1992, it was estimated that the stock numbered 1,900 whales (McCauley, Cato & Jeffery 1996). By 1996, the estimated population had increased to 3,185 whales (GBRMPA 2000). The conservation status of humpbacks appears to be relatively secure at present, and in 1998 they were down-listed from endangered to vulnerable under the Australian *Endangered Species Protection Act 1992* (Bannister, Kemper & Warneke 1996; GBRMPA 2000). Temporal procession of whales entering Hervey Bay is similar to that described for the whole Group V population. The whales pass through Hervey Bay on their migration from breeding areas in the north to Antarctic waters (Corkeron 1995). Immature humpbacks enter the Bay first in late July and mothers and calves in September, but there is no data indicating that the Bay is of importance to any particular age-class of the Group V population (Corkeron et al.1994). However, the use of the Bay by mothers and calves in September is coincident with school holidays, the peak period, and an associated increase in recreational boating activity (Queensland Government 2002a). The southward migration is characterised by meandering and surface activity. Most whales spend only a short period in the Bay and a significant part of this would be transit time. However, some of the observed behaviour is indicative of resting and some whales do spend extended periods in the Bay (Corkeron et al. 1994).

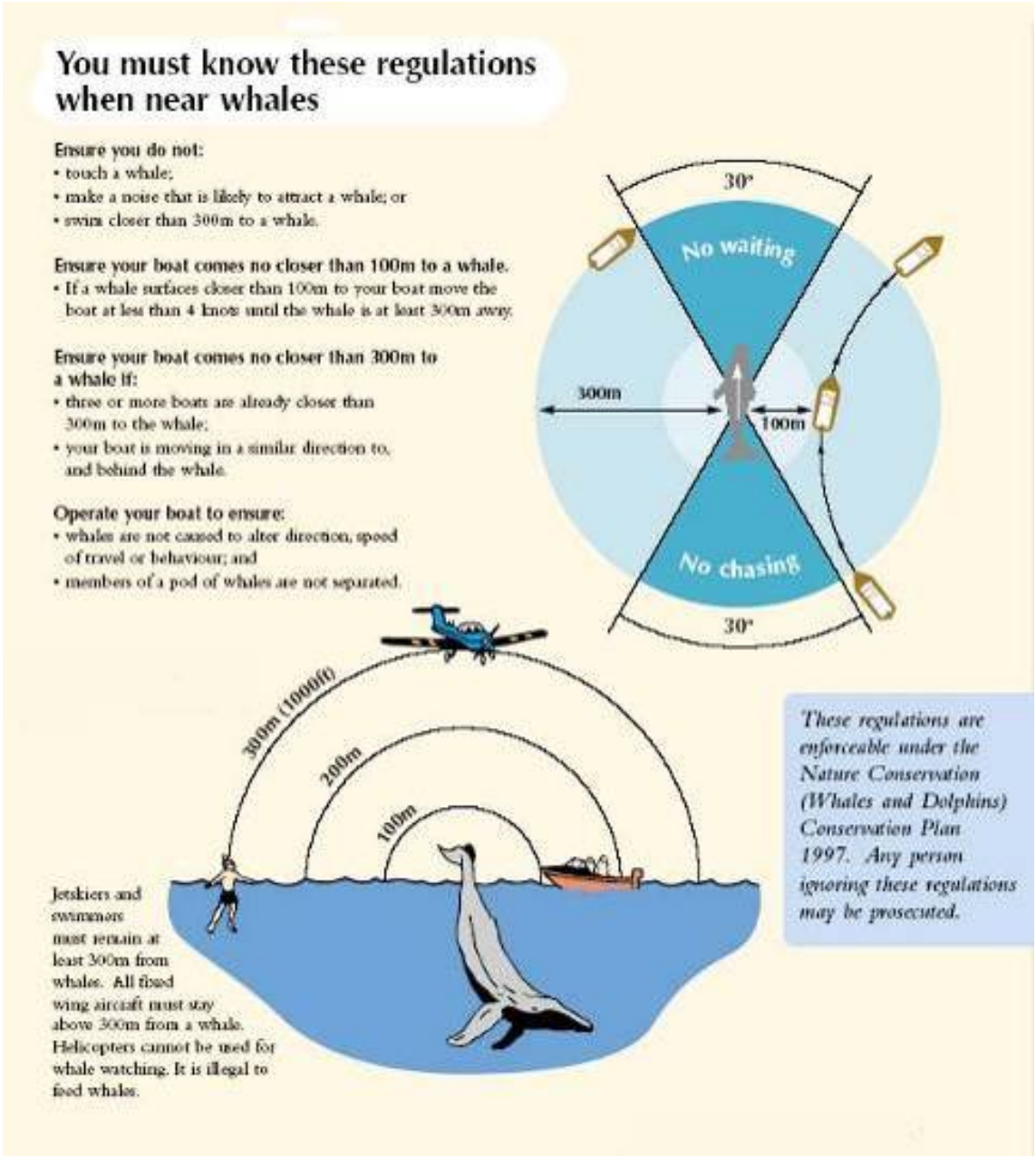
Information from aerial and boat-based studies, humpbacks have found to favour the eastern part of Hervey Bay, especially Platypus Bay, and tend to aggregate in shallow water close to the western coast of Fraser Island (Corkeron et al. 1994). The area offshore from the Wathumba Creek is identified as being an area that is favoured by humpbacks (Corkeron et al. 1994). It is uncertain what contributes to this aggregation but it could be the freshwater influence of the creek (Queensland Government 1994).

Aerial surveys are conducted to monitor the distribution and abundance of humpback whales and vessels in the marine park (Queensland Government 1994). The estimated natural population of humpback whales visiting eastern Australian waters before commercial whaling was 10,000 (Queensland Government 1994). In 1993, eastern Australia's humpback whale population was estimated at between 1,500 and 1,800. This is two to three times the number believed to have been left when commercial hunting of humpbacks in Australian waters was stopped in 1963 (Queensland Government 1994). At that time the species was under threat of extinction. In

response to protection, the humpback population gradually is increasing (Queensland Government 1994).

Whale watching activities in Hervey Bay are controlled strictly by the provisions of the Hervey Bay Marine Park Zoning Plan, and by a code of ethics developed for commercial whale watching operators (Queensland Government 1994). These regulations encompass specified whale watch areas, approach conditions and regulated educational and interpretive programs (Figure 34) (Queensland Government 1999). Concerns remain about the potentially adverse effect of tourist activity on whales. Private whale watching vessels are not restricted in numbers and can be a problem at peak periods. Fixed wing aircraft are restricted to minimum approach distances to and altitudes over whales from 1 August to 30 November each year. Helicopters may not be used for whale watching (Queensland Government 1994).

Figure 34: Whale watch regulations in Hervey Bay



Source: (Queensland Government n.d.-b)

In addition to the industry set regulations there is a permit system for whale watching commercial activity in Hervey Bay. In 1990, 21 licenses were issued and QPWS started to collect statistics on visitor numbers (Scott 2003). Currently, six year permits are issued, with only 18 permits available (Queensland Government 2003). Permit conditions include a levy based on the number of passengers carried. Permit fees for commercial operators and passenger levies for the whale management area are also in place. Commercial guided tours

account for a large proportion of all face-to-face contact with the visiting public (Figures 35 and 36). Training courses have been conducted for tour operators in the Hervey Bay Marine Park (Queensland Government 1994).

Figure 35: Quick Cat II, purpose built vessel, leaving Urangan Boat Harbour

Source: (Perry 2004)

Figure 36: Whale watching August 2004

Photo: A. Smith

A policy model for the regulation of the Hervey Bay commercial whale watching industry was developed by the Department of Environment and Heritage in 1990 (Queensland Government 1994).

The policy model comprises three components:

1. A maximum of 18 transferable licences (permits) allocated among seven classes of vessels. Licence fees for each vessel are coupled with a passenger levy directed towards park management;
2. A penalty structure providing for permanent revocation of licences which encourages compliance with licence conditions; and
3. A monitoring and enforcement program funded by the passenger levy.

The objectives of the Hervey Bay Whale Watch management program (Queensland Government 1994) in order of importance are to:

- Conserve the humpback whales in Hervey Bay;
- Maintain the Hervey Bay ecosystem required for the long-term survival of humpback whales;
- Maximise the number of visitors;
- Reduce overcapacity of commercial whale watching operations;
- Increase (maximise) whale watching industry income;
- Provide local employment in the whale watching industry;
- Reduce conflicts between park users;
- Improve the quality of whale watching as a tourism product; and
- Generate revenue for marine park management activities including patrols,
- Training, whale monitoring and research.

Impacts on Whales from Whale-watching

Some common species such as humpback whales and killer whales are the focus of more whale watching activities than others (Higham & Lusseau 2004). Most activities take place in coastal waters and take advantage of the seasonal use of this habitat by many whale species which use the areas as breeding and feeding grounds (Higham & Lusseau 2004). The predictable presence of one or two key species affords companies the opportunity to operate short daily tours, often several tours per day, and reliably find the targeted species on each tour (Higham & Lusseau 2004). Where whale watching activities have been established for several decades, as is the case of Hervey Bay, there is a tendency for the industry to move towards fewer, larger vessels that can take more passengers (Hoyt 2001).

In the past 10 years there has been increasing interest in studying the effects of tourism activities on whales. A number of deleterious effects have been documented for whales, these include: changes in surfacing, ventilation and dive patterns; changes in swimming speed, changes in course of travel and orientation relative to potential sources of disturbance; dispersion or cohesion of cetacean groups; disruption of natural foraging, resting and socialising behaviour; changes in ranging patterns and habitat use including long-term displacement from preferred areas; changes in vocal behaviour; and habituation and/or sensitisation to whale watching vessels (Bannister et al. 1996; Beaubrun 2002; Bejder & Samuels 2003; Corkeron 1995; Duffus 1996; GBRMPA 2000; Heckel, Espejel & Fischer 2003; Higham & Lusseau 2004; Jelinski, Krueger & Duffus 2002; Lien 2000; McCauley et al. 1996; Moore & Clarke 2002; Ollervides 2001; Richter, Dawson & Slooten 2003; Sousa-Lima, Morete, Fortes, Freitas & Engel 2002; Williams, Trites & Bain 2002). Some of these impacts relative to humpback whale watching will be discussed in further detail below.

Only a limited number of studies have been conducted on whale watching impacts with a focus on humpback whales. Corkeron (1995) conducted one of the major studies on the humpback whales in Hervey Bay, Queensland in relation to behaviour and responses to whale watching vessels. Pods without calves showed lower rates of behaviour generally when vessels were within 300 m of them. Pods both with and without calves were more likely to dive rather than slip under (submerge, sinking fairly flat in the water) when vessels were within 300 m. Calf pods almost never dived when vessels were absent, but did so when boats were present. The suite of surface behaviours displayed by whales in non-calf pods differed when vessels were present from when they were not. These behaviours included: head rise (whale lifts head vertically above the surface of the water), roll, lunge, side fluke (whale is on it's side, so that one half of the fluke is visible above the surface of the water), fluke slap, fluke wave, pectoral fin slap, pectoral fin wave, peduncle slap and breach (Figure 37). Breaches and pectoral fin slaps were more commonly associated at times when vessels were in the vicinity of whales. The function of these behaviours by humpback whales remains unresolved. Corkeron (1995) concluded that in Hervey Bay, whale watching affects the behaviour of whales that are involved in breeding-ground activities, however, as the whales are migrating through the whale watching area, individual animals are affected for a short period only.

Figure 37: Humpback whale surface behaviours

(a) mugging

(b) breaching

(c) head rise or spy hop

(d) pectoral fin slap

(e) tail slap

(f) roll

Sources: (Brigden 2005; Dept of the Environment & Heritage 2005; WCNE 2005)

McCauley, Cato and Jeffery (1996) also conducted research in Hervey Bay. This study examined the underwater acoustic environment of Hervey Bay with special reference to the noise produced by the whale watching fleet and possible effects on humpback whales. This study showed that there was evidence of increases in underwater noise correlating with disturbance of whales, however there was also evidence of acceptance and tolerance of vessels by the humpback whales. McCauley et al. (1996) reported mugging (whales actively seek out and investigate vessels for extended period at close range) as one of the observed behaviours. It was stated that commercial operators reported that this behaviour is becoming more commonplace each year. (McCauley et al. 1996)

Lien (2000) commented that whale watching vessel activity in Newfoundland, Canada can impact humpback whales by disrupting resting, feeding and diving behaviour, and causing dispersal of groups. Further, very close approaches and pursuit by vessels have been observed to produce 'wheezing' blows, shortened surface times and abrupt changes in direction. Lien (2000) also reported a study on the behaviour of humpback whales conducted in Glacier Bay, Alaska to vessels within a 400 m operating area. Whales responded to the close proximity of vessels by increasing dive times and moving away from the vessels path. Au and Green (2000) also reported behavioural changes in humpback whales exposed to whale watching vessels. Humpbacks were observed charging towards approaching boats and screaming underwater. Approaching boats also often triggered aerial behaviours such as breaching, flipper and tail slaps. Reported avoidance behaviours included reduced proportions of time at the surface; whales taking longer dives; alteration of direction as boats approach; spending more time underwater and decreasing swim speed after boats depart. Other avoidance behaviour involved a decrease in dive duration, longer blow intervals and an increase in swim speed.

Au and Green (2000) examined the acoustic interaction of humpback whales and whale watching boats in Maui, Hawaii, USA. This study found that during the humpback whale season the waters on the west shore of Maui are extremely noisy, with much of the ambient noise coming from humpback choruses. It was concluded that there was little doubt that humpbacks can hear the sounds of an approaching boat, even at the peak of the whale season when the background chorusing is the loudest, however, the levels of even the noisiest boats measured in the study would probably not cause any harm to the auditory system of the whales. Whales are exposed to the loudest sounds of the boat engines only for a short period of time (several minutes), further, during the peak whale season, the chorusing noises are often higher in levels than the sounds of the whale watching vessels travelling less than 10 knots and maintaining the required 91 m standoff distance from the whales. Sousa-Lima et al. (2002) also examined the impacts of boats on the vocal behaviour of humpback whales in Brazil and found that the humpback whales studied sang shorter versions of their songs when exposed to engine noise or interrupted their songs after a motor boat switched gears within 300 m, and resumed singing when the engine was returned to neutral. This study however only had a small number of observable calls. Bejder and Samuels (2003) commented that as humpback song is thought to be a sexual display, alteration of song in response to man-made noise may affect reproductive success. (Au & Green 2000)

The above studies highlight that there is little doubt that boat traffic may have a short-term affect on the behaviour of humpback whales. Bejder and Samuels (2003) highlight that it has rarely been possible to demonstrate the biological significance of short-term behavioural change in response to anthropogenic activity. They further state that the present funding of cetacean behavioural studies is not supportive of the baseline research needed to identify what is 'normal' behaviour for cetaceans of various species, age/sex classes and reproductive classes, nor of the longitudinal research needed to quantify long-term change in response to human activity.

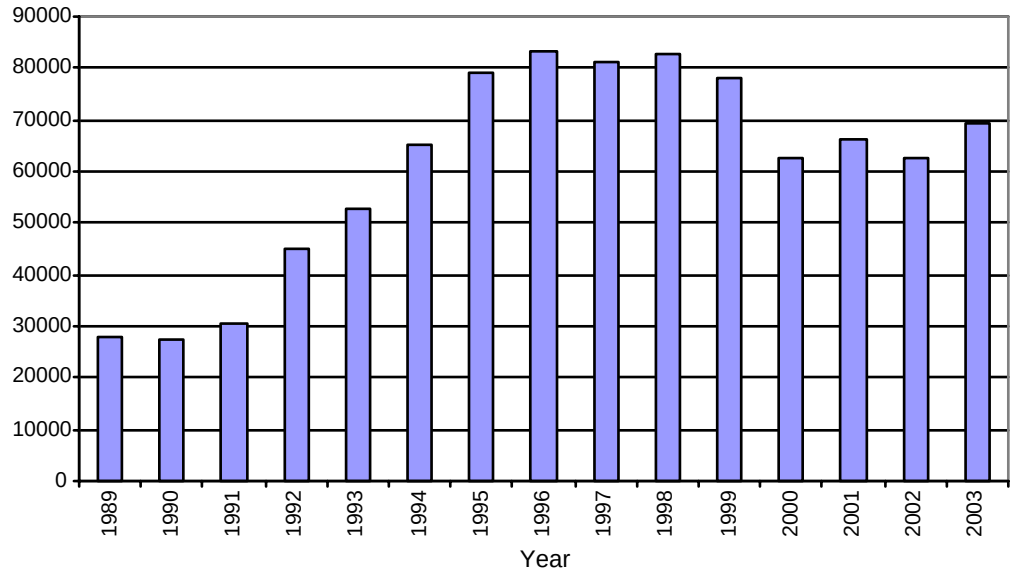
More obvious impacts to humpback whales include entanglement in fishing nets while on their annual migration, with several incidents in recent years being reported; and injuries from collisions (Bannister et al. 1996; GBRMPA 2000). In August 1998, a humpback was observed in the Whitsundays with an injury to the dorsal fin thought to be caused by the propeller of a large ship. In 1999, examination of a dead humpback calf from the Mackay region in Queensland revealed a fractured jaw, consistent with a ship strike (GBRMPA 2000). In 2000, a humpback whale was hit by a vessel in the popular Stellwagen Bank, New England, USA (Higham & Lusseau 2004).

Positive social effects of whale watching for humans are similar to those already discussed in the previous section 'Impacts on dolphins from provisioning'. The positive economic and political benefits of whale watching were highlighted in this section. Positive social effects for humans include whale watching as a platform for public environmental education, positive psychological effects, and the positive perception of whales as intelligent creatures with sophisticated communication systems (Higham & Lusseau 2004; Hoyt 2001).

Current Recreation Use

QPWS began officially monitoring passenger numbers on whale watching vessels operating in Hervey Bay Marine Park in 1989 for the whale watching season (July to November). Prior to this, estimates were made by individual operators. Since 1988, when whale watching began in Hervey Bay, visitor numbers per annum have ranged from 11,000 to 83,121 (Figure 38). Peak periods for whale watching in Hervey Bay were from 1995 to 1999. This time coincided with considerable media coverage and the presence of Mimi McPherson, sister of supermodel Elle McPherson, operating Mimi McPherson Whale Watch Expeditions, which added significant publicity to whale watching activities (Scott 2003). In addition, the communication by media was against a background of interest in the environment and whales with organization such as International Fund for Animal Welfare (IFAW), Whales Alive and Greenpeace, promoting the whale issue (Scott 2003). Since then there has been a gradual decline in the number of visitors involved in whale watching in Hervey Bay (Figure 38). From 2000 to 2003, the mean visitor numbers per annum is 65,296.

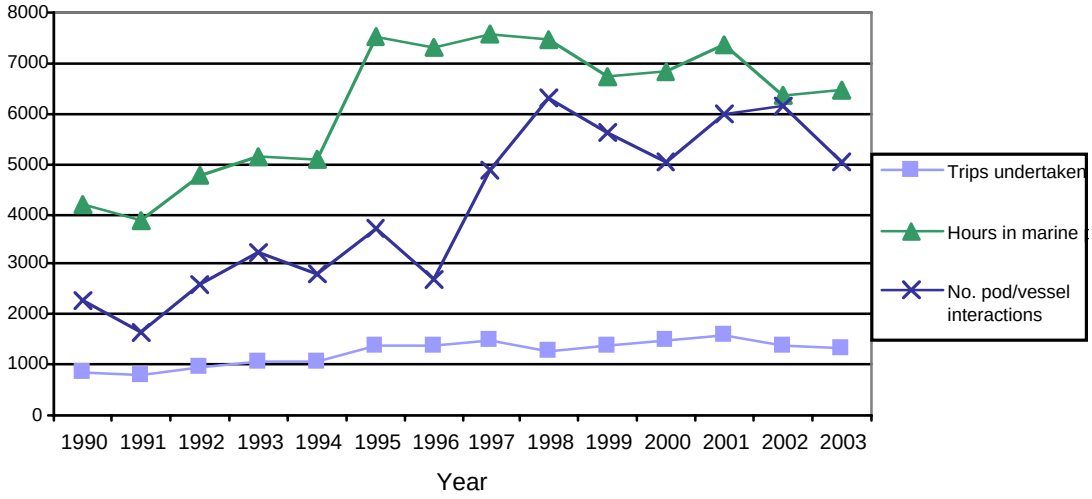
Figure 38: Hervey Bay Marine Park whale watching visitor numbers 1988 to 2003



Source: (Queensland Government n.d.-a)

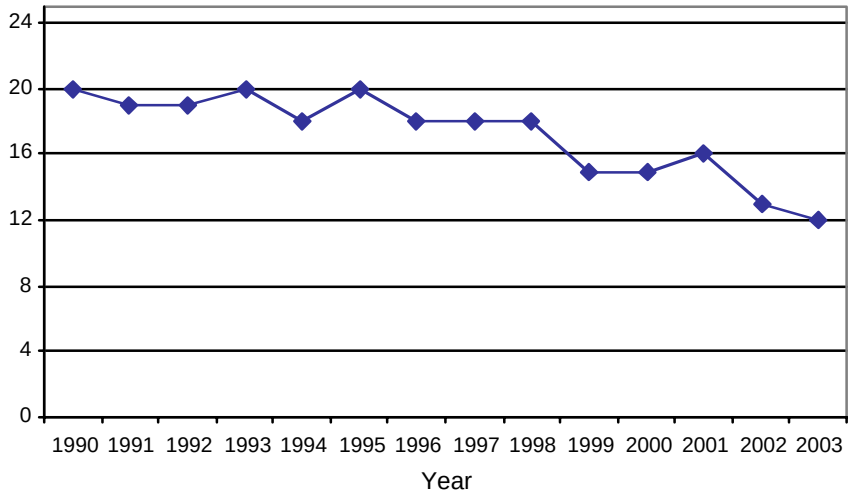
The number of trips taken has remained relatively constant from 1990 even though the number of vessels has decreased (Figures 39 and 40). Additionally, there has been an increase in the number of pods per vessel interactions since 1996. There is a broad fleet mix with differing size classes providing a diversity of opportunity for the whale watching public. Currently, there is one 10.5 m sailing vessel that has a capacity of 20 people, three 15 m catamarans with a capacity of 70 to 80 people, three 20 m catamarans with a capacity of 100 to 150, a 20 m luxury catamaran with a capacity of 12 people, a 17 m and two 18 m catamarans with a capacity of 80 people operating as part of the fleet (Figure 41). These vessels offer a range of tours including half, three-quarter and full day tours. The price for an adult on these tours ranges from $A75 to $A90 for a half day tour with three quarter to full day tours ranging from $A80 to $A85 while the luxury charter is $A199 per adult for a full day.

Figure 39: Hervey Bay Marine Park whale watching trips undertaken, hours in marine park and number of pod/vessel interactions 1990 to 2003



Source: (Queensland Government n.d.-a)

Figure 40: Hervey Bay Marine Park number of vessels 1990-2003



Source: (Queensland Government n.d.-a)

Figure 41: Hervey Bay whale watching vessels (a) Blue Dolphin Marine Tours (10.5 m sailing cat) (b) Whalesong Cruises (15 m catamaran) (c) Wildlife Coast Cruises (18 m catamaran)

(a)

(b)

(c)

Sources: (Blue Dolphin Marine Tours 2005; Brigden 2005; Wildlife Coast Cruises 2005)

Hervey Bay Visitor Survey Results

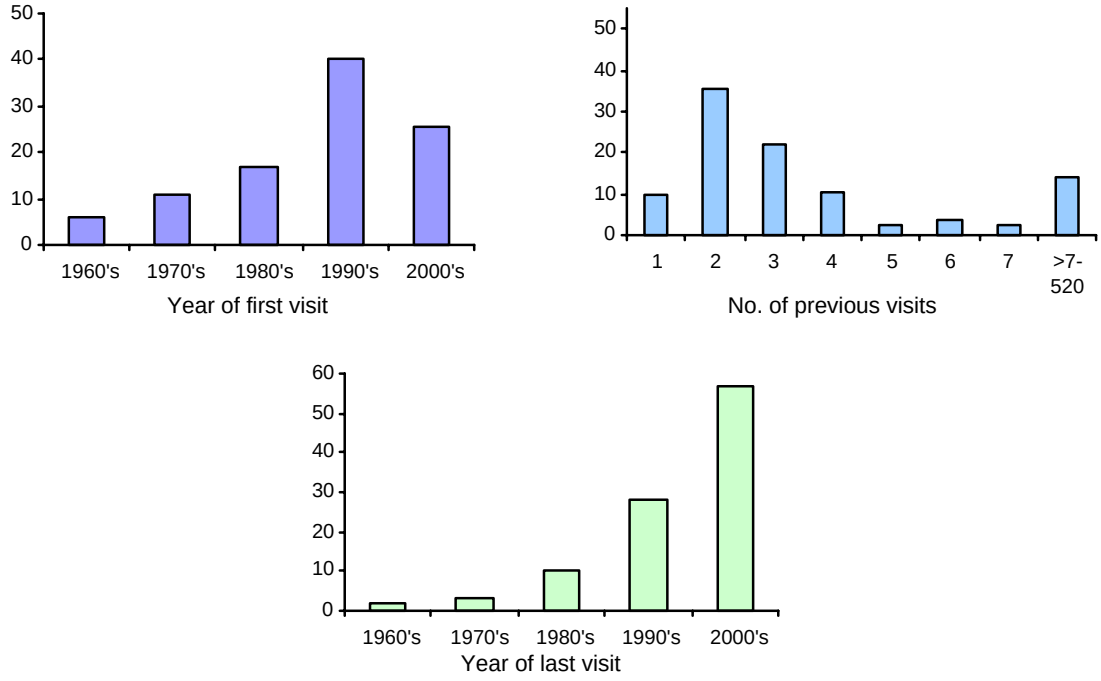
This section reports the results from the Hervey Bay Visitor Survey August 2004 (Appendix C). The results relating to the social survey are presented in the following parts: visit and visitor characteristics; other places visited and activities; reasons for visiting; and whale watching experience. A total of 342 surveys were distributed at Hervey Bay, of those 314 were returned, representing a response rate of 91.8%.

