

NINGALOO COAST REGION VISITOR STATISTICS

Collected for the Ningaloo destination modelling project



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SUMMARY

This Ningaloo Destination Modelling Project report provides the latest information about the characteristics and behaviours of visitors for the tourism industry, managers, and other research projects based in the Ningaloo Coastal Region. This region is defined as the coastal areas between Exmouth town site and Carnarvon town site in the Gascoyne region in the northwest of Western Australia. The Ningaloo Destination Modelling (NDM) project is a collaborative project between researchers from seven Australian universities and the Sustainable Tourism Cooperative Research Centre that will deliver a scenario planning tool that assesses the social, environmental and economic impact of tourism planning strategies in order to assist tourism planning in a region that relies on its unique natural attractions. The project is part of the Ningaloo Collaboration Cluster of projects and sits within the CSIRO Wealth from Oceans Flagship. The Ningaloo Destination Modelling project is co-funded by the STCRC and the CSIRO.

The scenario planning tool is a numerical model of tourism, run through the computer modelling program Vensim, that relies on statistics that were gathered both through collaboration with other projects and collected by researchers affiliated with the project. This includes statistics from 1574 visitor surveys distributed between July 2007 and September 2008. While the visitor surveys were primarily collected for the purpose of providing reliable statistics for the model, they are also the most comprehensive resource available on visitors' characteristics and behaviour in the region. This technical report provides access to these statistics.

Statistics are provided for the region as a whole and also divided into six subregions. The report includes an introductory chapter outlining the broader research program, the methodology employed to collect the statistics and background information on tourism to the region. The final two chapters provide information on three broad visitor types identified through factor analysis, and an estimation of tourism expenditure in the region. Based on the surveys, we estimate that expenditure in the region for the year ending September 2008 was \$141 million, with 179,352 visitors staying for an average of 9.92 nights. Average nightly expenditure was \$79.46. This is consistent with Carlson and Wood's (2004) earlier study in the region that estimated annual expenditure to be \$127 million.

Objectives of Study

The remote Ningaloo Coastal Region relies on tourism to its unique natural environment, primarily the Ningaloo Coral Reef, to support three communities and is currently undergoing an expansion in accommodation in two of these communities. Research undertaken by the Ningaloo Collaboration Cluster is aimed at assisting environmental management and planning in the region. The primary objective of the Ningaloo Destination Modelling project is to inform the development of a scenario planning tool that can be used to simulate the social, economic and environmental impacts of different levels and types of tourism development. The collated data presented in this report will prove directly useful to various groups involved with tourism, and to other research projects that need to take the impacts of tourism into account (in particular marine science programs that are impacted by visitor activities and projects assessing coastal activities).

Methodology

Data collection was based on a series of visitor surveys in the study region. The survey method was based on a series of past STCRC projects examining cost-effective ways to assess visitor characteristics and expenditure. Drawing from *Assessment of the Economic Value of Recreation and Tourism in Western Australia's National Parks, Marine Parks and Forests* (Carlsen & Wood, 2004) and *Economic Evaluation of Tourism for Natural Areas: Development of a 'Toolkit Approach'* (Wood, D., Glasson, J., Carlsen, J., & Hopkins, D., 2006), the survey gathered data on a range of visitor characteristics, motivations and expenditure. The visitor survey used both structured face-to-face interviews and self-complete, mail-back questionnaires with a six week cut-off. The survey gathered data on visitor characteristics for both the region as a whole and six subregions. The subregions

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were defined based on distinct geographical areas that differ through both visitor access and tenure. The subregions include: the Pastoral Stations, Blowholes campsite and the Bombing Range (referred to as the Pastoral Stations); Carnarvon town site; Coral Bay; Cape Range National Park; the Northwest Cape and Exmouth Gulf; and Exmouth town site. Each subregion is characterised by the particular dominant visitor type **staying in that subregion**. This point is taken into account when interpreting data as visitors do travel between subregions to conduct recreational activities. Visitors are defined here as visitors to the Ningaloo Coast region for the purpose of leisure, recreation or other similar, non-business activities and who stay for over one night. Our definition does not include business visitors. There are only rarely day trippers to the region due to its size (it is 354 km between Carnarvon and Exmouth) and the distance to the next townships (334 km to Monkey Mia south from Carnarvon and 403 km to Onslow north from Exmouth).

Factor analysis on the visitor importance ratings of the different elements of their trip was conducted to identify common visitor experiences in order to explain patterns in the results. Exploratory factor analysis is a common tool for identifying underlying patterns of responses to visitor surveys (Fuchs & Reichel, 2006; Gross & Brown, 2006; Poria, Butler, & Airey, 2004; Qi, Gibson, & Zhang, 2009). Three visitor experiences were identified: the comfortable visit, the nature lover, and the fishing escape. The characteristics of respondents who preferred different experiences was explored further using Pearson correlations and one way anova tests.

The direct expenditure value was based on overnight visitor spending in the town sites, campsites and visitor attractions throughout the region. The methodology has been developed through a series of STCRC projects (Carlsen & Wood, 2004; Wood & Glasson, 2006; Wood, Glasson, Carlsen, & Hopkins, 2006) and has been used to estimate visitor expenditure that is linked to environmental attractions (Wood & Glasson, 2006). It provides a conservative but reliable baseline value that may be consistently applied to any region. The direct visitor expenditure value provides a basis from which further economic analysis may be extrapolated.

Key Findings

The Ningaloo Coastal Region

- The Ningaloo Coastal Region attracts large numbers of interstate and international visitors despite its remote location.
- The primary attraction is the natural environment, which provides the resources supporting tourism to the region.
- The Ningaloo Reef is particularly important and is the region's major drawcard.
- Snorkelling is the most important recreation activity in the region.
- Word of mouth is the most common source of information, which thus places great importance on visitors enjoying their time in the region.
- The main visitor type to the region is primarily self-drive visitors who are seeking nature-based experiences, to escape from the cold and to get away from it all.
- The remoteness is a key factor in both ensuring that the environment retains the values attractive to visitors and in creating a place where people feel they can escape from urban living.
- There are different activity patterns and travel patterns between Western Australian (WA), interstate and international visitors and age is an important factor in understanding length of stay (older visitors stay substantially longer).

The Subregions

- **Carnarvon town site**—primarily services the self-drive tourism market, which mainly stays in caravan parks. The most important element of their trip is sightseeing, they tend to be Australian, older and will stay for longer periods than the regional average. They place a high importance on sightseeing. Part of this market is from interstate (indicated by higher than average interstate visitation when compared to the whole region), who use Carnarvon as a stopover as part of their trip around Australia. There is also a small backpacker market in Carnarvon, which provides labour for the region's horticultural industry.
- **Pastoral Stations**—(includes the Blowholes campsite, Pastoral Stations and Bombing Range) is primarily visited by Australians with the majority from WA. These visitors have higher incomes than visitors staying in Carnarvon and tend to stay for longer periods than the regional average. Camping is the primary form of accommodation and, combined with the region's lack of facilities, plays a key role

in creating the kind of experiences this group is seeking. This is the most important region for surfing with the majority of surfers staying in the southern two stations.

- **Coral Bay**—exhibits the characteristics of a coastal resort with an accommodation focus on caravan parks. Given its proximity to the beach, the lower numbers of international and interstate visitors compared to Exmouth are surprising. However, this is likely to be due to Coral Bay’s popularity with WA visitors and the high proportion of caravan park accommodation. This means booking ahead for accommodation is a necessity during the peak season. Coral Bay attracts a higher proportion of families than other subregions due to its location close to the beach and high proportion of caravan parks. The higher income levels and shorter stay indicate that visitor expenditure is likely to be greater in this subregion than other subregions.
- **Cape Range National Park (CRNP)**—visitors are more likely to be from interstate or overseas than from WA. They place a higher importance on experiencing the natural environment than visitors to any other subregion. These visitors are the most likely to have researched the region through sources other than word of mouth and place a premium on staying close to Ningaloo Reef. They take advantage of the infrastructure provided in the park, which is an important element of their trip. The park has a number of popular snorkelling sites, which is the most important activity to this group.
- **The Northwest Cape**—has a limited capacity as the available accommodation consists of two caravan parks with 229 sites and 40 cabins. The visitors who stay in these locations are generally Australian, older and stay for longer periods than the average for all visitors to the Ningaloo Coast. Visitors who stay on the Northwest Cape undertake a variety of activities, the most important activity being snorkelling. Fishing from the shore is also important to a greater number of people in this region than the Ningaloo Coastal Region as a whole, although it is not as popular as snorkelling and sightseeing.
- **Exmouth town site**—attracts large numbers of visitors as it is the best known gateway to the Ningaloo Reef. It has been successful at drawing a higher proportion of international visitors than Carnarvon and Coral Bay, possibly because of its proximity to CRNP, the range of activities offered and its greater accommodation capacity. Visitors vary in both age and length of stay. Older visitors can spend months in Exmouth during the southern winter, while younger visitors stay for shorter periods. Exmouth tourism promotion relies on a variety of information sources, although word of mouth is the most commonly used. At present caravan parks dominate the accommodation sector, although this is likely to change over the next 5–10 years. Exmouth relies on a range of activities to satisfy visitors, in particular snorkelling and sightseeing. This reinforces the importance of CRNP as it is the location of both the prime snorkelling sites in the region as well as the region’s most iconic beach, Turquoise Bay.

The Visitor Experiences

Factor analysis identified three visitor experiences that correlate with clearly different expectations, ages and activities in the region.

- **The comfortable visit** captures an experience that correlates with sightseeing and wants the infrastructure necessary to comfortably go to the most scenic spots and undertake nature-based activities. This experience includes the largest range of activities in the region. It is correlated most strongly with interstate visitors, and is negatively correlated with length of stay.
- **The nature lover experience** is largely based around non-extractive nature-based activities. This includes snorkelling and excludes fishing. This experience correlates most strongly with organised tours and therefore requires related tourism infrastructure. It is also negatively correlated with length of stay.

These first two groups are two different elements of the mass market, with the comfortable visit linked more closely to visitors who tow their accommodation with them, and the nature lover experience correlated more strongly with a market segment that will travel long distances for shorter periods for nature-based experiences.

- **The fishing escape experience** involves a smaller array of activities. This experience correlates with fishing, both from the shore and from boats. This experience also correlates with ‘escaping’ the cold for the warm and getting away from it all. a high priority on formal infrastructure. This experience correlates with staying for long periods but also spending less per day.

Expenditure by Visitors to the Ningaloo Coastal Region

- The expenditure evaluation is for visitors to the Ningaloo Coastal Region in the year ending September 2008.
- Average expenditure in the region per person per day is \$79.46.
- Average expenditure in the region per trip is \$788.16.
- The annual overnight visitor number is 179,352.
- Average length of stay in region is 9.92 days.
- Total expenditure in the region is \$141 million.

Future Action

These results will input into the Ningaloo Destination Model, a scenario planning tool for tourism development in the Ningaloo Coastal Region that will assist planning through modelling the social, economic and environmental impacts of different development decisions and strategies. The data presented in this report will be provided to groups, the tourism industry and managers in the Ningaloo Coastal Region as a planning resource. This information has already been used in the preparation of planning documents in the region and provides the most comprehensive data on tourism to the region that is currently available.

Chapter 1

INTRODUCTION: PURPOSE AND SURVEY DISTRIBUTION METHODS

Purpose of Report

The Ningaloo Destination Modelling (NDM) project has been data intensive. In addition to gathering secondary data from Tourism Research Australia (TRA) and Australian Bureau of Statistics (ABS) resources, data sharing arrangements with organisations (Horizon Power and Water Corporation) and projects in the Ningaloo Collaboration Cluster, we have also undertaken our own data collection to fill data gaps essential for the production of the Ningaloo Destination Model. This included conducting and analysing visitor surveys, which now form the most comprehensive set of statistics on tourism to the Ningaloo Coast region. The purpose of this report is to assist circulation of the statistics gathered, collated and analysed as part of this project.

The Ningaloo Collaboration Cluster

The NDM project is one of six projects in the Ningaloo Collaboration Cluster of research projects. The Ningaloo Collaboration Cluster is part of the CSIRO Wealth from Oceans Flagship. It brings together scientists and expertise from a range of disciplines with the goal of describing, understanding and modelling the processes of human interaction with Ningaloo Reef. The aim is to develop options for carefully managed development of this region, while maintaining the integrity of its ecosystems.

The Ningaloo Collaboration Cluster partners include six Australian universities (Murdoch University, Curtin University of Technology, The University of Western Australia, Edith Cowan University, The University of Queensland and The Australian National University), STCRC and CSIRO. The Cluster partners are receiving \$2.3 million through the Flagship Collaboration Fund and investing a further \$10.1 million as in-kind resources over four years.

The Ningaloo Destination Modelling Project

The NDM project will deliver a dynamic model of Ningaloo incorporating socio-economic and environmental impacts of tourism that can be integrated with an ecological model of the region. For instance, indicators for expenditure, water use, electricity use, waste generation, activity loads of visitors (for instance, hours spent fishing, snorkelling or going to the beach), resident and visitor accommodation capacity, number of visitors and employment are all included in the model and can be measured given different development scenarios. Once completed, the Ningaloo Tourism Destination Model will be made available to stakeholders in the region involved in planning and management of tourism to the Ningaloo coast. The objective of the project is to assess indicators of social, economic and environmental tourism impacts along the Ningaloo coast and how these may change under different development and management policies. More information on the project including a discussion of methodology can be found in the article by Schianetz., Jones, Kavanagh, Walker, Lockington, and Wood (2009).

Research for the Destination Model involves the collection and processing of environmental and socio-economic data from visitors and the communities of Exmouth, Coral Bay and Carnarvon. Environmental data includes natural resource use, waste generation, pollution, and biophysical impacts. The project actively involves key stakeholders in the region and the wider Ningaloo research community. The project also engages planners and managers in the region to examine tourism development and management scenarios.

The purpose of collecting information on visitor characteristics was to provide reliable information for the NDM. The survey also collected information on travel groups, revisitation rates and importance ratings of different elements of their trip.

Background: Planning and the Ningaloo Coast

The Ningaloo Reef is the largest fringing coral reef in Australia stretching over 300 km along the northwest coast between the Carnarvon and Exmouth townships (Figure 1). Carnarvon, the southern-most tip of the Ningaloo Coast region, is 905 km from Western Australia's capital city of Perth. The exceptional conservation values of the region include marine and terrestrial flora and fauna, karst formations and subterranean fauna, and remoteness values. This coastal region is sparsely populated and, according to the 2006 Australian Census, the region's approximately 7745 residents live mainly in the towns of Carnarvon (71%), Exmouth (27%) and Coral Bay (2%). The region's economy is based on tourism, fishing, mining, horticulture and livestock, while nature-based and wilderness tourism is the main source of income in Exmouth and Coral Bay, and is marketed nationally and internationally as a premier tourism destination (Western Australian Tourism Commission, 2003). Tourism activities include unique water-based experiences, such as whale watching and swimming with whale sharks, dolphins and manta rays. The primary attraction of the region is the Ningaloo Marine Park: Western Australia's 'premier marine conservation icon' (Department of Conservation and Land Management, 2005b, p. vii).

