Patterns of reef tourism on the GBR, Tropical North Queensland and the Whitsundays

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Contents

Acronyms used in this report

AMPTO ..... Association of Marine Park Tourism Operators

DERM ..... Queensland Department of Environment and Resource Management

DEWHA ..... Commonwealth Department of the Environment and Water, Heritage and the Arts

GBR ..... Great Barrier Reef

GBRMPA ..... Great Barrier Reef Marine Park Authority

MTSRF..... Marine and Tropical Sciences Research Facility

RRRC..... Reef and Rainforest Research Centre Limited

TNQ ..... Tropical North Queensland

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TTNQ

Tourism Whitsundays

Executive summary

Visitor surveys provide valuable marketing and management information on trends in tourism to the Great Barrier Reef (GBR). This third annual report highlights the results of this year's surveys collected by partner tour operators at the GBR. A total of 2942 surveys were collected in 2009, bringing the total number of completed surveys to 7569 over the last three years.

Analysis of the surveys has picked up several key changes over the years. Changes in socio-demographic patterns reflect the financial climate of 2009, with a decrease in Australian visitors and retirees, who were most likely to postpone non-essential travel during the downturn. The (international) backpacker market remained strong however, particularly in Tropical North Queensland (TNQ).

Results also confirmed the importance of the natural environment and adventurous activities as drawcards or pull factors for this market segment, and particularly for international tourists. "Seeing the GBR", snorkelling and diving, and enjoying the natural environment remain the top three travel motivations to visit both the Whitsundays and TNQ. The opportunity for rest and relaxation is also important for visitors to the GBR.

Along with changes in marketing channels and the use of the internet, we find that agents play an increasingly important role in promoting both the tourism destinations and influencing visitors' choice of tour operator. This may have ongoing implications for visitor price sensitivity and the role of accreditation as a marketing tool, as agents must see the value of accreditation alongside pricing competitiveness to promote it to their customers.

The rate of repeat visitation to the GBR has also seen a decline in the past year, possibly relating to the decline in domestic tourism to the GBR regions, whilst visitation to other reefs has increased somewhat. These patterns may lead to increasingly sophisticated appraisals of the GBR product and the condition of the reef sites. Whilst we have noticed a decline in satisfaction ratings, this does not appear to be statistically significant, and both the reef and the tour itself are meeting the expectations of the overwhelming majority of respondents. Furthermore, we find that the natural environment and activities such as snorkelling and diving are taking a more prominent place in the factors that influence respondents' satisfaction whilst the role of staff remains steady. This would be consistent with more experienced tourists, less reliant on staff for guidance, but may also relate to better weather conditions experienced at the reef.

Additional research results examined the use of interpretation at the reef, the development of an ecotourism market, and the importance of certain marine species at the reef. The results indicated that whilst pre-trip knowledge of the GBR was relatively low, respondents were able to access information about the reef, in particular from informal conversations with crew, that influenced their behavior at the reef, as well as their understanding and appreciation of it. Pollution and climate change were seen to be two of the major threats facing the reef, whilst turtles and sharks were both some of the memorable animal sightings at the reef as well as two of the most commonly cited endangered reef species.

Finally, the report touches on some the applications, impacts and future research, highlighting the strength of this research in developing partnerships with industry and indicating some of the future areas of interest based on an importance/performance analysis of the tourism experience, and communication tools that have been developed within the project to feedback into industry practices.

1. Introduction

This annual report is one in a series of reports on reef tourism in the Great Barrier Reef (GBR) produced by tourism researchers from James Cook University. It forms part of the research being conducted under the Australian Government's Marine and Tropical Sciences Research Facility program 4.8.6. The research presented in this report is stakeholder-driven, public good research. The stakeholders in this project are: (i) local and regional tourism authorities including Tourism Tropical North Queensland and Tourism Whitsundays; (ii) industry, especially marine tour operators, AMPTO and island resorts; and (iii) natural resource managers including the Great Barrier Reef Marine Park Authority (GBRMPA) and the Department of Environment and Resource Management (DERM).

This report identifies annual visitor usage patterns of the GBR to enable the identification of key trends and drivers of visitor patterns, and summarizes the results of surveys collected between January and December 2009. It compares the results from the third year of data collection to annual results from January to December 2007 and 2008. It also provides a regional analysis of annual results for 2007, 2008 and 2009 for both Tropical North Queensland and the Whitsundays. Readers are also referred to this project's tourism barometers (available from www.rrrc.org.au), which report results on a quarterly and regional basis. The first and second annual reports are also available from www.rrrc.org.au. In addition to the annual results presented in this report, a number of other key aspects of the research have been included that are considered to be of relevance to these stakeholders. These include a discussion of the validity of the methodology, an analysis of results specific to the theme of ecotourism and interpretation, a consideration of research use and impact, and finally an overview of future research directions.

The theoretical framework for this work is described the first and second technical reports for this project. For more information on the development of the survey and stakeholder input, the authors recommend the technical report: *Reef tourism, establishment of visitor monitoring structure* (Prideaux & Coghlan, 2006) also available at www.rrrc.org.au. Additional reports on seasonality effects in the GBR (Coghlan & Prideaux, 2012a), segmentation of reef visitors (Coghlan & Prideaux, 2012b), and a comparison of the competitiveness of the GBR region as a tourism destination (Coghlan & Prideaux, 2007).

2. Methodology

The principal methodology for this research is visitor surveys distributed by participating operators. Crew from these marine tourism operators distribute and collect the surveys at three locations across the Great Barrier Reef; Tropical North Queensland, the Whitsundays and the Capricorn region. The majority (61.1%) of surveys were collected in Tropical North Queensland, followed by 30% collected from the Whitsundays. These represent the two most important gateways for tourists visiting the reefs. According to GBRMPA (2009), more than 85% of visitors visit the reef within the Cairns, Port Douglas and Whitsunday areas, which make up less than 10% of the GBRMP.