Visit and Visitor Characteristics

This section reports on the results of Part I and Part IV of the Hervey Bay Visitor Survey August 2004 (Appendix C). The questions in this section addressed respondents' most recent visit to Hervey Bay. Questions addressed characteristics such as details of previous visit; length of stay of most recent visit; type and size of group; type of transport and accommodation; and respondents' origin, age bracket and gender.

Sixty-one percent of respondents (N=306) were visiting Hervey Bay for the first time. Of those who had previously visited Hervey Bay (N=121), the year of first visit ranged form 1937 to 2004 with the majority of respondents visiting Hervey Bay since 1990 (Figure 42). More than half of the repeat visitors had visited Hervey Bay on at least two occasions with the year of last visit being since 1990.

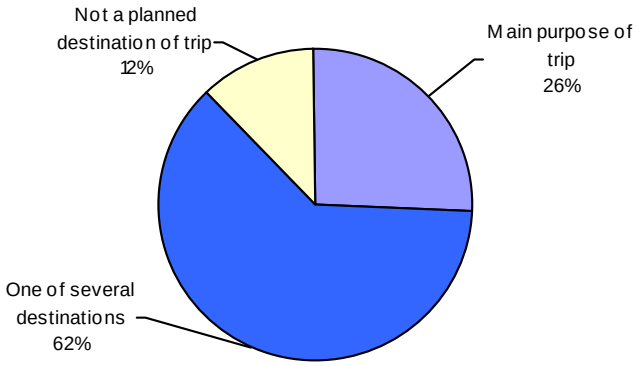
Figure 42: Year of first visit, number of previous visits and year of last visit to Hervey Bay (N=120)



These findings are similar to dolphin viewing in Monkey Mia in that the majority of respondents (70%) are first time visitors although the proportion of first time visitors to Hervey Bay was lower. Other whale watching experiences in Queensland also reported similar incidences of first time visitors. Valentine et al. (2004) conducted a survey in the Great Barrier Reef of northern Queensland, Australia of swim-with-whales operations based on the dwarf minke whales (*Balaenoptera acutorostrata).* Visitor surveys were conducted over two seasons (1999 and 2000) on board five vessels with 527 respondents. Similar to the situation in Hervey Bay, the majority of respondents (63%) were also first time visitors to the Great Barrier Reef (Birtles, Valentine, Curnock, Arnold & Dunstan 2002; Valentine, Birtles, Curnock, Arnold & Dunstan 2004).

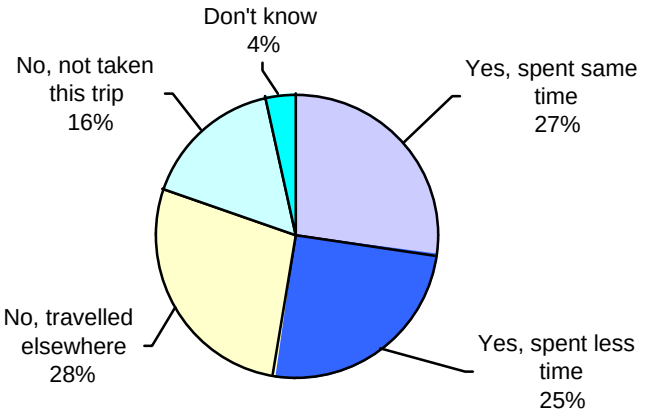
The majority of respondents (62%) stated that Hervey Bay was one of several destinations on this trip while 26% stated that is was the main purpose of the trip (Figure 43). Similar to Monkey Mia, Hervey Bay is part of a multi-destination trip by visitors.

Figure 43: Travel patterns of visitors to Hervey Bay (N=298)



Respondents were asked if whale watching at Hervey Bay did not exist would they still have taken this trip to Hervey Bay. As shown in Figure 44, 28% of respondents would not have taken the trip and travelled elsewhere, 27% would still have taken the trip and spent the same amount of time and 25% would have still taken the trip but spent less time in Hervey Bay.

Figure 44: If whale watching at Hervey Bay did not exist would you still have taken this trip (N=300)

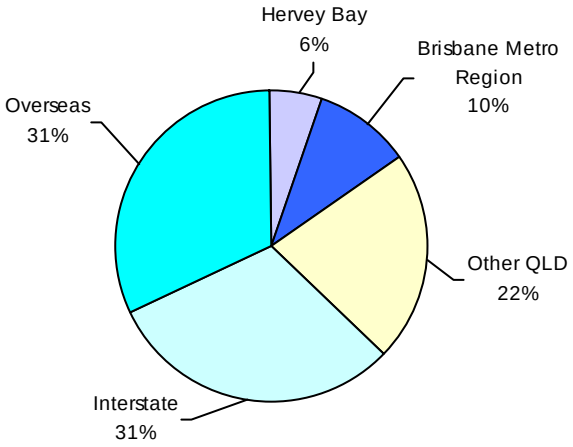


These findings show that a higher proportion of Hervey Bay respondents would have spent less time in Hervey Bay if whale watching was not available than visitors to Monkey Mia. However, these findings are not significantly different. Additionally, the average length of stay in Hervey Bay was longer (two to three nights) than for Monkey Mia (one to two nights).

Visitor Origin

An almost equal proportion of respondents normally live in Queensland (38%), Overseas (31%) and Interstate (31%) (Figure 45). The majority of overseas respondents were from Europe (26%) with 9% coming from United Kingdom and 4% coming from Germany. For interstate respondents, the largest proportion of respondents came from New South Wales (22%) and Victoria (18%) followed by South Australia (6%), Western Australia (2%) and Tasmania (1%).

Figure 45: Hervey Bay respondents usual place of residence (N=311)



A number of social surveys have been conducted in the Hervey Bay Region. The earliest survey reviewed was conducted in 1993 for the Queensland Department of Environment and Heritage, Central Coast Region with the purpose to identify the expectations, preferences and demographics of visitors to Hervey Bay Marine Park (Goyne 1993). A total of 1,506 visitors were surveyed from 15th September to 15th October 1993 on each of the 20 whale watching vessels operating at the time (Goyne 1993). In contrast to the above findings, Goyne (1993) found that the largest proportion of respondents were from Australia (93%) with only 7% of respondents from overseas. Of those Australian respondents, 59% were from Queensland while the majority of overseas respondents were from Europe (Goyne 1993).

A regional study was conducted in July 2001 by Tourism Queensland in which 176 visitors were surveyed in the Hervey Bay/Maryborough Region (Tourism Queensland 2001). This study also found that the majority of respondents were from Queensland (46%) followed by interstate (28%) and overseas (26%) (Tourism Queensland 2001).

A further study was conducted by Tourism Queensland in October 1998 in Hervey Bay and Moreton Bay (Tourism Queensland 1998). A total of 661 visitors were surveyed in regards to the profile of visitors on whale watching tours. This study also found that the majority of respondents were from Queensland (49%) followed by interstate (25%) with a lower proportion of overseas (15%) respondents (Tourism Queensland 1998). Overseas respondents mostly came from Europe while interstate respondents most frequently came from New South Wales and Victoria (Tourism Queensland 1998).

In 1999, James Cook University conducted a study examining visitor's needs and preferences for interpretation on whale watching tours in Hervey Bay. A total of 478 visitors were surveyed from 4th to 19th August 1999 on nine whale watching vessels (Foxlee 1999). In contrast Foxlee (1999) found that an almost equal proportion of respondents came from Australia (51%) and overseas (49%). Foxlee (1999) found a much higher proportion of overseas respondents than any of the previous studies and this current study. Similar to other findings, Foxlee (1999) found that of those residing in Australia, over half (52%) were residents of Queensland, followed by New South Wales (20%), Victoria (17%), South Australia (5%), Australian Capital Territory (4%), Western Australia (1%) and Tasmania (1%). Similarly, most respondents from overseas were European residents (84%). Other overseas visitors came from countries within the Pacific (6%) (i.e. New Zealand and Papua New Guinea), from Asia (5%), North America (4%) and from Africa and the Middle East (1%) (Foxlee 1999).

Surveys of whale watching visitors elsewhere in Australia have also found contrasting results as to the origin of visitors. Valentine et al. (2004) conducted a survey in the Great Barrier Reef, Queensland, found that the majority of respondents were from overseas (79%) with 21% of respondents from Australia. The majority of overseas respondents were from USA (41%) followed by Europe (23%). Most of the Australian respondents were from Queensland (12%) followed by New South Wales (5%) (Birtles et al. 2002; Valentine et al. 2004).

Travel Party

Respondents were most likely to visit as a couple (35%) followed by a family (26%) group (Figure 46). The average group size was two with a range of 1 to 25 persons. The majority of groups consisted of two adults with no children (Table 20). Cross tabulation between the type of group and group size showed that the number of adults in a group sized larger than eight people were mostly part of a tour group.

Figure 46: Type and size of group with whom respondents visited Hervey Bay (N=311)

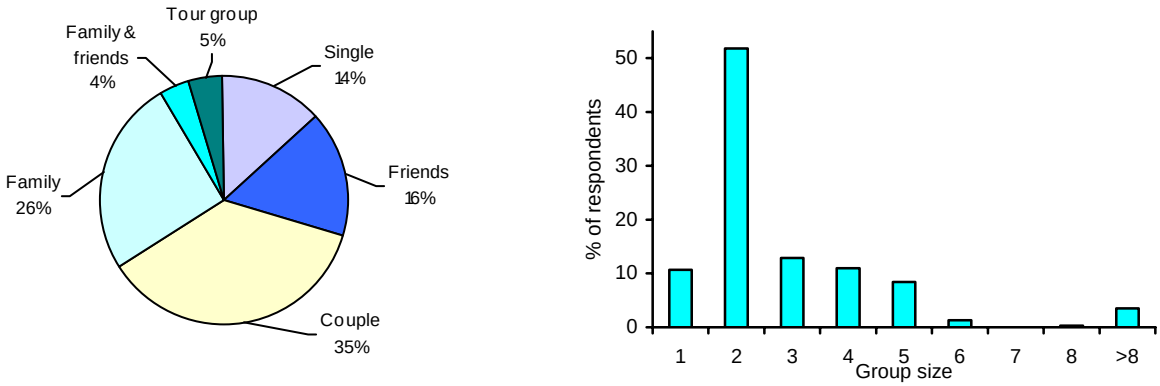


Table 21: Construct of group including total group size and percentage of adults and children in group of respondents at Hervey Bay (N=310)

Total number of adults	% of group	Total number of children	% of group
0*	0.3	0*	83.9
1	11.0	1	5.5
2	63.2	2	5.2
3	11.6	3	3.5
4	7.7	4	1.0
5	3.2	5	-
6	-	6	-
7	-	7	-
8	0.3	8	-
9	1.0	9	-
10	-	10	-
>10	1.6	>10	1.0

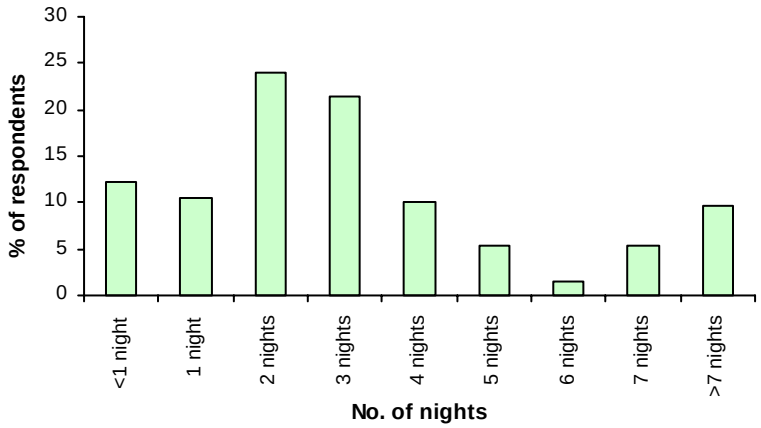
*Most groups had no children

Similarly, Tourism Queensland (1998) found that respondents were most likely to travel as a couple (37%), adult group (27%) and family with children (25%). Tourism Queensland (2001) found similar trends and stated that the average group size was two people (46%). Foxlee (1999) found that 66% of respondents went whale watching with their spouse or partner, and only 15% of respondents were travelling with children and the Tourism Queensland (2001) regional study also found that respondents visited the Hervey Bay/Maryborough Region as part of a couple (35%) or as a family group (25%) with the majority of respondents travelling in a group of two persons and an average group size of 2.8. However, Goyne (1993) found that a higher proportion of respondents were most likely to visit with family (43%) followed by spouse/partner (31%) with an average group size of 3.8 people with a range of two to 51 people. These findings are consistent with other natural area studies as discussed previously in the Visit and Visitor Characteristics section of the Monkey Mia Survey Results.

Duration of Visit

The length of stay during the respondents' most recent visit to Hervey Bay was typically for two nights (24%) followed by three nights (22%) with a range of one to 155 nights (Figure 47). The average length of stay was three nights.

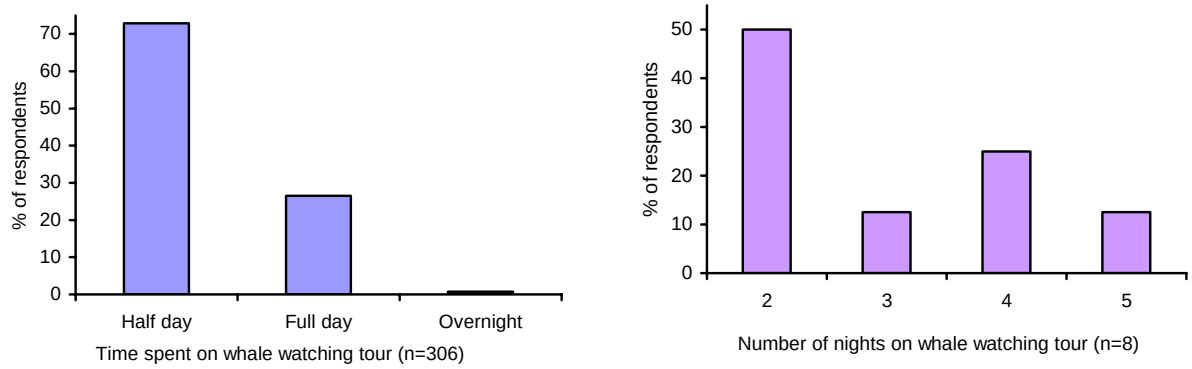
Figure 47: Length of stay in Hervey Bay during most recent visit (N=219)



The Monkey Mia survey also reported that the majority of respondents stayed in the Region for short stay visits. In contrast, Tourism Queensland (2001) found that respondents to the Hervey Bay/Maryborough Region generally stayed in the on average for nine nights. This shows a greater diversification.

Respondents were asked to state the amount of time that was spent on a whale-watching tour. The majority of respondents (73%) went on a half day tour (Figure 48). Less than 1% of respondents went on an overnight tour of which the majority spent no longer than two nights on these tours. This bias towards a half day tour could be due to the majority of respondents being surveyed while on a half day tour.

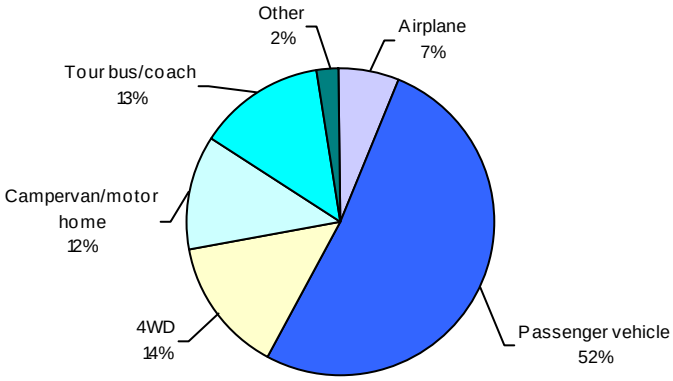
Figure 48: Time spent on whale watching tour and number of nights if tour was overnight



Transport to Region

Respondents were most likely to visit the Hervey Bay by passenger vehicle (52%) followed by four-wheel drive vehicle (4WD) (14%), tour bus/coach (13%) and campervan/motor home (12%) (Figure 49). Cross tabulation showed that the majority of Australian respondents were most likely to travel to Hervey Bay by passenger vehicle followed by 4WD. Overseas respondents were also most likely to travel to the Region by passenger vehicle (33%) followed by tour bus/coach (26%) and campervan/motor home (22%).

Figure 49: Main means of transport to Hervey Bay (N=306)

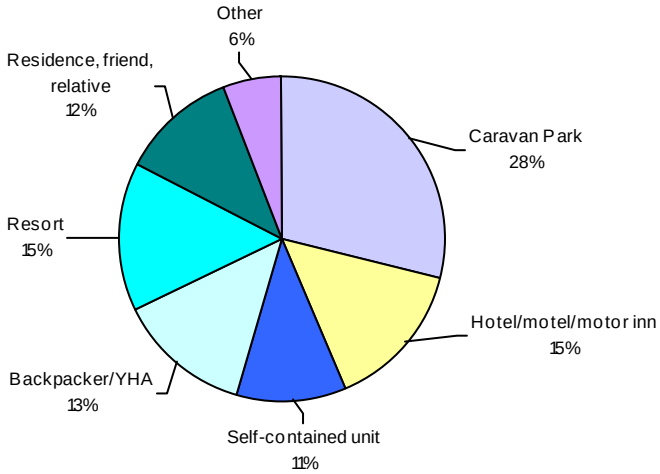


Tourism Queensland (2001) also found that the majority of Australian respondents visited the Hervey Bay/Maryborough Region by their own car or 4WD (80%) while 50% of overseas respondents travelled to the Region by tour bus/coach followed by own car or 4WD (22%). The Fraser Coast South Burnett Regional Summary reported that road transport is the major means of bringing visitors into the Region (Tourism Queensland 2004). It was reported that 93% of Australian visitors use road transport with 65% of inbound overseas visitors travelling by bus and 35% utilising a private or rental car when travelling to the Region (Tourism Queensland 2004).

Accommodation

A majority of respondents stayed in caravan park accommodation (28%) followed by hotel/motel/motor inn (15%) and resort (15%) and backpacker/YHA accommodation (13%) (Figure 50). Cross tabulation between accommodation type and place of residence showed that Queensland residents were most likely to stay in resort accommodation (26%) followed by caravan park accommodation (22%; 12% staying in a park home) and self contained unit/apartment (17%). Interstate respondents were most likely to stay in caravan park accommodation (41%; 32% in a caravan site) followed by with friends and family (17%) and resort accommodation (15%). Overseas respondents were most likely to stay in a backpackers or youth hostel (32%) followed by caravan park accommodation (25%; 15% in a caravan site) and motel (13%).

Figure 50: Type of accommodation stayed in while visiting Hervey Bay (N=257)



The survey conducted by Tourism Queensland (2001) showed that the majority of respondents to the Region generally stayed in a caravan/tent in park (34%, 18% in a caravan; 16% in a tent) followed by with friends or relatives (21%). This survey showed Queensland respondents mostly staying in caravan park accommodation (40%; 19% in a caravan) followed by with friends or relatives. Interstate visitors were also more likely to stay in

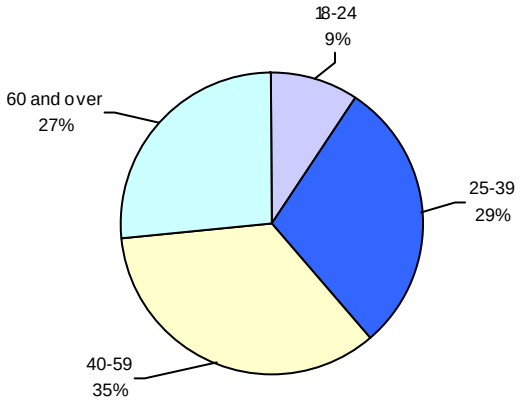
caravan park accommodation (42%; 27% in a caravan) while overseas respondents were more likely to stay in backpacker/YHA (47%) (Tourism Queensland 2001).

These results are similar to the findings from Monkey Mia. There was a higher incidence of local residents (QLD residents) staying in resort style accommodation in Hervey Bay than in Monkey Mia but this is likely to be reflective of the greater breadth of accommodation available in Hervey Bay when compared to Monkey Mia.

Demographics

The highest proportion of respondents contributed to the 40 to 59 year age bracket (35%) followed by the 25 to 39 year age bracket (29%) and 60 and over age bracket (27%) (Figure 51). The results suggest that respondents are more likely to be over 25. There were a higher proportion of female respondents with a ratio of 57:43 female to male. This ratio is the same as Monkey Mia indicating that a higher proportion of females go whale and dolphin watching. To verify this ratio the total number of passengers on board each of the surveyed trips was recorded including the female to male ratio. The female to male ratio for all passengers on board the surveyed trips was 54:46. This highlights that while there is a higher ratio of females involved in whale watching there is also a tendency for females to participate in the survey.

Figure 51: Age groups of Hervey Bay respondents (N=266)



Tourism Queensland (1998) found that the dominant age group of respondents was the 30 to 39 year age group (24%) although it was suggested that whale watching was not restricted to any age class and that people of all ages engage in whale watching. This survey also found that there was a higher (61:39) female to male ratio.

Foxlee (1999) found that the majority of whale watching respondents in Hervey Bay were aged between 20 and 29 years (32%) and over 50 years (31%) with a 59:41 female to male ratio. The age of respondents in 1999 were generally in a younger age demographic with the majority (57%) being under 40 years of age. In contrast, this study found that the majority of respondents were over 40 years of age with only a small proportion being under 25 (Figure 50).

Valentine et al. (2004) also found that the majority of whale tourism participants were on average aged 32. However, the female to male ratio of swim-with-whale participants was 46:54 (Birtles et al. 2002; Valentine et al. 2004), which was lower than experienced elsewhere in Australia in cetacean encounter experiences where the majority of respondents are female.

Profession

As shown in Table 22, a relatively large proportion of respondents were ‘white-collar’ workers. The second largest group were retirees followed by students.

Table 22: Occupation of Hervey Bay respondents (N=265)

Occupation	Frequency	Percent
WHITE COLLAR		
Manager/Administrator	37	14.0
Para-professional	9	3.4
Professional	76	28.7
Total	**122**	**46.1**
BLUE COLLAR		
Labourer & related	6	2.3
Machine operator	2	0.8
Tradesperson	8	3.0
Total	**16**	**6.1**
Retired	72	27.2
Student	22	8.3
Sales & personal services	16	6.0
Home duties	9	3.4
Unemployed	5	1.9
Hospitality	1	0.4
Self-employed	1	0.4

Tourism Queensland (1998) while not asking for occupations specifically, asked respondents to indicate their income. The majority of respondents earned $A70,000 and over (27%) followed by under $A30,000 (26%), $A30,000 to 39,999 (13%) and $A40,000 to 49,999 (13%). Tourism Queensland (2001) also surveyed visitors in the Hervey Bay/Maryborough Region about income. This survey found that the majority of respondents earned $A40,000 to $A59,999 (21%) followed by $A60,000 to $A79,999 (19%). Blamey and Hatch (1998) surveyed international visitors to Australia participating in nature based tourist activities. They found that for respondents participating in whale watching, the majority of international visitors were professionals followed by students. (Blamey & Hatch 1998)

Other Places Visited and Activities

The questions addressed in this section relate to other places visited while on the trip, other sites respondents visited while visiting Hervey Bay and the activities that they participated in while visiting Hervey Bay. Respondents were asked while on this trip were they only visiting Hervey Bay and if not how long they were away from their usual place of residence and other places that they visited while on the trip. Seventy-five percent of respondents stated that Hervey Bay was not the only place they were visiting while on this trip. Respondents were away from their usual place of residence on average for 28 nights with a range of one to 744 nights (about two years). A list of 51 places was given by respondents in regards to where the previous night was spent before travelling to Hervey Bay (Appendix F). The most common places where the previous night was spent before travelling to Hervey Bay were Brisbane, Noosa, Bundaberg and Rockhampton (Table 23).