Long before William de Vlamingh mapped the Northwest Cape in 1618 and pastoral stations were established (from 1886), the region was inhabited by Aboriginal tribal groups. Aboriginal people are known to have been in the region from at least 32 000 years ago (Morse, 1993, p. 265). Around 1900, Aboriginal communities left the area, for reasons that are not entirely clear but likely to be connected to white settlement, and their descendents are now largely based in Carnarvon and Onslow. Five language groups from the region constitute the Gnulli native title claimants (Baiyungu, Inggarda, Thalanji, Thudgarri and Malgana), which formed as a group in 1996 and whose claim stretches from north of the Northwest Cape to Shark Bay. The Baiyungu Aboriginal Corporation gained ownership of Cardabai Station, just north of Coral Bay, in 1999 and they are now involved in developing the worker's accommodation in Coral Bay. Additionally, planning is now beginning for Aboriginal themed walking trails on parts of the coastline between Carnarvon and Exmouth.

Based on statistics from Tourism Research Australia and on-site surveys, Carlsen and Wood (2004) calculated the number of visitors to the Ningaloo Coast for 2003 to be 203 580. Although reliable statistics are not available for the early 1990s, it is thought that visitor numbers have increased markedly from that time (Wood & Dowling, 2002). Much of the tourism occurs during the southern winter when temperatures in the region drop to the mid to high 20s. The temperature often exceeds 40 degrees Celsius between December and March. In order to stop the Ningaloo Coast 'being "loved to death" through unsustainable people pressure and inappropriate development', the Western Australian Planning Commission (2004, p. iii) prepared the 'Ningaloo Coast Regional Strategy Carnarvon to Exmouth'. This strategy provides a comprehensive framework for sustainable tourism development in the region, limiting the construction of high impact developments, such as marinas and canals, to the towns of Carnarvon and Exmouth.

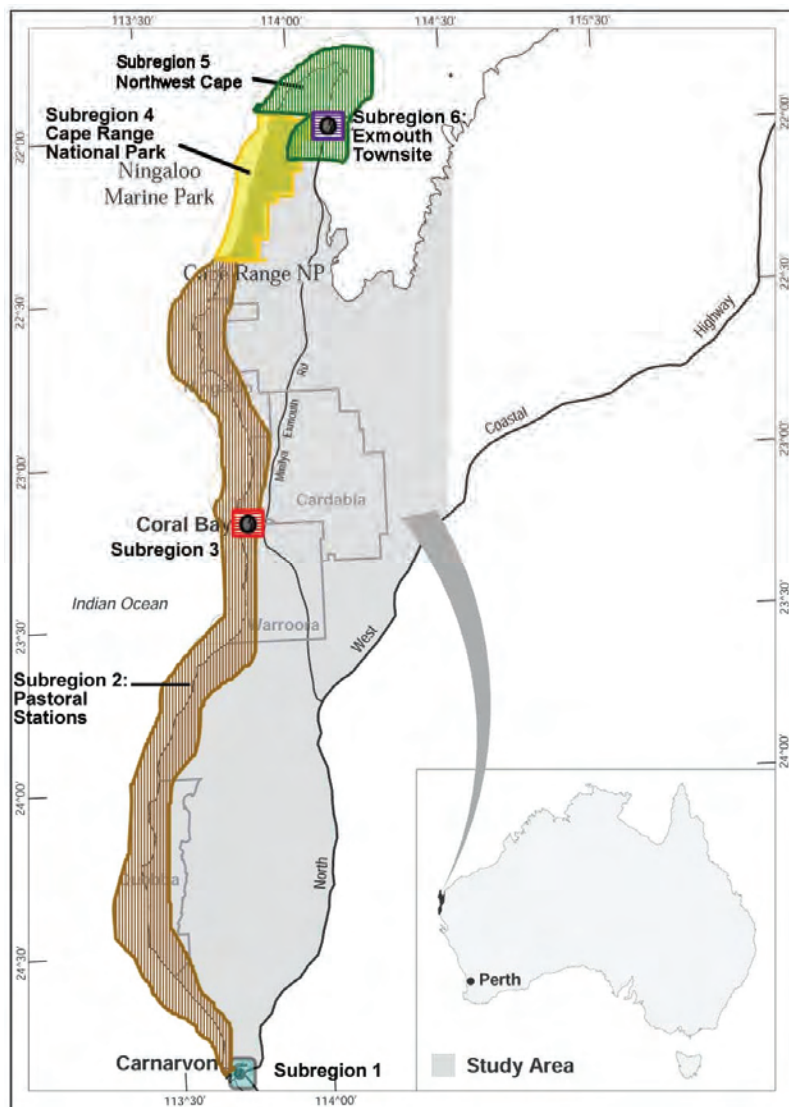
Elements of the push for both greater tourism development and greater conservation in the region have been controversial. A proposal to build a marina development at Maud's Landing near Coral Bay resulted in a large prolonged series of protests in Perth that contributed to the Labour Party's election victory in Western Australia in 2001. A decision to extend the sanctuary zones at Ningaloo Marine Park in 2004 was not received well by local residents and the possibility of the area attracting World Heritage listing caused a public outcry from the President of the Exmouth Chamber of Commerce and Industry at the state and federal governments (Smith, 2009). These issues reflect a concern in the region that decisions that affect its future are being made in Perth with little regard for local opinions.

The preliminary stages of this research, which is part of the CSIRO Ningaloo Collaboration Cluster project, provided an excellent case-study for destination modelling, as the main key stakeholder groups (government, tourism agencies and operators, research institutions, environmental groups, residents and visitors) expressed high interest in engaging in collective learning processes in order to address the prospects and issues of tourism development (Schianetz et al., 2009). Given local concerns and the potential for further tourism growth, the data in this report will provide a reliable and up to date basis for planning in the region.

The Ningaloo Coast and the Six Subregions

In this report the data is presented in chapters that examine the visitor characteristics for the entire region, the six subregions, differences between visitor segments, and finally expenditure information. The Ningaloo coast region is defined here as the area encompassed by the Shires of Carnarvon and Exmouth. In order to capture differences within this region, the data has been split into six subregions that capture distinct areas that differ through both access and tenure. The six subregions are: Carnarvon town site; the pastoral stations, Blowholes campsite and the Bombing Range (henceforth, the Pastoral Stations); Coral Bay; Cape Range National Park; the Northwest Cape and Exmouth Gulf; and Exmouth town site (see Figure 1).

Figure 1: The Ningaloo Coast and the Six Subregions



The three town sites are differentiated as they are the primary places of residence for locals and visitors and are important hubs for infrastructure and services. The Pastoral Stations are primarily coastal camping with huts and chalets are also available in the two southern stations. The cost of coastal camping does vary between stations. The two southern stations, where more facilities are provided (including toilets), charge more for accommodation than the northern stations. Cape Range National Park has 107 campsites and good access from Exmouth town site, making it a hub of activity for Exmouth. The Northwest Cape has two caravan parks and supports some activities including fishing and surfing.

Analyses for each of the subregions focuses on the characteristics of only those visitors who **stay in that subregion**. This is an important point as visitors travel to other subregions to do activities. This information is useful for understanding the full range of activities for the people that stay in a particular location. This is appropriate because the focus of this study is on understanding visitor characteristics and motivations, rather than assessing total activity load (hours of activity at a particular location).

Visitor Segments and Expenditure

While the first seven chapters of this report address the different subregions of the Ningaloo Coast, the final two chapters address two different characteristics of the data. Specifically, the eighth chapter addresses patterns that we identified in the data through exploratory factor analysis: three visitor experiences with distinct differences due to patterns in rating the importance of different elements of their trips. The differences between the characteristics of respondents who prefer different experiences is explored further through Pearson correlations and one way anova tests.

The final chapter presents information on expenditure in the region. In this chapter we estimate the expenditure of visitors to the Ningaloo Coast in the year ending September 2008 and examine differences between the different visitor segments.

Survey Methodology

The survey methodology adopted in this report has been developed through a series of STCRC projects examining cost-effective ways of measuring and explaining visitor characteristics and expenditure. The methodology is explained in detail in the STCRC technical reports *Assessment of the Economic Value of Recreation and Tourism in Western Australia's National Parks, Marine Parks and Forests* (Carlsen & Wood, 2004) and *Economic Evaluation of Tourism for Natural Areas: Development of a 'Toolkit Approach'* (Wood et al., 2006). Questions requesting details of expenditure on categorised items and length of stay in the region were central components of the survey, along with questions assessing the characteristics and motivations of visitors to the region and the location of activities and accommodation.

The survey collects information on a number of visitor characteristics that are common to many visitor surveys and appropriate for assessing the features of tourism to a destination (Cooper, 2005). These are: place of residence; age; gender; travel group; household income; activities; information sources; expenditure; accommodation type and location; travel method; and trip expectations and satisfaction. A more detailed description of the expenditure methodology is provided at the start of the methodology chapter.

Tourism Research Australia (TRA) statistics are aimed at large geographical areas or regions that attract larger numbers of tourists and assess a much broader range of activities. Smaller regions, like the Ningaloo Coast, generally have small sample sizes and the features of their tourism can get lost in the broader-brush approach necessary for a national survey. One of the purposes for evaluating tourism is to provide operational assistance to decision-makers, planners and policy makers (Hall, 1995). The information here has already informed processes put in place by the Department of Planning and Infrastructure and the Department of Environment and Conservation. We hope that making the data more broadly available will provide greater access to this information.

Survey Distribution

This survey used both self-completion at the time the survey was distributed and self-completed, mail-back questionnaires with a six week cut-off. Respondents were approached and asked if they would be willing to complete a survey. If they accepted, they were provided with a survey and asked to immediately complete the survey form or else complete a form in their own time and mail back to the researchers.

Surveys were distributed throughout all of the subregions. The majority of surveys were distributed in the three town sites where most visitors stay and spend much of their time. Surveys were also distributed in campsites, popular visitor attractions, visitor centres and shopping areas both in the town sites and along the coast, including in the Pastoral Stations, and Cape Range National Park. Surveys with mail-back envelopes were also left with hotel staff because visitors who stayed in hotels were harder to directly access than visitors in campsites or caravan parks. However, we also distributed surveys at popular attractions, Learmonth airport and shopping centres in order to reach a broad range of visitors, including those staying in hotels.

The total number of surveys distributed was 3100 (see Table 1.1 below). A total of 1574 completed questionnaires were returned for the whole survey period from July 2007 to September 2008. Of this total returned, almost a quarter were completed in the April 2008 survey round while the February 2008 round represents the least number distributed and returned. The low number of questionnaires distributed and returned in February 2008 coincides with the low point in the tourism season. As a consequence, there was a greater reliance on mail-back surveys distributed through hotels, the visitor centres and tourism operators during this period. This approach generally results in fewer forms being initially distributed, although the response rate for the smaller number distributed was reasonable. The higher response rate in April 2008 reflects the presence of two research assistants rather than one, meaning a greater proportion of surveys were completed immediately on-site. Mail-back surveys generally have a lower response rate than on-site completion surveys (Stynes & White, 2006). The response rate for each round of surveys over the period was variable but generally quite high.

Table 1.1: Survey Distribution Information

Survey date	Number of forms distributed	Completed forms returned	Response rate (%)	Proportion of total responses returned (%)	School holidays
July 07	700	243	34.7%	15.4%	Yes
October 07	547	278	50.8%	17.7%	No
February 08	244	94	38.5%	6.0%	Yes
April 08	521	364	69.9%	23.1%	No
June 08	538	284	52.8%	18.0%	No
September 08	550	311	56.5%	19.8%	Yes
Total	3100	1574	50.8%	100.0	

Chapter 2

CHARACTERISTICS OF VISITORS TO THE NINGALOO COASTAL REGION

The Region

The Ningaloo Coastal Region stretches from Carnarvon in the south to the Muiron Islands in the north (a popular fishing area) and into the Exmouth gulf to include the town site of Exmouth. This region includes areas where visitors stay while visiting the Shires of Carnarvon and Exmouth and the sites where they do most of their recreational activities.¹ The region has been described in greater detail in the 'Background' section in Chapter 1.

This chapter provides a brief, succinct summary of the data, followed by tables outlining the characteristics of visitors in the region.

Characteristics of Visitors

Despite its remoteness, the Ningaloo Coastal region attracts a large proportion of international (25.3%) and interstate (21.8%) visitors. Western Australians make up most of the visitors (52.9%). Interstate visitors from Victoria and New South Wales constitute 60% of all interstate visitors. The United Kingdom and Germany are the two most important international markets, constituting 51.7% of international visitors. Together, Europe, the UK and Ireland constituted 87.7% of international visitors.

Remoteness is a factor in the length of stay. The average length of visitor stay is 9.92 days. However, 51.8% of visitors stay for under eight days, with longer-staying, older visitors influencing the average. There are almost no day trippers to the region, although visitors in one subregion do visit attractions in other subregions without staying overnight. There is a spread of age groups visiting the region, with the majority of visitors travelling with a partner (47.4%) or with friends (21.6%). Family groups are also a sizable travel group (19.6%). While tour group numbers are lower than the other groups, they are important to the region as they provide regular bookings and run all year long.

Word of mouth is the most important pre-visit information source for visitors to the region. This emphasises the importance of ensuring that visitors enjoy their time on the Ningaloo Coast. Other significant sources of pre-visit information include advertisements, documentaries, the Internet and guidebooks. Not surprisingly, given their abundance in the region, camping and caravan parks were the most popular accommodation types. Caravan parks in the region have filled the gap resulting from the small number of hotel beds by providing a range of accommodation types including chalets and backpacker-style accommodation. Other here refers generally to people who stay with friends in the region.

Activities and Trip Elements

The three activities most commonly undertaken by visitors were snorkelling (68.8%), sunbathing/laying on the beach (64.7%) and sightseeing (64.5%). We also asked visitors to rate the importance of their activities. Snorkelling was considered by visitors as the most important activity (60.8%) followed by sightseeing (47.3%). Sunbathing was rated as important or very important by 29.4% of respondents. Fishing from the shore was rated as important or very important by 26.8% and fishing from a boat by 21.3%. While surfing was only rated as important or very important by 6.9% of respondents, it received the highest mean score (4.47), indicating that it was very important to the group that undertook this activity. Of the more popular activities, snorkelling rated the highest (4.10), followed by sightseeing (3.94).

¹ It did not include trips to the Kennedy Ranges from Carnarvon. This activity was not listed by visitors as an activity in the 'other' option in our survey, indicating that it was a peripheral activity.

Visitors were also asked to rate the importance of different elements of their trip. The natural environment was rated as important or very important by 88.4% of respondents, followed by the region's warm weather (74.8%), access to Ningaloo Reef (71.5%) and 'getting away from it all' (68.2%). Fishing was rated as important or very important by 37.1% of respondents.

Differences within the Survey Sample

The survey sample was analysed using Pearson Chi Squared tests to identify differences within the groups that visited the Ningaloo Coastal Region. Two statistically significant differences were apparent (shown in Tables 2.11 and 2.12, with information from the statistical test provided in Appendix A). First, there are important distinctions between the activity patterns of international, interstate and Western Australian (WA) visitors. International visitors place a much higher importance on snorkelling than Australian visitors and a much lower importance on fishing. They also place a higher importance on tours and scuba diving. Interstate visitors place a high priority on sightseeing and WA visitors were more likely to rate fishing as important, although this was still lower than the importance of snorkelling or sightseeing.

Second, age is an important factor in determining visitor's length of stay in the region. Visitors over 60 years old have an average length of stay more than double that of 18–29 year olds. International visitors tend to be younger, which influences their length of stay, while older visitors tend to be from interstate (36.1% of interstate visitors are over 60) or from WA. The largest category for WA visitors was the 30–44 year age group. Only 11.8% of WA visitors were between the ages of 18 and 29. Visitors under 18 years of age were excluded from the survey.