Currently, 10 operators across the three locations are involved in this research, representing a range of operator types, sizes, activities, length of trip and markets. The current sample of operators offer the following types of activities and experiences: pontoon trips, helicopter tours, all SCUBA diving activities (intro/resort, certified and training), helmet dives, snorkel tours, viewing chambers, semi-submersible tours, glass bottom boat tours, sailing and visiting the islands. The activities that are not represented include fishing, stays at island resorts and dedicated diving live-aboard operations in the Northern GBR offered by members of the Cod Hole and Ribbon Reefs Association (CHARROA). The latter is constrained by these operators' involvement in a parallel research project, and issues of over-surveying of guests who are on vacation (for more on live-aboard visitor tourism, see Objective a, MTSRF Project 4.8.6). Nevertheless, this cross-section of operator types enables the researchers to be reasonably confident that most reef experiences are represented and the replication of similar types of operations within and between different regions allows for some comparative analyses to be carried out as the need arises.

Surveying was undertaken on a monthly basis with surveys provided to the operators in the first week of each month. Operators receive a set number of surveys each month according to the number of passengers that they carry to the reef. No operator is asked to distribute more than 60 surveys each month, to minimize pressure on crew and tourists' time. Crew are encouraged to develop random sampling techniques to suit their boats and operations (e.g. distribute the surveys each Tuesday to every third passenger), and finally, tourists are offered complimentary postcards to thank them for completing the survey.

The data collected in the survey are designed to complement other data sources, such as Tourism Australia's national and international visitor surveys. While the information collected as part of this project does not report absolute changes in visitor numbers, it is designed to detect changes in the visitor experience and travel behaviour. For this reason, readers are recommended to use results outlined in this report in conjunction with data provided by national, state and regional marketing organizations.

The survey instrument is included in Appendix A for reference.

2.1 Methodological considerations

The choice of methodology was based on budgetary constraints, and has provided the researchers with both distinct advantages and limitations. A further advantage is the high level of involvement by participating operators. A system of direct feedback between operators and researchers was also established, allowing operators to inform researchers of the usefulness of various types of information. This partnership has facilitated the development of a close working relationship that has led to the direct uptake of research results by operators.

It should be noted that results for specific market sectors may differ from the results published by Tourism Research Australia. One reason for this is the difference in respondent numbers. The national visitor series are based on a much smaller number of respondents than collected in this research.

The methodology has been peer reviewed in a number of journal articles, most comprehensively in *Tourism in Marine Environments* (Coghlan & Prideaux, 2009a) where the establishment of the methodology was outlined in detail.

2.2 Limitations

The methodology does have some limitations. First, while the boat crews and resort staff are generally excellent at returning the surveys, survey collection and distribution is dependent upon their time constraints and may result in some operators having a lower return rate than others. As operator participation is voluntary, randomisation issues may also arise, as crews are not specifically trained in survey distribution and must distribute the surveys within the confines of their other duties.

Second, the number of questions included in the survey, as well as the number of surveys distributed, was constrained both by operational requirements and ethical considerations, such as over-surveying during respondents' leisure time. Given this context, this methodology is deemed acceptable under the circumstances.

Additionally, some specific markets might have been excluded, e.g. a number of operators market their product specifically to Asian markets, which may not be captured in the research. Furthermore, some end-users have expressed concern that as the survey is currently available only in English, there is a strong bias towards Anglophone respondents.

In addition, two sub-sectors of the reef tourism industry are under-represented in this research. These are island resorts and the longer live-aboard dive operations that visit the outer reefs and Coral Sea. The latter is currently being researched under Objective A, managed by Dr Alastair Birtles, JCU School of Business, and represents a smaller market than that captured in this project. These limitations are acknowledged within the context of the research and while general trends may be recognizable and extrapolated, data represent only the respondents that completed the survey (as is the case in most research).

Finally, it should also be noted that the data collected in this research is specifically designed to track changes in motives and test a range of other aspects of visitor behavior. It *was not designed* to identify changes in visitor numbers to the region. Data of this nature is compiled by Tourism Research Australia through its National Visitors Survey and International Visitor Survey series. Whilst the information collected as part of this project does not report absolute changes in visitor numbers, it is able to detect changes in the visitor experience and travel behavior.

3. Analysis of surveys collected in 2009

This section includes the annual results for all surveys collected between January and December 2009. Where possible, comparisons have been made with data from other sources, and trends and patterns in the data are discussed. The section commences with analysis of a trial distribution system where surveys were distributed at the Cairns Reef Fleet Terminal and is followed by a discussion of the surveys distributed by reef tour operators.

3.1 Respondents' socio-demographic characteristics

Cairns Reef Fleet Terminal Survey

To test for representativeness of the sampling system, a further 263 surveys (151 in Year 3 and 112 in Year 4) were collected at Cairns Reef Fleet Terminal. The surveys collected the same information on socio-demographic, travel behaviour, and reef experience variables to allow comparisons to be made between the two sets of surveys. The response rate for the survey collected at the Reef Fleet Terminal was 30%, which is quite low and highlights the financial costs of this type of methodology. By comparing the data gathered from the Reef Fleet Terminal with that gathered by partner operators in Cairns over the same sampling period (n = 365), we were able to detect some differences in variables between the two data sets; for instance, Australians and British/Irish citizens were more likely to be surveyed at Reef Fleet Terminal, respondents were more likely to be staying in hotels and holiday apartments and less likely to stay in resorts and backpackers, they were less likely to have been diving, but more likely to have been snorkelling, on a marine biology tour or a glass bottom boat tour (Table 1). While there is no obvious reason to explain the difference in activities undertaken at the reef, we might speculate that respondents who did not have a shuttle bus to catch (e.g. respondents staying in resort accommodation) or who were self-drive tourists (e.g. domestic tourists, c.f. Table 7) were more likely to stop and complete the survey. There may also be cultural differences, e.g. surveyors noticed that Asian tourists rarely stopped to complete the survey. Thus, similar limitations of self-selection bias were noted between the two types of methodologies.