Table 23: Place where previous night was spent before travelling to Hervey Bay (N=120)

Place stayed previous night before Hervey Bay	Frequency	Percent
Brisbane	28	8.6
Noosa	16	4.9
Bundaberg	12	3.7
Rockhampton	12	3.7
Town of 1770	11	3.4
Airlie Beach	8	2.5
Yeppoon	7	2.2
Amamoor	6	1.9
Fraser Island	6	1.9
Gladstone	6	1.9
Mackay	6	1.9

The most frequently visited or planned to visit places while away on the current trip included Fraser Island, Bundaberg and Maryborough (Table 24). On average respondents visited each of these places for a night. Cross tabulation between place visited and place of residence showed that interstate and overseas respondents were most likely to visit these places.

Table 24: Percentage of respondents that indicated places visited (or planned to visit) on current trip away from 'home' and amount of time spent (or planned to spend) there (N=324)

Place visited/ plan to visit	Yes visited/ plan to visit	Number of nights								
		<1	1	2	3	4	5	6	7	>7
Fraser Island	29.0	0.6	9.0	6.2	2.5	-	-	0.3	-	-
Bundaberg	15.4	0.3	3.1	0.6	1.9	1.2	-	-	1.2	-
Maryborough	12.3	0.3	2.2	1.5	0.6	0.3	0.3	-	-	-
Rainbow Beach	8.0	0.6	2.5	1.9	0.3	0.9	-	0.3	-	-
Tin Can Bay	7.4	0.6	2.8	0.3	0.6	0.6	-	-	0.6	0.3
Gympie	6.8	0.6	1.2	-	0.3	0.3	0.3	-	-	-
Kingaroy	2.8	0.3	1.2	0.6	0.3	-	-	-	-	-
Other	25.6	-	3.7	1.5	2.8	1.5	1.5	0.9	1.2	37.5

Respondents generally participated in a wide variety of activities. The most commonly participated activities were viewing whales, visiting restaurants and café's, lazing on the beach and walking/hiking (Table 25). The most common activities that respondents planned to do were visiting restaurants/cafés, walking/hiking, lazing on the beach and swimming/snorkelling. Respondents did not plan to play lawn bowls, go horse riding, play golf, play tennis or go boating in a private boat. They were unsure if they would visit the Regional Art Gallery in Pialba, visit the 'Natural Impressions' Art Gallery or view other land-based wildlife.

Table 25: Activities already done, planned to do and not planned to do by respondents while in Hervey Bay (N=324)

Item	Have done	Plan to do	Do not plan to do	Unsure if will do
Viewing whales	90.4	0.3	0.6	-
Visiting restaurants and café's	34.3	26.2	19.1	5.9
Lazing on the beach	21.6	19.1	39.8	3.1
Walking/hiking	19.1	22.2	38.9	4.6
Swimming / snorkelling	11.7	13.9	50.0	5.9
Visiting Fraser Island	11.7	9.6	2.8	0.9
Viewing other land-based wildlife	9.6	13.6	51.2	6.2
Other commercial tour	9.6	10.5	37.7	3.1
Visiting Hervey Bay's Sunday Markets	9.0	9.0	59.9	4.0
Bird watching/ bird feeding	7.7	4.0	63.6	4.6
Fishing	7.7	8.6	63.9	2.5
Other	4.0	4.0	29.6	4.0
Boating (in private boat)	3.4	4.9	69.4	2.8
Playing Golf	2.8	2.5	73.1	2.5
Visiting the Regional Art Gallery in Pialba	2.8	4.6	67.9	7.1
Playing Tennis	2.5	3.4	71.9	3.1
Playing Lawn Bowls	1.5	1.5	76.2	1.9
Visiting 'Natural Impressions' Art Gallery	1.5	4.3	69.1	6.8
Horse-riding	0.9	1.2	74.4	4.0

Respondents indicated the most enjoyable activities that they participated in. Viewing the wildlife icon (whales) was the activity most enjoyed by the majority of respondents (Table 26).

Table 26: Of activities participated in, activity most enjoyed by Hervey Bay respondents (N=263)

Activity	Percent
Viewing wildlife icon (whales)	85.9
Fraser Island	5.3
Fishing	1.9
Lazing on beach	1.1
Cafes/restaurants	0.8
Shopping	0.8
Swimming/snorkelling	0.8
Viewing terrestrial wildlife	0.8
Camping	0.4
Maryborough	0.4
Other activity	0.4
Regional gallery	0.4
Sky diving	0.4
Undara Lava Tubes	0.4
Walking/hiking	0.4

Respondents were asked to indicate of the activities they planned to do which they were most looking forward to. The majority of respondents did not list any additional activities (Table 27). Of those that did list activities, respondents gave 34 different activities (Appendix H). These activities were categorised for ease of

analysis. The majority of respondents listed land-based activities that involved the natural environment. Of those activities in the natural environment, visiting Fraser Island (26%) was the most common response. Land based activities were followed by water based activities which included lazing on the beach (9%) and swimming/snorkelling (6%).

Table 27: Of activities planned to do, activities Hervey Bay respondents were most looking forward to (N=141)

Activities	Percent
None listed	51.3
Wildlife Based Activities	18.4
Water Based Activities	20.6
Land Based Activities	
Natural Environment	36.9
Built Environment	17.7
Other	6.4

Respondents were also asked to list any other activities that they would liked to have been involved in that are not currently available at Hervey Bay. Thirty-two activities were listed (Appendix H). These activities were categorised for analysis. The majority (51%) of respondents did not list any additional activities (Table 28). The most common activities listed were land-based activities involving the built environment. Twelve built environment activities were listed. Of those activities, 'better shopping' and 'better public transport' were the most frequently listed. The next most common activities were wildlife-based activities. Eight activities were listed. Of those activities, 'other water sports' was the most frequently listed (Appendix H).

Table 28: Other activities respondents would have liked to be involved in that were not currently available at Hervey Bay (N=78)

Activities	Percent
None listed	51.3
Leave it as it is/none needed	2.6
Wildlife Based Activities	10.3
Water Based Activities	9.0
Land Based Activities	
Natural Environment	7.7
Built Environment	19.2

Reasons for Visiting

The following section reports on Part II from the Hervey Bay Visitor Survey August 2004 (Appendix C). Survey respondents were asked to indicate how important each reason for visiting Hervey Bay was, ranging from not important to extremely important (Table 29).

Of the various possible reasons for visiting Hervey Bay, 'seeing whales in their natural environment' and 'the opportunity to see whales' was ranked as extremely important by the majority of respondents. When the results for very and extremely important were combined, respondents identified 'seeing whales in their natural environment', 'the opportunity to see whales', 'to view marine wildlife', 'to be in & enjoy a natural environment' and 'holiday/tourism' as the most important reasons for visiting Hervey Bay (Table 29).

Table 29: Percentage of respondents' reasons for visiting Hervey Bay (N=324)

Reasons for visiting Hervey Bay	Not important	Minor importance	Important	Very important	Extremely important
The opportunity to see whales	0.9	3.4	16.4	25.0	45.7
Seeing whales in their natural environment	1.2	2.2	13.0	23.1	50.9
To go on a wildlife cruise	12.3	13.6	21.6	17.6	15.4
To spend time with companion(s)	16.0	11.4	21.3	19.1	14.8
To visit friends or relatives	44.8	8.3	9.0	8.0	8.3
To escape everyday routines	12.0	9.6	26.2	16.4	17.6
Holiday, tourism	7.7	5.2	29.0	21.9	17.6
To view terrestrial (land-based) wildlife	19.1	23.8	21.6	8.6	4.6
To view marine wildlife	4.6	9.3	19.1	28.1	19.8
To view dugongs	14.5	22.5	18.5	10.5	10.5
To be in & enjoy a natural environment	3.7	6.8	25.0	24.4	22.2
To learn about nature (environmental education)	7.7	14.8	24.7	17.3	16.0
To visit Hervey Bay Marine Park	15.1	18.8	22.5	13.3	10.2
Other	3.4	3.7	2.8	0.6	1.5

The least important reasons for visiting Hervey Bay from the combined results of not at all important and minor importance were: 'to visit friends or relatives', 'to view terrestrial (land-based) wildlife', 'to view dugongs' and 'to visit the Hervey Bay Marine Park' (Table 30).

Respondents were asked to determine if a range of items added or detracted to the quality of their experience. A list of 14 items was given and respondents were asked to indicate whether these items added or detracted to the quality of their experience at Hervey Bay. When the results for add and greatly add were combined, respondents indicated that 'more sightings of other wildlife' (64%), 'more time viewing whales' (41%) and a 'longer tour' (19%) would add to their experience (Table 30).

Table 30: Percentage of respondents that indicated whether items added or detracted to the quality of their visit (N=324)

Item	Greatly detract	Detract	No influence	Add	Greatly add
Larger boat (with more people)	21.9	43.8	22.8	2.8	-
Faster boat	4.9	11.1	61.4	11.7	1.5
More boats in vicinity of the whales	33.3	38.3	17.9	0.9	0.3
Longer tour	3.7	21.9	46.6	15.1	3.7
Shorter tour	12.7	37.7	34.9	3.4	0.3
More time viewing whales	2.2	5.6	41.4	28.4	13.0
Less time viewing whales	21.9	38.0	27.8	0.6	0.6
Absence of whales	60.5	16.0	9.6	1.2	1.9
More sightings of other wildlife	1.9	2.5	20.4	51.5	12.3
Very few sightings of other wildlife	10.2	33.6	37.3	4.6	1.9
Degraded condition of natural environment	44.1	22.5	17.3	1.5	1.2
Needed to make advanced booking for tour	4.3	25.9	54.3	2.8	1.5
Tour guides knew little about whales	27.2	36.4	12.7	6.2	6.5
Tour guides knew little about Region	26.2	36.1	15.7	6.8	3.4

When the results were combined for greatly detract and detract, the majority of respondents indicated that the 'absence of whales' (77%), 'more boats in vicinity of the whales' (72%), 'degraded condition of natural environment' (67%), 'larger boat (with more people)' (66%), 'tour guides knew little about whales' (64%), 'tour guides knew little about Region' (62%), 'less time viewing whales' (60%) and 'shorter tour' (50%) were seen to detract from the experience (Table 29). Items that had no influence on the visitor experience included 'faster

boat' (61%) and 'needed to make advanced booking for tour' (54%) (Table 30).

Orams (2000) found that while the presence of whales and their behaviour were important influences on whale watcher satisfaction, that a high degree of customer satisfaction could also be achieved even in the absence of whales and that a number of factors other than the whales and their behaviour influence this satisfaction. Similar to the above results, it was found that whale watchers' enjoyment could be influenced through such things as the number of passengers onboard, the duration of the cruise (some thought it was too long, others too short), the design of the boat for viewing, the positioning of the boat for viewing, the service provided by the crew and the commentary given regarding the whales and other attractions (the use of attractions other than the whales) (Orams 2000).

Whale Watching Experience

The following section reports on Part III of the Hervey Bay Visitor Survey August 2004 (Appendix C). This is related to questions that asked respondents about their whale watching experience. Respondents were asked to describe the best and worst part of their wildlife experience. A list of 24 reasons was given for the best and 43 reasons were given for the worst (Appendices I and J) part of the wildlife experience. Responses were categorised for analysis. The majority of respondents commented that the best part of the wildlife experience was whale related (94%) (Table 31). These comments included: seeing whales close up including along side the boat (45%); seeing whales (23%); and active whales, seeing the whales display/perform, including breaching and whale slaps (15%) (Appendix I). The most common responses were related to the whale watching tour experience (Table 30). Twenty experiences were listed. The most frequently listed comments were related to food and drinks (lunch cue, not enough food) followed by 'the boat trip' and comments relating to comfort such as hard seats, fuel smell on lower deck, movement of boat while anchored and getting wet (Appendix J). Whale related comments were the next most frequent category with 'leaving whales behind' being the most frequent response (10%).

Table 31: Best and worst part of wildlife experience

Best Part of Wildlife Experience (N=288)	**% of Respondents**
Whale Related	94.4
Whale Watching Tour Experience	6.9
Visitor Behaviour	0.3
Other	3.8
Worst Part of Wildlife Experience (N=206)	**% of Respondents**
None	52.9
Whale Watching Tour Related	18.4
Whale Related	15.0
Visitor Behaviour	3.4
Other Marine Wildlife	1.0
Other	7.8

Birtles et al. (2002) investigating visitor experiences of minke whales on the Great Barrier Reef found that the best experiences related to the minke whales themselves (89%). When asked what the best experiences were with the minke whales, the majority of respondents commented on 'seeing/observing the whale(s)' (52%) and 'being close to the whale(s)' (50%). Elements that detracted from the respondents' experiences with minke whales were 'no detracting experiences' (54%), 'bad weather/cold water' (16%) and 'visitor behaviour' (11%) (Birtles et al. 2002). The condition of weather/cold weather is uncontrollable, however, passengers could be better informed of the weather conditions and thus more adequately prepared prior to taking the trip (Birtles et al. 2002). Orams (2000) surveyed whale watch passengers on 12 cruises during the 1996 whale watch season (N=704) at Tangalooma, Moreton Island, Queensland, Australia in relation to satisfaction with their whale watching experience. Orams (2000) found number of whales and their behaviour, number of fellow passengers, cruise duration, boat construction and sea-sickness influenced satisfaction while the closeness of whales was not a major influence on visitor experience.

Respondents were asked to rate their visit to Hervey Bay overall on a five-point Likert scale from much worse than expected to much better than expected. The majority of respondents indicated that the visit was much better than expected (54%) followed by better than expected (34%) (Table 32).

Table 32: Percentage of respondents' rating of visit to Hervey Bay visit overall (N=295)

Much worse than expected	Worse than expected	About the same as expected	Better than expected	Much better than expected
0.7	1.4	10.8	33.6	53.6

In surveys that specifically addressed whale watching, Tourism Queensland (1998) found that 56% of survey respondents were 'very satisfied' and 39% were 'satisfied' with their whale watching experience. Valentine et al (2004) found that respondents in the Great Barrier Reef also reported that their expectations were largely exceeded overall by their minke whale experiences. Orams (2000) found that respondents, who were also viewing humpback whales that form the basis for whale watching at Hervey Bay, also reported a predominantly high level of satisfaction with whale watching, with 44% of respondents indicating they were extremely satisfied and 34% stating they were satisfied (Orams 2000).

The majority of respondents (73%) had not previously been on a whale watching tour. For those that had (25%), respondents were asked where did they go on their previous whale watching tour and how did the Hervey Bay tour rate compared to this previous whale watching experience.

For respondents that had previously been whale watching, the majority had been whale watching in Australia (77%), of those respondents 54% had been whale watching at Hervey Bay (Table 33). Twenty-two percent of respondents had been whale watching previously overseas, of those 7% had been whale watching in New Zealand and 5% had been whale watching in United States of America.

Table 33: Places where respondents went on previous whale watching tour (N=76)

Place	Frequency	Percent
AUSTRALIA		77.6
New South Wales		
Ballina, NSW	1	1.3
Coffs Harbour, NSW	2	2.6
Eden, NSW	2	2.6
Merimbula, NSW	1	1.3
Nelson Bay, NSW	1	1.3
Tweed Heads, NSW	1	1.3
Total		**10.4**
Queensland		
Bundaberg, QLD	1	1.3
Fraser Island, QLD	1	1.3
Hervey Bay, QLD	41	53.9
Total		**56.5**
South Australia		
Hermans Town, SA	1	1.3
Port Augusta, SA	2	2.6
Total		5.2
Victoria		
Warrnambool, VIC	1	1.3
Western Australia		
Albany, WA	2	2.6
Western Australia	1	1.3
Margaret River, WA	1	1.3
Total		**5.2**

Place	Frequency	Percent
OVERSEAS		22.4
Africa	1	1.3
Alaska	2	2.6
Argentina	1	1.3
Canada	2	2.6
Hawaii	1	1.3
Mexico	1	1.3
New Zealand	4	5.3
Kaikoura, NZ	1	1.3
Total		**6.6**
USA	1	1.3
Boston, USA	1	1.3
Cape Cod, USA	1	1.3
Glouster, USA	1	1.3
Total		**5.2**

Similar to the above findings, Goyne (1993) found that the majority of respondents in Hervey Bay were on their first whale watching tour (85%). Of those respondents that had previously been whale watching, 78% of respondents had been whale watching in Hervey Bay. Tourism Queensland (1998) also found that the majority of respondents (81%) were on their first whale watching tour. Of those respondents that had previously been whale watching the majority (55%) had been whale watching in Hervey Bay. Similarly, Foxlee (1999) found that for the majority of respondents (75%), the whale watching tour on which they were travelling was their first whale watching experience. Of those respondents that had been whale watching before (25%), 47% of respondents' previous whale watching experiences had taken place in Hervey Bay.

Respondents were asked to rate the current Hervey Bay tour compared to their previous whale watching experience. The majority of respondents indicated that this tour was either much better than previous tours (42%) or better than previous whale watching tours (30%) (Table 34).

Table 34: Percentage of respondents' rating of Hervey Bay tour compared to previous whale watching experience (N=79)

Much worse than previous whale watching tour	Worse than previous whale watching tour	About the same as previous whale watching tour	Better than previous whale watching tour	Much better than previous whale watching tour
3.8	-	24.1	30.4	41.8

In summary, visitors to Hervey Bay were generally first time visitors with Hervey Bay being part of a multi-destination trip. If whale watching did not exist at Hervey Bay, 52% of respondents would still have taken the trip to the Hervey Bay Region. Visitors were most likely to visit Hervey Bay as a couple or with family, in a group of two people aged in the 40 to 59 year age bracket. Visitors were mostly 'white collar' workers (managers, professionals or para-professionals). There were a higher proportion of females to males and the majority of visitors were from Queensland and overseas with the lowest proportion coming from interstate. These visitors mainly travelled to the Region by passenger vehicle and stayed in hotel/motel/motor inn/resort and caravan park accommodation. Visitors generally stayed in Hervey Bay for two to three nights and spent a half day whale watching.

While in Hervey Bay, respondents generally participated in a wide variety of activities, with seeing whales in their natural environment being the most important reason for visiting Hervey Bay. The majority of visitors had not previously been on a whale watching tour. The absence of whales from Hervey Bay would great detract from the visitor experience while seeing whales close-up, including along side of the boat, was the best part of the visitors' wildlife experience. The majority of visitors indicated that the visit to Hervey Bay was better than expected.

Hervey Bay Management Interviews and Tour Operator Surveys

This section reports the results from the management interviews and tour operator surveys (Appendices B and D). Management interviewees were from Queensland Parks and Wildlife Service (QPWS) and the Fraser Coast South Burnett Tourism Board (Tourism Board).

Of the 12 whale watching tour operators that utilise Hervey Bay, all agreed to be surveyed. Respondents offered a variety of tours. All operators conducted whale watching in season but offered other tours off-season. This included dolphin watching tours, other wildlife tours and two of the operators chartered their vessels for functions. Operators offered either a half day (N=2) or full day (N=2) whale watching tour. The operators had been offering whale watching tours from Hervey Bay from as recently as one year to 18 years, when whale watching began in Hervey Bay.

The issue surrounding the whales at Hervey Bay is quite different from Monkey Mia in that the industry in Monkey Mia relies on a small number of bottlenose dolphins that come in shore to be hand-fed. Therefore, there is the potential for the icon to decline. At Hervey Bay the whale numbers are seen to be increasing. Therefore, the issue is of declining visitor participation in whale watching tours operating from Hervey Bay. This is due to an increase in whale watching tours being set up outside of the area in direct competition. Operators are viewing humpback whales in other parts of Queensland and in New South Wales.

Whale Watching Opportunities at Hervey Bay

Managers and operators were asked if they thought visitors would still come to Hervey Bay if it were not possible to take a whale-watching tour from the town. Managers felt that visitors would still come to Hervey Bay although QPWS felt that there would still be roughly the same number of visitors, staying the same amount of time in Hervey Bay while the Tourism Board felt that visitors would still come but probably spend less time at Hervey Bay. The Tourism Board commented that Hervey Bay was considered a popular destination prior to the establishment of the whale watching industry in 1987 and that whale watching is a bonus for Hervey Bay as it extends the summer tourism season.

Operators felt differently to managers about visitors coming to Hervey Bay if it was not possible to take a whale watching tour from the town. The majority of operators (N=3) felt that that there would be fewer visitors to Hervey Bay while one operator felt that there would still be roughly the same number of visitors, staying the same amount of time in Hervey Bay.

Managers and operators were also ask if they thought more visitors would come to Hervey Bay if there was more opportunity to go whale watching from the town. At present, of the 20 whale watching licences that are available, 12 are currently being used. Both QPWS and the Tourism Board felt that if there were more whale watching opportunities available that it would not make much difference to either the number of visitors or to their length of stay. The majority of tour operators (N=3) also felt that this was the case while a single operator felt that more visitors would come to Hervey Bay. Both QPWS and the Tourism Board stated that while there is latency in the current fleet, there is no shortage of opportunity available for visitors. The Tourism Board commented that the balance is better now with less permits being used. This point is highlighted in Figures 38 and 39 which shows that in 2003 there was a passenger increase of 4% from 2001 with 16 vessels operating and an 11% increase in visitation with 13 vessels operating. With a smaller fleet there are a larger number of potential passengers available to each vessel than there were in 1996.

Other Tourism Opportunities in Hervey Bay

Managers and operators were asked what other opportunities in Hervey Bay were available or offered to visitors other than whale watching and of these opportunities which did they enjoy the most or the least. All respondents (operators N=4; managers N=2) indicated that visiting Fraser Island was the major opportunity besides whale watching. This was followed by fishing (operators N=2; managers N=2) and safe beaches that included child friendly and calm waters with no stingers[3] (operators N=1; managers N=1). Other opportunities included: dolphin watching; marine conservation; coral viewing (glass bottom boats); turtle watching; bushwalking; and the youth market attracted to soft adventure, four-wheel driving, parachuting, kayaking. In 2001, a regional visitor survey indicated that 63% of respondents (N=176) visited the Hervey Bay/Maryborough Region for the beaches (Tourism Queensland 2001). As shown previously, Table 25 indicated that 41% of whale watching respondents had or planned to laze on the beach.

Fraser Island (operators N=4; managers N=1) and fishing (operators N=2) were the activities that were believed to be most enjoyed by visitors to Hervey Bay. Fraser Island is a major icon for the Region and was visited by 45% of respondents (N=176) with 55% of international visitors considering it as an important reason to visit the Hervey Bay/Maryborough Region in 2001 (Tourism Queensland 2001). As discussed previously, Table 24 showed that 29% of whale watching respondents (N=324) visited or planned to visit Fraser Island.

[3] Stingers: the common name for box jellyfish (*Chironex fleckeri*), a pale blue, transparent, bell or cubed shaped jellyfish measuring up to 20 cm with numerous tentacles which can be 3 m in length with up to 5,000 nematocysts (stinging cells). Contact with the tentacles can result in adult fatality. The venom of box jellyfish has cardiotoxic, neurotoxic and highly dermatonecrotic components (Thinkquest 2000).

Recreational fishing is also an important attraction for the Region and in 2001 was shown to attract 300,000 visitors per year to the Hervey Bay and Great Sandy Strait Region (Murphy 2001) with 30% of respondents (N=176) indicating that they were involved in fishing while in the Hervey Bay/Maryborough Region in 2001 (Tourism Queensland 2001).

When tour operators and managers were asked which opportunities they thought visitors would enjoy the least the majority of respondents did not comment. The Tourism Board did however comment that visitors didn't generally come to the Region for shopping as they visit other regions for this purpose. The interviewee commented that Hervey Bay lacks man-made attractions and that there was an expectation for such attractions because of other Queensland destinations such as the Gold Coast. As discussed previously in the Hervey Bay Visitor Survey, whale watching visitors (N=8) also commented on the desire for more built attractions when asked to indicate activities they would liked to have been involved in that were not currently available at Hervey Bay (Table 28, Appendix H). These attractions included Aboriginal exhibit, artesian bore hot tubs/pools, auto racing, casino, cinema, ten pin bowling, theatre and theme park.

In conducting a regional promotional campaign, managers and operators were asked to comment on what they thought should be advertised as a good reason to visit Hervey Bay. Respondents listed either Fraser Island or whale watching or a combination of both. At present these two attractions are the focus of promotion in the Region with Fraser Island being the major focus. Other variations included: two wonders in one bay; promotion of whale activity in that whales visiting Hervey Bay are different than elsewhere because they stay and play and are not in migration as in other areas; and that all tours guarantee to see whales. Great weather, magnificent waterways and marine life were also listed. The Tourism Board also commented on the casual lifestyle, safe beaches, good quality affordable accommodation and the close proximity to Brisbane (three hours drive) while QPWS commented on the Great Sandy Strait due to its scenic values but also its shorebird populations, and fishing.

Managers and operators were asked to comment on what could be developed in the Hervey Bay Region that would be complimentary to existing options that might make the whole Region more attractive as a destination. The Tourism Board commented on a proposal that is in process that involves the development of a visitor centre promoting Fraser Island and the Great Sandy Strait. The centre would be a multi-faceted facility that includes information on a range of different attractions in the area such as a history of the fishing industry of Australia, information on whales, information on the marine environment; and information to promote the values of the area. The focus of the centre would be on education and entertainment. Tour operators also made mention of the visitor centre. Other attractions thought to be complimentary included a larger airport; dolphin viewing; coral reefs; Great Sandy Strait; marine conservation; dugong watching even though the possibility of difficult viewing; budget accommodation; and Hervey Bay as an affordable destination to visit. Visitors also commented on some of the above attractions as things they would have liked to be involved in that were not currently available at Hervey Bay such as dugong watching, turtle viewing, and shark diving (Table 28, Appendix H).