A final feature of the region was the differences in travel patterns based on visitor origin, which can be observed to be closely connected to weather patterns. WA visitors make up a larger proportion of visitors from April through the peak season, and can constitute up to 60% of all visitors during school holidays. WA visitors leave the region in September, and constituted only 35% of respondents to our October survey, and tend not to travel during the hotter summer months. Often the winds and heat pick up in September, and warmer weather returns to southern WA. Interstate visitors vary slightly in their timing of arrival. While also avoiding the hotter time of the year, they tend to arrive later (after April) and stay longer, often into October (28.4% of the respondents for our October survey were from interstate). The timing of trips around Australia is often made with plans to be back in Eastern Australia by Christmas. An October visit to Exmouth allows enough time to see the southern parts of WA before returning to the Southern or Eastern seaboard. European visitors, in particular Germans, tend to travel to the region during the hottest times of the year in order to escape the European winter. They often travel inland to Mount Augustus and Karijini in January and February. They constitute a much larger portion of the market in the off season.

Summary of Visitors to the Ningaloo Coastal Region

The Ningaloo Coastal Region attracts a large proportion of interstate and international visitors despite its remote location. The primary attraction is the unique natural environment, which provides the natural resources that support tourism to the region (see also Carlsen and Wood (2004)).

The Ningaloo Reef is particularly important and is the region's major drawcard. Snorkelling is the most important activity in the region. While fishing trails snorkelling and sightseeing, it is a popular activity and its adherents often spend long hours fishing.

The region itself is primarily visited by self-drive visitors who are seeking nature-based experiences; to escape from the cold and to get away from it all. The remoteness is a key factor in both ensuring that the environment has retained the values attractive to visitors and in creating a place where people feel that they can escape. Planned tourism developments in Exmouth will markedly increase the three and four star hotel accommodation while caravan park bed numbers will remain the same. These plans will have an impact on the northern part of the region. Specifically, the planners in Exmouth will need to ensure that the township attracts visitors for the new accommodation, while retaining the atmosphere and features that draw the caravanners and campers that will still constitute the largest segment of its tourism market. This will impact on all activities in particular sightseeing and beach activities (including snorkelling). Growth in this accommodation will also

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Collected for the Ningaloo Destination Modelling Project

impact fishing as fishing from a boat (an indicator of committed fishers) is undertaken by 29.9% of people who stay in hotels/motels and 36.8% of people who stay in rental accommodation. While lower than people who stay at caravan parks and campgrounds, there is a need to ensure that fishing is regulated in a way that takes into account the potential increase in fishing pressure at peak times from the increase in three star accommodation and holiday rentals in the Marina development.

Table 2.1: Characteristics of Visitors to the Ningaloo Coastal Region

Gender	Count	Percent	Visitor origin	Count	Percent
Female	781	51.1%	West Australian	809	52.9%
Male	746	48.9%	International	386	25.3%
			Interstate	333	21.8%
<i>Total response</i>	<i>1527</i>		<i>Total response</i>	<i>1528</i>	
Age of respondents			Length of stay (days)		
18–29	361	23.6%	1–3	244	18.3%
30–44	426	27.9%	4–7	447	33.5%
45–59	360	23.6%	8–27	471	35.3%
60+	381	24.9%	28+	174	13.0%
<i>Total response</i>	<i>1528</i>		<i>Total response</i>	<i>1336</i>	
Who are you travelling with?			Yearly household income (\$AU)		
Partner	732	47.4%	\$0–\$19,999	204	14.5%
Friends	334	21.6%	\$20,000–\$29,999	162	11.5%
Family	293	19.0%	\$30,000–\$39,999	113	8.0%
Alone	130	8.4%	\$40,000–\$49,999	151	10.7%
Club/tour group	55	3.6%	\$50,000–\$99,000	409	29.1%
			\$100,000+	367	26.1%
<i>Total response</i>	<i>1544</i>		<i>Total response</i>	<i>1406</i>	

Table 2.2: Australian Visitor State of Residence

State	Count	Percent
Western Australia	809	70.8%
Queensland	68	6.0%
Victoria	108	9.5%
South Australia	41	3.6%
New South Wales	95	8.3%
Tasmania	11	1.0%
Northern Territory	6	0.5%
ACT	4	0.4%
<i>Total response</i>	<i>1142</i>	

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 2.3: International Visitors to the Ningaloo Coastal Region

Country of origin	Count	Percent
UK	115	29.6%
Germany	86	22.1%
Rest of Europe	67	17.2%
Ireland	31	8.0%
Switzerland	24	6.2%
North America	23	5.9%
Netherlands	18	4.6%
Other	15	3.9%
Asia	10	2.6%
<i>Total response</i>	389	

Table 2.4: Information Sources for the Ningaloo Coastal Region

Information sources	Count	Percent
Friends/word of mouth	865	58.20%
Advertisement	443	29.80%
Documentary	320	21.50%
Internet site	261	17.60%
Guide books	253	17.00%
Other	221	14.90%
Local tourism office	111	7.50%
Tourism WA	84	5.60%
<i>Total response</i>	1487	

Table 2.5: Accommodation in the Ningaloo Coastal Region

Accommodation type	Count	Percent
Caravan park	763	52.70%
Campsite	620	42.80%
Backpackers	156	10.80%
Hotel /motel	149	10.30%
Other	97	6.70%
Rental home /unit/apt	39	2.70%
<i>Total response</i>	1447	

Table 2.6: Nights in the Ningaloo Coastal Region

Count	Mean	Standard error of mean
1591	13.27	0.43

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Table 2.7: Activities in the Ningaloo Coastal Region

Activities undertaken	Count	Percent
Snorkelling	1036	68.80%
Sunbathing/laying on beach	973	64.70%
Sightseeing	970	64.50%
Shopping	851	56.50%
Eating out	770	51.20%
Fishing from shore	732	48.60%
Fishing from boat	597	39.70%
Safari tours/coral viewing tours	435	28.90%
Scuba diving	310	20.60%
Other	273	18.10%
Swimming with whale sharks	266	17.70%
Surfing/windsurfing	132	8.80%
<i>Total response</i>	<i>1505</i>	

Table 2.8: Activities Rated as Important or Very Important in the Ningaloo Coastal Region

Activities rated as important or very important	Count	Percent
Snorkelling	836	60.80%
Sunbathing/laying on beach	651	47.30%
Sightseeing	404	29.40%
Shopping	369	26.80%
Eating out	293	21.30%
Fishing from shore	242	17.60%
Fishing from boat	225	16.40%
Safari tours/coral viewing tours	200	14.50%
Scuba diving	196	14.20%
Other	162	11.80%
Swimming with whale sharks	121	8.80%
Surfing/windsurfing	95	6.90%
<i>Total response</i>	<i>1376</i>	

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

**Table 2.8: Statistics for Activity Importance Ratings by Visitors to the Ningaloo Coast
(1=very low importance, 5=very high importance)**

Activity	N	Mean rating	Standard error of mean
Importance of surfing	110	4.47	0.09
Importance of other activity	246	4.29	0.09
Importance of snorkelling	1091	4.10	0.03
Importance of sightseeing	961	3.94	0.04
Importance of fishing from shore	795	3.26	0.05
Importance of fishing from boat	573	3.24	0.07
Importance of swimming with whale sharks	340	3.21	0.09
Importance of sunbathing / laying on beach	982	3.13	0.04
Importance of safari tours	501	3.06	0.07
Importance of eating out	836	2.79	0.04
Importance of shopping	895	2.66	0.04
Importance of scuba diving	389	2.54	0.08

Table 2.9: Trip Elements Rated as Important or Very Important by Visitors to the Ningaloo Coast

Trip elements rated as important or very important	Count	Percent
Importance of natural environment	1323	88.40%
Importance of region's warm weather	1119	74.80%
Importance of access to Ningaloo Reef	1069	71.50%
Importance of getting away from it all	1020	68.20%
Importance of camping facilities	841	56.20%
Importance of toilet facilities	788	52.70%
Importance of going to viewpoints	694	46.40%
Importance of bitumen access roads	637	42.60%
Importance of fishing	555	37.10%
Importance of other aspects	132	8.80%
<i>Total response</i>	<i>1496</i>	

Table 2.10: Visitor Activities Rated as Important or Very Important by Visitor Origin

Activity	Visitor origin		
	West Australian	Interstate	International
Snorkelling	57.30%	54.50%	74.90%
Sightseeing	43.60%	62.00%	42.10%
Fishing from shore	34.50%	30.70%	6.30%
Fishing from boat	31.10%	16.80%	3.90%
Sunbathing/laying on beach	29.10%	23.80%	35.50%
Eating out	18.60%	13.90%	19.10%
Safari tours/coral viewing tours	15.40%	15.20%	20.60%
Other	15.10%	13.50%	12.50%
Shopping	15.00%	18.80%	9.30%
Swimming with whale sharks	9.80%	11.90%	16.40%
Surfing/windsurfing	9.40%	5.30%	3.60%
Scuba diving	5.90%	7.30%	16.40%

Table 2.11: Selected Statistics for Nights in the Region by Visitor Origin*

Visitor Origin		Length of stay (nights)				Total
		1-3	4-7	8-27	28+	
West Australian	Count	61	224	301	112	698
	Percent	8.7%	32.1%	43.1%	16.0%	100.0%
Interstate	Count	60	97	101	39	297
	Percent	20.2%	32.7%	34.0%	13.1%	100.0%
International	Count	119	120	57	19	315
	Percent	37.8%	38.1%	18.1%	6.0%	100.0%
	Count	240	441	459	170	1310
	Percent	18.3%	33.7%	35.0%	13.0%	100.0%

* A Pearson Chi Squared test was carried out for this table and found to be significant ($p < 0.001$). The results are included in Appendix A.

Table 2.12: Age of Respondents by Visitor Origin*

Visitor origin		Age of respondents				Total
		18–29	30–44	45–59	60+	
West Australian	Count	93	273	207	216	789
	Percent	11.8%	34.6%	26.2%	27.4%	100.0%
Interstate	Count	48	63	100	119	330
	Percent	14.5%	19.1%	30.3%	36.1%	100.0%
International	Count	216	87	46	36	385
	Percent	56.1%	22.6%	11.9%	9.4%	100.0%
Total	Count	357	423	353	371	1504
	Percent	23.7%	28.1%	23.5%	24.7%	100.0%

* A Pearson Chi Squared test was carried out for this table and found to be significant ($p < 0.001$). The results are included in Appendix A.

Chapter 3

CHARACTERISTICS OF VISITORS TO THE CARNARVON TOWN SITE SUBREGION

The Subregion

Carnarvon is the oldest European settlement in the Ningaloo Coast region and sits at the most southern point of the study area. It was settled in 1893 and developed into a supply centre and export hub for the wool industry. Commercial horticultural production began in the 1930s and still continues today (Gascoyne Development Commission, 2006). Due to periodic flooding of the Gascoyne River, levy banks were built in the early 1900s. However, flooding still periodically occurs in Carnarvon, in particular causing damage to the horticultural crops that are located along the banks of the Gascoyne River. Agriculture, forestry and fishing employs 17.5% of the workforce in the Shire of Carnarvon. Carnarvon grows off-season fruit and vegetables for Western Australia due to the water supply from the Gascoyne River and supports a fishing industry. It also functions as a commercial centre for the region.

Characteristics of Visitors to Carnarvon

Visitors visiting Carnarvon Town Site are more likely to be Australian than international. Visitor length of stay varies, although over 50% stay longer than eight days. Carnarvon's seven caravan parks constitute a large proportion of the market, with over 60 cabins/chalet style accommodation and over 700 caravan and camping sites. The abundance and price of caravan park accommodation, when combined with Carnarvon's mild winters, makes Carnarvon attractive for longer-staying Australian visitors over the southern winter. The distribution of age groups reflects this demographic with 39.3% aged 60 and over and 65.5% aged 45 and over. Most visitors travel to the region with their partner (64.5%) followed by with their family (13.7%). A larger proportion of visitors to Carnarvon than the regional average have an annual household income under \$20 000.

Respondents predominantly found out about the region through word of mouth (50.9%), followed by advertisements (25.7%). Accommodation figures show that visitors to Carnarvon predominantly stayed in caravan parks. This is not surprising given the large number of caravan parks (7) relative to hotels (2) and backpackers (2).

Activities and Trip Elements

Activities and trip elements statistics were based on what visitors to Carnarvon reported for their entire trip, and therefore should be read as preferences rather than as a measure of what visitors to Carnarvon do in Carnarvon itself. Table 3.7 indicates where these activities took place. The most popular activity of visitors was sightseeing (of which 31.1% occurred in Carnarvon), followed by shopping, then snorkelling (which involves travel to another subregion, primarily Coral Bay). Visitors to Carnarvon tended to travel to other subregions to do many activities to a greater degree than is the case in the other subregions. The reasons for this are Carnarvon's location, which promotes one night stopovers, and its distance from snorkelling sites and beaches, which are two of the most important activities for visitors and are central to tourism promotion of the region.

The most important activity was also sightseeing, with 62.8% of visitors to Carnarvon ranking it as important or very important. Visitors to Carnarvon placed a high importance on the natural environment, the region's warm weather and getting away from it all. However, the natural environment did not rate as highly as the rating by all visitors to the Ningaloo Coastal Region. Visitors in Carnarvon also rated access to Ningaloo Reef lower than the regional average in terms of importance.

Visitors to Carnarvon town site were typical of the self-drive tourism market, which favours caravan parks as an accommodation choice. The most important element of their trip was sightseeing and they tended to be

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Australian, older and stayed for longer periods. They also placed a high importance on sightseeing, which is substantially higher than the region as a whole and less importance on accessing the reef. There was also a small backpacker market in Carnarvon, connected to the region's horticultural industry. The lower cost of caravan park accommodation in Carnarvon relative to Exmouth and Coral Bay is likely to be a factor in attracting this market, as well as the region's warm winters. As indicated by the higher interstate figures, Carnarvon is also a stopping point on the Australian loop for the self-drive market. This market seeks local experiences and produce, including local markets, which links well with Carnarvon's horticultural industry.