Additional differences were noted concerning subjective reports of the reef experience; respondents at the Reef Fleet Terminal were more likely to cite staff as the most important determinant of satisfaction and a best experience, as well as snorkelling and diving as a best experience (Table 1). Interestingly, a comparison of means using a t-test shows some differences between the strength of motivations recorded at reef fleet termination and on the boats; to see the GBR and to go diving and snorkelling appear as stronger travel motivations while the respondents are still enjoying the experience than when they arrive back on land (Table 2). This has interesting implications for experience recall in post-hoc surveys. Hull et al. (1992) argue that post hoc measure can best be used to determine a tourist's image of the total experience. This is due to the influence of hindsight, the tourist's ability to recall the experience, the need for introspection to allow for comparisons, the situational context in which tourists are asked to assess their satisfaction as well as positivity bias which may skew the results towards the higher end of the satisfaction spectrum (Pearce 2005; Hull et al. 1992; Zwick et al. 1995).

Table 1: A comparison of data from partner operators and surveys collected at Reef Fleet Terminal

Criteria where differences were noted between data sets	Surveys from partner operators (n=365)	Surveys from Reef Fleet Terminal (n=263)	Testing for significance
Nationality	USA (15.3%), European	Australian (29.8%), UK &	χ^2=24.712, p<0.05

	(37.0%)	Ireland (22.1%)	
Accommodation	Backpackers (45.0%), resort (9.2%)	Hotel (41.4%), holiday apartment (11.1%)	χ^2=57.847, p<0.05
Choice of operator	Price (39.7%), destination/activities (23.1%)	Package tour (25%)	χ^2=12.396, p<0.05
Activities	Certified dives (36.3%), intended to dive (68.9%)	Snorkelling (83.3%), marine bio. tour (7.8%), glass bottom boat tours (30.7%)	χ^2=57.847, p<0.05
Satisfaction & best exp.	Nat environment (38.1%) marine life (48.9%)	Staff (52.1%), snorkel and diving (30.6%)	

Table 2: A comparison of travel motivations where a significant difference in mean scores was noted between data collected from partner operators and from Reef Fleet Terminal

	Reef Fleet Terminal Mean (standard deviation)	Cairns Operators Mean (standard deviation)	T test	P. value
See GBR	4.71 (sd. 0.618)	*4.88* (sd. 0.425)	-2.706	.007
Aboriginal Culture	3.19 (sd. 1.144)	2.92 (sd. 1.045)	2.210	.028
Enjoy the climate	3.97 (sd. 0.938)	3.75 (sd. 0.982)	2.193	.029
R&R	3.94 (sd. 1.063)	3.75 (sd. 1.053)	2.303	.022
Snorkel/dive	4.20 (sd. 0.995)	*4.59* (sd. 0.802)	-3.648	.000
Spend time with family	3.09 (sd. 1.627)	2.52 (sd. 1.536)	3.156	.002
Enjoy the beaches	3.55 (sd. 1.069)	3.08 (sd. 1.134)	3.661	.000
Visit friends & relatives	2.59 (sd. 1.462)	2.17 (sd. 1.372)	2.608	.010
Go to the islands	3.55 (sd. 1.107)	3.15 (sd. 1.170)	2.968	.003

It is important to note throughout the results section that not every question was answered by all respondents thus the 'n' values of tables and figures may vary. The 'n' value reports the number of responses for a subsample (e.g. where not all respondents have completed the question). The 'N' value reports the entire sample responses.

Tour Boat Survey Results

Origin of respondents

There have been very few changes in the distribution of nationalities reported by respondents, despite a slight decline in the number of domestic respondents from previous years (Figure 1). This is confirmed by the National Visitors' Survey, suggesting that Australians are travelling less or travelling overseas (Tourism Australia 2010; unpublished data).

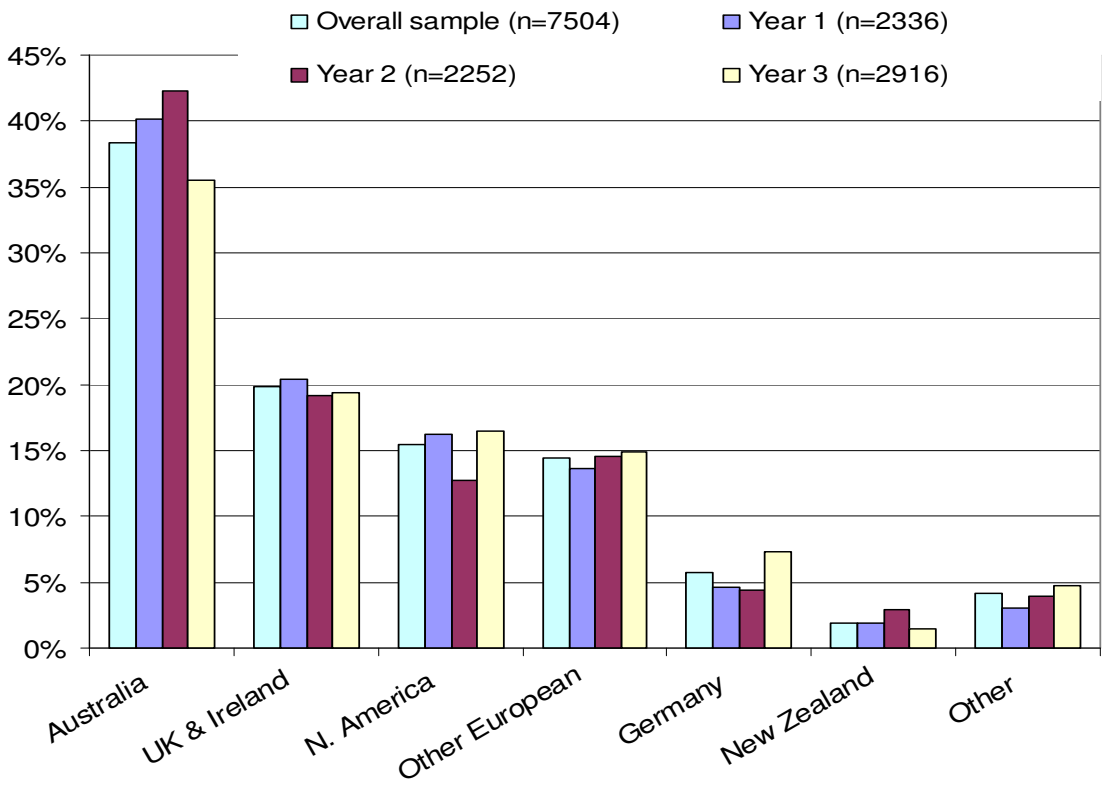


Figure 1 Origin of all respondents visiting the GBR.