Managers and operators were also asked to comment on how viable and/or attractive other wildlife viewing options were as tourism attractions and the management challenges the alternatives presented. Dolphin viewing was the most common response. QPWS and the Tourism Board commented that there are two dedicated operators conducting dolphin watching tours at present. The Tourism Board felt that this market was sufficiently served at present. Operators commented that dolphin watching could be uneconomic in the Region as other regions allow feeding and swimming with dolphins and also that it would only be viable if a small, cost effective vessel were being used.

Whale Watching at Hervey Bay

In considering the visitors' experience on whale watching tours that operate out of Hervey Bay, managers and operators were asked to comment on what they thought visitors enjoyed the most and the least about the tours. Tour operators commented that the best aspect of visitors' whale watching experience was the whales' themselves. QPWS and the Tourism Board also commented on whale sightings; up-close interaction; whales playing and resting; different behaviour of whales than in other regions; the length of stay of individual whales; quality commentary offered as a result of QPWS regulation; the commitment of operators to the industry and vessels being purpose built for whale watching therefore offering better viewing. As discussed previously, the most common response by visitors' were in relation to seeing the whales (Table 31). This included the up close interaction of the whales, whales being close to the boat, the activity of the whales including breaching, seeing their tails, and seeing lots of whales.

In considering visitors' experiences enjoyed the least, the majority of both operators and managers commented that bad weather would affect the visitor experience. Other considerations were seasickness, lack of whale sightings and perhaps larger tours. These comments were in line with the visitor survey that showed for those respondents that did comment on the least enjoyable part of their whale watching experience included

seasickness (N=6); bad/cold weather (N=4) (Appendix J).

In response to a promotional campaign specifically aiming to encourage more visitors to go on whale watching tours managers and operators commented on the different behaviour of the whales, the close contact and interaction with whales, guaranteed whale sightings, the number of whales in the Bay, whales are resting and playing in Hervey Bay unlike in other regions, the calm waters of the Bay, and safe and stable vessels that are purpose built for whale watching.

When asked would could be done and/or incorporated into the currently operating whale watching tours that might make them attractive and an activity for visitors to Hervey Bay, the Tourism Board representative commented that it was a 'well worn formula', although there could be additional information given on the tours about the Great Sandy Strait, especially once this area is declared as a Marine Park. QPWS also commented on the Great Sandy Strait and said that more information could also be included on Platypus Bay and its associated shorebird populations and Fraser Island. QPWS also commented that operators could offer opportunities to view the coral surrounding Round Island and Woody Island, smaller boats could tour up the Elliott River and to also navigate down the Great Sandy Strait (see Figure 29). Operators generally did not comment on this question but it was stated by a single operator that discounts to locals could be offered.

Similar to whale watching visitors', managers and operators were asked to determine if a range of items added or detracted to the visitors' experience. When the results for add and greatly add were combined, managers and operators felt that 'more sightings of other wildlife', 'more time viewing whales' and 'more sightings of other wildlife' would add to the visitors' experience. When the results for detract and great detract were combined, managers and operators felt that 'absence of whales', 'more boats in the vicinity of the whales', 'larger boat with more people', 'less time viewing whales', 'degraded condition of natural environment', 'tour guides new little about whales' and 'tour guides know little about Hervey Bay Region' would detract from the visitor experience. These results were similar to the visitor viewpoint as discussed in Table 30.

Importance of Whales to the Local Community and to Individual Businesses

Operators were asked to rate if they thought that changes to the number of visitors to Hervey Bay, number of people going whale watching and number of humpback whales within viewing distance had declined or increased in the last five years. A five-point Likert scale from many fewer than five years ago to many more than five years ago was used. Operators were divided as to the increase or decline in total number of visitors to Hervey Bay (Table 35). Half of the operators felt that there had been a decline while the others stated that there had been a few more.

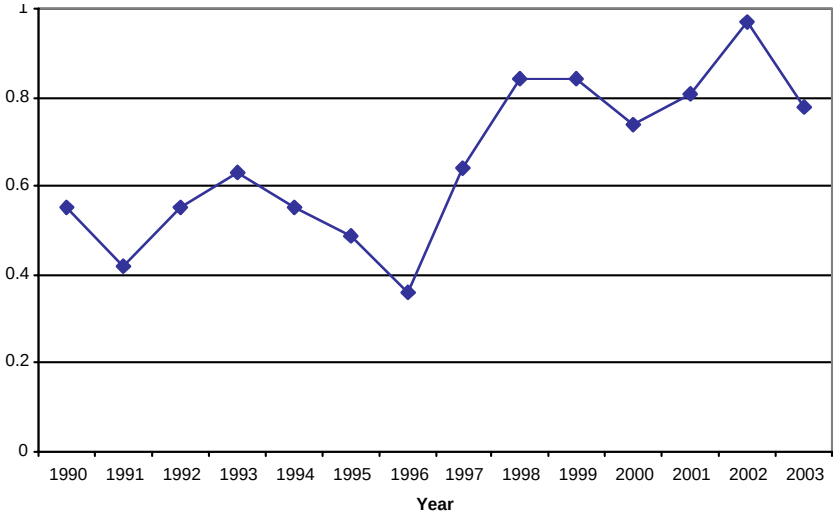
Table 35: Changes to visitors to Hervey Bay and whale watching tours and humpback whales

Item	Many fewer than 5 years ago	A few less	About the same	A few more	Many more than 5 years ago
Total number of visitors to Hervey Bay	1	1		2	
Total number of people going on whale watching tours from Hervey Bay	1		1	2	
Total number of humpback whales within viewing distance				1	3

Tour operators were also had differing viewpoints about the number of people going on whale watching tourism from Hervey Bay. Generally, operators felt that there were about the same to a few more (Table 35) while one operator felt that there was a decline. Tourism Queensland (2003, 2004) figures show that for the period 2002 to 2003 there has been a small decline (9%) of total visitors to the Hervey Bay Region. (Tourism Queensland 2003, 2004)

In relation to the number of humpback whales, operators felt that there were either a few more or many more than 5 years ago (Table 35). Actual counts of humpback whales in Hervey Bay have not been conducted since 1990. Aerial survey counts showed that there were 60 pods containing 127 whales in 1998, 121 pods containing 223 whales in 1989 and 60 pods containing 105 whales in 1990 (Corkeron et al. 1994). As part of the QPWS licensing conditions operators are required to record the number of pods they encounter per trip. Figure 38 shows that the number of pod/vessel interactions has remained fairly consistent. However, in comparing the number of hours spent in the marine park and the number of pod/vessel interactions, Figure 52 shows that the encounter ratio increased from 2000 to 2002 but showed a decrease in 2003 indicating that the number of pods/vessel interactions decreased for the amount of time spent in the marine park.

Figure 52: Encounter ratio of number of pod/vessel interaction and hours spent in the marine park



Other important changes that have occurred in the last five years that were noted as having affected operations include: the Bali bombing and September 11 (N=1), less boats operating and being the only sailing vessel (N=1), and uncertainty of permits (N=1).

Managers and operators were asked how their operations would be affected and how industry would react if humpback whales did not show up near Hervey Bay during the 'normal' season for a day, a week, a month or a season. Operators and managers were in agreement in that if whales did not turn up for a day then there would be little effect to operations. The situation would be different if whales did not turn up for a week. Operators felt that there would be bad press via word of mouth and that the local community and businesses would feel the effect while one operator felt there would be a minimal effect. Managers also felt that word of mouth would be negative with operators having to honour their guaranteed sighting policy (which many operators currently offer) of refunding the tour if no whales are seen. Operators and managers were also in agreement in relation to whale absence from the Bay for a month or a season. It was commented that considering the season is short that there would be a large impact. Some operators would have to close business and there would be a large impact of local businesses and accommodation providers. QPWS felt that the product would need to diversify, a quick response would be necessary and the QPWS focus would be the management of other marine wildlife while conducting monitoring and research in regards to the whereabouts of the whales. QPWS felt that operators would focus on other cetacean species i.e. dolphins, southern right whales, pilot whales, melon whales and false killer whales. Operators also commented on the necessity to diversify their tours if whale were absent for a month or season, including: focusing on other marine wildlife, offering other tours i.e. sunset sails and specialty tours, while others felt that they would go out of business.

Operators were asked what other alternatives are available if visitors numbers were to decline. Operators commented that they would find another area to operate (N=1), revert to activities that are conducted off-season e.g. dolphin tours, sunset sails (N=2), or focus on other marine wildlife species (N=1).

In summary, the survey of tour operators and interviews of managers showed similar findings to visitors in relation to the absence of whales. Managers and operators generally thought that if it were not possible to take a whale watching tour from Hervey Bay then tourists would still come to Hervey Bay but there would be a reduction in the number of visitors. If more opportunities for whale watching were available managers and operators felt that it would not make much difference to either the number of visitors or their length of stay. In the event of a short term absence of whales from the Bay, a day, managers and operators felt that there would be little change to operations.

In contrast, if humpback whales did not show up near Hervey Bay during the 'normal' season for a week, a month or a season, operators and managers felt that word of mouth would be negative if whales were absent for a week, while a month or season would have a large impact. Some operators would have to close business and there would be a large impact of local businesses and accommodation providers. The tourism product would need to diversify with a focus on other cetacean species and marine wildlife, offering other tours i.e. sunset sails and specialty tours or discontinuing operation.

Similar to findings in the visitor surveys, managers and operators commented that visitors most enjoyed the whales' themselves, up-close interaction; whale activity; and the commitment of the operators to the industry through quality commentary and purpose built vessels. Managers and operators commented that bad weather affected the visitor experience in a negative way. In order to encourage more visitors to go whale watching,

managers and operators commented that the different behaviour of the whales, close contact, guaranteed whale sightings, purpose built vessels, and the number of the whales in the Bay should be promoted. Managers and operators felt that the currently operating whale watching tours offered patrons a quality product that could be made more attractive to visitors by providing additional information on the Region.

Operators were divided in regard to the number of visitors to Hervey Bay with half feeling that there were a few more than five years ago and the other half feeling there were a few less. In regards to the number of passengers on whale watching tours, operators felt that there were about the same to a few more than five years ago. It was unanimously agreed that there were more humpback whales in the Bay within viewing distance than five years ago.

Managers and operators provided alternatives to whale watching such as visiting Fraser Island, fishing and safe beaches that have calm waters and are stinger (box jellyfish) free. Other than whale watching, experiences that should be promoted in Hervey Bay included the combination of Fraser Island and whale watching – 'two wonders in one Bay', casual lifestyle, close proximity to Brisbane, safe beaches, good quality affordable accommodation, fishing and the Great Sandy Strait due to its scenic values.

Further developments to make the Region more attractive as a destination included: the development of a visitor centre promoting, whales, the marine environment, history of the fishing industry in the Region, Fraser Island and the Great Sandy Strait; development of other marine wildlife viewing opportunities e.g. dugongs, dolphins, turtles, shark diving; and promotion of coral reef viewing available in the Region.

Chapter 5

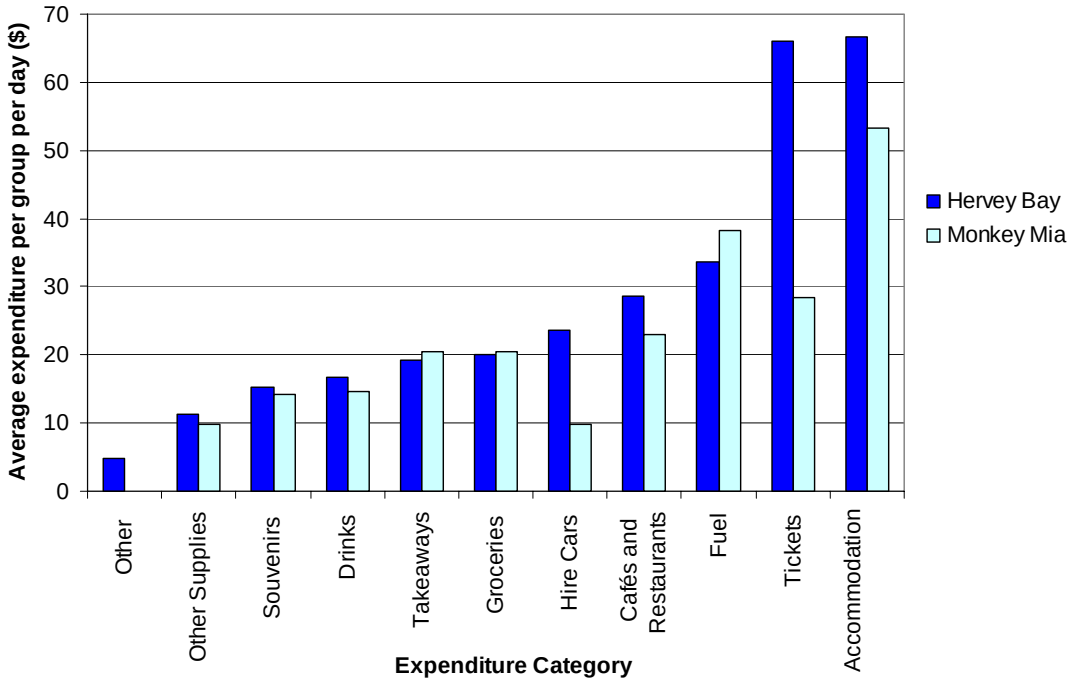
Expenditure

Estimates of Regional Expenditure

Average total expenditure per group per day is higher in Hervey Bay ($A306) than in Monkey Mia ($A233) and this difference is statistically significant. With average group sizes in Hervey Bay and Monkey Mia of 2.95 and 3.64, respectively, average daily expenditure per person is close to $A103 in Hervey Bay and $A64 in Monkey Mia.

Figure 53 shows the average expenditure per group per day on each expenditure category at both sites. In both regions, most money is spent on accommodation. Tickets and fuel are the next largest categories. For most items, expenditure is higher in Hervey Bay than in Monkey Mia, the exception being expenditure on fuel (although this difference is not statistically significant). The largest and most significant difference is for tickets. In Hervey Bay, the average amount spent is $A66, compared to $A25 in Monkey Mia. This reflects the fact that Hervey Bay respondents have gone on relatively costly whale watching tours compared to Monkey Mia respondents, who can observe dolphins by paying an entry fee into Monkey Mia Reserve.

Figure 53: Average expenditure ($A) per group per day by category of expenditure



At $A66, average expenditure per group per night on accommodation in Hervey Bay is higher than in Monkey Mia ($A53). This undoubtedly reflects the different types of accommodation used by visitors at the different sites. A larger proportion of Monkey Mia respondents reported using cheaper types of accommodation such as caravan parks (46 %) then did Hervey Bay respondents (28%).

Expenditure on hire cars was also greater in Hervey Bay than in Monkey Mia. One issue here is that it was expected that this amount would be zero in Monkey Mia, because there are no car rental businesses in that region. Visitors must pay for the cars elsewhere (e.g. Perth), and drive them to the Region. It was therefore thought prudent to compare these estimates with estimates from other, similar studies, to see if there were any differences of concern.

In their study of visitor expenditure in Seoul (Korea), Suh and Gartner (2004), found that average total expenditures per person were in the order of $US150 to $US200 per day. This is considerably higher than the daily expenditure estimates (of $A64 and $A103) reported in this current study, particularly when one takes the currency conversion into account. Suh and Gartner's research was conducted in a large city where one would

expect much higher expenditure. That the daily expenditure estimates in this current study are less than these is therefore encouraging. (Suh & Gartner 2004)

Closer to home, Breen et al. (2001), report a mean total expenditure of $A60 amongst students participating in the 1995 Schweppes Northern Conference Games in Lismore, Australia. Like the case-study areas reported in this current study, Lismore is a regional town, so one might expect the expenditure patterns in their study to more closely align with the findings in this current study. Their sample was largely comprised of university students, a group that is likely to have a lower average income than our respondents. So it would be expected that the daily expenditure estimates in this current study would be higher than that of Breen et al. (2001).

Greiner et al. (2004) noted findings from the Bureau of Tourism Research that estimated average per-night expenditure of overnight holiday/leisure visitors in Queensland at $A136.48. This estimate was derived from a sample that would include a high proportion of larger-town visitors (e.g. to Brisbane and the Gold Coast), so again, it would expected that they would be higher than estimates from this current study. The OESR (2002) estimated that average expenditure per visitor night in Hervey Bay during 1999 was $A69 for interstate visitors and $A72 for intrastate and international visitors. The estimates from this current study are higher than these by approximately $A30, although fewer than 10% of all visitors to the Fraser Coast South Burnett Region are estimated to have gone on a relatively expensive whale watching tour (Tourism Queensland 2003). Consequently, one would expect this studies whale watching only sample to have higher average expenditures than the OESR sample. Again, the estimates reported in this current study seem plausible when compared to these. (Breen et al. 2001) (Greiner, Mayocchi, Larson, Stoeckl & Schweigert 2004) (OESR 2002)

The 'plausibility' of the Hervey Bay expenditure estimates is confirmed by other studies of whale watching visitors. If the total estimated expenditure of whale watching visitors from Hoyt (2001) is derived by total estimated whale watchers in Australia, an average of $A104 per person is derived; his figures for Queensland boat-based whale watchers are $A148; and $A45 for land-based whale watchers in Western Australia. The IFAW (2004) estimates visitor expenditure in Hervey Bay and other southern parts of Queensland at $A131. (Hoyt 2001; IFAW 2004)

In short, the expenditure estimates of $A103 per person per day in Hervey Bay relate well to other estimates of visitor expenditure. At $A64, the per-person estimates of expenditure in the Monkey Mia area, may however, be a little high; perhaps because respondents were attributing expenditure made in other nearby areas to the Shark Bay Region as when, for example, they noted that money had been spent on car hire. For the rest of this section, the wider Gascoyne region (see Figure 2) will be considered, rather than just the Shark Bay/Monkey Mia area.

Current estimates, place the number of icon visitors to Monkey Mia and Hervey Bay each year at approximately 101,000 and 65,000 persons, respectively. If their expenditure patterns are similar to those included in the survey i.e. at approximately $A205 per person per visit at Shark Bay (with average length of stay of 3.2 days) and $A472 per person per visit in Hervey Bay (where the average length of stay is 4.6 days), then the total regional expenditure of visitors that interact with wildlife icons in these areas are close to $A21 million (101,000 x $A205) and $31 million (65,000 x $A472), respectively. To put these figures in context, the ABS (2004a, 2004b) estimates that total income in the statistical division of Gascoyne (containing Shark Bay) was approximately $A108 million in 2000/01; in the statistical division of Hervey Bay, regional income was close to $A296 million for the same period. These figures indicate that expenditure from icon tourists, account for almost 19% of regional income in Gascoyne[4] and almost 10% in Hervey Bay. (ABS 2004a, b)

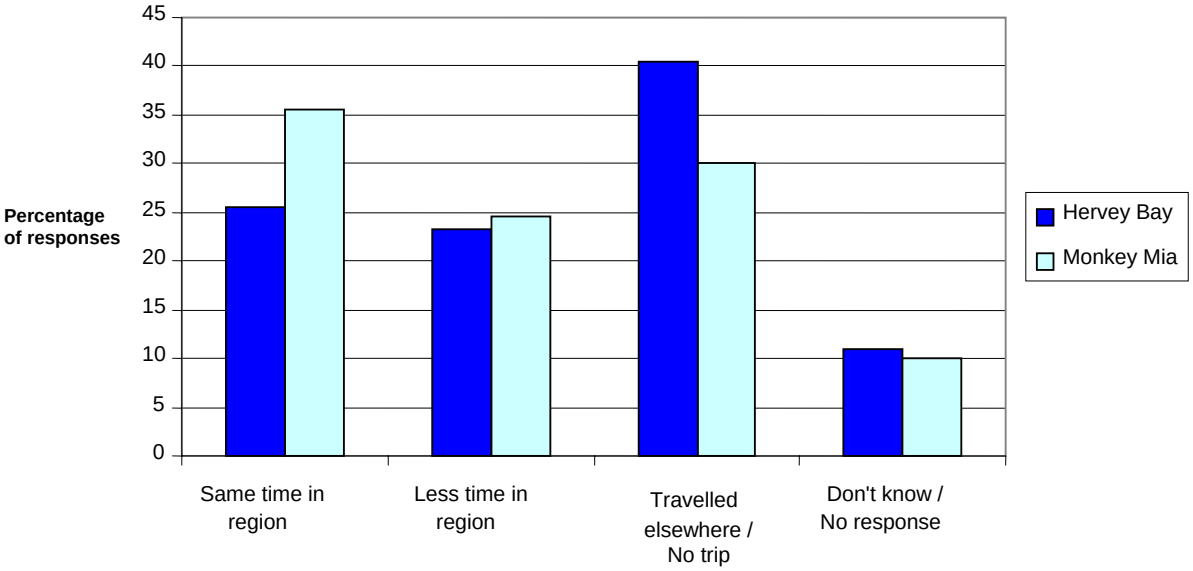
As noted earlier, this is an estimate of how much icon tourists spend – it doesn't tell a full and accurate story about the importance of the icon to the regional economy. To do that, the expenditure that is directly attributable *or caused* by the icon needs to be determined.

The Proportion of Regional Expenditure Attributable to the Wildlife Icon

Close to 65% of Hervey Bay respondents claimed that they would have spent less time in the region (23%) or travelled elsewhere (41%) if they had not been possible to go on the whale watching tour (Figure 54). These figures were somewhat lower for Monkey Mia visitors: slightly less than 55% claimed that they would have spent less time in the region (24%) or travelled elsewhere (30%) if they had not been possible to view the dolphins.

[4] ABS estimates of total regional income in the statistical local area of Shark Bay are $A9.9 million – less than our estimates of total regional expenditure of icon tourists.

Figure 54: Respondents reaction if there was no opportunity to interact with the wildlife icon in the region



This information was used to divide expenditure information from respondents as shown in Tables 36 and 37 (the first relating to Monkey Mia and the second relating to Hervey Bay).

Table 36: Regional expenditure in Monkey Mia by stated action if no icon

Average expenditure ($A per group per day)	Respondents segmented according to stated action if no wildlife icon				All respondents
	Don't know / No response (a)	Less time in region (b)	Same time in region (c)	Travelled elsewhere /No trip (d)	
Other	0.30	0.71	0.26	0.54	0.46
Other Supplies	14.39	9.70	10.68	7.67	9.90
Souvenirs	10.30	12.62	14.66	16.19	14.18
Drinks	12.58	16.61	14.57	14.06	14.73
Takeaways	16.36	23.63	17.69	22.13	20.39
Groceries	13.18	19.52	23.76	19.65	20.42
Cafés and Restaurants	16.52	23.45	23.38	24.60	23.09
Fuel	23.48	41.96	38.03	40.10	38.21
Tickets	33.64	31.85	32.09	19.70	28.45
Accommodation	36.36	47.92	57.05	59.16	53.36
Average expenditure in region per group per day *(a)*	184.70	237.80	242.22	233.96	232.96
Average number of days in region *(b)*	2.76	2.86	4.46	2.15	3.21
Average expenditure in region per group per trip *(c = a x b)*	$509.32	$679.42	$1,080.07	$502.33	$747.37
Number of respondents in category *(d)*	36	87	126	107	356
Total regional expenditure by respondent category per trip *(e = d x c)*	$18,335.37	$59,109.69	$136,089.18	$53,748.96	$266,063.56
Proportion of total respondent expenditure (%)	6.89	22.22	51.15	20.20	100.00

Table 37: Regional expenditure in Hervey Bay by stated action if no icon

Average expenditure ($A per group per day)	Respondents segmented according to state action if no wildlife icon				All respondents
	Don't know / No response (a)	Less time in region (b)	Same time in region (c)	Travelled elsewhere /No trip (d)	
Other	0.77	9.84	4.07	2.95	4.80
Other Supplies	10.77	9.84	12.20	11.62	11.32
Souvenirs	10.77	17.81	13.93	15.09	15.20
Drinks	16.15	15.47	20.87	14.66	16.65
Takeaways	13.08	21.56	18.60	18.80	19.13
Groceries	16.15	22.34	23.73	17.09	20.15
Cafés and Restaurants	26.92	24.30	28.87	31.03	28.62
Fuel	36.54	37.50	35.67	29.70	33.55
Tickets	56.92	93.13	69.60	49.79	65.97
Accommodation	36.54	77.73	64.00	65.60	66.64
Average expenditure in region per group per day *(a)*	$241.92	$364.69	$306.20	$280.26	$305.72
Average number of days in region *(b)*	2.54	4.17	9.97	1.91	4.59
Average expenditure in region per group per trip *(c = a x b)*	$551.50	$1462.34	$3669.93	$687.14	$1677.31
Number of respondents in category *(d)*	35	76	82	131	324
Total regional expenditure by respondent category per trip *(e = d x c)*	$19,303	$111,138	$300,934	$90,015	$543,449
Proportion of total respondent expenditure (%)	3.6	20.5	55.4	16.6	100.0

As argued earlier, when trying to work out how much expenditure is directly attributable to the icon:

- The tourism expenditure listed in the middle column should be ignored;
- All of the expenditure listed in the column labelled *d* should be included; and
- Only some of the expenditure listed in the column labelled *b* should be counted.