Table 3.1: Characteristics of Visitors to the Carnarvon Town Site Subregion

Gender	Count	Percent	Visitor Origin	Count	Percent
Male	90	50.0%	West Australian	85	48.9%
Female	90	50.0%	Interstate	59	33.9%
			International	30	17.2%
Australian state of residence					
			Approximate yearly household income		
Western Australia	85	59.0%	\$0-\$19,999	36	21.4%
Queensland	15	10.4%	\$20,000-\$29,999	24	14.3%
Victoria	13	9.0%	\$30,000-\$39,999	19	11.3%
South Australia	12	8.3%	\$40,000-\$49,999	23	13.7%
New South Wales	13	9.0%	\$50,000-\$99,000	33	19.6%
Tasmania	5	3.5%	\$100,000+	33	19.6%
Northern Territory	1	.7%			
Age of respondents					
			Length of stay		
18-29	30	16.4%	1-3	25	14.5%
30-44	33	18.0%	4-7	46	26.7%
45-59	48	26.2%	8-27	65	37.8%
60+	72	39.3%	28+	36	20.9%
Who are you travelling with?					
With partner	118	64.5%			
With family	25	13.7%			
Alone	20	10.9%			
With friends	17	9.3%			
With club / tour group	3	1.6%			
<i>Total Response</i>	183	100.0%			

Table 3.2: Information Sources for the Carnarvon Town Site Subregion

	Count	Percent
Friends/word of mouth	87	50.9%
Advertisement	44	25.7%
Other	37	21.6%
Guide books	30	17.5%
Internet site	29	17.0%
Documentary	27	15.8%
Local tourism office	18	10.5%
Tourism WA	12	7.0%
<i>Total responses</i>	<i>171</i>	

Table 3.3: Accommodation for Visitors to the Carnarvon Town Site Subregion

	Count	Percent
Caravan park	143	78.1%
Hotel /motel	23	12.6%
Backpackers	16	8.7%
Other	11	6.0%
Rental home /unit /apt	2	1.1%
Campsite	0	0
<i>Total responses</i>	<i>183</i>	

Table 3.4: Activities Undertaken by Visitors to the Carnarvon Town Site Subregion

	Count	Percent
Sightseeing	124	71.3%
Shopping	109	62.6%
Snorkelling	92	52.9%
Eating out	90	51.7%
Fishing from shore	82	47.1%
Sunbathing /laying on beach	71	40.8%
Fishing from boat	55	31.6%
Safari tours /coral viewing tours	44	25.3%
Other	36	20.7%
Scuba diving	25	14.4%
Surfing/windsurfing	9	5.2%
<i>Total responses</i>	<i>174</i>	

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 3.5: Activities Rated as Important or Very Important by Visitors to the Carnarvon Town Site Subregion

	Count	Percent
Sightseeing	98	62.8%
Snorkelling	77	49.4%
Fishing from shore	45	28.8%
Shopping	41	26.3%
Eating out	34	21.8%
Sun bathing/laying on beach	31	19.9%
Fishing from boat	29	18.6%
Other	27	17.3%
Safari tours/coral viewing tours	21	13.5%
Scuba diving	6	3.8%
Surfing/windsurfing	5	3.2%
<i>Total responses</i>	<i>156</i>	

Table 3.6: Trip Elements Rated as Important or Very Important by Visitors to the Carnarvon Town Site Subregion

	Count	Percent
Importance of natural environment	144	83.2%
Importance of region's warm weather	127	73.4%
Importance of getting away from it all	108	62.4%
Importance of access to Ningaloo Reef	100	57.8%
Importance of camping facilities	98	56.6%
Importance of going to viewpoints	95	54.9%
Importance of toilet facilities	90	52.0%
Importance of bitumen access roads	89	51.4%
Importance of fishing	61	35.3%
Importance of other aspects	18	10.4%
<i>Total responses</i>	<i>173</i>	

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 3.7: Location of Activities for Visitors Who Stayed in the Carnarvon Town Site Subregion

	Sunbathing/ Laying on beach	Fishing from shore	Fishing from boat	Snorkelling	Scuba diving	Shopping	Eating out	Sightseeing	Tours	Whale sharks	Other	Surfing/ windsurfing
Carnarvon	2.7%	33.3%	4.3%	-	-	62.1%	47.9%	31.1%	16.0%	-	25.0%	-
Pastoral Stations	18.9%	31.0%	26.1%	17.9%	6.3%	3.0%	-	14.8%	12.0%	7.7%	35.0%	-
Coral Bay	45.9%	14.3%	39.1%	35.8%	25.0%	7.6%	25.0%	13.1%	32.0%	15.4%	5.0%	33.3%
Cape Range National Park	16.2%	9.5%	8.7%	20.9%	6.3%	-	4.2%	13.1%	12.0%	15.4%	15.0%	-
North West Cape	2.7%	-	8.7%	-	6.3%	-	-	6.6%	4.0%	-	10.0%	-
Exmouth	13.5%	11.9%	13.0%	25.4%	56.3%	27.3%	22.9%	21.3%	24.0%	61.5%	10.0%	66.7%

Chapter 4

CHARACTERISTICS OF VISITORS TO THE PASTORAL STATIONS

The Subregion

The Pastoral Stations subregion covers the largest section of the Ningaloo Coastal Region study area (see Figure 1). Its southern most point is the Blowholes campsite, which is jointly owned by the Shire of Carnarvon and the Department of Fisheries. Its northern most point is the now disused Bombing Range, owned by the Department of Defence (Western Australian Planning Commission, 2004). Five stations sit within these boundaries. The two southern stations, Quobba and Gnaraloo, have more established campgrounds with toilets and cabin or chalet accommodation options in addition to campsites. The three northern stations, Warroora, Cardabai, and Ningaloo offer camping accommodation or a station stay. Campers are required to bring their own toilets. All stations require visitors to bring their own water. Access to most of the sites generally requires a four-wheel drive with the exception of Quobba.

Characteristics of Visitors

Visitors to the Pastoral Stations subregion were more likely to be male (58.8%) and Western Australian (71.9%). Although there were relatively few international visitors, they tended to be most abundant at the southern two stations and this is most likely due to the surf at these sites. Length of stay on the Pastoral Stations is likely to be longer than in Carnarvon, with 72.5% of visitors staying longer than eight days with almost a quarter of visitors staying over 28 days. Visitors were likely to be older than the regional average despite the presence of surfers, due to the numbers of older visitors at other sites throughout the subregion. They were travelling with their partner (46.4%), friends (23.4%) or family (20.1%). Over 50% of visitors to this subregion had an annual household income of more than \$50 000, a higher proportion than visitors to Carnarvon (39.2%).

The most common information source was word of mouth (70.4%), although advertisements were also important in drawing visitors to the Pastoral Stations (41.2%). The Pastoral Station visitor accommodation data includes all of the accommodation types used by these visitors while they were in the Ningaloo Coastal Region, **not just the accommodation they used in this subregion**. Visitors who stayed in this subregion generally used campsites (91.8%), while also staying in caravan parks (27.0%), and a small proportion reported using 'other' accommodation (generally staying with friends) and hotels. Visitors to the pastoral stations often stopped at Carnarvon to stock up before they went to the stations, and returned to a major centre periodically for supplies.

Activities and Trip Elements

Activities and trip elements are taken from the Pastoral Station visitors' entire time in the Ningaloo Coastal region, and therefore should be read as preferences rather than as a measure of what visitors do in the Pastoral Stations subregion itself. Fishing from the shore (69.5%) was the most popular activity for Pastoral Station visitors, 82.6% of which was undertaken in the Pastoral Stations subregion. This was followed by snorkelling (66.5%), sunbathing (60.7%), and sightseeing (57.0%). Fishing from a boat was undertaken by a much higher proportion of visitors in this subregion than any other subregion (52.2%). Most of these activities occurred in the Pastoral Stations subregion. The activities rated as important or very important by the largest portion of visitors were snorkelling (48.8%) followed by fishing from the shore (40.7%), sightseeing (32.9%), and then fishing from a boat (29.7%). Tours, eating out and shopping were not important to these visitors. Surfing and windsurfing was also very popular in this subregion with over a quarter of respondents rating it as important or very important. It was interesting to note that the difference between the number of respondents who undertook surfing/windsurfing (27.9%) and the proportion who rated it important or very important (26.4%) was very small. This indicates that almost every visitor who came to the region to surf or windsurf rated it as an important or very important element of their trip.

Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project

The natural environment was the most important element for visitors' to the Ningaloo Coastal region, with 90.9% rating it as an important or very important element of their trip. Getting away from it all (81.2%) and the region's warm weather (77.5%) also rated highly. Facilities, such as toilets and bitumen access roads, were not considered as important compared with perceptions of the visitors to other subregions. However, 56.9% of Pastoral Stations visitors viewed camping facilities as important or very important. This is the most important region for surfing (although surfing also occurs in the Northwest Cape and CRNP), with the majority of surfers staying in the southern two stations.

Visitors to the pastoral stations were seeking a nature-based experience during the southern winter, where they could escape from the cold and their everyday lives. Camping is the primary form of accommodation and, combined with the region's lack of facilities, plays a key role in creating the kinds of experiences that these groups are seeking. While certain facilities are not rated as important by many respondents, it is interesting to note that camp grounds were viewed as important by over 50%. While ruggedness is important to maintaining the qualities of the experience that are important to visitors, the results indicate that aspects of management (such as garbage disposal, marking campsites and provision of toilet facilities) could be implemented without overly interfering with the coastal camping experience, and that many of the visitors have the capacity to pay more. Indeed, it may be possible to increase the infrastructure for the region in a way that can satisfy the majority of current visitors if the environmental impacts of visitation, particularly if numbers increase further, are deemed to be unacceptable. Evidence from interviews conducted in the region in connection with developing the NDM suggests that visitors would respond more positively to management from the pastoral station owners than government agencies. For instance, the owners of Warroora Station advocate a two fish per day policy, which may reduce catch without causing resentment.

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 4.1: Characteristics of Visitors to the Pastoral Stations Subregion

Gender	Count	Percent	Visitor Origin	Count	Percent
Male	163	58.8%	West Australian	197	71.9%
Female	114	41.2%	Interstate	51	18.6%
			International	26	9.5%
Australian state of residence					
Western Australia	197	79.4%	Approximate yearly household income		
Victoria	19	7.7%	\$0–\$19,999	37	14.4%
New South Wales	14	5.6%	\$20,000–\$29,999	36	14.0%
Queensland	10	4.0%	\$30,000–\$39,999	27	10.5%
South Australia	7	2.8%	\$40,000–\$49,999	19	7.4%
Tasmania	1	.4%	\$50,000–\$99,000	84	32.7%
			\$100,000+	54	21.0%
<i>Total responses</i>	<i>248</i>	<i>100.0%</i>	<i>Total responses</i>	<i>257</i>	<i>100.0%</i>
Age of respondents					
			Length of Stay		
18–29	42	15.4%	1–3	17	6.7%
30–44	85	31.3%	4–7	53	20.8%
45–59	80	29.4%	8–27	122	47.8%
60+	65	23.9%	28–+	63	24.7%
Who are you travelling with?					
With partner	129	46.4%			
With friends	65	23.4%			
With family	56	20.1%			
Alone	26	9.4%			
With club/tour group	2	.7%			
<i>Total responses</i>	<i>278</i>				

Table 4.2: Information Sources for the Pastoral Stations Subregion

	Count	Percent
Friends/word of mouth	188	70.4%
Advertisement	110	41.2%
Other	43	16.1%
Internet site	37	13.9%
Documentary	37	13.9%
Guide books	25	9.4%
Tourism WA	10	3.7%
Local tourism office	9	3.4%
<i>Total responses</i>	<i>267</i>	

Table 4.3: Accommodation for the Pastoral Stations Subregion

	Count	Percent
Campsite	258	91.8%
Caravan park	76	27.0%
Other	25	8.9%
Hotel / motel	13	4.6%
Backpackers	7	2.5%
Rental home /unit / apt	2	.7%
<i>Total responses</i>	<i>281</i>	

Table 4.4: Activities Undertaken by Visitors to the Pastoral Stations Subregion

	Count	Percent
Fishing from shore	189	69.5%
Snorkelling	180	66.2%
Sunbathing / laying on beach	165	60.7%
Sightseeing	155	57.0%
Fishing from boat	142	52.2%
Shopping	119	43.8%
Eating out	88	32.4%
Surfing /windsurfing	76	27.9%
Other	50	18.4%
Safari tours /coral viewing tours	46	16.9%
Scuba diving	45	16.5%
Swimming with whale sharks	43	15.8%
<i>Total responses</i>	<i>272</i>	

Table 4.5: Activities Rated as Important or Very Important by Visitors to the Pastoral Stations Subregion

	Count	Percent
Snorkelling	120	48.8%
Fishing from shore	100	40.7%
Sightseeing	81	32.9%
Fishing from boat	73	29.7%
Surfing/windsurfing	65	26.4%
Sunbathing/laying on beach	62	25.2%
Other	38	15.4%
Shopping	28	11.4%
Safari tours/coral viewing tours	15	6.1%
Swimming with whale sharks	12	4.9%
Eating out	11	4.5%
Scuba diving	9	3.7%
<i>Total responses</i>	<i>246</i>	

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 4.6: Trip Elements Rated as Important or Very Important by Visitors to the Pastoral Stations Subregion

	Count	Percent
Importance of natural environment	251	90.9%
Importance of getting away from it all	224	81.2%
Importance of region's warm weather	214	77.5%
Importance of access to Ningaloo Reef	174	63.0%
Importance of fishing	158	57.2%
Importance of camping facilities	157	56.9%
Importance of going to viewpoints	93	33.7%
Importance of toilet facilities	92	33.3%
Importance of bitumen access roads	66	23.9%
Importance of other aspects	39	14.1%
<i>Total responses</i>	276	

Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project

Table 4.7: Location of Activities for Visitors Who Stayed in the Pastoral Stations Subregion

	Sunbathing/ Laying on beach	Fishing from shore	Fishing from boat	Snorkelling	Scuba diving	Shopping	Eating out	Sightseeing	Tours	Whale sharks	Other	Surfing/ windsurfing
Carnarvon	0.5%	1.2%	-	0.8%	8.9%	44.4%	23.2%	11.6%	-	-	9.8%	-
Pastoral Stations	82.6%	89.7%	79.4%	72.9%	51.1%	16.6%	25.6%	57.5%	44.1%	36.8%	82.4%	92.5%
Coral Bay	7.2%	4.4%	7.8%	10.6%	22.2%	15.9%	23.2%	6.2%	23.5%	15.8%	3.9%	-
Cape Range National Park	4.3%	1.6%	1.4%	11.0%	-	-	-	6.8%	-	21.1%	-	5.6%
North West Cape	-	-	4.3%	-	4.4%	-	-	1.4%	5.9%	-	-	1.9%
Exmouth	5.3%	3.2%	7.1%	4.7%	13.3%	23.2%	28.0%	16.4%	26.5%	26.3%	3.9%	-

Chapter 5

CHARACTERISTICS OF VISITORS TO THE CORAL BAY TOWN SITE SUBREGION

The Subregion

Coral Bay exhibits the characteristics of a coastal village that is reliant on tourism with a focus on caravan parks, and is located next to Bill's Bay. Tourism growth in Coral Bay began in the late 1960s when a piece of land was excised from Cardabai Station and sold to Ken Ryan to be developed as a caravan park (Interview with Doug Hunt, 1 June 2009). The caravan park, a hotel and a service station were built in 1968. In the early 1970s, Bill Brogan purchased land around a transportable home that he had erected on the beach, which evolved over time into the Bayview Caravan Park and Ningaloo Backpackers. Artesian groundwater was tapped from the late 1980s. The housing estate began as an illegal subdivision in 1982, and now is zoned to become rental accommodation. The *Ningaloo Coast Regional Strategy* (NCRS) has placed restrictions over the growth of Coral Bay, limiting it to 3600 overnight visitors, accommodation for 400 semi-permanent workers, and 500 day visitors. Water and waste water treatment facilities began operating in Coral Bay in 2008 and a new power station began operating in 2007. Coral Bay currently has 312 camping sites, 62 rooms in cabin/chalet/unit style accommodation, 38 backpacker rooms and 34 hotel rooms, plus a small number of houses that are mostly used as holiday rentals.

Characteristics of Visitors

Coral Bay has a higher proportion of WA visitors than the region as a whole (58.8%), reflecting its attractiveness to the WA market. For comparison, Exmouth tends to draw a higher proportion of interstate and international visitors. Length of stay is much shorter than other subregions due to excess demand for accommodation and because it is more expensive than Exmouth and Carnarvon. Proportionately, 50.4% of visitors stay for under 8 days and 45.8% stay between 8 and 28 days. Visitors to Coral Bay tend to be wealthier than visitors to Carnarvon or the Pastoral Stations, with 70.6% earning annual household incomes over \$50 000. Visitors tended to be younger with a higher proportion of families visiting the region.

Word of mouth is the most common information source (66.3%). Documentaries (27.6%) and advertisements (27.1%) are also important. As previously mentioned, the accommodation data provided covers all of the accommodation types that visitors who stayed in the Coral Bay subregion used while they were in the Ningaloo Coastal Region, not just the accommodation they used in this subregion. Caravan parks are the most used accommodation type (63.6%), followed by campsites (35.6%).