Employment

As with country of origin, there have been no consistent trends in the occupation of respondents, with only a slight increase in the three most commonly cited occupations; professionals, students and self-employed respondents (Figure 2). The number of retired respondents has declined slightly. This may be due to concerns about their superannuation during the Global Financial Crisis.

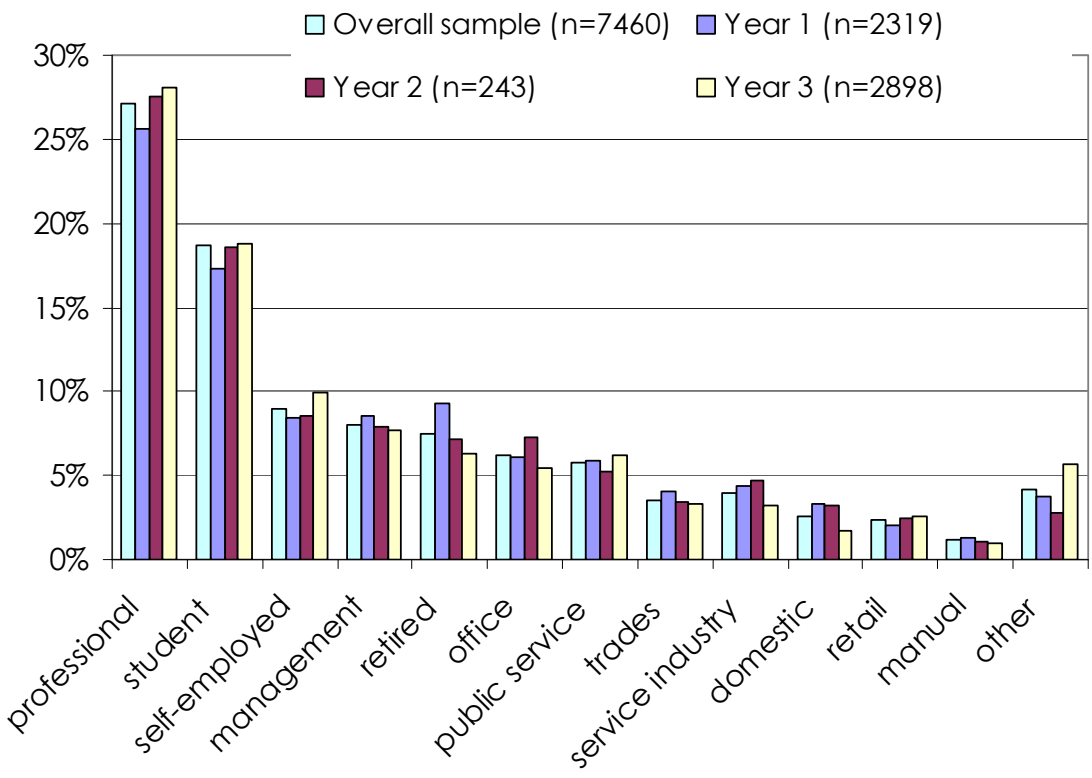


Figure 2. Employment of all respondents visiting the GBR.

By comparing international and domestic respondents, it is apparent that international respondents are more likely to be students, while professionals and self-employed respondents are frequently Australian (Table 3). This is consistent with the main markets of Tropical North Queensland and the Whitsundays which attract a large number of young, international respondents alongside a significant domestic market. Similar trends may be seen in the age distribution and accommodation choices of domestic and international respondents (Table 4 and 6).

Table 3: Comparison of domestic and international markets and their occupations

	Domestic (n=1024)	International (n=1849)
Professionals	31.4%	26.5%
Self-employed	13.9%	7.7%
Students	11.5%	22.7%
Management	7.0%	8.1%
Public servants	6.3%	6.2%
Office workers	5.8%	5.4%
Retired	5.1%	7.0%
Tradesmen	4.5%	2.7%
Retail	4.5%	1.5%
Domestic duties	2.8%	1.0%
Service industry	2.6%	3.5%

Manual labour	1.1%	1.0%
Other	3.5%	6.7%

Age of respondents

The age distribution of respondents has become increasingly skewed towards respondents in the 20-29 year old age bracket (Figure 3). Respondents within this age group are more likely to be international respondents (Table 4). Australian respondents showed a more even distribution between the age brackets, in line with the different markets (families, couples, 'grey nomads' and so forth) that visit Tropical North Queensland and the Whitsundays.

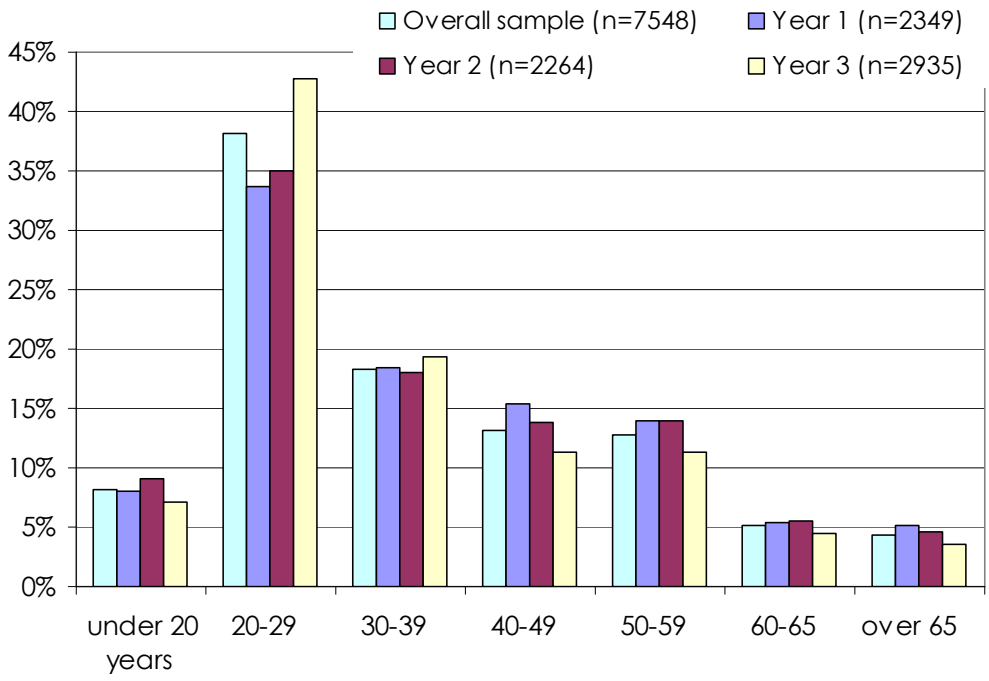


Figure 3. Age of all respondents visiting the GBR.