So these figures indicate that in Monkey Mia between $A54,000 and $A104,000 of the reported $A544,000 of regional expenditure of respondents is directly attributable to the wildlife icon i.e. between 20% and 42% of icon expenditure.

Wilson and Tisdell (2001) used a similar methodology when examining the expenditure patterns of those viewing sea turtles in the Bundaberg region. At $25 per day, their estimates of the average daily expenditure of visitors were considerably lower than those reported here ($64 and $103 for Monkey Mia and Hervey Bay) and also lower than those reported in other expenditure studies (Breen et al. 2001; OESR 2002; Suh & Gartner 2004). Nonetheless, their estimates of the proportion of regional expenditure that is directly attributable to a wildlife icon (in their case, the sea turtles) are similar to the upper-bound estimates reported here: they found that the total tourist expenditure in the Bundaberg region associated with those who watched sea turtles at Mon Repos was about $1.9 million, and that the amount would fall by 42% (0.8 million) if the sea turtles did not occur in the region. (Wilson & Tisdell 2001)

If the stated actions of survey respondents accurately reflects what would happen to all of the (approximately) 101,000 regional icon visitors in the absence of the wildlife icon, then it is possible to surmise that regional expenditure that is attributable to the wildlife icon is greater than $A4.2 million (20% of the total $A21 million spent regionally), and less than $A8.8 million (42% of $A21 million).

In Hervey Bay between $A90,000 and $A200,000 of the reported $A544,000 of regional expenditure of respondents is attributable to the wildlife icon i.e. between 21% and 37% of icon expenditure. If the stated actions of survey respondents accurately reflects what would happen to all of the (approximately) 65,000 regional icon visitors in the absence of the wildlife icon, then it is possible to surmise that regional expenditure that is attributable to the wildlife icon is greater than $A6.4 million (21% of the total $A31 million spent regionally), and less than $A11.4 million (37% of $A31 million).

When compared to expenditure estimates from other, similar studies (Table 38), these estimates look plausible: estimates from the current study should be lower than the other estimates since they refer to smaller regions and are only accounting for expenditure directly attributable to the icon (rather than expenditure associated with the icon).

Table 38: Estimates of expenditure associated with whale watching for different regions in different years

General Region	Details (if relevant)	Year	Estimated number of whale watchers	Total Expenditure ($A million)	Source
Australia		1998	73,4962	77	Hoyt (2001)
		2003	1,618,027	276	IFAW (2004)
QLD		2003	229,168	96	IFAW (2004)
	Boat-based	1998	148,280	22	Hoyt (2001)
	Hervey Bay + South	2003	159,168	21	IFAW (2004)
	Hervey Bay	2004	65,000	Between 6.4 & 11.4	*This study*
WA		2003	153,081	46	IFAW (2004)
	Land based	1998	112,081	5	Hoyt (2001)
	North	2003	106,364	37	IFAW (2004)
	Monkey Mia	2004	101,000	Between 4.2 & 8.8	*This study*

In Table 38 these estimates indicate that in the Gascoyne, the dolphin experience is directly responsible for between 5 and 11% of total regional income ($A108 million). In Hervey Bay, whale watching appears to be directly responsible for between 2 and 4% of total regional income ($A296 million).

Evidently, the residents of the Gascoyne are more dependent upon the wildlife icons for their livelihood than the residents of Hervey Bay, although the total visitor expenditure that is attributable to wildlife icons is approximately equal in both regions. The Gascoyne economy is smaller than that of Hervey Bay, so this expenditure is relatively more important. The Shark Bay economy is smaller still, indicating that this region is likely to be even more dependent upon the icon for its livelihood than the broader Gascoyne region.

Chapter 6

Conclusions and Recommendations

Product Diversification at Monkey Mia

At Monkey Mia visitors were already on site and had experienced what the region has to offer. The results of the visitor survey indicate that the dolphins are the prime attraction in reasons for visiting the area. It must be noted, however, that this is the case after people have already seen the dolphins. Although 65% of respondents visited other attractions such as Shell Beach and Hamelin Pool some 30% of visitors are potentially lost if there is no possibility of seeing dolphins on the visit. This is a large percentage that needs to be significantly reduced and this can be achieved through natural area product diversification. Reducing the emphasis on dolphins can be achieved by exploring other aspects of the Shark Bay environment. Such an approach has the advantage of taking pressure off the dolphins in terms of potential ecological impact and crowding at the dolphin-viewing site at Monkey Mia.

Managers of the Monkey Mia site suggested that if dolphin viewing was not available other experiences such as wildlife cruises, the stromatolites and interpretive walks would need to be promoted along with the possible development of a nocturnal wildlife viewing facility at a site in nearby Francois Peron National Park. Scope also remains for developing interpretive walks focusing of geological features, Aboriginal culture and birds. An expansion of the nature based tourism product could readily embrace bird watching, intertidal ecology, aspects of the natural vegetation and geotourism (tourism based on geological attractions). Such an approach could be achieved initially through appropriate marketing and product development. Product development based on other less well-known wildlife, appreciation of the wider ecosystem and geotourism requires trained and knowledgeable tour operators and guides.

Food Provisioning at Monkey Mia

The importance of feeding dolphins at Monkey Mia has been debated amongst various stakeholders. There have been arguments against habituating dolphins for hand feeding because of potential negative impacts on the animals. Argument in favour is dominated by the importance of a few habituated dolphins to the regional economy (5% to 11% of the income in the Gascoyne region) and that the conservation benefits brought to the species as a whole, via close contact, far outweigh negative impacts. The way the public ‘consumes’ the feeding experience should be reviewed in the light of visitor crowding and due to the fact that only a few people out of several hundred may get to feed a dolphin. Those that are selected potentially get the best experience and others who would have liked to, but did not feed a dolphin, may suffer disappointment. A way to overcome such a possibility would be to employ a marketing strategy that focuses on the ‘delight factor’. This would entail marketing a product to the public where feeding is not an expectation but where a visitor might get to feed a dolphin if they are lucky enough to be selected as part of the existing structured feeding program.

Tourism Planning for the Shark Bay Region

Possible actions to reduce overcrowding problems include converting the existing jetty to a sole purpose viewing facility where only a ranger feeds the dolphins, adding an above water platform or constructing an underwater viewing facility akin to that currently operational at the end of Busselton Jetty south of Perth.

The way forward involves a wider nature based tourism plan that aims to set up workshops between management and tour operators followed by specific courses in expanding the product beyond dolphins. This would include courses in interpreting local native vegetation, intertidal ecology and landscape evolution. A second component would identify sites of interest and targeted areas that are likely to be frequently visited. Consultation with management needs to take environmental fragility into account along with an assessment of potential environmental impact. Sites may then be targeted for tourist usage and the necessary management put into place. Such actions may involve site hardening such as the development of walkways and infrastructure development such as the construction of viewing platforms. An appraisal of existing trails and infrastructure would help to determine the need for any additional developments in relation to expanding the nature based product at Shark Bay.

Product Diversification at Hervey Bay

A strategy of alternative product development could also be applied to Hervey Bay with a greater focus being applied to nearby Fraser Island. The development of a visitor centre focusing on the wider marine ecosystem, whale biology, human relationships with whales and the management of tourism could be a focal point for promoting additional nature based tourism experiences in the region. A marketing strategy needs to be developed that accounts for management that is designed to mitigate negative impacts. Such a strategy needs to employ accurate expectations and contain information on what management is doing to reduce impacts and explain why. Interpretation should be an essential component of such a high quality wildlife viewing experience with a focus on explaining to visitors why management strategies are in place. In addition, because seeing dolphins and whales in the wild is one of the most important facets of visitor satisfaction, an interpretative programme that enhances the appreciation of animals in the wild and de-emphasises human behaviours that are likely to disrupt the animal's normal behaviour is also important. Such programmes should be audited in order to assess their effectiveness.

Baseline Data Collection and Impact Studies at Hervey Bay

The database on whale ecology and response of whale to impacts at Hervey Bay needs further research. Humpback whales use the bay as a place to stay during their migration and whales may stay just for a few hours or for a number of weeks. The bay offers a resting site and protection from predators. Baseline data on usage of the bay and behavioural change over time in response to tourist visits relies on an on-going long term monitoring program. Such a program will facilitate the detection of changes in movements, length of stay and any behavioural changes in response to whale watching boats. Results then need to be evaluated for their ecological significance as it is in this area that much uncertainty remains.

Planning and Research at Hervey Bay

In relation to disturbance of whales at Hervey Bay the issue is of how many tour operator licenses should be agreed upon given that the visitor is dependent on tour operators for the experience that they desire. For example, research is needed to determine if there are an optimum number of boats at a particular viewing experience in terms of potential impact on the animals and visitor satisfaction. The challenge will be to achieve this in the light of desired close contact, a situation that will need to be monitored for animal welfare as well as visitor satisfaction. Through licensing and education programs the viewing of whales may best be managed through tour operators. Queensland Parks and Wildlife Service may need to police the activities of private recreational vessels that may compete with official licensed operations. Consideration also needs to be given to the possibility of increased activity from private boats. Although this has not been the focus of this report this is an area of potential conflict because of an increasing number of private vessels on the waters of Hervey Bay. If increasing numbers of' 'unregulated' people are seeing close experiences what are the environmental ramifications and how will this be regulated? With the combined activity of licensed boats in combination with private vessels will there be congestion and safety issues if a large number of different sized boats are attempting to give their patrons an optimal viewing experience? In the future an increased boat traffic seeking close encounters with whales may result in negative environmental impacts. This potential scenario needs to be monitored carefully through gaining accurate figures on boat traffic; visitor numbers and whale encounter data. An adaptive management system needs to be employed that is responsive to such monitoring data (e.g. Newsome et al. 2005). (Newsome, Dowling & Moore 2005)

Recommendations for Future Actions and Research

General Issues for Wildlife Icon Sites

Shackley (2001) notes that in the case of wildlife attractions it is not possible to make universal guidelines as every case is site specific according to local environmental conditions, existing management and conservation strategies and the extent to which compliance with existing codes of conduct might occur. Shackley also observed that a number of case studies show that there is a lack of recognition of aspects of the wider ecosystem and that there remains a dearth of alternatives to the main animal attraction. A review of relevant literature and the case studies presented here lead to the conclusion that the following information would be immediately beneficial to the management of a particular wildlife icon site. Planning, management and long term sustainability entails a wider appreciation of visitor attitudes and changing directions in visitor satisfaction and definition of best practice at individual wildlife icon sites. (Schnek & Staib 2001; Shackley 2001)

Visitor Attitudes and Changing Directions of Visitor Satisfaction

Significant numbers of wildlife tourism clients desire information and are accepting of ranger presence in order to deliver interpretation and supervise the viewing experience (Lewis & Newsome 2003; Orsini & Newsome 2005). Education is particularly important as when people do not understand what an animal is doing they may do something to elicit a reaction. In addition many visitors can be ignorant of wider environmental impacts such as pollution effects and habitat damage caused by tourism development. Moreover, recent work indicates people are increasingly concerned about the welfare of animals, low impact tourism and desire more natural experiences (e.g. Lewis & Newsome 2003). Management styles therefore need to take account of the increased number of visitors interested in conservation and natural experiences. (Orsini & Newsome 2005)

Following on from the above considerations, existing wildlife icon sites require an assessment of the nature of the interaction opportunity and degree of manipulation that may be taking place. Visitor surveys can reveal public reaction to existing operations. Where a significant percentage of visitors find an existing operation unsatisfactory or otherwise this data can be used to judge public acceptance of revised management actions.

It is important therefore to establish the extent to which alteration of viewing experiences such as the provision of viewing platforms and restriction of access will impact on visitor experience. Before any plans for perceived rejuvenation and/or controls (such as further infrastructure developments) of destination product are instigated research should determine the potential impact on the quality of visitor experience.

Such information is important, as the modification of existing operations has been recommended in case of a number of significant existing wildlife attractions elsewhere in the world (see Shackley 2001). Moreover, where tourism involves searching for wildlife, sustainability is seen as depending on developing more stationary sites, limiting access where the sighting occurs, more efficient coordination of tourism operations, and better education of visitors (Shackley 2001).

Visitor Acceptance of Alternative Product Offerings: the Case of Feeding

Although not a feature of all wildlife icon attractions, the feeding of wildlife remains problematic and controversial (e.g. see Newsome et al. 2005). In a number of cases attracting wildlife and feeding is utilised as a means of manipulating wildlife for close views, contact or even entertainment. Sometimes the manipulation of wildlife is encouraged and undertaken by tourism operators in response to visitor desires or because the operators feel that it will increase visitor satisfaction. Furthermore, where it is operational, feeding should be used to inform the public, promote understanding and conservation.

In relation to these latter points in a number of situations feeding has proved to be a very successful strategy. At Slimbridge in the UK the feeding of captive and wild birds is an important part of the wildfowl appreciation experience. Indeed feeding wild birds is common practice in Europe and North America and is seen as a means of compensating for human caused damage and losses through starvation during the harsh northern winters. The feeding of parrots has taken place at O'Reilly's Guesthouse in Queensland, Australia since the 1920's. Independent feeding by patrons is not allowed and Guesthouse management supplies formulated food items for the public to purchase. Birds are fed at specific times at a special feeding site under the interpretive supervision of a guide. This approach allows the public to have an interactive experience whilst learning about the birds and bird feeding at the same time.

Kingfisher Park at Julatten, north Queensland, Australia takes a somewhat different approach. This is a significant focal point for bird watching and is a famed destination for bird watchers wishing to see an array of Australian species. Here bird attracting plants, nectar feeders, dishes containing fruit and seed are used to attract a variety of species for easy observation and photography (Newsome et al. 2005). There is no direct interaction in the same sense as at other bird feeding sites such as O'Reilly's Guesthouse.

Despite these examples of successive enterprises in all cases the focus is on birds. Because of the large range of possible wildlife tourism situations it would be of benefit to have additional data on wildlife tourism sites that have feeding as part of the attraction and most certainly where it might be planned. In particular, additional research needs to be undertaken as to the social sustainability (over crowding, peer behaviours, visitor satisfaction) of such operations where feeding is already established (e.g. Lewis and Newsome 2003; Newsome et al. 2004).

In many cases the following research questions remain unanswered:

1. How important is feeding to visitors in relation to the social and economic sustainability of the tourism operation?
2. What are visitor perspectives on feeding the icon/wildlife?
3. How would visitors react to cessation of feeding as part of the experience?
4. What visitor behavioural issues are associated with feeding wildlife?
5. What are the ecological impacts of feeding on the target species?

6. What aspects could be put in place in order to off-set any visitor dissatisfaction with no feeding policies?

Wildlife Icon Sites: A Definition of Best Practice

Best practice situations need to be clarified. Defining best practice requires a review of opportunities, facilities and an assessment of the nature of the viewing experience. The viewing experience may be classified according to three possible situations: (1) the sighting, (2) close contact and (3) feeding wildlife. Situations 2 and 3 potentially constitute the greatest impact on wildlife as a result of increased vigilance, disruption of normal activities, stress, increased incidents of disease and risks to the visitor. Best practice could be fostered through marketing of natural experiences, certification of tour operators and development of an impact database.

Best practice wildlife tourism consists of the following:

A Natural Experience

There is increasing evidence that wildlife tourists are becoming more concerned about environmental issues. Some studies also show an interest in more natural, un-contrived, less obtrusive and less developed wildlife tourism (e.g. Hughes, Newsome & Macbeth 2005; Lewis and Newsome 2003; Orsini and Newsome 2005). Marketing of wildlife tourism situations needs to take account of this and not show feeding, touching and close contact. Brochures, videos, advertisements and posters need to show people set back from wildlife, ranger presence in terms of interpreting wildlife and foster respect for wildlife. Existing marketing strategies needs to be reviewed in light of this. (Hughes, Newsome & Macbeth in press)

Quality Interpretation

There remains a need for specific site programs that deal with ignorance, foster appropriate attitudes and manage excitement especially in relation to the management of children. Interpretation needs to develop the capacity for respectful distance viewing of wildlife. Certification programs need to be devised as a means of training and quality control.

Conservation Initiatives

Tourism that is part of, and fosters conservation value, adds to visitor experience and encourages local communities to support conservation programs. Conservation strategies and rare species recovery planning can be part of on site interpretive programs.

Understanding Impacts

In many cases of wildlife tourism and disturbance it is not easy to recognise vigilance reaction in the animal concerned. Indeed the database on the behavioural ecology of many species is weak and awaits further research. Furthermore, people can misinterpret the behavioural responses and vigilance of a target species. Sometimes what is aggressive behaviour may be interpreted as a photo opportunity.

Schnek and Staib (2001) provide an example of the importance in understanding the impacts of tourism on wildlife. They report on the case of the giant otter in the Manu Biosphere Reserve, Peru. This is a tourism situation focusing on an animal that can be readily viewed in an environment where it is otherwise difficult to observe wildlife because of dense forest, nocturnal habits and a predominance of canopy dwelling species. The study also illustrates another case where most of the attention is focussed on one aspect at the expense of a wider and rich rain forest ecology.

Schnek and Staib (2001) observed that when giant otters approached tourist canoes, clients interpreted this close approach by the animals as tameness and tolerance of humans but in reality it constituted warning behaviour. For example when boats were withdrawn the otters retreated but because tourists had the wrong interpretation of behaviour they desired to move closer to the otters. There is some evidence that under conditions of continuous disturbance otters may be less successful at rearing their young. Studies on the abundance and distribution of giant otters also showed that while only 14% of the entire protected area is a designated tourism zone some 53% of the Manu protected area giant otter population used the area designated for tourism. The study highlighted the need for modification of existing operations in the form of developing alternatives to canoe excursions (e.g. use of stationary observation sites such as towers and platforms), training of guides in behavioural ecology of target species, control of tourism development and limiting visitor use of the area.

Wildlife impact assessment could be applied to all existing and future wildlife tourism operations. Such studies need to embrace biophysical assessment (threats to habitat quality), visitor survey (expectations, attitudes and behaviour on site) and wildlife impact studies as revealed by wildlife response and an understanding

(database) of vigilance behaviours and disturbance reactions.

Adaptive Management

Monitoring systems need to be employed that are able to detect negative impacts. Strategies for detecting the impacts of tourism on wildlife are outlined in Newsome et al. (2005). Existing management strategies and actions need to be audited for their effectiveness in mitigating impacts and impact on visitor satisfaction. Interpretation strategies require review for their effectiveness. Monitoring systems need to be put in place to identify key performance indicators in relation to social, economic and environmental conditions. These systems should be subject to on-going review and modification as measured by standards that are subject to change should non-performance be detected.

Conclusion

It is impossible to make a general conclusion across all areas because each wildlife viewing situation is different involving many different environments, different tolerances of a wide range of species, different viewing (distance or close), possible close contact with habituated species and structured feeding scenarios. However, the common theme that emerges throughout is the need for icon site diversification in the form of de-emphasising a single target species and in most cases reducing the emphasis on feeding and touching. A central conclusion to this work therefore is identification of the need to conduct nature based tourism product feasibility studies that eventually lead to a programme of product diversification at all wildlife icon sites. For example at Monkey Mia, due to large numbers of people and the possibility of conflict and overcrowding problems, the existing viewing arrangement is in need of review.

A central question in relation to wildlife icons is an understanding of how sustainability of the wildlife icon site can be improved. Additional research needs to be carried out with regard to auditing additional icon sites for impacts, visitor satisfaction, management effectiveness and opportunities for additional nature based attractions. In particular such research could explore the best protocols for wildlife impact assessment. All icon sites require a statement of best practice in relation to the promotion of natural experiences, well thought out and researched interpretive programs, value adding through linkage with conservation initiatives, the development of impact databases, monitoring systems and adaptive management.

APPENDIX A: LIST OF INTERVIEWEES

Monkey Mia

Name	Occupation
Mr Ian Anderson	Acting Manager Monkey Mia Reserve Department of Conservation and Land Management Denham, Western Australia
Mr David Charles	Manager Monkey Mia Reserve Department of Conservation and Land Management Denham, Western Australia
Mr Les Moss	Shire President Shire of Shark Bay Denham, Western Australia
Mr Darren Capewell	Manager Yadgalah Aboriginal Corporation Denham, Western Australia
Mr Dean Massey	Manager Monkey Mia Resort Denham, Western Australia

Hervey Bay

Name	Occupation
Ms Kirsten Wortel	Senior Conservation Officer Marine & Coastal Management Great Sandy Southern Region Environment Protection Agency Queensland Parks & Wildlife Service Maryborough, Queensland
Mr Larry Monk	General Manager Fraser Coast South Burnett Regional Tourism Board Ltd Maryborough, Queensland

APPENDIX B: MANAGEMENT INTERVIEW QUESTIONS

Monkey Mia

MANAGEMENT INTERVIEW QUESTIONS – MONKEY MIA

The following question addresses uncertainty of the wildlife tourism icon and how managers would be AFFECTED if dolphins at Monkey Mia stayed away for an unspecified period of time.

1. **How would your operations be affected if the dolphins at Monkey Mia were not here .....? (please describe below)**

Tomorrow:
A week:
A month:
A season:

The following questions address uncertainty of the wildlife tourism icon and what STRATEGIES managers would put in place if dolphins at Monkey Mia stayed away for an unspecified period of time.

2. **How would management react and what actions would you put in place if the dolphins at Monkey Mia were not here.....? (please describe below)**

Tomorrow:
A week:
A month:
A season:

3. **How would management react and what actions would you put in place if the existing population of beach feeding dolphins at Monkey Mia died? (please describe below)**

The following questions address what other products or opportunities are available should the wildlife icon decline or disappear.

In considering what other opportunities are viable for VISITORS if the situation surrounding dolphin watching at Monkey Mia changes and the icon declines or disappears…

4. **Do you think visitors would still come to Shark Bay if there were no dolphins at Monkey Mia? (please describe below)**

5. **Do you think visitors would still come to Shark Bay if they could no longer hand-feed dolphins at Monkey Mia? (please describe below)**

6. **Do you feel there are better ways of managing visitors' interaction with dolphins at Monkey Mia? If so, what are they? (please describe below)**

How do you think visitors would react to these management changes?

7. **What other opportunities in Shark Bay would be available or offered to visitors if not involved in dolphin viewing? (please describe below)**

What alternatives do you think visitors would enjoy the most/least?

In considering what other products or opportunities are available or would be promoted in the SHARK BAY REGION. ***Imagine declining visitor numbers (either because of declining dolphin numbers, dissatisfaction with the interaction or region and/or because of increased competition with other regions that also have dolphins)…..***

8. **If there was a regional promotional campaign, what should be advertised as a good reason to visit Shark Bay? (please describe below)**

9. **What else could be developed in the Shark Bay Region that would be complementary to existing options and that might make the whole region more attractive as a destination? (please describe below)**

10. **Think about visitors' experiences at Monkey Mia, how would each of the following add or detract to the quality of their visit? (please mark [✓] the appropriate box).**

Item	Greatly detract	Detract	No influence	Add	Greatly add
Prevent provisioning (feeding) of dolphins	❑	❑	❑	❑	❑
Viewing dolphins from viewing stadium located on beach with only rangers feeding	❑	❑	❑	❑	❑
Absence of dolphins	❑	❑	❑	❑	❑
Very few sightings of other wildlife	❑	❑	❑	❑	❑
Degraded condition of natural environment	❑	❑	❑	❑	❑
>100 people in dolphin interaction area	❑	❑	❑	❑	❑
No staff present	❑	❑	❑	❑	❑
Time limits on encounters with dolphins	❑	❑	❑	❑	❑
Advanced booking to view dolphins (no guarantee of dolphin interaction)	❑	❑	❑	❑	❑
No physical contact with dolphin	❑	❑	❑	❑	❑
No entry in to water permitted in Dolphin Interaction Area during dolphin feed	❑	❑	❑	❑	❑

11. **Do you have any techniques in place to evaluate unacceptable or degraded visitor experiences? If so, what are they? (please describe below)**

12. **What alternatives are viable should impacts on the environment or wildlife icon become unacceptable or visitor experience becomes degraded? (please describe below)**

Hervey Bay

MANAGEMENT INTERVIEW QUESTIONS

In considering what other opportunities are viable for VISITORS to the Hervey Bay region ...

1. Do you think visitors would still come to Hervey Bay if it was not possible to take a whale-watching tour from the town? (please mark [✓] one box only)

Yes, there would still be roughly the same number of visitors, staying the same amount of time/number of days in Hervey Bay	❑
Yes but visitors would probably spend less time at Hervey Bay	❑
No, I think there would be fewer visitors to Hervey Bay	❑
Other (please specify)	❑
Don't know	❑

2. Do you think MORE visitors would come to Hervey Bay if there was MORE opportunity to go whale watching from the town? (please mark [✓] one box only)

Yes, I think there more visitors would come to the Hervey Bay	❑
No, I think there would be roughly the same number of visitors but some might stay for longer	❑
No, I don't think it would make much difference to either the number of visitors or to their length of stay	❑
Other (please specify)	❑
Don't know	❑

3. What other opportunities in Hervey Bay are available or offered to visitors other than whale-watching ? (please describe below)

Which of these do you think visitors enjoy the most?