Activities and Trip Elements

Snorkelling was undertaken by the largest proportion of visitors (84.0%) and the majority of this occurred in Coral Bay (74.1%). This is not surprising given the coral reef in Bill's Bay is only 500 metres from the accommodation. Sunbathing/laying on the beach was the second most popular activity (80.6%). Eating out was undertaken by more Coral Bay visitors relative to Carnarvon despite the comparatively small number of dining options. This may be due to the greater income of Coral Bay visitors and the resort feel of Coral Bay. Coral Bay visitors did most of their activities in Coral Bay, followed by Exmouth. They reported only a small proportion of their activities in Carnarvon. When asked to rate importance of available activities, snorkelling was rated as important or very important by the greatest proportion of visitors (73.5%), followed by sightseeing (48.6%), then sunbathing/laying on the beach (42.0%). Fishing was rated beneath commercial tours in terms of importance. Tours were more important here than in any other subregions. The natural environment was the most important trip element (93.5%), followed by accessing the reef (81.0%) and the region's warm weather (80.2%). Fishing was rated as an important trip element by 36.5% of all visitors.

Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project

Given its proximity to the beach, the lower levels of international and interstate visitors compared to Exmouth are surprising. However, this is likely to be due to its ongoing popularity with WA visitors, which means that booking ahead is a necessity during the peak season, and the high proportion of caravan park accommodation. Coral Bay attracts a higher proportion of families than other subregions due to its location close to the beach and caravan parks. While visitor demand for stays in Coral Bay is strong, its location on a fragile coastal environment necessitates careful planning and monitoring, particularly given the importance of the natural environment, snorkelling and, to a lesser degree, fishing to visitors' experiences.

Table 5.1: Characteristics of Visitors to the Coral Bay Subregion

Gender	Count	Percent	Visitor origin	Count	Percent
Male	165	43.3%	West Australian	228	58.8%
Female	216	56.7%	Interstate	68	17.5%
			International	92	23.7%
Australian state of residence					
			Approximate yearly household income		
Western Australia	228	77.0%	\$0–\$19,999	23	6.6%
Victoria	25	8.4%	\$20,000–\$29,999	21	6.0%
Queensland	15	5.1%	\$30,000–\$39,999	18	5.1%
New South Wales	15	5.1%	\$40,000–\$49,999	41	11.7%
South Australia	9	3.0%	\$50,000–\$99,000	119	34.0%
Tasmania	2	.7%	\$100,000+	128	36.6%
Northern Territory	1	.3%			
ACT	1	.3%			
<i>Total responses</i>	<i>296</i>	<i>100.0%</i>	<i>Total responses</i>	<i>257</i>	<i>100.0%</i>
Age of respondents					
			Length of stay		
18–29	90	23.4%	1–3	45	12.1%
30–44	155	40.3%	4–7	142	38.3%
45–59	87	22.6%	8–27	170	45.8%
60+	53	13.8%	28+	14	3.8%
Who are you travelling with?					
With partner	155	40.3%			
With family	110	28.6%			
With friends	89	23.1%			
Alone	18	4.7%			
With club/ tour group	13	3.4%			
<i>Total responses</i>	<i>385</i>				

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 5.2: Information Sources for the Coral Bay Subregion

	Count	Percent
Friends/word of mouth	252	66.3%
Documentary	105	27.6%
Advertisement	103	27.1%
Internet site	64	16.8%
Guide books	63	16.6%
Other	42	11.1%
Local tourism office	23	6.1%
Tourism WA	21	5.5%
<i>Total responses</i>	<i>380</i>	

Table 5.3: Accommodation for the Coral Bay Subregion

	Count	Percent
Caravan park	248	63.6%
Campsite	139	35.6%
Hotel /motel	50	12.8%
Backpackers	49	12.6%
Other	13	3.3%
Rental home /unit/apt	9	2.3%
<i>Total responses</i>	<i>390</i>	

Table 5.4: Activities Undertaken by Visitors to the Coral Bay Subregion

	Count	Percent
Sunbathing / laying on beach	307	80.6%
Fishing from shore	179	47.0%
Fishing from boat	170	44.6%
Snorkelling	320	84.0%
Scuba diving	94	24.7%
Shopping	227	59.6%
Eating out	243	63.8%
Sightseeing	252	66.1%
Safari tours /coral viewing tours	159	41.7%
Swimming with whale sharks	71	18.6%
Other	67	17.6%
Surfing /windsurfing	11	2.9%
<i>Total responses</i>	<i>381</i>	

Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project

Table 5.5: Activities Rated as Important or Very Important by Visitors to the Coral Bay Subregion

	Count	Percent
Sunbathing/laying on beach	152	42.0%
Fishing from shore	87	24.0%
Fishing from boat	91	25.1%
Snorkelling	266	73.5%
Scuba diving	33	9.1%
Shopping	41	11.3%
Eating out	81	22.4%
Sightseeing	176	48.6%
Safari tours/coral viewing tours	102	28.2%
Swimming with whale sharks	44	12.2%
Other	45	12.4%
Surfing/windsurfing	6	1.7%
<i>Total responses</i>	<i>362</i>	

Table 5.6: Trip Elements Rated as Important or Very Important by Visitors to the Coral Bay Subregion

	Count	Percent
Importance of natural environment	359	93.5%
Importance of access to Ningaloo Reef	311	81.0%
Importance of region's warm weather	308	80.2%
Importance of getting away from it all	284	74.0%
Importance of camping facilities	250	65.1%
Importance of toilet facilities	230	59.9%
Importance of going to viewpoints	181	47.1%
Importance of bitumen access roads	174	45.3%
Importance of fishing	140	36.5%
Importance of other aspects	30	7.8%
<i>Total responses</i>	<i>384</i>	

Table 5.7: Location of Activities for Visitors Who Stayed in the Coral Bay Subregion

	Sunbathing/ Laying on beach	Fishing from shore	Fishing from boat	Snorkeling	Scuba diving	Shopping	Eating out	Sightseeing	Tours	Whale sharks	Other	Surfing/ windsurfing
Carnarvon	1.2%	6.0%	-	-	1.8%	7.9%	0.7%	4.3%	-	-	4.5%	-
Pastoral Stations	2.8%	16.4%	8.6%	2.0%	-	-	-	3.6%	-	7.0%	-	20.0%
Coral Bay	76.8%	54.3%	75.7%	74.1%	59.6%	56.1%	75.7%	52.2%	83.2%	48.8%	70.5%	20.0%
Cape Range National Park	10.2%	10.3%	2.9%	14.9%	14.0%	-	0.7%	15.2%	5.3%	18.6%	6.8%	-
North West Cape	-	1.7%	4.3%	0.4%	1.8%	-	-	2.2%	-	-	2.3%	-
Exmouth	8.9%	11.2%	8.6%	8.6%	22.8%	36.0%	23.0%	22.5%	11.6%	25.6%	15.9%	60.0%

Chapter 6

CHARACTERISTICS OF VISITORS TO THE CAPE RANGE NATIONAL PARK SUBREGION

Cape Range National Park (CRNP) was first gazetted as a class C reserve in 1964, and then as a class A reserve in 1971 (Department of Conservation and Land Management, 2005a). Its current boundaries, covering an area of 50 581 hectares, was established in 1969. Previously, it was part of Yardie Creek Station, which was surrendered to the Crown in 1959 and reverted to vacant Crown land. CRNP is one of the major attractions in the Ningaloo Coast region, with many visitors from Exmouth spending some of their time in the park. DEC figures indicate that 184 501 vehicles entered CRNP in 2008. Although a number of these would have been staff and locals, this still indicates a high level of popularity with visitors to the region. The most popular beach in the region, Turquoise Bay, is accessible through CRNP, and Yardie Creek is a popular site for hiking and surfing. A sealed road runs from the north of CRNP to Yardie Creek, which can only be crossed by four wheel drives. The road south from Yardie Creek is not sealed and runs south through Ningaloo Station and Cardabai Station to Coral Bay. CRNP has 104 campsites and campers are required to bring all of their own food, shelter and water. Toilet facilities are provided.

Visitor Characteristics

It is interesting to note that only 26.5% of visitors who stay in the park were from WA. International and interstate visitors were, therefore, more likely to stay in the park. Length of stay was limited by park management to 28 days, with the exception of camp hosts. Proportionately, 40.8% of visitors stayed between 8 and 27 days in the park. Visitors to CRNP tended to travel with their partner (65.1%) and were less likely to travel with their family compared with visitors to Coral Bay or the Pastoral Stations. They come from a range of age groups. Word of mouth is the most important source of information (52.7%), but advertisements (33.9%), guidebooks (32.1%) and documentaries (28.5%) are more important for visitors that stay in this subregion than the other subregions.

Activities and Trip Elements

The activity undertaken by the greatest proportion of visitors staying in CRNP was snorkelling (83.3%), followed by sunbathing/laying on the beach (72.0%). Sightseeing was also a common activity (69.0%). All of these activities were predominantly undertaken in the CRNP subregion. The connection to Exmouth is clear in Table 6.7, with shopping and eating out activities predominantly occurring in Exmouth. Carnarvon attracts only a small proportion of the activities of these visitors. In terms of importance ratings, snorkelling was rated as important or very important by the greatest proportion of visitors (77.0%), followed by sightseeing (54.0%). The natural environment was rated as important or very important by 96.5% of respondents, and reef access was rated as important by 85.9%. Visitors placed higher importance on facilities, such as camping facilities (71.2%) and toilets (54.1%) than the regional average. Fishing was of relatively low importance (28.2% of respondents) compared to other elements of visitors' experience.

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 6.1: Characteristics of Visitors to the Cape Range National Park (CRNP) Subregion

Gender	Count	Percent	Visitor origin	Count	Percent
Male	84	50.3%	West Australian	45	26.5%
Female	83	49.7%	Interstate	72	42.4%
			International	53	31.2%
Australian state of residence					
			Approximate yearly household income		
Western Australia	45	38.5%	\$0–\$19,999	18	11.5%
Victoria	22	18.8%	\$20,000–\$29,999	24	15.3%
New South Wales	21	17.9%	\$30,000–\$39,999	9	5.7%
Queensland	18	15.4%	\$40,000–\$49,999	17	10.8%
South Australia	8	6.8%	\$50,000–\$99,000	52	33.1%
Northern Territory	2	1.7%	\$100,000+	37	23.6%
Tasmania	1	.9%			
Age of respondents					
			Length of stay		
18-29	35	20.6%	1–3	26	15.4%
30-44	49	28.8%	4–7	50	29.6%
45-59	44	25.9%	8–27	69	40.8%
60+	42	24.7%	28+	24	14.2%
Who are you travelling with?					
With partner	112	65.1%			
With friends	29	16.9%			
With family	23	13.4%			
Alone	8	4.7%			
With club/tour group					

Table 6.2: Information Sources for the CRNP Subregion

	Count	Percent
Friends/word of mouth	87	52.7%
Advertisement	56	33.9%
Guide books	53	32.1%
Documentary	47	28.5%
Internet site	31	18.8%
Local tourism office	16	9.7%
Other	14	8.5%
Tourism WA	7	4.2%
<i>Total responses</i>	<i>165</i>	

Table 6.3: Activities Undertaken by Visitors to the CRNP Subregion

	Count	Percent
Snorkelling	140	83.3%
Sunbathing / laying on beach	121	72.0%
Sightseeing	116	69.0%
Shopping	96	57.1%
Fishing from shore	85	50.6%
Eating out	81	48.2%
Fishing from boat	57	33.9%
Other	41	24.4%
Safari tours /coral viewing tours	34	20.2%
Scuba diving	32	19.0%
Swimming with whale sharks	29	17.3%
Surfing / windsurfing	11	6.5%
<i>Total responses</i>	<i>168</i>	

Table 6.4: Activities Rated as Important or Very Important by Visitors to the CRNP Subregion

	Count	Percent
Snorkelling	124	77.0%
Sightseeing	87	54.0%
Sunbathing/laying on beach	47	29.2%
Fishing from shore	38	23.6%
Other	32	19.9%
Fishing from boat	26	16.1%
Shopping	22	13.7%
Eating out	19	11.8%
Scuba diving	17	10.6%
Swimming with whale sharks	16	9.9%
Safari tours/coral viewing tours	11	6.8%
Surfing/windsurfing	6	3.7%
<i>Total responses</i>	<i>161</i>	

Table 6.5: Trip Elements Rated as Important or Very Important by Visitors to the CRNP Subregion

	Count	Percent
Importance of natural environment	164	96.5%
Importance of access to Ningaloo Reef	146	85.9%
Importance of region's warm weather	121	71.2%
Importance of camping facilities	121	71.2%
Importance of getting away from it all	116	68.2%
Importance of toilet facilities	92	54.1%
Importance of going to viewpoints	87	51.2%
Importance of bitumen access roads	69	40.6%
Importance of fishing	48	28.2%
Importance of other aspects	24	14.1%
<i>Total responses</i>	<i>170</i>	

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Table 6.7: Location of Activities for Visitors Who Stayed in the CRNP Subregion

	Sunbathing/ Laying on beach	Fishing from shore	Fishing from boat	Snorkelling	Scuba diving	Shopping	Eating out	Sightseeing	Tours	Whale sharks	Other	Surfing/ windsurfing
Carnarvon	-	-	-	-	-	8.7%	5.9%	3.3%	-	-	-	-
Pastoral Stations	9.0%	14.4%	12.5%	5.4%	6.3%	1.1%	-	4.1%	7.7%	3.4%	9.1%	-
Coral Bay	11.6%	3.3%	14.6%	11.8%	12.5%	8.7%	10.6%	11.4%	41.0%	6.9%	-	-
Cape Range National Park	72.3%	63.3%	54.2%	76.0%	35.4%	2.2%	3.5%	60.2%	17.9%	48.3%	81.8%	81.8%
North West Cape	1.3%	2.2%	8.3%	1.0%	27.1%	-	-	6.5%	10.3%	-	4.5%	-
Exmouth	5.8%	16.7%	10.4%	5.9%	18.8%	79.3%	80.0%	14.6%	23.1%	41.4%	4.5%	18.2%

Chapter 7

CHARACTERISTICS OF VISITORS TO THE NORTHWEST CAPE SUBREGION

The Northwest Cape consists of land that was once part of Yardie Creek Station. It now consists of predominantly vacant crown land and the Harold E. Holt Joint US Australian Naval Communications Base (Western Australian Planning Commission, 2004). There are two caravan parks in this subregion. Yardie Creek Caravan Park has been built around the old Yardie Creek Station. The Lighthouse Caravan Park is located on the tip of the cape close to the Vlamingh Head Lighthouse. A recent master plan for Vlamingh Head has specified a 300 bed, low-density development for an undeveloped site next to the Lighthouse Caravan Park. The Naval Base is the location of Very Low Frequency (VLF) towers used to communicate with US and Australian naval submarines.

Characteristics of Visitors

Visitors staying in the Northwest Cape subregion were predominantly Australian with over 50% from WA. They tended to stay for longer periods in this subregion than the average for the entire region (57.0% stayed for longer than 8 days). They were generally older visitors (38.1% were over 60 years old) and travelled with a partner (59.8%). Their information source was mainly word of mouth (59.1%) and they tended to stay in caravan parks (90.7%) or campsites (27.8%) during their time in the region.