Table 4: Comparison of domestic and international markets' age group

	Domestic respondents (n = 1034)	International respondents (n = 1875)
under 20 years	7.3%	7.2%
20-29	28.9%	50.4%
30-39	24.2%	16.7%
40-49	16.9%	8.2%
50-59	15.8%	8.9%
60-65	3.8%	5.0%

over 65	3.1%	3.6%

3.2 Respondents' travel behaviour

Travel party

A large proportion of respondents were travelling solely with their partner (Figure 4). This result shows very little fluctuation over the years, indicating the strength of this market to the Great Barrier Reef, and is consistent with reports from Moscardo et al. (2003), who also found this market to be the largest in their surveys, representing 43% of their sample. The number of respondents travelling with friends or travelling alone appears to have increased slightly at the expense of respondents travelling in family groups or with relatives. This may be due to the slight decrease in domestic visitors, who are more likely to travel with relatives than any of the other nationalities (Table 5).

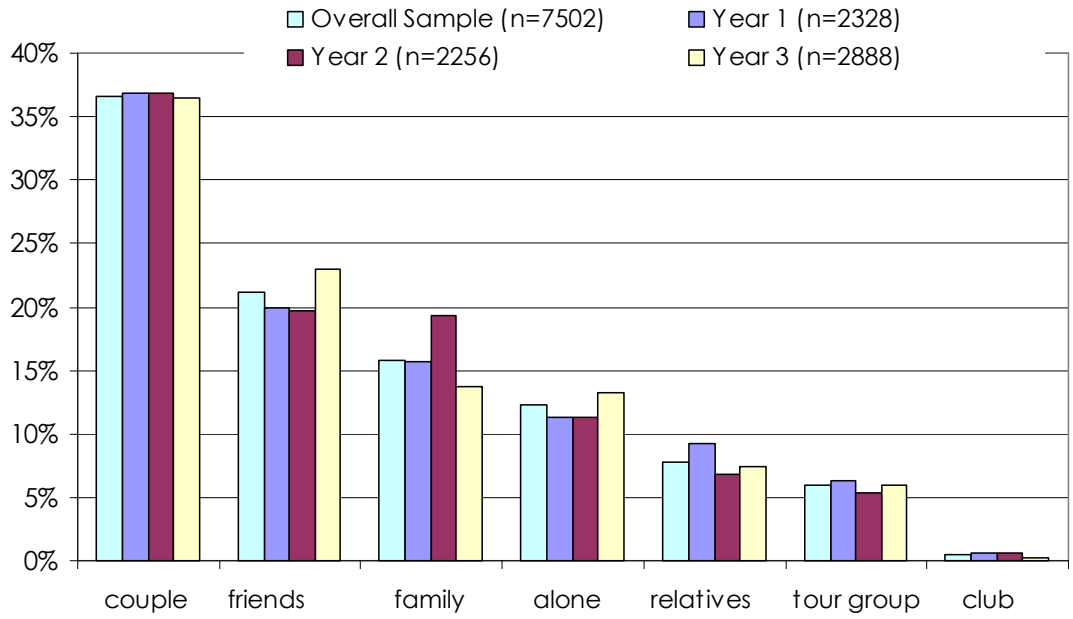


Figure 4. Travel party of all respondents visiting the GBR.

Table 5: Comparison of travel parties by domestic and international markets

	Domestic respondents (n =1027)	International respondents (n =1861)						
		Overall (n =1861)	UK /Ireland (n =567)	N. American (n =478)	Germany (n =215)	Other EU. (n =428)	Asia (n =78)	Other (n=95)
Couple	38.3%	35.9%	37.7%	31.6%	25.6%	37.2%	48.7%	47.4%
Family	24.0%	10.9%	5.3%	11.1%	3.3%	5.9%	17.9%	16.2%
Friends	17.6%	23.0%	29.5%	20.9%	30.7%	29.7%	17.9%	10.1%
Relatives	10.1%	6.6%	5.3%	9.9%	3.3%	4.0%	1.3%	11.1%
Alone	6.0%	15.9%	16.0%	14.6%	27.0%	19.2%	11.5%	14.1%
Tour group	3.3%	7.4%	6.0%	11.9%	10.2%	4.0%	2.6%	1.1%

Club	0.7%	0.3%	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%

Previous visits and length of stay

For 80.2% of respondents, this was their first visit to the region**.** Unsurprisingly, given the expense and travel time for overseas visitors, this figure is lower for international respondents (53.2%). Of those who had visited the region previously, over half (61.2%) had visited once or twice before. Nearly two thirds of the respondents (65.0%) stayed in the region for five nights or less. The proportion of repeat visitors to the region has been declining over time. Moscardo et al. (2003) recorded that 25% of visitors were repeat visitors in the early part of this decade, whilst this project found that 24.0% were repeat visitors in 2007, and 22.3% in 2008. This represents a significant decrease in repeat visitation over the years (χ^2= 92.06, p<0.05).

Accommodation and transport

Accommodation patterns have been very stable over the past few years, with hotels and backpacker accommodation accounting for over half of respondents' choices and growing in importance (Figure 5). The backpacker market appears to have been largely resilient to the Global Financial Crisis. Backpacker accommodation was more likely to be used by international visitors, with domestic tourists preferring holiday apartments. This reflects different travel party compositions, travel planning behaviour, budgetary constraints and possibly cultural preferences as well (Table 6).