Which of these do you think visitors enjoy the least?

How viable and/or attractive are other wildlife viewing options as tourism attractions (eg. tours that focus on dolphins, dugongs, turtles, etc) and what management challenges do these alternatives present?

4. **If there was a regional promotional campaign, what should be advertised as a good reason to visit Hervey Bay? (please describe below)**

5. **What else could be developed in the Hervey Bay Region that would be complementary to existing options and that might make the whole region more attractive as a destination? (please describe below)**

6. **Think about the visitors' experiences on whale watching tours that operate out of Hervey Bay.**

What do you think they enjoy MOST about the tours?

What do you think they enjoy least about the tours?

7. **If there was a promotional campaign specifically aiming to encourage more visitors to go on whale-watching tours, what should be advertised as a good reason to go? (please describe below)**

8. **What else could be done and/or incorporated into currently operating whale-watching tours that might make them attractive as an activity for visitors to Hervey Bay? (please describe below)**

9. Do you have any techniques in place to evaluate unacceptable or degraded visitor experiences? If so, what are they? (please describe below)

10. What tourism alternatives are viable should impacts on the environment or wildlife icon become unacceptable or visitor experience becomes degraded? (please describe below)

11. Think about the visitors' experiences on whale watching tours that operate out of Hervey Bay. How do you think each of the following would add to or detract from the quality of their tour? (please mark [✓] the appropriate box).

Item	Greatly detract	Detract	No influence	Add	Greatly add
Larger boat (with more people)	❑	❑	❑	❑	❑
Faster boat	❑	❑	❑	❑	❑
More boats in vicinity of the humpback whales	❑	❑	❑	❑	❑
Longer tour	❑	❑	❑	❑	❑
Shorter tour	❑	❑	❑	❑	❑
More time viewing humpback whales	❑	❑	❑	❑	❑
Less time viewing humpback whales	❑	❑	❑	❑	❑
Absence of humpback whales	❑	❑	❑	❑	❑
More sightings of other wildlife	❑	❑	❑	❑	❑
Very few sightings of other wildlife	❑	❑	❑	❑	❑
Degraded condition of natural environment	❑	❑	❑	❑	❑
Needed to make advanced booking to go on tour	❑	❑	❑	❑	❑
Tour guides knew little about humpback whales	❑	❑	❑	❑	❑
Tour guides knew little about Hervey Bay region	❑	❑	❑	❑	❑

The following set of questions relate to whale-watching regulations. Background information is provided on the last page of this document. It shows key differences between the regulations for whale watching in NSW and QLD, and also lists SOME issues that are mentioned in the Tourism in Protected Areas working group report. These 'lists' are NOT definitive, they are merely there to 'jog' memory, and to focus thought on issues that MAY be relevant.

12. How adequate do you think the QLD regulations are, with respect to their ability to protect

a) the 'interests' of the whale
b) the 'interests' of the whale-watching tour operators
c) the 'interests' of whale-watching tourists
d) the 'interests' of residents/other members of the community in the Hervey Bay region

13. Do you believe that differences between whale watching regulations in NSW and QLD cause problems for

a) the whales
b) the whale-watching tour operators
c) the whale-watching tourists
d) the residents/other members of the community in the Hervey Bay region

14. **Do you feel there are better ways of managing visitors' interaction with humpback whales at Hervey Bay ? If so, what are they? (please describe below)**

How do you think visitors would react to these management changes?

How do you think local whale-watching tour operators would react to those changes?

15. **How would your operations be affected if, during the 'normal' season, humpback whales did not show up at near Hervey Bay .....? (please describe below)**

For one day:

For one week:

For one month:

For the entire season:

16. **How would management react and what actions would you put in place if, during the 'normal' season, humpback whales did not show up near Hervey Bay .....? (please describe below)**

For one day:
For one week:
For one month:
For the entire season:

Key differences in regulations between NSW and QLD

Adapted from: Summary of Whale Watching Guidelines for Commonwealth and States of Australia at http://www.whalesalive.org.au/whalewatching2.html

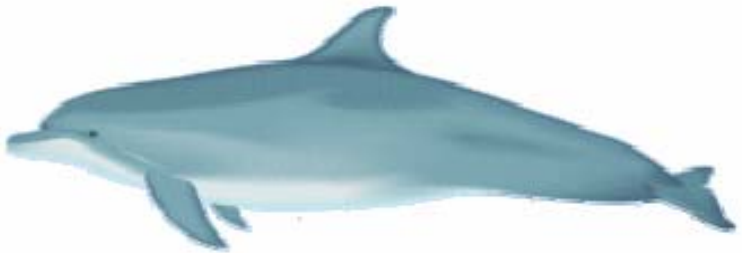
Regulation	QLD	NSW
Penalty for breach	Maximum - $225,000 or two years imprisonment	Maximum penalty $100,000???
Direction of approach	A person in charge of a vessel shall not bring the boat to a position that would cause the whale to come closer than 100m to the boat if the whale continued on it's direction of travel	
Speed of approach	Within 300m a maximum of 4 knots for a whale	
Limit of approach	For a whale: 100m: If three or more boats: 300m. Minimum is 300m if the vessel is moving faster than 4 knots or travelling in a similar direction as and behind the whale - for special interest cetaceans - 500m.	If a slow "no wake" approach: 200m if the animal is a calf 100m for any other animal otherwise 300m Other (usually smaller) Delphinidae: no limits apply.
Observation	Do not bring boat between members of a pod of whales. Do not cause a whale to alter its direction or speed of travel or its behaviour.	Do not heard or otherwise chase any whales or marine mammals
Departure	Do not move vessel faster than 4 knots when less than 300m from the whale	
Swimmers and divers	A person swimming or diving must not enter the water or approach closer than 300m to a whale or 100m to a dolphin	Minimum approach distance is 30m
Feeding	A person must not feed, discard rubbish into the water or touch cetaceans	
Noise	A Person shall not make noises likely to attract/ disturb whale(s)	
Permits	Need permit for commercial WW. Permits specify details like background knowledge of operators, seating for passengers, quality and type of on-board waste disposal, frequency of operation, etc. granted for particular areas	Whale Watching : No commercial whale watching operators to be licensed. (ie permits not required?)

Key issues being discussed in TIPA

1. Determining the commercial tourism carrying capacity of visitor sites (=> may change the number of permits that could be issued)
2. The problem of seasonality
3. Native title issues
4. Permit allocation and renewals system should be equitable and use a range of mechanisms
5. Recognise that current permits periods are too short
6. Avoid arbitrary permit fees
7. Consider issues associated with trading of access and capacity
8. Need to look at performance standards, accreditation and compliance – avoiding being too prescriptive, and allowing for recognition of 'merit'.

APPENDIX C: VISITOR SURVEY

Monkey Mia



MURDOCH UNIVERSITY
PERTH, WESTERN AUSTRALIA

MONKEY MIA VISITOR SURVEY 2004
Your feedback is important to us.

The Cooperative Research Centre for Sustainable Tourism has invested in research that is looking at issues surrounding Wildlife-ICON Tourism. The work is being carried out by researchers at Murdoch University in cooperation with the Department of Conservation and Land Management.

As part of this study, we are conducting a survey of dolphin-watching visitors at Monkey Mia. We hope that information gained from the survey can be used to improve the visitor experience whilst helping us manage our natural areas, our wildlife, and our wildlife-based tourism industry in a sustainable manner.

We would be extremely grateful if ONE person from your travel party (i.e. group of people who are travelling together and sharing expenses) could complete this survey. We thank you – in advance – for your time and assistance. Your feedback is greatly appreciated.

Amanda J. Smith
Researcher
School of Environmental Science
Murdoch University
South Street, Murdoch WA 6157
Phone: (08) 9360 6377

If you have any concerns regarding this survey, please contact Research Ethics Office at Murdoch University, Phone (08) 9360 6677.

PART I

YOUR GROUP AND YOUR VISIT

This question is about your group's visit to Monkey Mia.

By group we mean those people who are travelling with you and sharing expenses (normally, from the same household).

1. Including yourself, how many people are in your group? (i.e. for how many people are you completing this survey?)

Number of adults _____

Number of children (aged 17 and under) _____

2. What type of group best describes the people you are travelling with? (please mark [✓] one box)

Single person	❑
Group of friends	❑
Couple	❑
Family	❑
Group of family & friend(s)	❑
Tour group	❑
*Other (please specify)*_____	❑

3. Where do you usually live? (please mark [✓] one box)

Shark Bay	❑
*Perth Metro Region (please specify postcode)*_____	❑
*Other WA (please specify postcode)*_____	❑
*Interstate (please specify postcode)*_____	❑
*Overseas (please specify country)*_____	❑

4. What was your main means of transport to Monkey Mia/Shark Bay? (please mark [✓] one box)

Aeroplane	❑
Passenger vehicle (Two wheel drive)	❑
Motorcycle	❑
Four wheel drive vehicle	❑
Campervan/motor home	❑
Tour bus/coach including four wheel drive tour vehicle	❑
Bus transport from Denham	❑
Other (please specify) _____	❑

5. Is this your first visit to Monkey Mia? (please mark [✓] one box)

(i) Yes ..... ❑ *(please go to Question 6)*

(ii) No ..... ❑ *(please answer below)*

If you answered No, please answer the following section, then go to Question 6.

a) What was the year of your first visit to Monkey Mia?

_____

b) Approximately how many times have you visited Monkey Mia?

Number of visits: _____

c) Approximately when was the last time you visited Monkey Mia?

_____

Once complete, please go to Question 6

6. On this trip, how long do you plan to stay in Monkey Mia? (please mark [✓] one box)

Half day (up to 4 hours)	❑
Full day (4-8 hours)	❑
More than one day, but not overnight (stayed elsewhere)	❑
Overnight (please specify number of nights)	_____nights

7. Including your visit to Monkey Mia, approximately how long will you stay in the Shark Bay region on this trip?

Number of nights _____

Where did you stay while visiting Shark Bay? (please mark [✓] appropriate box)

Monkey Mia Resort	
Backpackers	❑
Beachside Dolphin Units	❑
Shared en-suite	❑
Motel Beachfront Villas	❑
Motel Garden Villas	❑
Monkey Mia Resort Caravan Park	
Tent-site	❑
Caravan-site (normal van bay)	❑
Caravan-site (front van bay)	❑
Park home	❑
With friends/family in Denham	❑
Shire campsite (free of charge)	❑
Caravan Park in Denham	
Tent-site	❑
Caravan-site	❑
On-site van	❑
Park home	❑
Youth Hostel in Denham	❑
Self-contained Unit in Denham	❑
Motel Room in Denham	❑
Hotel Room in Denham	❑
*Other (Please specify)*_____	❑

8. Thinking of your trip, was this visit to Monkey Mia……
(please mark [✓] one box)

The main purpose of your trip to Shark Bay	❑ please go to Question 10
One of several destinations on this trip	❑ please go to Question 9
Not a planned destination on this trip	❑ please go to Question 9

9. While on <u>this trip</u> are you only visiting Shark Bay?

(iii) Yes ..... ❑ *(please go to Question 10)*

(iv) No ..... ❑ *(please answer below)*

a) On this trip, how long will you be away from your usual place of residence?

Night(s)	Week(s)	Month(s)

b) Where did you spend your last night before travelling to Shark Bay?

_____

c) Where else have you visited (or do you plan to visit) on your current trip away from 'home' and approximately how long have you (or do you plan) to spend there?

Pinnacles	❑ _____	nights
Geraldton	❑ _____	nights
Kalbarri	❑ _____	nights
Carnarvon	❑ _____	nights
Coral Bay	❑ _____	nights
Exmouth	❑ _____	nights
Onslow	❑ _____	nights
Other (please specify _____	❑ _____	nights

Once complete, please go to Question 10

PART II

YOUR PURPOSE FOR VISITING

10. If dolphin viewing at Monkey Mia did not exist would you have still taken this trip to the Shark Bay Region? (please mark [✓] one box only)

Yes, we would have spent the same amount of time/number of days in Shark Bay	❑
Yes, but we would have spent less time/fewer days in Shark Bay	❑
No, we would have travelled elsewhere	❑
No, we would not have taken this trip	❑
Don't know	❑

11. Think about your experiences at Monkey Mia, how would each of the following add or detract to the quality of your visit? (please mark [✓] the appropriate box).

Item	Greatly detract	Detract	No influence	Add	Greatly add
Prevent provisioning (feeding) of dolphins	❑	❑	❑	❑	❑
Seeing dolphins from viewing stadium located on beach with only rangers feeding	❑	❑	❑	❑	❑
Absence of dolphins	❑	❑	❑	❑	❑
Very few sightings of other wildlife	❑	❑	❑	❑	❑
Degraded condition of natural environment	❑	❑	❑	❑	❑
>100 people in dolphin interaction area	❑	❑	❑	❑	❑
>200 people in dolphin interaction area	❑	❑	❑	❑	❑
No staff present	❑	❑	❑	❑	❑
Time limits on encounters with dolphins	❑	❑	❑	❑	❑
Advanced booking to view dolphins (no guarantee of dolphin interaction)	❑	❑	❑	❑	❑
No physical contact with dolphin	❑	❑	❑	❑	❑
No entry in to water permitted in Dolphin Interaction Area during dolphin feed	❑	❑	❑	❑	❑

12. During this visit to Shark Bay, which other sites have you visited (or do you plan to visit) and how much time have you (or will you) spend at each site? (please mark [✓] all that apply)

Hamelin Pool (stromatolites)	❑	_____ hours
Telegraph Station	❑	_____ hours
Shell Beach	❑	_____ hours
Eagle Bluff	❑	_____ hours
Francois Peron National Park	❑	_____ hours
Skipjack Point	❑	_____ hours
Peron Homestead (including visitor centre & hot tub)	❑	_____ hours
Big Lagoon	❑	_____ hours
Little Lagoon	❑	_____ hours
Pearl Farm	❑	_____ hours
Herald Bight	❑	_____ hours
Nanga Bay and Station	❑	_____ hours
Steep Point	❑	_____ hours
Ocean Park	❑	_____ hours
Denham township, foreshore & jetty's	❑	_____ hours
Other (please specify) _____	❑	_____ hours

13. What activities have you participated in (or do you plan to participate in) during this visit to Monkey Mia? (please mark [✓] all that apply)

Fishing	❑
Viewing dolphins/dolphin interaction	❑
Viewing marine wildlife	❑
Viewing terrestrial (land-based) wildlife	❑
Organised cruise of Shark Bay Marine Park	❑
Swimming	❑
Snorkelling/diving	❑
Boating	❑
Walking/hiking	❑
Camping/Caravanning	❑
Photography	❑
Picnic/barbeque	❑
Bird watching	❑
Relaxing	❑
Lazing on the beach	❑
Visiting restaurants and café's	❑
Commercial tour (please specify what type) _____	❑
Other (please specify) _____	❑

14. What other activities would you like to have been involved in that are currently not available at Shark Bay?

_____

_____

_____

_____

15. Reflecting back on your experiences, from the list below try to recall how important each reason for visiting Shark Bay was to you during this visit. (please mark [✓] the appropriate box).

Item	Not important	Minor importance	Important	Very important	Extremely important
The opportunity to see dolphins	❑	❑	❑	❑	❑
Seeing dolphins in their natural environment	❑	❑	❑	❑	❑
Being able to get close to dolphins	❑	❑	❑	❑	❑
Being able to feed dolphins	❑	❑	❑	❑	❑
To visit Monkey Mia Resort and it's facilities including the visitor centre	❑	❑	❑	❑	❑
To go on a wildlife cruise	❑	❑	❑	❑	❑
To spend time with companion(s)	❑	❑	❑	❑	❑
To escape everyday routines	❑	❑	❑	❑	❑
Holiday, tourism	❑	❑	❑	❑	❑
To view terrestrial (land -based) wildlife	❑	❑	❑	❑	❑
To view marine wildlife	❑	❑	❑	❑	❑
To view dugongs	❑	❑	❑	❑	❑
To be in & enjoy a natural environment	❑	❑	❑	❑	❑
To learn about nature (environmental education)	❑	❑	❑	❑	❑
To visit a World Heritage Area	❑	❑	❑	❑	❑
Other (please specify)	❑	❑	❑	❑	❑

16. What was the BEST part of your wildlife experience?

_____

_____

17. What was the WORST part of your wildlife experience?

_____

_____

18. How would you rate this visit to Monkey Mia overall (please mark [✓] one box).

Much worse than expected	Worse than expected	About the same as expected	Better than expected	Much better than expected
❑	❑	❑	❑	❑

PART III

EXPENDITURE

19. While in Shark Bay what is the approximate amount that you and your personal travel group have spent (or will spend) PER DAY on the following? (Please do NOT include money spent outside the region – e.g. on cars hired in Perth)

Item – Cost PER DAY	$<20	$21-50	$51-100	$101-150	$>150
Drinks or food from a takeaway	❑	❑	❑	❑	❑
Meal in a café or 'family' restaurant	❑	❑	❑	❑	❑
Groceries	❑	❑	❑	❑	❑
Other supplies (e.g. film, maps, camping equipment, etc).	❑	❑	❑	❑	❑
Drinks at a bar, hotel or nightclub	❑	❑	❑	❑	❑
Tickets to local attractions/tours	❑	❑	❑	❑	❑
Souvenirs	❑	❑	❑	❑	❑
Other (please specify)	❑	❑	❑	❑	❑
Item	**$<50**	**$51-100**	**$101-150**	**$151-200**	**>$200**
Accommodation	❑	❑	❑	❑	❑
Hire cars	❑	❑	❑	❑	❑
Fuel	❑	❑	❑	❑	❑

20. Overall, could you estimate the total cost of your trip (for all members of your personal travel group) – including money spent elsewhere in Australia?

AUS$_____

PART IV

INFORMATION ABOUT YOURSELF

21. What is your age? (please mark [✓] one box)

16-24	❑
25-39	❑
40-59	❑
60 and over	❑

22. Are you: (please mark [✓] one box)

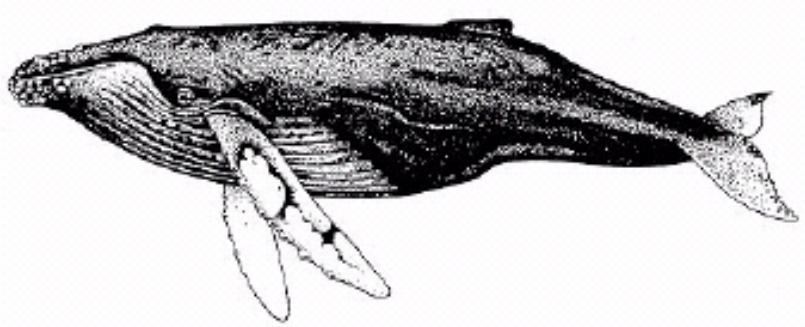
Male	❑
Female	❑

23. How would you describe your occupation? (please mark [✓] one box)

Manager/administrator	❑
Professional	❑
Para-professional	❑
Tradesperson	❑
Machine operator/driver	❑
Labourer & related	❑
Sales & personal services	❑
Clerk	❑
Home duties	❑
Retired	❑
Student	❑
Unemployed	❑
Other (please specify) _____	❑

Thank you for your time, your participation is greatly appreciated. Please return the questionnaire to the surveyor or the Monkey Mia Visitor Centre

Hervey Bay



MURDOCH UNIVERSITY
PERTH, WESTERN AUSTRALIA

HERVEY BAY VISITOR SURVEY 2004

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As part of this study, we are conducting a survey of whale-watching visitors at Hervey Bay. We hope that information gained from the survey can be used to improve the visitor experience whilst helping us manage our natural areas, our wildlife, and our wildlife-based tourism industry in a sustainable manner.

We would be extremely grateful if you could complete this survey. We thank you – in advance – for your time and assistance. Your feedback is greatly appreciated.

Amanda J. Smith
Researcher
School of Environmental Science
Murdoch University
South Street, Murdoch WA 6157
Phone: (08) 9360 6377

If you have any concerns regarding this survey, please contact Research Ethics Office at Murdoch University, Phone (08) 9360 6677.

PART I

YOUR GROUP AND YOUR VISIT

This question is about your group's visit to Hervey Bay.

By group we mean those people who are travelling with you and sharing expenses (normally, from the same household).

1. Including yourself, how many people are in your group?

Number of adults _____

Number of children (aged 17 and under) _____

2. What type of group best describes the people you are travelling with? (please mark [✓] one box)

Single person	❑
Group of friends	❑
Couple	❑
Family	❑
Group of family & friend(s)	❑
Tour group	❑
*Other (please specify)*_____	❑

3. Where do you usually live? (please mark [✓] one box)

Hervey Bay	❑
*Brisbane Metro Region (please specify postcode)*_____	❑
*Other QLD (please specify postcode)*_____	❑
*Interstate (please specify postcode)*_____	❑
*Overseas (please specify country)*_____	❑

4. What was your main means of transport to Hervey Bay? (please mark [✓] one box)

Aeroplane	❑
Passenger vehicle (Two wheel drive)	❑
Motorcycle	❑
Four wheel drive vehicle	❑
Campervan/motor home	❑
Tour bus/coach including four wheel drive tour vehicle	❑
Other (please specify) _____	❑

5. Is this your first visit to Hervey Bay? (please mark [✓] one box)

(i) Yes ..... ❑ *(please go to Question 6)*

(ii) No ..... ❑ *(please answer below)*

If you answered No, please answer the following section, then go to Question 6.

a) What was the year of your first visit to Hervey Bay?

_____

b) Approximately how many times have you visited Hervey Bay?

Number of visits: _____

c) Approximately when was the last time you visited Hervey Bay?

_____

Once complete, please go to Question 6

6. How long will you spend on this whale-watching tour ? (please mark [✓] one box)

Half day (up to 4 hours)	❑
Full day (4-8 hours)	❑
Overnight (please specify number of nights)	_____nights

7. Including your time spent on this whale-watching tour, approximately how long will you stay in the Hervey Bay region on this trip?

Number of nights _____

In which type of accommodation did you (or will you) stay while visiting Hervey Bay? (please mark [✓] appropriate box)

Resort	❑
Hotel	❑
Motel	❑
Bed & Breakfast	❑
Self-contained Unit / Apartment	❑
Rented Holiday House	❑
Caravan Park	
Tent-site	❑
Caravan-site	❑
On-site van	❑
Park home	❑
Back-packers / Youth Hostel	❑
With friends / family	❑
*Other (Please specify)*_____	❑

8. Thinking of your trip, was this trip on the whale-watching tour ..... (please mark [✓] one box)

The main purpose of your trip away from home	❑ please go to Question 10
One of several activities &/or destinations on your trip away from home	❑ please go to Question 9
Not a planned destination on this trip	❑ please go to Question 9

9. While on <u>this trip</u> are you only visiting Hervey Bay?

(iii) Yes ..... ❑ *(please go to Question 10)*

(iv) No ..... ❑ *(please answer below)*

a) On this trip, how long will you be away from your usual place of residence?

Night(s)	Week(s)	Month(s)

b) Where did you spend your last night before travelling to Hervey Bay?

_____

c) Where else have you visited (or do you plan to visit) on your current trip away from 'home' and approximately how long have you (or do you plan) to spend there?

Fraser Island	❑ _____	nights
Maryborough	❑ _____	nights
Gympie	❑ _____	nights
Bundaberg	❑ _____	nights
Rainbow Beach	❑ _____	nights
Tin Can Bay	❑ _____	nights
Kingaroy	❑ _____	nights
Other (please specify _____	❑ _____	nights

Once complete, please go to Question 10

PART II

YOUR VISIT TO HERVEY BAY

10. If Whale-Watching at Hervey Bay did not exist would you have still taken this trip to the Hervey Bay Region? (please mark [✓] one box only)

Yes, we would have spent the same amount of time/number of days in Hervey Bay	❑
Yes, but we would have spent less time/fewer days in Hervey Bay	❑
No, we would have travelled elsewhere	❑
No, we would not have taken this trip	❑
Don't know	❑

11. Think about your experiences at Hervey Bay, how would each of the following add or detract to the quality of your visit? (please mark [✓] the appropriate box).