Activities and Trip Elements

Visitors who stay on the Northwest Cape do a variety of activities. The most common activities for visitors who stayed in the Northwest Cape were sightseeing (73.4%) and shopping (73.4%), followed by sunbathing/laying on the beach (62.8%) and snorkelling (62.8%). Many of these activities, particularly sightseeing, sunbathing/laying on the beach, and snorkelling, took place in CRNP. Exmouth was used for shopping, eating out and some sightseeing. The major difference when compared to the other subregions is the generally older age of these visitors. Exmouth and this subregion both attract long-staying elderly visitors for the southern winter. In terms of activity importance, snorkelling was rated as important or very important by the highest proportion of visitors (56.2%) followed by sightseeing (50.6%). Fishing from the shore was important to a slightly higher proportion of visitors than the region as a whole (36.0% versus 26.8%). These visitors do some of their activities, in particular their snorkelling, in CRNP. The natural environment was the most important element of trips to the region for visitors staying in the Northwest Cape, followed by the region's warm weather and access to Ningaloo Reef. Infrastructure, such as camping facilities, toilet facilities and access roads, were also important to these visitors.

Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project

Table 7.1: Characteristics of Visitors to the Northwest Cape Subregion

Gender	Count	Percent	Visitor origin	Count	Percent
Male	48	49.5%	West Australian	56	58.3%
Female	49	50.5%	Interstate	29	30.2%
			International	11	11.5%
Australian state of residence					
			Approximate yearly household income		
Western Australia	56	65.9%	\$0–\$19,999	13	15.1%
New South Wales	13	15.3%	\$20,000–\$29,999	14	16.3%
Victoria	8	9.4%	\$30,000–\$39,999	5	5.8%
Queensland	6	7.1%	\$40,000–\$49,999	10	11.6%
South Australia	1	1.2%	\$50,000–\$99,000	23	26.7%
Tasmania	1	1.2%	\$100,000–	21	24.4%
Northern Territory					
Age of respondents					
			Length of stay		
18–29	12	12.4%	1–3	26	15.4%
30–44	24	24.7%	4–7	50	29.6%
45–59	24	24.7%	8–27	69	40.8%
60+	13	15.1%	28+	24	14.2%
Who are you travelling with?					
With partner	58	59.8%			
With friends	18	18.6%			
With family	13	13.4%			
Alone	8	8.2%			
With club /tour group					

Table 7.2: Information Sources for the Northwest Cape Subregion

	Count	Percent
Friends /word of mouth	55	59.1%
Advertisement	24	25.8%
Other	18	19.4%
Guide books	17	18.3%
Documentary	15	16.1%
Internet site	14	15.1%
Tourism WA	10	10.8%
Local tourism office	9	9.7%
<i>Total responses</i>	<i>93</i>	

Table 7.3: Accommodation for the Northwest Cape Subregion

	Count	Percent
Caravan park	88	90.7%
Campsite	27	27.8%
Hotel / motel	5	5.2%
Backpackers	2	2.1%
Other	2	2.1%
Rental home / unit / apt	0	.0%
<i>Total responses</i>	<i>97</i>	

Table 7.4: Activities Undertaken by Visitors to the Northwest Cape Subregion

	Count	Percent
Shopping	69	73.4%
Sightseeing	69	73.4%
Sunbathing / laying on beach	59	62.8%
Snorkelling	59	62.8%
Fishing from shore	54	57.4%
Eating out	51	54.3%
Fishing from boat	35	37.2%
Safari tours /coral viewing tours	26	27.7%
Other	20	21.3%
Scuba diving	10	10.6%
Swimming with whale sharks	10	10.6%
Surfing /windsurfing	5	5.3%
<i>Total responses</i>	<i>94</i>	

Table 7.5: Activities Rated as Important or Very Important by Visitors to the Northwest Cape Subregion

	Count	Percent
Snorkelling	50	56.2%
Sightseeing	45	50.6%
Fishing from shore	32	36.0%
Sunbathing/laying on beach	19	21.3%
Fishing from boat	19	21.3%
Eating out	17	19.1%
Shopping	13	14.6%
Safari tours/coral viewing tours	12	13.5%
Other	11	12.4%
Swimming with whale sharks	7	7.9%
Scuba diving	5	5.6%
Surfing/windsurfing	4	4.5%
<i>Total responses</i>	89	

Table 7.6: Trip Elements Rated as Important or Very Important by Visitors to the Northwest Cape Subregion

	Count	Percent
Importance of natural environment	84	87.5%
Importance of region's warm weather	73	76.0%
Importance of access to Ningaloo Reef	69	71.9%
Importance of camping facilities	63	65.6%
Importance of getting away from it all	62	64.6%
Importance of toilet facilities	56	58.3%
Importance of bitumen access roads	50	52.1%
Importance of going to viewpoints	47	49.0%
Importance of fishing	39	40.6%
Importance of other aspects	15	15.6%
<i>Total responses</i>	96	

Table 7.7: Location of Activities for Visitors Who Stayed in the Northwest Cape Subregion

	Sunbathing/ laying on beach	Fishing from shore	Fishing from boat	Snorkelling	Scuba diving	Shopping	Eating out	Sightseeing	Tours	Whale Sharks	Other	Surfing/ windsurfing
Carnarvon	-	2.4%	-	-	-	12.8%	5.1%	4.8%	-	-	-	-
Pastoral Stations	-	9.8%	-	1.7%	-	-	-	2.4%	-	-	-	33.3%
Coral Bay	17.8%	4.9%	21.4%	20.3%	35.7%	10.6%	15.4%	7.1%	55.6%	-	36.4%	-
Cape Range National Park	64.5%	19.5%	35.7%	78.0%	35.7%	-	-	40.5%	11.1%	-	27.3%	66.7%
North West Cape	17.7%	24.4%	35.7%	-	21.4%	2.1%	2.6%	9.5%	11.1%	-	9.1%	-
Exmouth	-	39.0%	7.1%	-	7.1%	74.5%	76.9%	35.7%	22.2%	100%	27.3%	-

Chapter 8

CHARACTERISTICS OF VISITORS TO THE EXMOUTH TOWN SITE SUBREGION

The Subregion

Exmouth is the second largest town in the Ningaloo Coastal Region. It was established in 1967 to service the Harold E. Holt Naval Base (Wood, 2000). This resulted in some unusual quirks, such as driving on the right hand side of the road in the early days of the town. In 1992, the US Navy began to transfer the majority of operations across to the Australian armed forces and Americans began to leave the region. The population of the Exmouth shire subsequently declined from 2,437 (1991) to 2,058 (1996). By 2006, population decline had been reversed and had recovered to 2,172 owing to growth in tourism and associated employment. The US Navy personnel housing was gifted to the Shire and the resulting funds provided the resources to upgrade the airport and begin work on a marina development. Visitation is highly seasonal based around the weather. Exmouth has very hot summers and low rainfall (an annual average of 200mm). When it does rain, it often occurs in heavy downpours at the end of the summer months. Exmouth Town Site has two caravan parks, which collectively include backpacker accommodation, a lodge, a three star hotel and a four star hotel. There are 194 hotel and backpacker rooms, and the caravan parks have 449 sites and 43 cabins. The accommodation is often booked out during the southern winter, particularly during school holidays, when additional arrivals stay around the oval in an overflow campsite. In contrast, occupancy is low during the hotter summer months.

Visitor Characteristics

Visitors to Exmouth Town Site were a mix of WA, interstate and international visitors, with slightly more WA visitors. Visitors tended to stay for shorter periods in Exmouth than in the other subregions, with 59.1% staying a week or less. Visitors were also reasonably well off compared to the other subregions, with 55.6% earning household incomes of more than \$50 000. There were proportionately younger visitors than the other subregions, and visitors travelled in a mix of different groups, with the most common being travelling with a partner (50.0%). Older visitors can spend months in Exmouth during the southern winter, while younger visitors tend to stay for shorter periods. Exmouth relies on a variety of information sources, although word of mouth is the most commonly used information source, reinforcing the need to provide positive experiences for visitors to the region. Word of mouth was the most prominent information source (46.9%), although advertisements, documentaries and the Internet were also important. Most visitors to Exmouth stayed in caravan parks (61.2%) when they visited the region. They also utilised campgrounds. Backpackers and hotels were also commonly used.

Activities and Trip Elements

Visitors to Exmouth Town Site undertook a wide variety of activities, probably because Exmouth offered the broadest range of activities in the region. The most common activity was sightseeing (69.7%), followed by snorkelling (68.7%) and sunbathing/laying on the beach (61.0%). CRNP was the most common location for snorkelling and sunbathing/laying on the beach for these visitors and was equally common for sightseeing with the Town Site itself. The national park is thus an important asset for tourism to the town site. When rating importance of activities, snorkelling was rated as important or very important by the largest proportion of visitors (64.0%), followed by sightseeing (57.0%), then sunbathing/laying on the beach (24.0%). As an element of their trip, fishing was rated as important by 30.0% of respondents. The most important trip element was the natural environment (89.6%), followed by access to Ningaloo Reef (76.5%), and then by the region's warm weather (72.1%). It is interesting to note that as an element of their trip, a lower proportion of visitors to Exmouth rated fishing as important or very important compared to visitors in Coral Bay and Carnarvon.

At present caravan parks dominate the accommodation sector. However, new three and four star developments around the marina complex are likely to change the accommodation mix substantially over the

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

next ten years, which could present challenges to Exmouth as it will need to attract more visitors who seek this kind of accommodation (rather than self-drive caravanners) and will need to adjust to the changes in the town that this will bring. Exmouth relies on a range of activities to satisfy visitors, in particular snorkelling and sightseeing. This reinforces the importance of CRNP as it is the location of both the prime snorkelling sites in the region as well as the iconic beach, Turquoise Bay, and regulates their use in a way that promotes the protection of the values that make them regional attractions.

Table 8.1: Characteristics of Visitors to the Exmouth Town Site Subregion

Gender	Count	Percent	Visitor origin	Count	Percent
Male	220	45.5%	West Australian	203	42.2%
Female	263	54.5%	Interstate	135	28.1%
			International	143	29.7%
Australian state of residence					
			Approximate yearly household income		
Western Australia	203	60.1%	\$0–\$19,999	54	12.1%
New South Wales	45	13.3%	\$20,000–\$29,999	54	12.1%
Victoria	40	11.8%	\$30,000–\$39,999	45	10.0%
Queensland	22	6.5%	\$40,000–\$49,999	46	10.3%
South Australia	20	5.9%	\$50,000–\$99,000	116	25.9%
Tasmania	3	.9%	\$100,000+	133	29.7%
Northern Territory	3	.9%			
ACT	2	.6%			
Age of respondents					
			Length of stay		
18-29	127	26.2%	1–3	99	22.4%
30-44	114	23.6%	4–7	162	36.7%
45-59	113	23.3%	8–27	137	31.0%
60+	130	26.9%	28+	44	10.0%
Who are you travelling with?					
With partner	244	50.0%			
With friends	94	19.3%			
With family	84	17.2%			
Alone	42	8.6%			
With club/tour group	24	4.9%			

Table 8.2: Information Sources for the Exmouth Town Site Subregion

	Count	Percent
Friends / word of mouth	220	46.9%
Advertisement	129	27.5%
Documentary	111	23.7%
Internet site	102	21.7%
Guide books	90	19.2%
Other	72	15.4%
Local tourism office	35	7.5%
Tourism WA	28	6.0%
<i>Total responses</i>	<i>469</i>	

Table 8.3: Accommodation for the Exmouth Town Site Subregion

	Count	Percent
Caravan park	301	61.2%
Campsite	133	27.0%
Backpackers	92	18.7%
Hotel /motel	78	15.9%
Other	29	5.9%
Rental home /unit /apt	15	3.0%
<i>Total responses</i>	<i>492</i>	

Table 8.4: Activities Undertaken by Visitors to the Exmouth Town Site Subregion

	Count	Column N %
Sightseeing	336	69.7%
Snorkelling	331	68.7%
Shopping	300	62.2%
Sunbathing / laying on beach	294	61.0%
Eating out	265	55.0%
Fishing from shore	201	41.7%
Fishing from boat	158	32.8%
Safari tours/coral viewing	137	28.4%
Scuba diving	99	20.5%
Swimming with whale sharks	86	17.8%
Other	76	15.8%
Surfing /windsurfing	17	3.5%
<i>Total responses</i>	<i>482</i>	

Table 8.5: Activities Rated as Important or Very Important by Visitors to the Exmouth Town Site Subregion

	Count	Percent
Snorkelling	283	64.0%
Sightseeing	252	57.0%
Sunbathing/laying on beach	124	28.1%
Fishing from shore	106	24.0%
Eating out	98	22.2%
Safari tours/coral viewing tours	80	18.1%
Fishing from boat	74	16.7%
Shopping	71	16.1%
Swimming with whale sharks	70	15.8%
Other	57	12.9%
Scuba diving	55	12.4%
Surfing/windsurfing	7	1.6%
<i>Total responses</i>	<i>442</i>	

Table 8.6: Trip Elements Rated as Important or Very Important by Visitors to the Exmouth Town Site Subregion

	Count	Column N %
Importance of natural environment	430	89.6%
Importance of access to Ningaloo Reef	367	76.5%
Importance of region's warm weather	346	72.1%
Importance of getting away from it all	299	62.3%
Importance of toilet facilities	270	56.3%
Importance of going to viewpoints	255	53.1%
Importance of camping facilities	243	50.6%
Importance of bitumen access roads	226	47.1%
Importance of fishing	144	30.0%
Importance of other aspects	43	9.0%
<i>Total responses</i>	<i>480</i>	

Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project

Table 8.7: Location of Activities for Visitors Who Stayed in the Exmouth Town Site Subregion

	Sunbathing/ laying on beach	Fishing from shore	Fishing from boat	Snorkelling	Scuba diving	Shopping	Eating out	Sightseeing	Tours	Whale sharks	Other	Surfing/ windsurfing
Carnarvon	0.5%	4.2%	1.4%	-	-	16.7%	5.0%	4.6%	1.4%	-	2.7%	-
Pastoral Stations	9.0%	10.1%	4.3%	3.2%	1.4%	-	-	4.6%	1.4%	2.2%	2.7%	12.5%
Coral Bay	32.3%	7.6%	15.9%	27.3%	17.4%	12.3%	19.4%	15.5%	40.8%	17.8%	10.8%	12.5%
Cape Range National Park	35.3%	21.8%	13.0%	50.6%	17.4%	-	0.6%	32.2%	16.9%	28.9%	37.8%	12.5%
North West Cape	1.5%	15.1%	39.1%	3.2%	13.0%	-	0.6%	10.9%	5.6%	-	5.4%	37.5%
Exmouth	21.4%	41.2%	26.1%	15.8%	50.7%	71.0%	74.4%	32.2%	33.8%	51.1%	40.5%	25.0%

Chapter 9

THREE VISITOR EXPERIENCES ON THE NINGALOO COAST

Given the variation within the visitors to the Ningaloo Coastal region, this dataset presents an opportunity to analyse differences and draw conclusions about the different experiences sought by visitors to the Ningaloo Coast. This chapter explores three different generalised visitor experiences that were identified through a statistical technique called factor analysis. This chapter provides a brief overview of factor analysis, before exploring the characteristics and differences between the identified groups. The detailed results from the factor analysis are provided in Appendix A.

Factor Analysis

The primary purpose of factor analysis is to identify if groups of factors can explain patterns within the results for a range of variables. For instance, in our factor analysis, we analysed the importance measures of trip elements. The trip elements analysed included both motivations for visiting the region and characteristics of the region, in order to provide a broad basis for identifying the underlying factors that structured the different experiences desired by visitors. What we wanted to know is if patterns within the scores could be simplified by grouping factors and whether these factor groupings could help identify generalised visitor experiences. Factor analysis is a common tool for assessing both motivations (Poria et al., 2004) and trip characteristics (see in connection with risk, Fuchs & Reichel, 2006). Factor analysis has also been applied for tools that address a variety of elements of the tourist experience. For instance, Gross and Brown (2006) use factor analysis to assess a variety of elements of lifestyle tourism to wine regions in South Australia.