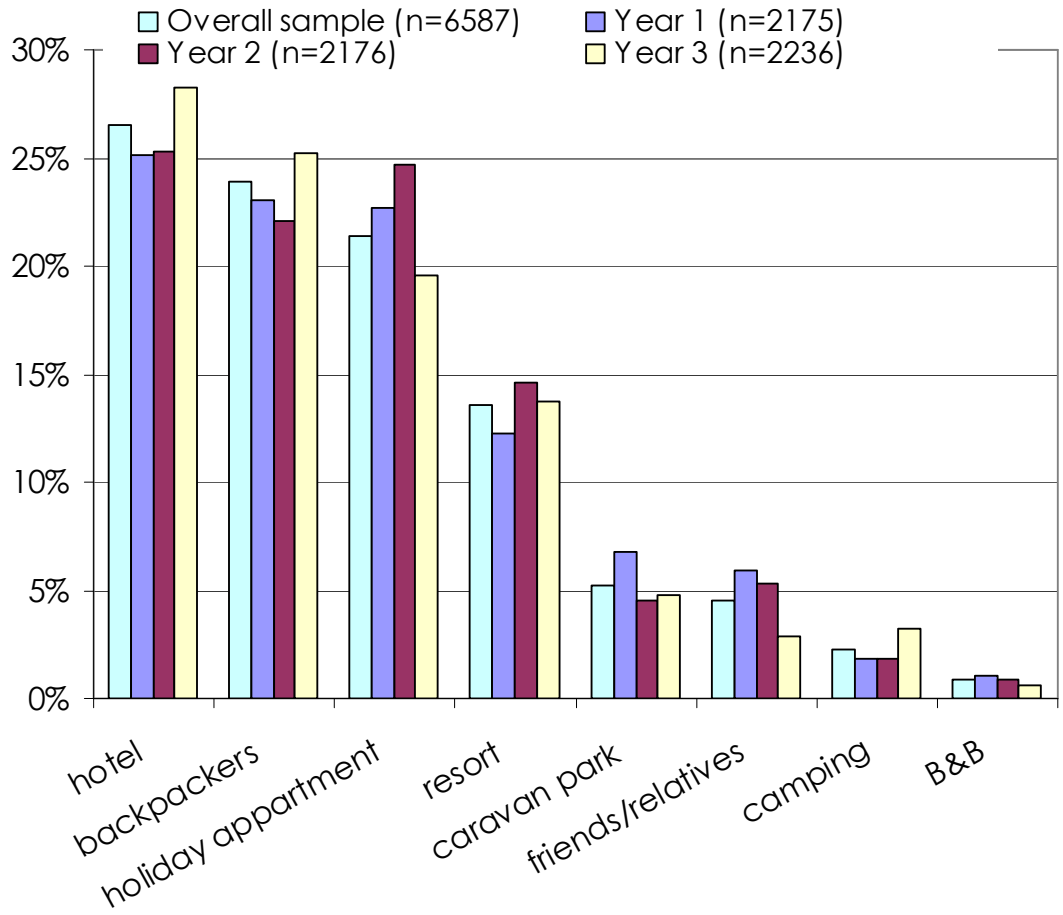


Figure 5. Accommodation choices for all respondents visiting the GBR.

Table 6: Comparison of accommodation preferences of domestic and international respondents

	Domestic respondents (n =901)	International respondents (n =1256)
Holiday apartment	32.4%	12.4%
Resort	23.1%	8.5%
Hotel	24.6%	33.4%
Friends/relatives	5.2%	1.6%
Backpackers	5.0%	36.4%
Caravan park	4.9%	4.0%
Camping	1.9%	3.7%
Other	2.9%	0.0%

Air travel, on the other hand, showed little difference between domestic and international visitors, highlighting the importance of this mode of transport between Australian tourism hubs. Coach and bus travel was mostly limited to international tourists, while domestic tourists were twice as likely as international tourists to use a private vehicle to travel to their holiday destination (Table 7).

Table 7: Comparison of the use of different modes of transport between domestic and international respondents

	Domestic respondents (n =809)	International respondents (n =1425)
Air	56.2%	49.9%
Private vehicle	14.7%	6.4%
Rented car	13.1%	10.0%
Bus/Coach	9.4%	26.9%
Rented campervan	1.4%	4.1%
Other	5.2%	2.7%

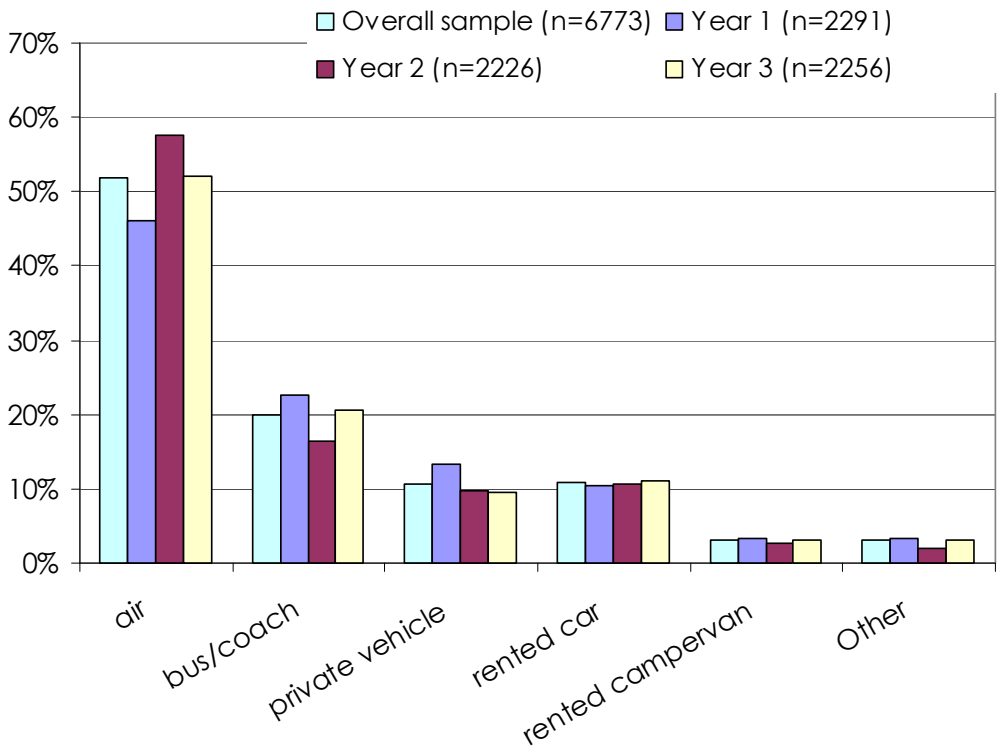


Figure 6. Transport to GBR: choices of all respondents.