Item	Greatly detract	Detract	No influence	Add	Greatly add
Larger boat (with more people)	❑	❑	❑	❑	❑
Faster boat	❑	❑	❑	❑	❑
More boats in vicinity of the whales	❑	❑	❑	❑	❑
Longer tour	❑	❑	❑	❑	❑
Shorter tour	❑	❑	❑	❑	❑
More time viewing whales	❑	❑	❑	❑	❑
Less time viewing whales	❑	❑	❑	❑	❑
Absence of whales	❑	❑	❑	❑	❑
More sightings of other wildlife	❑	❑	❑	❑	❑
Very few sightings of other wildlife	❑	❑	❑	❑	❑
Degraded condition of natural environment	❑	❑	❑	❑	❑
Needed to make advanced booking for tour	❑	❑	❑	❑	❑
Tour guides knew little about whales	❑	❑	❑	❑	❑
Tour guides knew little about region	❑	❑	❑	❑	❑

12. During this visit to Hervey Bay, which activities have you already done, which do you plan to do, and which do you NOT plan to do? (please mark [✓] the appropriate box)

Item	Have done	Plan to do	Do NOT plan to d	Unsure if will do
Viewing whales	❑	❑	❑	❑
Other commercial tour (please specify what type) _____	❑	❑	❑	❑
Bird watching/ bird feeding	❑	❑	❑	❑
Viewing other land-based wildlife	❑	❑	❑	❑
Swimming / snorkelling	❑	❑	❑	❑
Lazing on the beach	❑	❑	❑	❑
Walking/hiking	❑	❑	❑	❑
Boating (in private boat)	❑	❑	❑	❑
Fishing	❑	❑	❑	❑
Horse-riding	❑	❑	❑	❑
Playing Tennis	❑	❑	❑	❑
Playing Lawn Bowls	❑	❑	❑	❑
Playing Golf	❑	❑	❑	❑
Visiting restaurants and café's	❑	❑	❑	❑
Visiting Hervey Bay's Sunday Markets	❑	❑	❑	❑
Visiting the Regional Art Gallery in Pialba	❑	❑	❑	❑
Visiting "Natural Impressions" Art Gallery	❑	❑	❑	❑
Other (please specify) _____	❑	❑	❑	❑

13. **Of those activities that you have done, which have you enjoyed the most?**

_____

_____

_____

_____

14. **Of those activities that you plan to do (but have not yet had time), which do you look forward to the most?**

_____

_____

_____

_____

15. **What other activities would you like to have been involved in that are not currently available at Hervey Bay?**

_____

_____

_____

_____

16. **So far, how would you rate your visit to Hervey Bay overall (please mark [✓] one box).**

Much worse than expected	Worse than expected	About the same as expected	Better than expected	Much better than expected
❑	❑	❑	❑	❑

17. **Reflecting back on your experiences, from the list below try to recall how important each reason was for visiting Hervey Bay was to you during this visit. (please mark [✓] the appropriate box).**

Item	Not important	Minor importance	Important	Very important	Extremely important
The opportunity to see whales	❑	❑	❑	❑	❑
Seeing whales in their natural environment	❑	❑	❑	❑	❑
To go on a wildlife cruise	❑	❑	❑	❑	❑
To spend time with companion(s)	❑	❑	❑	❑	❑
To visit friends or relatives	❑	❑	❑	❑	❑
To escape everyday routines	❑	❑	❑	❑	❑
Holiday, tourism	❑	❑	❑	❑	❑
To view terrestrial (land-based) wildlife	❑	❑	❑	❑	❑
To view marine wildlife	❑	❑	❑	❑	❑
To view dugongs	❑	❑	❑	❑	❑
To be in & enjoy a natural environment	❑	❑	❑	❑	❑
To learn about nature (environmental education)	❑	❑	❑	❑	❑
To visit Hervey Bay Marine Park	❑	❑	❑	❑	❑
Other (please specify)	❑	❑	❑	❑	❑

PART III

YOUR WHALE-WATCHING TOUR

18. What was the BEST part of your whale-watching tour?

_____

_____

19. What was the WORST part of your whale-watching tour?

_____

_____

20. Overall, how would you rate this whale-watching tour? (please mark [✓] one box).

Much worse than expected	Worse than expected	About the same as expected	Better than expected	Much better than expected
❑	❑	❑	❑	❑

21. Have you been on a whale-watching tour before?

No	❑ please go to Question 24
Yes	❑ please go to Question 22

22. Where did you go on your previous whale-watching tour?

_____

23. How would you rate this Hervey Bay tour compared to your previous whale watching experience?

Much worse than previous whale-watching tour	Worse than previous whale-watching tour	About the same as previous whale-watching tour	Better than previous whale-watching tour	Much better than previous whale-watching tour
❑	❑	❑	❑	❑

PART IV

EXPENDITURE

24. While in Hervey Bay what is the approximate amount that you and your personal travel group have spent (or will spend) PER DAY on the following? (Please do NOT include money spent outside the region – e.g. on cars hired in Brisbane)

Item – Cost PER DAY	$<20	$21-50	$51-100	$101-150	$>150
Drinks or food from a takeaway	❑	❑	❑	❑	❑
Meal in a café or 'family' restaurant	❑	❑	❑	❑	❑
Groceries	❑	❑	❑	❑	❑
Other supplies (e.g. film, maps, camping equipment, etc).	❑	❑	❑	❑	❑
Drinks at a bar, hotel or nightclub	❑	❑	❑	❑	❑
Tickets to local attractions/tours	❑	❑	❑	❑	❑
Souvenirs	❑	❑	❑	❑	❑
Other (please specify)	❑	❑	❑	❑	❑
Item	**$<50**	**$51-100**	**$101-150**	**$151-200**	**>$200**
Accommodation	❑	❑	❑	❑	❑
Hire cars	❑	❑	❑	❑	❑
Fuel	❑	❑	❑	❑	❑

25. Overall, could you estimate the total cost of your trip (for all members of your personal travel group) – including money spent elsewhere in Australia?

AUS$_____

PART V

INFORMATION ABOUT YOURSELF

26. What is your age? (please mark [✓] one box)

18-24	❑
25-39	❑
40-59	❑
60 and over	❑

27. Are you: (please mark [✓] one box)

Male	❑
Female	❑

28. How would you describe your occupation? (please mark [✓] one box)

Manager/administrator	❑
Professional	❑
Para-professional	❑
Tradesperson	❑
Machine operator/driver	❑
Labourer & related	❑
Sales & personal services	❑
Clerk	❑
Home duties	❑
Retired	❑
Student	❑
Unemployed	❑
Other (please specify) _____	❑

Thank you for your time, your participation is greatly appreciated. Please return the questionnaire to the surveyor or the Hervey Bay Visitor Centre

APPENDIX D: TOUR OPERATOR SURVEY

Monkey Mia

MURDOCH UNIVERSITY
PERTH, WESTERN AUSTRALIA

MONKEY MIA TOUR OPERATOR SURVEY 2004
Your feedback is important to us.

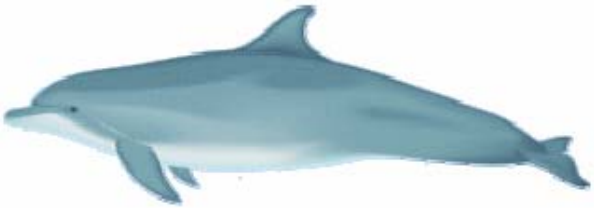
The Cooperative Research Centre for Sustainable Tourism has invested in research that is looking at issues surrounding Wildlife-ICON Tourism. Researchers at Murdoch University in cooperation with the Department of Conservation and Land Management are carrying out the work.

As part of this study, we are conducting a survey of tour operators offering dolphin-watching opportunities to visitors at Monkey Mia. This study examines tourism that has developed around viewing and the feeding of wild dolphins and thus creating an icon dependent destination. This research will address stakeholder attitudes and perceptions of wildlife interaction at Monkey Mia with a view to explore new ways of managing tourism focussed on icon species and an examination of alternatives should the attraction decline or impacts become unacceptable.

We would be extremely grateful if ONE person from your organisation could complete this survey. All information provided is treated as CONFIDENTIAL and will not be released by the investigator unless required to do so by law. We thank you – in advance – for your time and assistance. Your feedback is greatly appreciated.

Amanda J. Smith
Researcher
School of Environmental Science
Murdoch University
South Street, Murdoch WA 6157
Phone: (08) 9360 6377

If you have any concerns regarding this survey, please contact Research Ethics Office at Murdoch University, Phone (08) 9360 6677.



INFORMATION ABOUT YOUR TOUR

1. What type of tour do you offer visitors to Monkey Mia? (please mark [✓] appropriate box)

Coach tour	❑
Four wheel drive tour	❑
Safari adventure tour	❑
Self drive itinerary	❑
Tag-along tours with escort vehicle	❑
Boat tour	❑
Aerial tour	❑
Other (please specify)	❑

2. Where is your business based? (what country, state) _____

3. On your tour, how long do you stay in Monkey Mia? (please mark [✓] one box)

Half day (up to 4 hours)	❑	
Full day (4-8 hours)	❑	
More than one day, but not overnight (stayed elsewhere)	❑	
Overnight (please specify number of nights)		nights

4. Including your visit to Monkey Mia, approximately how long does your tour stay in the Shark Bay region?

Number of nights _____

5. Where does your tour stay while visiting Shark Bay? (please mark [✓] appropriate box)

Monkey Mia Resort	
Backpackers	❑
Beachside Dolphin Units	❑
Shared en-suite	❑
Motel Beachfront Villas	❑
Motel Garden Villas	❑
Monkey Mia Resort Caravan Park	
Tent-site	❑
Caravan-site (normal van bay)	❑
Caravan-site (front van bay)	❑
Park home	❑
With friends/family in Denham	❑
Shire campsite (free of charge)	❑
Caravan Park in Denham	
Tent-site	❑
Caravan-site	❑
On-site van	❑
Park home	❑
Youth Hostel in Denham	❑
Self-contained Unit in Denham	❑
Motel Room in Denham	❑
Hotel Room in Denham	❑
Other (Please specify)_____	❑

6. Where else do you visit during your tour to Shark Bay/Monkey Mia and approximately how long does your tour spend there? (please mark [✓] appropriate box)

Pinnacles	❑	nights
Geraldton	❑	nights
Kalbarri	❑	nights
Carnarvon	❑	nights
Coral Bay	❑	nights
Exmouth	❑	nights
Onslow	❑	nights
Other (please specify)	❑	nights

7. During your tour to Shark Bay, which other sites do you visit and how much time does the tour spend at each site? (please mark [✓] all that apply)

Hamelin Pool (stromatolites)	❑	hours
Telegraph Station	❑	hours
Shell Beach	❑	hours
Eagle Bluff	❑	hours
Francois Peron National Park	❑	hours
Skipjack Point	❑	hours
Peron Homestead (including visitor centre & hot tub)	❑	hours
Big Lagoon	❑	hours
Little Lagoon	❑	hours
Pearl Farm	❑	hours
Herald Bight	❑	hours
Nanga Bay and Station	❑	hours
Steep Point	❑	hours
Ocean Park	❑	hours
Denham township, foreshore & jetty's	❑	hours
Other (please specify) _____	❑	hours

DOLPHINS AT MONKEY MIA

The following question addresses uncertainty of the wildlife tourism icon and how operators would be AFFECTED if dolphins at Monkey Mia stayed away for an unspecified period of time.

8. How would your operations be affected if the dolphins at Monkey Mia were not here .....? (please describe below)

Tomorrow:

A week:

A month:

A season:

The following questions address uncertainty of the wildlife tourism icon and what STRATEGIES operators would put in place if dolphins at Monkey Mia stayed away for an unspecified period of time.

9. How would industry react and what actions would you put in place if the dolphins at Monkey Mia were not here……..? (please describe below)

Tomorrow: **A week:** **A month:** **A season:**

10. How would industry react and what actions would you put in place if the existing population of beach feeding dolphins at Monkey Mia died? (please describe below)

The following questions address what other products or opportunities are available should the wildlife icon decline or disappear.

In considering what other opportunities are viable for VISITORS if the situation surrounding dolphin watching at Monkey Mia changes and the icon declines or disappears…

11. Do you think visitors would still come to Shark Bay if there were no dolphins at Monkey Mia? (please describe below)

12. Do you think visitors would still come to Shark Bay if they could no longer hand-feed dolphins at Monkey Mia? (please describe below)

13. Do you feel there are better ways of managing visitors' interaction with dolphins at Monkey Mia? If so, what are they? (please describe below)

How do you think visitors would react to these management changes?

14. What other opportunities in Shark Bay would be available or offered to visitors if not involved in dolphin viewing? (please describe below)

What alternatives do you think visitors would enjoy the most/least?

In considering what other products or opportunities are available or would be promoted in the SHARK BAY REGION. ***Imagine declining visitor numbers (either because of declining dolphin numbers, dissatisfaction with the interaction or region and/or because of increased competition with other regions that also have dolphins)…..***

15. If there was a regional promotional campaign, what should be advertised as a good reason to visit Shark Bay? (please describe below)

16. What else could be developed in the Shark Bay Region that would be complementary to existing options and that might make the whole region more attractive as a destination? (please describe below)

17. Think about your clients' experiences at Monkey Mia, how would each of the following add or detract to the quality of their visit? (please mark [✓] the appropriate box).

Item	Greatly detract	Detract	No influence	Add	Greatly add
Prevent provisioning (feeding) of dolphins	❑	❑	❑	❑	❑
Viewing dolphins from viewing stadium located on beach with only rangers feeding	❑	❑	❑	❑	❑
Absence of dolphins	❑	❑	❑	❑	❑
Very few sightings of other wildlife	❑	❑	❑	❑	❑
Degraded condition of natural environment	❑	❑	❑	❑	❑
>100 people in dolphin interaction area	❑	❑	❑	❑	❑
>200 people in dolphin interaction area	❑	❑	❑	❑	❑
No staff present	❑	❑	❑	❑	❑
Time limits on encounters with dolphins	❑	❑	❑	❑	❑
Advanced booking to view dolphins (no guarantee of dolphin interaction)	❑	❑	❑	❑	❑
No physical contact with dolphin	❑	❑	❑	❑	❑
No entry in to water permitted in Dolphin Interaction Area during dolphin feed	❑	❑	❑	❑	❑

18. Do you have any techniques in place to evaluate unacceptable or degraded visitor experiences? If so, what are they? (please describe below)

In considering what other alternatives or options are available for the INDIVIDUAL TOUR OPERATOR. ***Imagine declining visitor numbers (either because of disappearing dolphins, dissatisfaction with interaction or region and/or because of increased competition from other regions that also have dolphins)…..***

19. What options are available to you as an operator to try and stay afloat? (please describe below)

Would you leave the region? Industry?

What else could you do to make ends meet?

Thank you for your time, your participation is greatly appreciated. Please return the questionnaire via email
or fax (08) 9360 6787 to the surveyor

Dr Amanda Smith

asmith@murdoch.edu.au

Hervey Bay

MURDOCH UNIVERSITY
PERTH, WESTERN AUSTRALIA

HERVEY BAY TOUR OPERATOR SURVEY 2004

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As part of this study, we are conducting a survey of tour operators offering whale-watching tours from Hervey Bay. This study examines tourism that has developed around the viewing thus creating a partially icon dependent destination. This research will address stakeholder attitudes and perceptions of wildlife interaction at Hervey Bay with a view to explore new ways of managing tourism focussed on icon species and an examination of alternative management arrangements and tourism options.

We would be extremely grateful if ONE person from your organisation could complete this survey. All information provided is treated as CONFIDENTIAL and will not be released by the investigator unless required to do so by law. We thank you – in advance – for your time and assistance. Your feedback is greatly appreciated.

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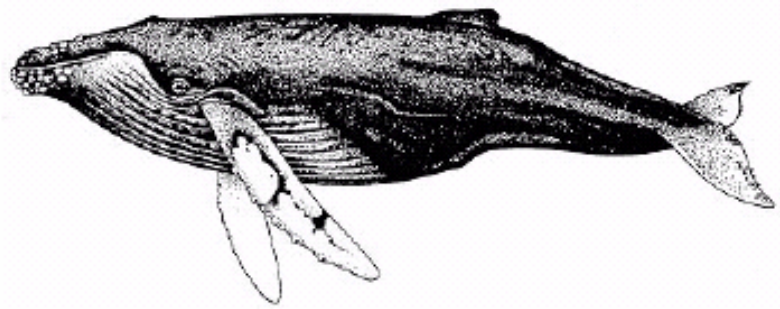

INFORMATION ABOUT YOUR TOUR

1. What type of tour(s) do you offer in and around Hervey Bay? (please mark [✓] appropriate box)

Whale watching only ❑

What do you do with your boat/vessel during the 'off-season? (please describe)

Whale watching (in season); Dolphin watching otherwise ❑

Whale watching (in season); Other wildlife otherwise ❑

Please specify wildlife:

Whale watching (in season); ❑

Other (please specify): ❑

2. Where is your head-office located? _____

3. How long is your whale-watching tour? (please mark [✓] one box)

Half day (up to 4 hours) ❑

Full day (4-8 hours) ❑

Overnight tour ❑

Please specify number of nights _____

Other ❑

Please specify _____

Overnight (please specify number of nights): _____ ❑

4. How long have you been offering whale-watching tours from Hervey Bay?

Number of years: _____

GENERAL TOURISM AT HERVEY BAY

In considering what other opportunities there are for VISITORS to the Hervey Bay region …

5. Do you think visitors would still come to Hervey Bay if it was not possible to take a whale-watching tour from the town? (please mark [✓] one box only)

Yes, there would still be roughly the same number of visitors, staying the same amount of time/number of days in Hervey Bay	❑
Yes but visitors would probably spend less time at Hervey Bay	❑
No, I think there would be fewer visitors to Hervey Bay	❑
Other (please specify)	❑
Don't know	❑

6. Do you think MORE visitors would come to Hervey Bay if there was MORE opportunity to go whale watching from the town? (please mark [✓] one box only)

Yes, I think there more visitors would come to the Hervey Bay	❑
No, I think there would be roughly the same number of visitors but some might stay for longer	❑
No, I don't think it would make much difference to either the number of visitors or to their length of stay	❑
Other (please specify)	❑
Don't know	❑

7. What other opportunities in Hervey Bay are available or offered to visitors other than whale-watching? (please describe below)

Which of these do you think visitors enjoy the most?

Which of these do you think visitors enjoy the least?

How viable and/or attractive are other wildlife viewing options as tourism attractions (eg. tours that focus on dolphins, dugongs, turtles, etc) and what management challenges do these alternatives present?

8. **If there was a regional promotional campaign, what should be advertised as a good reason to visit Hervey Bay? (please describe below)**

9. **What else could be developed in the Hervey Bay Region that would be complementary to existing options and that might make the whole region more attractive as a destination? (please describe below)**

WHALE-WATCHING AT HERVEY BAY

10. **Think about the visitors' experiences on whale watching tours that operate out of Hervey Bay.**

What do you think they enjoy MOST about the tours?

What do you think they enjoy least about the tours?

11. **If there was a promotional campaign specifically aiming to encourage more visitors to go on whale-watching tours, what should be advertised as a good reason to go? (please describe below)**

12. What else could be done and/or incorporated into currently operating whale-watching tours that might make them attractive as an activity for visitors to Hervey Bay? (please describe below)

13. Do you have any techniques in place to evaluate unacceptable or degraded visitor experiences? If so, what are they? (please describe below)

14. What tourism alternatives are viable should impacts on the environment or wildlife icon become unacceptable or visitor experience becomes degraded? (please describe below)

15. Think about the visitors' experiences on whale watching tours that operate out of Hervey Bay. How do you think each of the following would add to or detract from the quality of their tour? (please mark [✓] the appropriate box).

Item	Greatly detract	Detract	No influence	Add	Greatly add
Larger boat (with more people)	❑	❑	❑	❑	❑
Faster boat	❑	❑	❑	❑	❑
More boats in vicinity of the humpback whales	❑	❑	❑	❑	❑
Longer tour	❑	❑	❑	❑	❑
Shorter tour	❑	❑	❑	❑	❑
More time viewing humpback whales	❑	❑	❑	❑	❑
Less time viewing humpback whales	❑	❑	❑	❑	❑
Absence of humpback whales	❑	❑	❑	❑	❑
More sightings of other wildlife	❑	❑	❑	❑	❑
Very few sightings of other wildlife	❑	❑	❑	❑	❑
Degraded condition of natural environment	❑	❑	❑	❑	❑
Needed to make advanced booking to go on tour	❑	❑	❑	❑	❑
Tour guides knew little about humpback whales	❑	❑	❑	❑	❑
Tour guides knew little about Hervey Bay region	❑	❑	❑	❑	❑

WHALE-WATCHING REGULATIONS AT HERVEY BAY

The following set of questions relate to whale-watching regulations. Background information is provided on the last page of this document. It shows key differences between the regulations for whale watching in NSW and QLD, and also lists SOME issues that are mentioned in the Tourism in Protected Areas working group report. These 'lists' are NOT definitive, they are merely there to 'jog' memory, and to focus thought on issues that MAY be relevant.

16. How adequate do you think the QLD regulations are, with respect to their ability to protect

a) the 'interests' of the whale

b) the 'interests' of the whale-watching tour operators

c) the 'interests' of whale-watching tourists

d) the 'interests' of residents/other members of the community in the Hervey Bay region

17. Do you believe that differences between whale watching regulations in NSW and QLD cause problems for

a) the whales

b) the whale-watching tour operators

c) the whale-watching tourists

d) the residents/other members of the community in the Hervey Bay region

18. **Do you feel there are better ways of managing visitors' interaction with humpback whales at Hervey Bay ? If so, what are they? (please describe below)**

How do you think visitors would react to these management changes?

THE IMPORTANCE OF WHALES TO THE LOCAL COMMUNITY AND TO INDIVIDUAL BUSINESSES

19. **Think about the last 5 years (or so) of operations. How do you think each of the following has changed since that time? (please mark [✓] the appropriate box).**

Item	Many fewer than 5 years ago	A few less	About the same	A few more	Many more than 5 years ago
Total number of visitors to Hervey Bay	❑	❑	❑	❑	❑
Total number of people going on whale watching tours from Hervey Bay	❑	❑	❑	❑	❑
Total number of humpback whales within viewing distance	❑	❑	❑	❑	❑

20. **How would the entire Hervey Bay economy/community be affected if, during the 'normal' season, humpback whales did not show up near Hervey Bay .....? (please describe below)**

For one day:
For one week:
For one month:
For the entire season:

21. **How would your operations be affected if, during the 'normal' season, humpback whales did not show up near Hervey Bay .....? (please describe below)**

For one day: **For one week:** **For one month:** **For the entire season:**

In considering what other alternatives or options are available for the INDIVIDUAL TOUR OPERATOR. Imagine declining visitor numbers (either because of fewer whales, or fewer regional visitors).....

22. **What options are available to you as an operator to try and stay afloat? (please describe below)**

Would you leave the region? Industry? **What else could you do to make ends meet?**

23. **Finally, are there any other important changes that have occurred in the last 5 years or so that have affected your operations?**

Thank you for your time, your participation is greatly appreciated. Please return the questionnaire via email or fax (07) 4781 4019 to the surveyor

Dr Natalie Stoeckl

natalie.stoeckl@jcu.edu.au

Key differences in regulations between NSW and QLD

Adapted from: Summary of Whale Watching Guidelines for Commonwealth and States of Australia at http://www.whalesalive.org.au/whalewatching2.html

Regulation	QLD	NSW
Penalty for breach	Maximum - $225,000 or two years imprisonment	Maximum penalty $100,000???
Direction of approach	A person in charge of a vessel shall not bring the boat to a position that would cause the whale to come closer than 100m to the boat if the whale continued on it's direction of travel	
Speed of approach	Within 300m a maximum of 4 knots for a whale	
Limit of approach	For a whale: 100m: If three or more boats: 300m. Minimum is 300m if the vessel is moving faster than 4 knots or travelling in a similar direction as and behind the whale - for special interest cetaceans - 500m.	If a slow "no wake" approach: 200m if the animal is a calf 100m for any other animal otherwise 300m Other (usually smaller) Delphinidae: no limits apply.
Observation	Do not bring boat between members of a pod of whales. Do not cause a whale to alter its direction or speed of travel or its behaviour.	Do not heard or otherwise chase any whales or marine mammals
Departure	Do not move vessel faster than 4 knots when less than 300m from the whale	
Swimmers and divers	A person swimming or diving must not enter the water or approach closer than 300m to a whale or 100m to a dolphin	Minimum approach distance is 30m
Feeding	A person must not feed, discard rubbish into the water or touch cetaceans	
Noise	A Person shall not make noises likely to attract/ disturb whale(s)	
Permits	Need permit for commercial WW. Permits specify details like background knowledge of operators, seating for passengers, quality and type of on-board waste disposal, frequency of operation, etc. granted for particular areas	Whale Watching : No commercial whale watching operators to be licensed. (ie permits not required?)

Key issues being discussed in TIPA

1. Determining the commercial tourism carrying capacity of visitor sites (=> may change the number of permits that could be issued)
2. The problem of seasonality
3. Native title issues
4. Permit allocation and renewals system should be equitable and use a range of mechanisms
5. Recognise that current permits periods are too short
6. Avoid arbitrary permit fees
7. Consider issues associated with trading of access and capacity
8. Need to look at performance standards, accreditation and compliance – avoiding being too prescriptive, and allowing for recognition of 'merit'.