The Kaiser low approach was used here to extract as many factors as have an eigenvalue greater than one (Poria et al., 2004). Varimax rotation with a Kaiser normalisation was then carried out because of the assumption that the factors are related to each other. To decide which motivations are included in each factor, it was decided to include those that were correlated above the .4 level (larger than .4 or smaller than -.4, following Poria et al., 2004). The factor analysis identified three types of experience that explained patterns within the importance ratings. The factor analysis explains 58.4% of the variance amongst visitor's ratings and was based on 1578 surveys. After the three types of experiences were identified, Pearson's correlations between the three types of experience and other characteristics of the tourists were then explored to see if a more detailed picture could emerge of the characteristics of visitors that were seeking different experiences. All of the statistics for the factor analysis are included in Appendix B.

The Three Experiences Sought by Visitors to the Ningaloo Coastal Region

Three different visitor experiences were identified using factor analysis. Table 9.1 provides a clear rationale for the three different experiences, based on the results of the factor analysis. This picture was further clarified through an examination of the correlations between the three experience types and other trip characteristics. Table 9.2 provides the statistically significant correlation scores between the three experience types and a range of visitor characteristics.

A score of 0 in Table 9.2 indicates that there is no correlation whatsoever between the experience type and another variable. A Pearson's Correlation score of 1 indicates a perfect positive correlation. For instance, a score of 1 between age and the importance of fishing would mean that if a visitor's age doubled, they would place twice as much importance on fishing. Scores of 1 are very rare. A negative score indicates a negative correlation. For instance, Table 9.2 indicates a negative correlation between the nature lover experience and age, indicating that as age **decreases** amongst survey respondents, visitors are **more** likely to seek this experience.

A second post-hoc test was also performed. The one way anova tests the hypothesis that different groups have the same mean score. We used this test to investigate if there were significant differences between the kinds of experiences sought and the origins of visitors (WA, interstate and international). Put simply, the mean score for each of the three experiences was compared for each origin type to see if certain experiences were preferred

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by different origins. There were statistically significant differences for each of the origin types (Tables 9.3.1 and 9.3.2).

Table 9.1: Matrix of Trip Elements for a Visit to the Ningaloo Coastal Region

	Comfortable visit	Nature lover	Fishing escape
	1	2	3
Importance of bitumen access roads	0.82		
Importance of toilet facilities	0.81		
Importance of going to viewpoints	0.64		
Importance of camping facilities	0.51		0.41
Importance of natural environment		0.79	
Importance of access to Ningaloo Reef		0.76	
Importance of fishing			0.76
Importance of getting away from it all			0.64
Importance of region's warm weather			0.63

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 4 iterations.

The Comfortable Visit

The first visitor type places a higher importance on facilities in the region and on sightseeing than other groups. The consistently high scores in the areas of facilities indicated that this experience was linked to travelling in a region that provides a well developed and maintained infrastructure for tourism, in particular self-drive tourism. We labelled this visitor experience the **Comfortable Visit**.

The Comfortable Visit experience correlates positively with age (0.126, $t < 0.01$) indicating that older visitors are more likely to seek this kind of experience. There are particularly strong correlations with importance ratings for camping facilities, going to viewpoints, bitumen access roads and toilet facilities. The comfortable visit experience correlates positively with a number of activities. The most positive is shopping (0.246, $t < 0.01$), followed by sightseeing (0.229, $t < 0.01$). The only significant negative correlation was with fishing from a boat (-0.107, $t < 0.05$). This group had no significant correlations with expenditure, indicating that visitors who seek this type of experience have a range of different expenditure levels. This experience negatively correlated with length of stay (-0.067, $t < 0.05$).

The one way anova test to see if there were statistically significant differences between the origins of visitors (WA, interstate and international) and the three visitor experiences indicated that there was a significant difference for the comfortable visit experience. Interstate visitors were more likely to seek the comfortable visit experience (mean = 0.148). Internationals were less inclined (mean = 0.033), while WA visitors were less inclined again (mean = -0.077).

The Nature Lover

The second visitor experience received the highest scores for the natural environment (although it should be noted that all groups rated the natural environment as important) and accessing Ningaloo Reef. We labelled this visitor experience the **Nature Lover**.

The nature lover experience correlated negatively with age (-0.246, $t < 0.01$), indicating that younger visitors are more likely to seek this experience. This experience had the strongest negative correlation with length of stay (-0.161), indicating that visitors who seek this experience are likely to stay for shorter periods than the average. There was a very strong correlation with the natural environment (0.716, $t < 0.01$) and access to Ningaloo Reef (0.726, $t < 0.01$). There were also strong significant correlations between this experience and getting away from it all (0.324, $t < 0.01$) and going to viewpoints (0.309, $t < 0.01$). There was a strong negative correlation between this

group and fishing (-0.324, $t < 0.01$), indicating that fishing was not an important element of this experience. Turning to activities, the nature lover experience was correlated significantly with every activity, indicating that there are strong patterns of activity behaviour for visitors seeking this experience. The positive correlations are with snorkelling (0.361, $t < 0.01$), safari tours (0.270, $t < 0.01$), sightseeing (0.170, $t < 0.01$), scuba diving (0.164, $t < 0.01$), eating out (0.081, $t < 0.05$) and sunbathing / laying on the beach (0.080, $t < 0.05$). There were negative correlations with the fishing from the shore (-0.196, $t < 0.01$), fishing from a boat (-0.140, $t < 0.01$) and shopping (-0.76, $t < 0.05$). This group was positively correlated with expenditure on activities.

The one way anova test for differences between visitor origins indicates that internationals are the origin most inclined towards the nature lover experience (mean = 0.216) than Western Australian (mean = -0.017) and interstate visitors (mean = -0.045).

The Fishing Escape

The third type of experience was highly correlated with fishing, escaping from cool weather and getting away from it all. We labelled this experience the **Fishing Escape**.

The fishing escape experience correlates positively with age (0.126, $t < 0.01$) and length of stay (0.288, $t < 0.01$), indicating that visitors who seek this experience are likely to be older and to stay for longer periods. In addition to the correlations already mentioned, visitors who seek this experience also have weaker correlations with the natural environment (0.098, $t < 0.01$), and toilet facilities (0.078, $t < 0.01$). As would be expected, this experience correlates strongly with the fishing activities, with fishing from the shore (0.478, $t < 0.01$) and fishing from a boat (0.407, $t < 0.01$) having the strongest activities correlation. There are small weaker negative correlations with swimming with whale sharks (-0.195, $t < 0.01$), safari tours (-0.156, $t < 0.01$), scuba diving (-.107, $t < 0.05$) and sightseeing (-0.083, $t < 0.05$). These negative correlations, alongside the strong correlations with fishing, indicate that visitors who seek this experience tend to place more importance on a small number of fishing activities, while the other experiences are linked to a wider set of activities. The fishing escape experience is negatively correlated with expenditure on a wide number of different categories, indicating that this group is likely to be lower spending than the other two groups.

The one way anova test indicated that Western Australians were much more likely to seek this experience (mean = 0.345) than interstate visitors (mean = -0.107) and that internationals were the least inclined to seek the fishing escape experience (mean = -0.600).

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Table 9.2: Significant Results for Pearson Correlations Between Experiences and Tourists' Age, Important Trip Elements, Important Activities and Expenditure

		Comfortable visit	Nature lover	Fishing escape
Age		0.126**	-0.246**	0.126**
Nights in the Region		-0.067*	-0.161**	0.288**
Trip Elements	The natural environment		0.716**	0.098**
	Fishing		-0.324**	0.791**
	Getting away from it all		0.312**	0.646**
	The region's warm weather	0.159**	0.189**	0.615**
	Access to Ningaloo Reef	0.181**	0.746**	
	Camping Facilities	0.537**		0.411**
	Going to viewpoints	0.655**	0.309**	-0.066*
	Bitumen access roads	0.827**	-0.107**	
	Toilet facilities	0.815**		0.078**
Importance of Activities	Sunbathing / laying on Beach	0.078*	0.080*	0.125**
	Fishing from the shore		-0.196**	0.478**
	Fishing from a boat	-0.107*	-0.140**	0.407**
	Snorkelling		0.361**	
	Scuba diving		0.164**	-0.107*
	Shopping	0.246**	-0.076*	
	Eating out	0.145**	0.081*	
	Sightseeing	0.229**	0.170**	-0.083**
	Safari tours	0.174**	0.270**	-0.156**
	Swimming with whale sharks		0.289**	-0.195**
Expenditure per night	Accommodation			-0.146**
	Activities		0.080*	-0.163**
	Equipment			-0.089**
	Food			-0.128**
	Other		-0.156**	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 9.3.1: Means for the Visitor Experiences by Origin

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Comfortable visits	West Australian	809	-0.077	1.059	0.037	-0.150	-0.004
	Interstate	333	0.148	0.983	0.054	0.042	0.254
	International	386	0.033	0.904	0.046	-0.057	0.124
	Total	1528	0.000	1.009	0.026	-0.051	0.050
Nature lovers	West Australian	809	-0.017	0.991	0.035	-0.085	0.051
	Interstate	333	-0.045	1.046	0.057	-0.158	0.068
	International	386	0.216	0.882	0.045	0.128	0.304
	Total	1528	0.036	0.982	0.025	-0.014	0.085
Fishing escapes	West Australian	809	0.345	0.908	0.032	0.282	0.408
	Interstate	333	-0.107	0.989	0.054	-0.213	0.000
	International	386	-0.600	0.907	0.046	-0.691	-0.509
Total		1528	0.008	1.007	0.026	-0.043	0.058

Table 9.3.2: One Way Anova for the Visitor Experiences by Origin

		Sum of Squares	df	Mean Square	F	Sig.
Comfortable visit * Visitor origin	Between groups (Combined)	12.547	2	6.274	6.206	0.002
	Within groups	1541.520	1525	1.011		
	Total	1554.067	1527			
Nature lover * Visitor origin	Between groups (Combined)	16.962	2	8.481	8.880	0.000
	Within groups	1456.365	1525	0.955		
	Total	1473.326	1527			
Fishing escape * Visitor origin	Between groups (Combined)	238.954	2	119.477	139.250	0.000
	Within groups	1308.457	1525	0.858		
	Total	1547.411	1527			

Summary: Comparing the Visitor Experiences

The comfortable visit experience was strongly linked to well maintained infrastructure that assists visitors, in particular self-drive visitors, to easily access sites and experiences. This experience correlated with placing importance on a number of activities beyond nature-based experiences, many of which generate economic activity in Exmouth. Shopping and eating were important to respondents who sought this experience, as were sightseeing and safari tours. Visitors who sought this experience were likely to be older and to stay for short periods. There was also a strong correlation with interstate visitors. The overall picture is of an experience for self-drive visitors who wanted to make use of the available facilities and experiences in the region, but in order

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to do so require a higher level of infrastructure investment than the other visitor types.

The nature lover experience is linked to respondents who are strongly motivated by the natural environment of the region and accessing Ningaloo Reef. Visitors who seek this experience tend to be younger and stay for short periods. They also tend to place importance on a wide variety of experiences with an emphasis on the experiences that allow them to engage in a non-extractive way with the natural environment, such as snorkelling, safari tours and swimming with whale sharks. There is a strong negative correlation with fishing from the shore and fishing from a boat, indicating that respondents who seek this experience place very little importance on fishing. This experience correlates higher with international visitors than interstate or WA visitors. While placing less importance on infrastructure, this group relies on the tourism industry for its important activities and requires access to Ningaloo Reef.

The fishing escape experience was about getting away from cold weather and home and going fishing. It is important to note that this group also correlated with placing importance on the natural environment. This experience tended to be sought by older visitors who are Western Australian and tended to stay for longer periods. This experience was unlikely to be sought by many international visitors. The fishing escape tended to include a smaller variety of activities than the other experiences, in particular tours (it was negatively correlated with placing importance on safari tours, scuba diving or swimming with whale sharks). This experience was likely to have a lower level of nightly expenditure than the other experiences.

These three experiences also present three alternative investment strategies for the region. The **comfortable visit** would be enhanced by more toilets, better roads, and more attractions. An investment in this infrastructure and a focus on increasing the activities for self-drive visitors would encourage these visitors to stay longer. While this strategy would suit Carnarvon, caravan parks in Exmouth Shire in the peak season are already close to or exceeding their capacity. The **nature lover** experience is most likely to grow in Coral Bay and Exmouth as these two towns act as the locus for nature-based activities, although tours to the Kennedy Ranges from Carnarvon and a focus on Carnarvon as the gateway to two internationally significant natural heritage regions could increase the visitors who are seeking this experience in Carnarvon. Focusing on this experience will increase the use of the reef through both commercial tours and through visitor activities. Given the importance of the natural environment to the nature lover experience, it is important that interactions with the environment are well managed such that any increase in numbers does not adversely affect the environment. The **fishing escape** experience would be reinforced by boat ramps and taking steps to ensure that new developments do not impact on the capacity of visitors to feel that they are escaping to a remote location. A decision to further pursue the fishing escape experience would increase pressure on fish stocks, potentially causing this group to decline in numbers if there is depletion in the fish available. Recreational fishing pressure on fish stocks is a concern in Western Australia and measures have already been taken to discourage recreational fishing in Western Australia, including the introduction of an annual license (Spencer, 2009). Increasing infrastructure to enhance the comfortable visit experience could impact on the fishing escape experience if such infrastructure begins to impact on the remoteness values (the feeling of 'getting away from it all'). This is not to say that additional infrastructure would not be accepted by these groups, but that its implementation would need to be handled carefully.

Chapter 10

ESTIMATED EXPENDITURE OF VISITORS TO THE NINGALOO COASTAL REGION

Estimating Direct Visitor Expenditure

The method used to measure economic value in this study has been the product of a number of years of economic research funded by STCRC. Based on surveys developed by David Wood, the methodology was further developed by Carlsen and Wood (2004) and was subsequently accepted by the Western Australian Treasury Department as a reliable means of valuation. The approach is based on estimating total visitor expenditure in towns within a region. Attribution and substitution factors are then applied to calculate the direct expenditure value of protected areas for tourism in that region. This method was applied to visitor expenditure research in the Southern Forests and Gascoyne regions of Western Australia and has been successfully used by the Western Australian Department of Environment and Conservation (DEC) to argue for increased park management funding (Wood & Glasson, 2006). While key elements of the method are described below, a more detailed analysis can be found in the Wood et al. (2006) report available through STCRC. The methodology has also been adapted into the Valuing Places Toolkit, an online tool for managers to use to assess the value of a tourism resource.

Visitor Expenditure, Attribution and Substitution

Visitor Expenditure

Expenditure was included as a category in the visitor surveys. To measure expenditure, survey participants were asked to indicate their expenditure in the region, itemised into six categories, during their current trip. The expenditure categories, similar to those suggested by Stynes and White (2006), included accommodation, food and drink, transportation, other costs (including souvenirs and retail), equipment costs and activities costs. Respondents were also asked to indicate their length of stay in the region and the number of people that the expenditure covered. The total visitor expenditure in the region was calculated using the average daily expenditure per person, total annual visitor numbers to the region and the average length of stay as follows:

$$\text{Total annual visitor expenditure} = [\text{Average daily visitor expenditure per person}] \times [\text{average length of stay}] \times [\text{total annual number of visitors}]$$

This provides an estimate of the total annual direct expenditure by overnight visitors to the region.