Last holidays location

The most popular single destinations given in response to "where did you spend your last holiday?" are outlined in Table 8. These destinations remain remarkably stable over time, demonstrating the dominance of certain world destinations for both international and domestic tourists, and destinations such as the Gold Coast, New Zealand and Melbourne for domestic tourists. The regional analysis confirms that domestic tourists are more inclined to choose Australian destinations, followed by geographically close destinations such as New Zealand, South East Asia and the Pacific Islands (Table 9).

Table 8: Respondents' last holiday location

OVERALL RESPONDENTS	Year 1 (n=2124)	Year 2 (n=2183)	Year 3 (n=2292)
Gold Coast	3.6%	3.5%	2.7%
France	3.6%	4.1%	2.2%
New Zealand	3.4%	5.7%	4.6%
Thailand	3.4%	3.7%	2.7%
Spain	3.4%	3.5%	2.8%
USA	3.2%	4.9%	4.1%
INTERNATIONAL RESPONDENTS	(n=1216)	(n=1311)	(n=1301)
France	6.4%	6.9%	3.1%
Spain	5.3%	5.8%	4.2%
New Zealand	4.9%	5.9%	4.5%
Thailand	4.5%	4.3%	2.8%
USA	4.1%	6.9%	6.0%

Italy	3.8%	3.6%	2.6%
DOMESTIC RESPONDENTS	(n =908)	(n =872)	(n = 991)
Gold Coast	6.3%	6.5%	7.1%
Europe	4.5%	4.5%	2.7%
New Zealand	3.9%	5.2%	4.6%
Melbourne	3.9%	3.8%	2.1%
Tasmania	3.9%	2.8%	2.5%
Thailand	3.0%	2.9%	2.4%

Table 9: Regional analysis of last holiday locations

OVERALL RESPONDENTS	Year 1	Year 2	Year 3
Europe	25.0%	27.4%	24.7%
Australia, except Qld	20.0%	17.7%	18.3%
Queensland	16.0%	14.6%	12.4%
NZ, Pacific & S.E. Asia	13.0%	16.4%	16.5%
N. America (inc. Caribbean)	12.5%	12.9%	15.2%
Asia	7.0%	4.6%	5.6%
Africa and Latin America	6.5%	6.4%	7.3%
INTERNATIONAL RESPONDENTS			
Europe	40.0%	39.1%	34.2%
N. America (inc. Caribbean)	19.0%	18.3%	22.0%
NZ, Pacific & S.E. Asia	11.5%	15.9%	15.9%
Africa & Latin America	10.0%	9.5%	10.3%
Asia	8.0%	5.0%	6.3%
Australia	7.0%	7.0%	6.8%
Queensland	4.5%	5.2%	4.5%
DOMESTIC RESPONDENTS			
Australia, except Qld	34.0%	31.7%	38.1%
Queensland	28.0%	27.2%	25.6%
NZ, Pacific & S.E. Asia	15.0%	17.0%	17.6%
Europe	10.0%	11.5%	8.7%
N. America (inc. Caribbean)	6.0%	5.8%	3.9%
Asia	5.0%	4.2%	4.1%
Africa & Latin America	2.0%	2.6%	2.0%

Alternative destinations considered

Respondents were asked to state alternative destinations they considered when planning this trip. The seven most frequently cited destinations confirm the importance of sunny, warm destinations for the respondents (Table 10). The destinations themselves show little variation in popularity over the years, with slight fluctuations perhaps reflecting the strength of the Australian dollar against foreign currencies.

Table 10: Alternative destination considered

Destination	Year 1 (n=4013)	Year 2 (n=4552)	Year 3 (n=4436)
Sydney	5.3%	6.0%	5.8%
New Zealand	5.3%	5.8%	6.7%
Cairns	4.6%	3.4%	3.2%
Fiji	3.8%	4.5%	4.0%
Gold Coast	3.3%	3.4%	2.4%
Thailand	3.2%	3.3%	3.2%
Brisbane	2.6%	3.2%	2.3%

Motivations

The Great Barrier Reef remains the single most important motivation for respondents in this study, and its importance as a travel motivation to visit the region has increased slightly over the years. This indicates the strength of the GBR "branding" within the region. The consistency with which respondents rated the GBR as a travel motivation, in particular, the lack of any sudden increase in importance, also suggests that we are not (yet) witnessing a "last chance" tourism pattern in this region. Last chance tourism is a common term referring to attractions and destinations that are at threat from climate change and other disturbances (Eijgelaar et al. 2008). Most other motivations have also increased slightly in importance, and for the most part, the strongest "pull" factors or drawcards for the destination remain the natural environment and its wildlife, seeing the GBR and opportunities to snorkel and dive, and enjoying the climate (Figure 8). Results such as these highlight the multi-motive destination attractiveness of this region, which relies on its overall natural environment as well as its tropical climate to attract tourists.