APPENDIX E: TYPE OF ACCOMMODATION

Shark Bay

Table 39: Type of accommodation stayed in while visiting Shark Bay (N=345)

Accommodation Type	Percent	Cumulative Percent
Monkey Mia Resort		
Backpackers	7.5	7.5
Beachside Dolphin Units	4.1	11.6
Shared en-suite	1.7	13.3
Motel Beachfront Villas	2.3	15.7
Motel Garden Villas	7.8	23.5
Monkey Mia Resort Caravan Park		
Tent-site	7.0	30.4
Caravan-site (normal van bay)	6.7	37.1
Caravan-site (front van bay)	1.2	38.3
Park home	.9	39.1
With friends/family in Denham	1.4	40.6
Shire campsite (free of charge)	4.3	44.9
Caravan Park in Denham		
Tent-site	9.0	53.9
Caravan-site	14.2	68.1
On-site van	1.4	69.6
Park home	1.7	71.3
Youth Hostel in Denham	9.0	80.3
Self-contained Unit in Denham	9.0	89.3
Motel Room in Denham	1.2	90.4
Hotel Room in Denham	1.4	91.9
Other	8.1	100.0
Boat, yacht	0.6	
Free camp	0.3	
House	0.3	
House in Denham	0.6	
Kalbarri	0.3	
Nanga	4.1	
Overlander roadhouse	0.6	
Rest stops	0.6	
Side of the road	0.3	
Swag on Monkey Mia Beach	0.6	

APPENDIX F: PLACE SPENT BEFORE TRAVELLING TO ICON SITE

Shark Bay

Table 40: Place where last night was spent before travelling to Shark Bay (N=219)

Place	Frequency	Percent
Kalbarri	87	39.7
Geraldton	32	14.6
Carnarvon	20	9.1
Coral Bay	18	8.2
Perth	18	8.2
Exmouth	15	6.8
Dongara	5	2.3
Nanga Bay	4	1.8
Broome	2	0.9
Billabong Roadhouse	2	0.9
Rest stop	2	0.9
Overlander Roadhouse	2	0.9
Northam	1	0.5
Clackline	1	0.5
Northampton	1	0.5
Herald Bight	1	0.5
Coronation Beach	1	0.5
Lucky Bay	1	0.5
Yacht	1	0.5
Cervantes	1	0.5
Bush Station Country	1	0.5
Hamelin Pool	1	0.5
Greenough	1	0.5
Hutt River	1	0.5

Hervey Bay

Table 41: Place where last night was spent before travelling to Hervey Bay (N=124)

Place	Frequency	Valid Percent
Brisbane	28	8.6
Noosa	16	4.9
Bundaberg	12	3.7
Rockhampton	12	3.7
Town of 1770	11	3.4
Airlie Beach	8	2.5
Yeppoon	7	2.2
Amamoor	6	1.9
Fraser Island	6	1.9
Gladstone	6	1.9
Mackay	6	1.9
Maroochydore	5	1.5
Rainbow beach	5	1.5
Tannum Sands	5	1.5
Tin Can Bay	5	1.5
Bribie Island	4	1.2
Caloundra	4	1.2
Maryborough	4	1.2
Melbourne	4	1.2
Childers	3	0.9
Goomeri	3	0.9
Mooloolaba	3	0.9
Agnes Waters	2	0.6
Bargara	2	0.6
Coonabarabran	2	0.6
Dalby	2	0.6
Gin Gin	2	0.6
Gold Coast	2	0.6
Sydney	2	0.6
Whitsunday’s	2	0.6
Wurtulla	2	0.6
Armidale	1	0.3
Bauple	1	0.3
Burleigh Heads	1	0.3
Cairns	1	0.3
Collum Bay	1	0.3
Coolum Beach	1	0.3
Finch Hatton	1	0.3
Fred Haig Dam	1	0.3
Gympie	1	0.3
Howard	1	0.3
Lamington Nation	1	0.3
MacLean	1	0.3
Maleny	1	0.3
Miriam Vale	1	0.3
Monduran lake	1	0.3
Mundubbera	1	0.3
Phillip Island	1	0.3
Texas	1	0.3
Toowoomba	1	0.3
Torbanlea	1	0.3
Townsville	1	0.3
Woodgate	1	0.3
Woombye	1	0.3

APPENDIX G: OTHER PLACES VISITED OR PLANNED TO VISIT

Shark Bay

Table 42: Other Places Visited (or Plan to Visit) during this trip to Shark Bay (N=57)

Places	Frequency	Percent
Adelaide	1	1.8
Ayer's Rock	1	1.8
Brisbane	1	1.8
Broome	11	19.3
Darwin	7	12.3
Denison	1	1.8
Dongara	3	5.3
East Coast	1	1.8
Fraser Island	1	1.8
Free camping in beach camps	1	1.8
Fremantle	1	1.8
Kakadu	1	1.8
Karijini	9	17.5
Karratha	4	8.8
Kimberley's	1	1.8
Kununurra	1	1.8
Margaret River	2	3.5
Mt Magnet, Newman	3	5.3
Northern Territory	1	1.8
Northampton	1	1.8
Perth	11	19.3
Pilbara Region	1	1.8
Port Hedland	6	10.5
Pt. Smith	1	1.8
Quindalup	2	3.5
South Australia	1	1.8
Southwest	2	3.5
Steep Point	1	1.8
Sydney	2	3.5
Tom Price	2	3.5
Travelling around Australia	4	7.0

APPENDIX H: OTHER ACTIVITIES

Monkey Mia

Table 43: Other activities respondents would have liked to be involved in that are currently not available at Shark Bay (N=356)

Activities	Frequency	Percent
None listed	289	81.2
Leave it as it is/none needed	18	5.1
	Total	**86.3**
WILDLIFE BASED ACTIVITIES		
Bird watching tours/opportunities	2	0.6
More on wildlife of the area	1	0.3
Not seeing dugongs (wrong time of year)/viewing dugongs	3	0.8
	Total	**1.7**
DOLPHIN BASED ACTIVITIES		
Booking dolphin feed	1	0.3
Choose people to stand with rangers while dolphins are close	1	0.3
Feeding/touching dolphins	3	0.8
Scuba diving & swimming with dolphins	5	1.4
	Total	**2.8**
WATER BASED ACTIVITIES		
Canoeing/kayaking	2	0.6
Fishing trip	1	0.3
Glass bottomed boats	1	0.3
Other water sports	3	0.8
Parasailing	1	0.3
Snorkelling	2	0.6
Swimming (too cool)	1	0.3
Wind surfing	2	0.6
	Total	**3.8**
LAND BASED ACTIVITIES		
2WD limits access	1	0.3
Aboriginal exhibit	1	0.3
Artesian bore hot tubs/pools	1	0.3
Basketball hoops	1	0.3
Heated pool	1	0.3
History tour	1	0.3
Horse riding	2	0.6
Improved golf facilities	1	0.3
Karaoke	1	0.3
More interactive interpretive centre	1	0.3
More organised activities/karaoke	1	0.3
More restaurants/pubs	1	0.3
Playground/crèche/more parks	3	0.8
Quad biking	1	0.3
Sandcastle competitions	1	0.3
Sealed road to Point Peron	1	0.3
Wet t-shirt competition for girls	1	0.3
	Total	**5.9**

Hervey Bay

Table 44: Of activities planned to do, activities Hervey Bay respondents were most looking forward to (N=141)

Activities	Frequency	Percent
WILDLIFE BASED ACTIVITIES		
Barrier Reef	1	0.7
Bird watching/feeding	2	1.4
Fishing	11	7.8
Viewing terrestrial wildlife	6	4.3
Viewing wildlife icon (whales)	5	3.5
Zoo	1	0.7
	Total	**18.4**
WATER BASED ACIVITIES		
Boat license course	1	0.7
Diving	1	0.7
Kayaking	1	0.7
Lazing on beach	13	9.2
Night coral viewing	2	1.4
Private boating	2	1.4
Swimming/snorkelling	9	6.4
	Total	**20.6**
LAND BASED ACTIVITIES		
NATURAL ENVIRONMENT		
Camel riding	1	0.7
Fraser Island	37	26.2
Horse riding	4	2.8
Natural Scenery	1	0.7
Sky diving	2	1.4
Walking/hiking	7	5.0
	Total	**36.9**
BUILT ENVIRONMENT		
Cafes/restaurants	9	6.4
Drinking Beer	1	0.7
Exploring Esplanade	1	0.7
Mary Rattler	1	0.7
Museum	1	0.7
Natural Impressions gallery	1	0.7
Playing golf	4	2.8
Playing lawn bowls	1	0.7
Regional gallery	2	1.4
Sunday Markets	4	2.8
	Total	**17.7**
OTHER		
Going Home	1	0.7
Other activity	2	1.4
Other commercial tour	1	0.7
Relaxing	5	3.5
	Total	**6.4**

Table 45: Other activities respondents would have liked to be involved in that were not currently available at Hervey Bay (N=78)

Activities	Frequency	Percent
None listed	40	51.3
Leave it as it is/none needed	2	2.6
WILDLIFE BASED ACTIVITIES		
Diving to see turtles	1	1.3
Dugong watching	1	1.3
Feeding/touching dolphins	1	1.3
Fresh water fishing	1	1.3
Shark diving	1	1.3
Swimming with whales	1	1.3
Tour flying fox colony	1	1.3
Whale Information site	1	1.3
	Total	**10.3**
WATER BASED ACIVITIES		
Other water sports	2	2.6
Parasailing	1	1.3
Simple ferry to Fraser Island	1	1.3
Snorkelling	1	1.3
Surfing	1	1.3
Wind surfing	1	1.3
	Total	**9.0**
LAND BASED ACTIVITIES		
NATURAL ENVIRONMENT		
Climbing	1	1.3
Hot air ballooning	1	1.3
More on wildlife of the area	2	2.6
Sky diving	1	1.3
Walking national parks	1	1.3
	Total	**7.7**
BUILT ENVIRONMENT		
Aboriginal exhibit	1	1.3
Artesian bore hot tubs/pools	1	1.3
Auto racing	1	1.3
Better public transport	2	2.6
Better shopping	3	3.8
Casino	1	1.3
Good cinema	1	1.3
History tour	1	1.3
More organised activities/karaoke	1	1.3
Ten pin bowls	1	1.3
Theatre	1	1.3
Theme park	1	1.3
	Total	**19.2**

APPENDIX I: BEST PART OF WILDLIFE EXPERIENCE

Shark Bay

Table 46: Best part of wildlife experience for Shark Bay respondents (N=294)

Experience	Frequency	Percent
DOLPHIN RELATED		
Being able to let the wild dolphins come close without causing them harm	1	0.3
Children's delight with dolphins and touch pool	2	0.7
Daughter/son feeding/interacting with dolphins	3	1.0
Dolphins being respected	2	0.7
Dolphins in natural environment	18	6.4
Dolphins/dolphin interaction/experience	120	40.8
Feeding dolphins	34	11.5
Identifying dolphins	1	0.3
Interaction between rangers and dolphins	1	0.3
Learn about dolphins	3	1.0
Paddling kayak with dolphins	1	0.3
Seeing baby dolphins	5	1.7
Seeing dolphins after feeding times	2	0.7
Seeing dolphins away from beach	1	0.3
Seeing dolphins so close	50	17.0
Seeing dolphins swimming in bay	1	0.3
Seeing dolphins willingly interact	1	0.3
Seeing the dolphins I saw here 12 years ago	1	0.3
Viewing dolphins feeding	2	0.7
Total	**249**	**84.9**
MARINE WILDLIFE		
Being close to/seeing pelicans	6	2.0
Interaction of humans and wildlife	2	0.7
Learn that staff are minimising human contact with wildlife	1	0.3
Marine wildlife	2	0.7
Seeing dugongs	3	1.0
Snorkelling with whale sharks	2	0.7
Wildlife cruise	2	1.0
Wildlife/seabirds	1	0.3
Total	**19**	**6.8**
TERRESTRIAL WILDLIFE		
Haven't seen any dingos yet	1	0.3
Hearing birds in the morning	1	0.3
Kangaroos with joeys	1	0.3
Seeing Bilbies at night	1	0.3
Seeing kangaroos	1	0.3
Watching eagles soar	1	0.3
Total	**6**	**2.0**

Table 46 (cont.): Best part of wildlife experience for Shark Bay respondents (N=294)

NATURAL ENVIRONMENT		
Blue sky, blue sea and clear water	1	0.3
Clean/fresh environment/ natural environment	3	1.0
Four wheel driving at Cape Peron	1	0.3
Huge shark/echidna/eagles	1	0.3
Natural environment	11	3.7
Off road driving	1	0.3
Organised cruise of Shark Bay	5	1.7
Seeing animals in natural environment	4	1.4
Seeing beautiful sky with stars	2	0.7
Stromatolites	1	0.3
Walk from tourist bureau to beach	1	0.3
Walk/walking on beach/relaxing	2	0.7
Total	**33**	**11.2**
THE SITE		
Before crowds arrived	1	0.3
Being here	4	1.4
Everything (done right)	5	1.7
Few people around	1	0.3
Friendly people	1	0.3
Hotel situation	1	0.3
Informative and friendly staff	1	0.3
Informative rangers/staff	2	0.7
Interview researchers	1	0.3
Learning and helping CALM	1	0.3
Meeting other visitors	2	0.7
Ranger talks	3	1.0
Researcher talks	1	0.3
Seeing people learn	2	0.7
Seeing the set-up of this ecotourism attraction and how effective it is	1	0.3
Total	**26**	**8.8**
OTHER TOURISM ATTRACTIONS (HUMAN-MADE)		
Ocean park	4	1.4
Pearl farm	1	0.3
Sharks at Ocean Park	1	0.3
Visiting Denham townsite	1	0.3
Total	**7**	**2.4**
OTHER		
Australia	1	0.3
Soft tourism	1	0.3
Visiting new locations	1	0.3
Total	**3**	**1.0**

Hervey Bay

Table 47: Best part of wildlife experience for Hervey Bay respondents (N=288)

Experience	Frequency	Percent
WHALE RELATED		
Active whales/whales display/perform	22	7.6
Hearing whale song	2	0.7
Lots of whales	11	3.8
Seeing a pod of 5 whales	2	0.7
Seeing mother and calf	3	1.0
Seeing whales for extended periods	1	0.3
Seeing whales on small boat	3	1.0
Whale along side/under boat (close up)	44	15.3
Whale sighting/seeing whales/whales	66	22.9
Whale tails	1	0.3
Whales breaching	18	6.3
Whales close up	86	29.9
Whales rolling in water	1	0.3
Whales in natural environment	12	4.2
Total	**272**	**94.4**
WHALE WATCHING TOUR EXPERIENCE		
Boat skipper/crew	11	3.8
Commentary/info on whales & marine life	5	1.7
Food	1	0.3
Safe & clean boat	1	0.3
The trip/boat trip	2	0.7
Total	**20**	**6.9**
VISITOR BEHAVIOUR		
Not too crowded on boat	1	0.3
Total	**1**	**0.3**
OTHER		
All good/everything	7	2.4
Beautiful weather	2	0.7
Birds	1	0.3
Last part	1	0.3
Total	**11**	**3.8**

*Total equates to more than n because some respondents gave more than one response.

APPENDIX J: WORST PART OF WILDLIFE EXPERIENCE

Shark Bay

Table 48: Worst Part of wildlife experience for Shark Bay Respondents (N=219)

Experience	Frequency	Percent
None	**75**	**34.2**
DOLPHIN RELATED		
Hard to get photos of dolphins	1	0.5
Missed dolphin feed	2	0.9
Not being able to touch/swim with/feed dolphins	7	3.2
Not feeding dolphins	7	3.2
Not seeing dolphins on cruise	2	0.9
Not getting to feed the dolphins	1	0.5
Seeing dolphins unable to feed for themselves & seeing calves not learning how to feed naturally	2	0.9
Thinking we'd missed the dolphin feed	1	0.5
Total	**23**	**10.5**
THE SITE		
Cooler weather/wind/cold water	36	17.5
Distance travelled	5	2.3
Driving	1	0.5
Information from rangers	1	0.5
Litter/rubbish/people and mess	3	1.4
Microphone too low/couldn't hear talk	1	0.5
Staff in restaurant/office	2	0.9
The speaker not loud enough/standing in the same place all the time	2	0.9
Too commercialised/developed	2	0.9
Total	**53**	**25.3**
VISITOR BEHAVIOUR		
Being a tourist	1	0.5
Children overwhelmed by 'pushy' adults	1	0.5
Children/behaviour	3	1.4
Dolphin feeding, too many people, a tourist rip-off, detrimental to dolphins	1	0.5
Humans disturbing dolphins	3	1.4
Other people	2	0.9
People ignoring ranger during feed	4	1.8
People smoking at Centre and on beach	1	0.5
Seeing tourists walking on stromatolites	1	0.5
Too many children	1	0.5
Too many people/poor behaviour	29	13.2
Visiting during school holidays	3	1.4
Total	**50**	**22.8**
OTHER MARINE WILDLIFE		
Haven't seen any whales	1	0.5
Missing seeing whale sharks	1	0.5

Table 48 (cont.): Worst Part of wildlife experience for Shark Bay Respondents (N=219)

Not seeing dugongs	7	3.2
Only saw dolphins/lack of marine wildlife	3	1.4
Seagulls	1	0.5
Sharks (worrying about)	1	0.5
Total	**14**	**6.4**
TERRESTRIAL WILDLIFE		
Close encounter with kangaroo while on the road	1	0.5
Emus/kangaroos running on road/road kill	4	1.8
Expected to see more birds	1	0.5
Total	**6**	**2.7**
OTHER		
Filling in survey	1	0.5
Getting up early	1	0.5
Going home	1	0.5
No free beer	1	0.5
No night clubs	1	0.5
No toilets in bush camp	1	0.5
Noisy neighbours having sex	1	0.5
Not enough time here	1	0.5
Not getting close enough to wildlife	1	0.5
Ocean Park too over-priced	1	0.5
Seemed short	1	0.5
Total	**11**	**5.0**

Hervey Bay

Table 49: Worst part of Hervey Bay wildlife experience (N=206)

Experience	Frequency	Percent
None	109	52.9
WHALE RELATED		
Leaving whales behind	21	10.2
No breeching of whales	2	1.0
Not seeing whales	4	1.9
Not close enough to whales	1	0.5
Staying with same whales	1	0.5
The whales	1	0.5
Time between whale sightings	1	0.5
Total	**31**	**15.0**
WHALE WATCHING TOUR EXPERIENCE		
Boat trip	7	3.4
Concern over 300 metre rule not being observed	1	0.5
Drinks	4	1.9
Food	6	2.9
Forgot to pick us up	1	0.5
Fuel smell on lower deck	2	1.0
Getting wet	1	0.5
Hard seats	1	0.5
Lack of details from tourist company	1	0.5
Lack of direction at boat harbour	1	0.5
Lunch cue	2	1.0
Movement of the boat while anchored	1	0.5
No free beer	1	0.5
No smoking	1	0.5
No underwater viewing	1	0.5
No white wine	1	0.5
Not enough food	1	0.5
Not seeing enough	3	1.5
Price	1	0.5
Too long	1	0.5
Total	**38**	**18.4**
VISITOR BEHAVIOUR		
Noisy people	2	1.0
People rushing for photos and blocking view	3	1.5
Smokers	1	0.5
Too many people	1	0.5
Total	**7**	**3.4**
OTHER MARINE WILDLIFE		
No turtles	1	0.5
Not seeing dolphins on cruise	1	0.5
Total	**2**	**1.0**
OTHER		
Bad weather	1	0.5

Table 49 (cont.): Worst part of Hervey Bay wildlife experience (N=206)

Cold	3	1.5
Early rise	1	0.5
Filling in survey	2	1.0
My 2 year old	1	0.5
Not enough film	1	0.5
Not enough time here	1	0.5
Sea sick	6	2.9
Total	**16**	**7.8**

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AUTHORS

Dr Amanda Smith

Dr Smith is a Postdoctoral Fellow in the School of Environmental Science at Murdoch University, Perth, Western Australia. Her research interests include the environmental and social impacts of tourism and recreation in protected areas; campsite impact monitoring; natural area tourism; wildlife tourism; and minimising visitor impacts through resource and visitor management techniques. Over the last year, Dr Smith has been furthering her experience as a researcher working in the fields of recreation ecology, visitor management, sustainable tourism and natural area management at Murdoch University. Her Doctorate research contributes to the current understanding of recreation impacts, both social and biophysical, in temperate eucalypt forests and improves procedures in impact assessment. It also provided a means for the first time, of objectively monitoring designated, developed campsites where it is inappropriate to judge impacts against an undisturbed control. Email: asmith@murdoch.edu.au

Dr David Newsome

Dr Newsome is a senior lecturer in the School of Environmental Science at Murdoch University, Perth, Western Australia. His principal research interests are human-wildlife interactions and the biophysical impacts of recreation and tourism. He has 12 years experience in natural resource management as a lecturer in Environmental Science at Murdoch University. David's research and teaching, and the activities of his research group, focus on the sustainable use of landscapes and the assessment and management of recreational activity in natural areas. David has recently completed several research projects investigating the potential impacts of recreational activity in Western Australia's protected areas. This information has already proved to be invaluable for recreation and management planning purposes in several national parks. Email: dnewsome@essun1.murdoch.edu.au

Dr Diane Lee

Dr Lee is a lecturer in the Tourism Program at Murdoch University, Perth, Western Australia. The concept of sustainable tourism development, incorporating the environment in all its aspects, underpins all areas of Diane's research interests. This covers the areas of host community attitudes and the social representation of tourism. Sustainable tourism development includes research of cultural tourism, nature based tourism and resource economics, where tourism resources are valued in the same manner as the resources of other industries. Tourism marketing using the societal approach to marketing research is viewed as a tool that enhances the potential of sustainable tourism development. Email: D.Lee@murdoch.edu.au

Dr Natalie Stoeckl

Dr Stoeckl has recently joined the Economics Program at James Cook University, Townsville, Queensland as a senior lecturer. Prior to that, she spent three years working in CSIRO's division of Sustainable Ecosystems – researching problems associated with sustainable tourism, sustainable 'communities', efficient water use, and sustainable farm management practices, Her primary research interests concern economic aspects of environmental and natural resource management problems – particularly in the area of tourism. Email: natalie.stoeckl@jcu.edu.au

SUSTAINABLE TOURISM CRC

The Sustainable Tourism Cooperative Research Centre (STCRC) is established under the Australian Government's Cooperative Research Centres Program. STCRC is the world's leading scientific institution delivering research to support the sustainability of travel and tourism - one of the world's largest and fastest growing industries.

Research Programs

Tourism is a dynamic industry comprising many sectors from accommodation to hospitality, transportation to retail and many more. STCRC's research program addresses the challenges faced by small and large operators, tourism destinations and natural resource managers.

Areas of Research Expertise: Research teams in five discipline areas - modelling, environmental science, engineering & architecture, information & communication technology and tourism management, focus on three research programs:

Sustainable Resources: Natural and cultural heritage sites serve as a foundation for tourism in Australia. These sites exist in rural and remote Australia and are environmentally sensitive requiring specialist infrastructure, technologies and management.

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Sustainable Destinations: Infrastructural, economic, social and environmental aspects of tourism development are examined simultaneously.

Postgraduate Students: STCRC's Education Program recruits high quality postgraduate students and provides scholarships, capacity building, research training and professional development opportunities.

THE-ICE: Promotes excellence in Australian Tourism and Hospitality Education and facilitates its export to international markets.

alisation

STCRC uses its research network, spin-off companies and partnerships to extend knowledge and deliver innovation to the tourism industry. STCRC endeavours to secure investment in the development of its research into new services, technologies and commercial operations.

CRC AUSTRALIA

Australia's CRC Program

The Cooperative Research Centres (CRC) Program brings together researchers and research users. The program maximises the benefits of research through an enhanced process of utilisation, commercialisation and technology transfer. It also has a strong education component producing graduates with skills relevant to industry needs.

Sustainable Tourism Cooperative Research Centre

DARWIN
NT Coordinator
Ms Alicia Boyle
Tel: + 61 8 8946 7267
alicia.boyle@cdu.edu.au

PERTH
WA Coordinator
Dr Diane Lee
Tel: + 61 8 9360 2616
d.lee@murdoch.edu.au

ADELAIDE
SA Coordinator
Prof Graham Brown
Tel: +61 8 8302 0313
graham.brown@unisa.edu.au

MELBOURNE
VIC Coordinator
A/Prof Sue Beeton
Tel: +61 3 9479 3500
s.beeton@latrobe.edu.au

HOBART
TAS Coordinator
Adjunct Prof Malcolm Wells
Tel: + 61 3 6226 7686
Malcolm.Wells@utas.edu.au

CANBERRA
ACT Coordinator
Dr Brent Ritchie
Tel: +61 2 6201 5016
Brent.Ritchie@canberra.edu.au

CAIRNS
NQ Coordinator
Prof Bruce Prideaux
Tel: +61 7 4042 1039
bruce.prideaux@jcu.edu.au

BRISBANE
Managing Director - STS
Mr Stewart Moore
Tel: +61 7 3321 4726
stewart@crctourism.com.au

BRISBANE
QLD Coordinator
Mr Noel Scott
Tel: +61 7 3381 1024
noel.scott@uq.edu.au

LISMORE
NSW Coordinator
Regional Tourism Research
Dr Jeremy Buultjens
Tel: +61 2 6620 3382
jbuultje@scu.edu.au

SYDNEY
Sustainable Destinations
Mr Ray Spurr
Tel: +61 2 9385 1600
r.spurr@unsw.edu.au

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SUSTAINABLE TOURISM CRC

CRC for Sustainable Tourism Pty Ltd ABN 53 077 407 286
PMB 50 Gold Coast MC
Queensland 9726 Australia
Telephone: +61 7 5552 8172 Facsimile: +61 7 5552 8171
Chairman: Sir Frank Moore AO
Chief Executive: Prof Terry De Lacy
Director of Research: Prof Leo Jago

Website: www.crctourism.com.au
Bookshop: www.crctourism.com.au/bookshop
Email: info@crctourism.com.au

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