Data Treatment

In order to generate reliable and robust estimates of average and total visitor expenditure, it was necessary to remove 'outliers' in the data set and address issues with secondary data. Outliers were identified as values more than two standard deviations from the sample mean. Given the large numbers of visitors to the Ningaloo Coast, small variations in the expenditure data and the length of stay can have a large influence on expenditure value results. Such data treatment is common in survey estimates of visitor expenditure (Stynes & White, 2006) through the use of measures such as the one applied here or a five percent trimmed mean (eliminating the top and bottom 2.5% of the sample from the calculation).

Visitor Numbers

Visitor numbers for the regions were obtained from Tourism Research Australia (TRA). TRA figures are based on data collected through the National Visitor Survey (NVS) and International Visitor Survey (IVS). It should be noted that the smaller the geographic region for NVS and IVS data employed, the less reliable the data will be due to the small sample sizes. In order to reduce the standard error and improve the estimates, a rolling four year average was used.

Length of Stay

Responses that included an unusually large value for length of stay (outliers) relative to other responses can skew the average length of stay and significantly influence the park valuation. As a consequence, lengths of stay more than two standard deviations from the sample mean were filtered out of expenditure calculations. Due to the size of the standard deviations, this measure only affects extremely large lengths of stay.

Expenditure

As with length of stay, expenditure data often contained outliers who spend significantly more than the average amount. This again can artificially skew results. Thus, daily per person expenditure figures more than two standard deviations from the sample average were excluded from further analysis. Due to the size of the standard deviations, this measure only affects responses with high levels of daily expenditure.

Visitor Expenditure to the Ningaloo Coastal Region

The visitor expenditure calculation was based on 1591 surveys collected between July 2007 and September 2008. The expenditure results are shown in Table 10.1.

Table 10.1: Visitor Expenditure by Category

Item	n	Mean exp. per trip per person	Mean exp. per night per person	Std. Error
Travel	718	100.84	10.17	7.51
Accommodation	814	198.68	20.03	9.87
Activities	791	138.67	13.98	7.70
Equipment	713	150.50	15.17	10.33
Food and Restaurants	770	136.67	13.78	6.99
Other Expenditure	573	62.80	6.33	11.09
Total		788.16	79.46	

Calculation of the total annual expenditure for the region requires a figure for annual visitation to the region and an average length of stay. Given the timing of the survey, the most appropriate time frame to calculate the number of visitors is a four year average ending in September 2008. Using data from the National Visitor Survey and the International Visitor Survey from Tourism Research Australia, this figure was 179,352 visitors. The average length of stay is 9.92 nights using a sample of 1254 responses and with a small standard error (0.2412).

Following the formula from earlier in this chapter, total expenditure to the region was:

$$\begin{aligned} \text{Total annual visitor expenditure} &= \$79.46 \times 9.92 \text{ nights} \times 179,352 \text{ visitors} \\ &= \$141,358,391 \end{aligned}$$

Comparison with Previous Calculations

The only previous calculation of visitor expenditure for this region is Carlson and Wood's (2004) study using 2003 data. They estimated expenditure to be \$127 million, from a daily average expenditure of \$81.30 based on 188,700 visitors staying an average of 9.0 days in the region. Visitor numbers were smaller for this current valuation compared with the 2003 data. This was due to strong visitation in 2002 and 2003, followed by a quieter period. However, 2008 was a strong year, particularly for Exmouth. The primary difference between the two calculations is length of stay, which was calculated to be 0.9 days longer in this report. There has only been a small change in expenditure and length of stay, which is likely given that there has been little change in the accommodation mix or the visitation patterns in this period, with the exception of the Novotel Hotel in Exmouth. Accommodation costs have increased by approximately \$2 a night on average. This may have been a result of influence from the Novotel on accommodation expenditure. However, the vast majority of visitors surveyed were still staying in caravan parks and campgrounds.

Summary

Total annual direct visitor expenditure in the region for the year ending September 2008 was estimated to be \$141 million, with 179,352 visitors staying for an average of 9.92 nights. Average nightly expenditure per person was \$79.46. The main expenditure item was accommodation, which is generally the pattern for tourism (Stynes & White, 2006). Expenditure patterns and amounts have not varied greatly from the previous study by Carlson and Wood (2004). This was to be expected as there have been few changes to the accommodation mix in the region, the largest being the addition of the four star Novotel Hotel in Exmouth in 2007. Average expenditure per person is likely to increase with the addition of this additional accommodation given the common association between higher priced accommodation and higher expenditure.

Chapter 11

CONCLUSION: UNDERSTANDING VISITATION TO THE NINGALOO COASTAL REGION

The keys to understanding the current characteristics of tourism to the Ningaloo Coastal Region as a whole are remoteness and weather. Remoteness has preserved the natural attributes of the region and now forms an important part of visitors' experiences in the region. The semi-arid weather conditions and extremely hot summers limited the agricultural production of much of the region (excluding Carnarvon due to the Gascoyne River) and kept the population to a minimum until the establishment of Exmouth in 1967. Now, the weather conditions create a peak season during the cooler months of the year that coincide with the southern winter, and keep most visitors away during the hotter months between October and March.

The major drawcard for the region is its unique natural environment, in particular the Ningaloo Reef. Non-extractive activities are more common and popular than extractive activities, with snorkelling being more important than fishing for visitors to the region. Caravan parks and campgrounds are the dominant accommodation sector with the majority of visitors staying in one of these accommodation types. However, there are plans for more three and four star motels in Exmouth and Coral Bay, and the Exmouth Marina development is likely to increase the number of holiday rentals substantially. The region is popular with interstate and international visitors for a remote regional location.

There are substantial differences between the six subregions examined in this report. Previously, the data has not been available to compare the subregions. Carnarvon primarily services an Australian market which is older and predominantly self-drive. Sightseeing was the most important activity for Carnarvon, which contrasts with most of the other regions where snorkelling was the most important activity. The Pastoral Stations were dominated by Australian visitors, in particular WA visitors, and is the primary location for surfing in the region. Visitors tended to stay longer and did not place much importance on facilities, with the exception of camping facilities. Coral Bay attracts a high proportion of WA visitors compared to Exmouth which draws a higher proportion of interstate and international visitors. Coral Bay visitors are well off and younger, with a high proportion of families visiting this region. Snorkelling was very important to Coral Bay visitors. Visitors to Cape Range National Park (CRNP) place the highest importance on the natural environment. CRNP attracts the lowest proportion of WA overnight visitors, although large numbers of WA visitors would visit from Exmouth and the Northwest Cape (which has a high proportion of WA overnight visitors). Fishing was of low importance to CRNP overnight visitors. This contrasts with the Northwest Cape which has a high proportion of WA visitors staying in the two caravan parks in this region. Visitors to the Northwest Cape tended to stay for longer periods and were generally older. The Exmouth Town Site has a range of accommodation, with caravan parks providing the largest proportion of beds. Visitors are from a variety of origins and have a variety of lengths of stay, with the older visitors spending longer than the younger visitors. These visitors place a high importance on the natural environment and nature-based activities, indicating the importance of CRNP for Exmouth, as this is where a number of these activities take place.

Using the Three Visitor Experiences

The three visitor experiences identified through factor analysis in Chapter 9 present a way of thinking about the differing requirements of visitors. All three visitor experiences focus on the natural environment, although they engage with it in different ways. The comfortable visit experience referred to self drive visitors who wanted to make use of the available facilities and experiences, but in order to do so require a higher level of investment in infrastructure. This experience appealed disproportionately to interstate visitors. The nature lover experience is focussed on non-extractive engagement with the natural environment and accessing Ningaloo Reef was very important to this experience. While the infrastructure was not as important to these visitors, they did place importance on the tourism industry to provide them with access (whale shark tours, safari tours, scuba diving). This experience appealed disproportionately to internationals. The fishing escape experience was about escaping cold weather and home and going fishing. This group is focussed on a smaller number of activities (including

snorkelling) and did not tend to place importance on tours or infrastructure. While visitors who sought the fishing escape stayed for longer periods, they also tended to spend less per day. This group correlates disproportionately with WA visitors.

The three experiences could provide a guide for assessing how regional changes could influence tourism in the region. For instance, world heritage listing would be likely to increase visitors who seek the nature lover experience. A decision to put a sealed road through the southern two pastoral stations would add to the comfortable visit experience, but would probably detract from the fishing escape experience. It is likely that greater regulation of fishing would detract from the fishing escape experience, which is not to say that this group will leave the region as other activities or social ties may keep them returning. Increased regulation would have little impact on the nature lover or comfortable visit experience. There are also potential conflicts between the experiences, with the most obvious being the desire for infrastructure in the comfortable visit experience, and the characteristics of the fishing escape. A second potential conflict is between more infrastructure and the nature lover experience's emphasis on the natural environment. It is also possible to undertake longer term planning for all three types of experience to coexist in the region.

Tourism Expenditure in the Region

The expenditure evaluation for the visitors to the Ningaloo Coastal Region in the year ending September 2008 is for a total expenditure of \$141 million. Average expenditure in the region per person per day is \$79.46 and the average expenditure in the region per trip is \$788.16. Annual overnight visitor number is 179,352 and the average length of stay in region is 9.92 days. The expenditure evaluation also provides expenditure information for six categories of expenditure, which can be used to calculate the indirect impacts of expenditure through further economic analysis. Given the small population size in the region, it is likely that this expenditure level indicates that tourism is the region's largest industry.

APPENDIX A: SIGNIFICANCE RESULTS FOR TABLE 2.11 AND TABLE 2.12

Pearson Chi Squared test results for Table 2.11 (Selected Statistics for Nights in the Region by Visitor Origin)

	Value	df	Significance
Pearson Chi-Square	158.780 ^a	6	P =0.000
Likelihood Ratio	159.016	6	P =0.000
Linear-by-Linear Association	134.193	1	P =0.000
Valid Cases	1310		

Pearson Chi Squared test results for Table 2.12 (Age of Respondents by Visitor Origin)

	Value	df	Significance
Pearson Chi-Square	341.895a	6	P =0.000
Likelihood Ratio	321.255	6	P =0.000
Linear-by-Linear Association	153.011	1	P =0.000
N of Valid Cases	1504		

APPENDIX B: FACTOR ANALYSIS RESULTS FROM CHAPTER 9 ON THE THREE VISITOR SEGMENTS

Statistics

Visitor Groups FA	
Valid	1578
Missing	11

Communalities

	Initial	Extraction
Importance of natural environment	1	0.64618154
Importance of fishing	1	0.650993652
Importance of getting away from it all	1	0.564886904
Importance of region's warm weather	1	0.504685633
Importance of access to Ningaloo Reef	1	0.608973684
Importance of camping facilities	1	0.437817866
Importance of going to viewpoints	1	0.510146841
Importance of bitumen access roads	1	0.673617927
Importance of toilet facilities	1	0.659131344

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.47	27.49	27.49	2.47	27.49	27.49	2.04	22.66	22.66
2	1.56	17.34	44.83	1.56	17.34	44.83	1.63	18.09	40.75
3	1.22	13.58	58.40	1.22	13.58	58.40	1.59	17.66	58.40
4	0.79	8.73	67.13						
5	0.68	7.60	74.73						
6	0.66	7.37	82.11						
7	0.63	6.97	89.08						
8	0.55	6.09	95.17						
9	0.43	4.83	100.00						

Component Matrix^a

	Comfortable Campers	Nature Lovers	Fishing Escapees
Component	1	2	3
Importance of natural environment	0.47	0.45	-0.48
Importance of fishing	0.17	0.34	0.71
Importance of getting away from it all	0.48	0.56	0.15
Importance of region's warm weather	0.54	0.39	0.24
Importance of access to Ningaloo Reef	0.53	0.25	-0.52
Importance of camping facilities	0.59	-0.08	0.28
Importance of going to viewpoints	0.60	-0.32	-0.20
Importance of bitumen access roads	0.54	-0.61	0.11
Importance of toilet facilities	0.64	-0.48	0.11

Extraction Method: Principal Component Analysis

^a 3 components extracted.

Rotated Component Matrix^a

	Comfortable Campers	Nature Lovers	Fishing Escapees
	1	2	3
Importance of natural environment	-0.01	0.79	0.14
Importance of fishing	-0.04	-0.27	0.76
Importance of getting away from it all	-0.02	0.39	0.64
Importance of region's warm weather	0.15	0.29	0.63
Importance of access to Ningaloo Reef	0.16	0.76	0.03
Importance of camping facilities	0.51	0.07	0.41
Importance of going to viewpoints	0.64	0.31	-0.05
Importance of bitumen access roads	0.82	-0.07	-0.03
Importance of toilet facilities	0.81	0.03	0.09

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

^a Rotation converged in 4 iterations.

Component Transformation Matrix

Component	Comfortable Campers	Nature Lovers	Fishing Escapees
1	0.73	0.52	0.45
2	-0.68	0.45	0.57
3	0.09	-0.72	0.68

*Ningaloo Coast Region Visitor Statistics
Collected for the Ningaloo Destination Modelling Project*

Component Score Coefficient Matrix

	Comfortable Campers	Nature Lovers	Fishing Escapees
Component	1	2	3
Importance of natural environment	-0.10	0.51	-0.02
Importance of fishing	-0.04	-0.29	0.55
Importance of getting away from it all	-0.09	0.17	0.38
Importance of region's warm weather	0.01	0.09	0.38
Importance of access to Ningaloo Reef	0.01	0.49	-0.10
Importance of camping facilities	0.23	-0.06	0.23
Importance of going to viewpoints	0.30	0.15	-0.12
Importance of bitumen access roads	0.43	-0.13	-0.07
Importance of toilet facilities	0.41	-0.07	0.00

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

Component Score Covariance Matrix

	Column 1	Column 2	Column 3
Component	1	2	3
1	1	0	0
2	0	1	0
3	0	0	1

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

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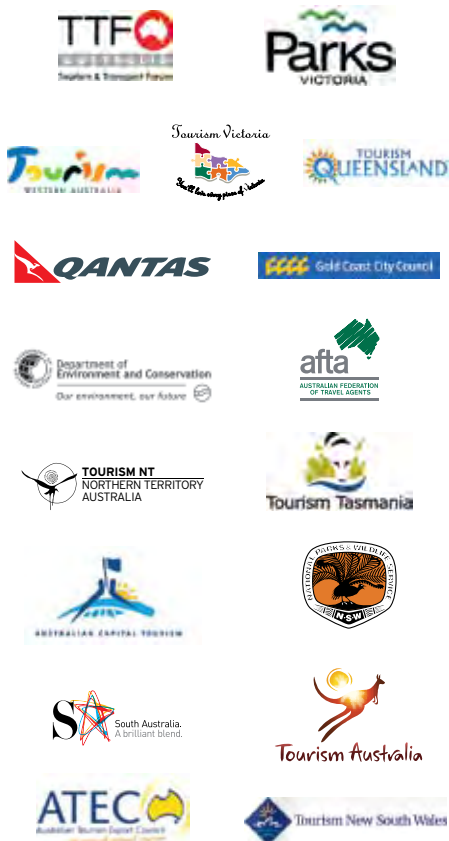
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STCRC has grown to be the largest dedicated tourism research organisation in the world, with \$187 million invested in tourism research programs, commercialisation and education since 1997.

STCRC was established in July 2003 under the Commonwealth Government's CRC program and is an extension of the previous Tourism CRC, which operated from 1997 to 2003.

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The Commonwealth CRC program aims to turn research outcomes into successful new products, services and technologies. This enables Australian industries to be more efficient, productive and competitive.

The program emphasises collaboration between businesses and researchers to maximise the benefits of research through utilisation, commercialisation and technology transfer.

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- the contribution of long-term scientific and technological research and innovation to Australia's sustainable economic and social development;
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- the value of graduate researchers to Australia;
- collaboration among researchers, between researchers and industry or other users; and
- efficiency in the use of intellectual and other research outcomes.