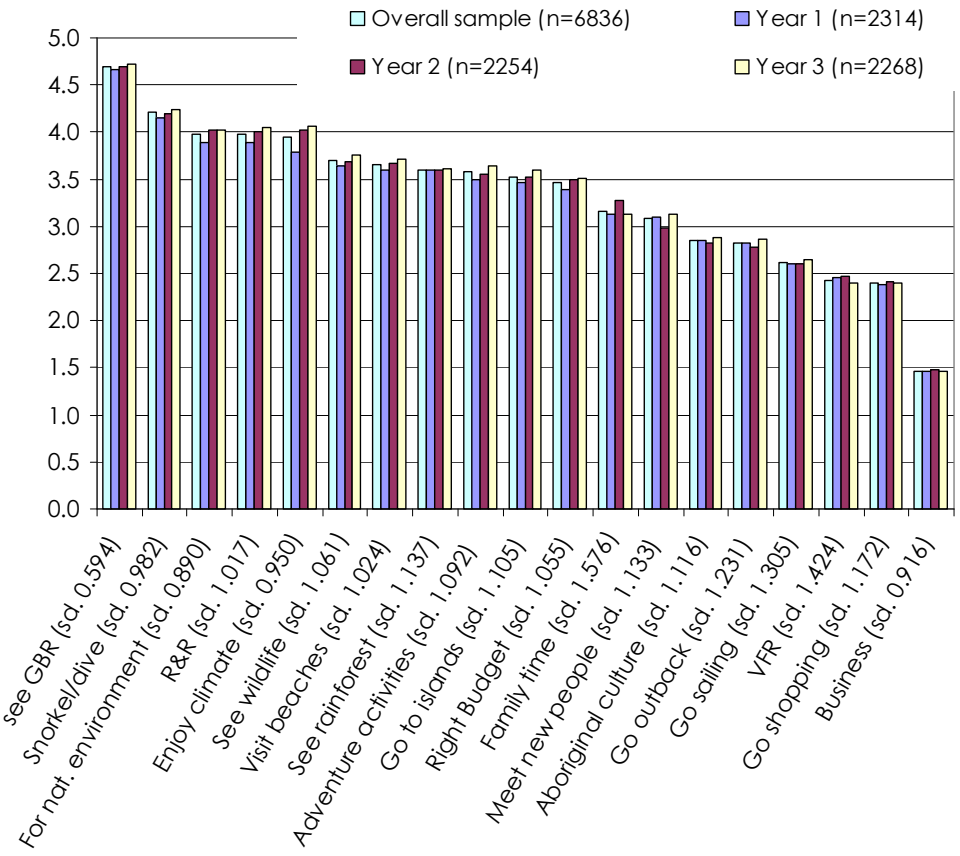


Figure 8. Respondents' motivations to visit the region (as mean, measured on a Likert scale, where 1 = not very important and 5 = very important).

A comparison between international and domestic visitors reveals some interesting differences; visiting the GBR is more important for international respondents than domestic respondents, as is snorkelling and diving and seeing wildlife, visiting the rainforest, adventure activities, meeting new people, going outback, and going sailing (Figure 9). Table 11 shows that there were significant differences between international and domestic respondents in the importance of almost all motivations for visiting the region. The exceptions were experiencing the natural environment, visiting the beaches, and visiting friends and relatives.

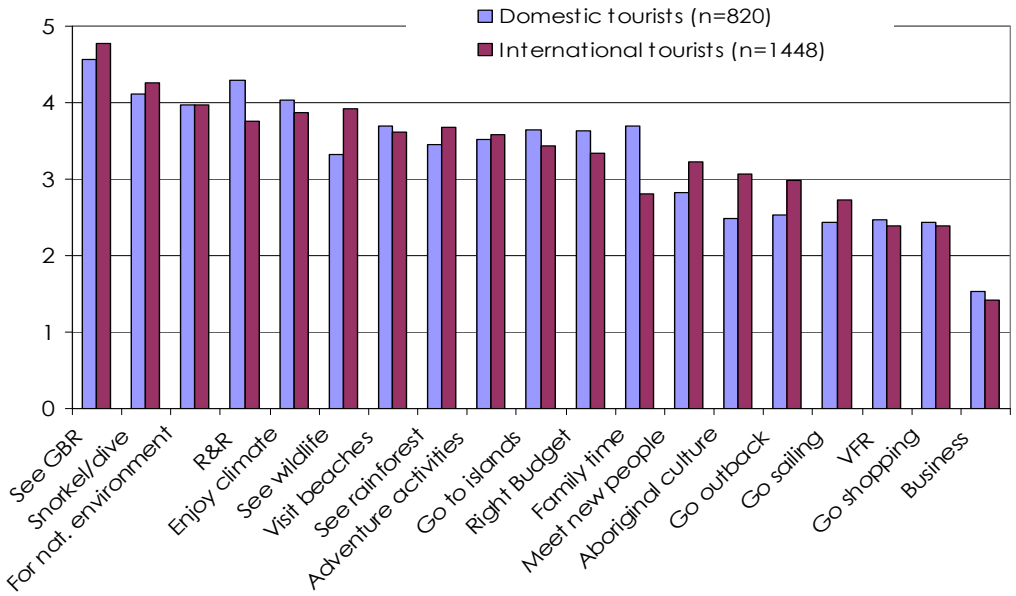


Figure 9. Comparison of domestic & international respondents' motivations to visit (mean).

Table 11: The results of t-test comparison of mean scores of travel motivations for international and domestic respondents

	t	df	P value
See GBR	-6.656	2266	.000
Go snorkelling/diving	-4.063	2245	.000
Natural environment	-1.650	2226	.099
R&R	14.832	2233	.000
Enjoy the climate	4.190	2234	.000
See wildlife	-14.644	2218	.000
Go to the beaches	.127	2214	.899
See rainforest	-4.006	2230	.000
Do adventure activities	-3.283	2190	.001
Go to the islands	3.254	2173	.001
The right budget	5.501	2209	.000
Have family time	16.195	2199	.000
Meet new people	-10.718	2218	.000
Experience Aboriginal culture	-11.926	2209	.000
See the Outback	-9.188	2189	.000
Go Sailing	-6.563	2076	.000
Visit friends and relatives	-.596	2163	.552

Go Shopping	2.443	2090	.015
Business-related travel	3.086	2159	.002

Information sources

Informal information such as word of mouth from friends and relatives remains the single most important source of information regarding the region visited (Figure 10). The role of travel agents continues to grow in importance as does the internet. Repeat visitation, on the other hand, has fallen slightly over the past three years.

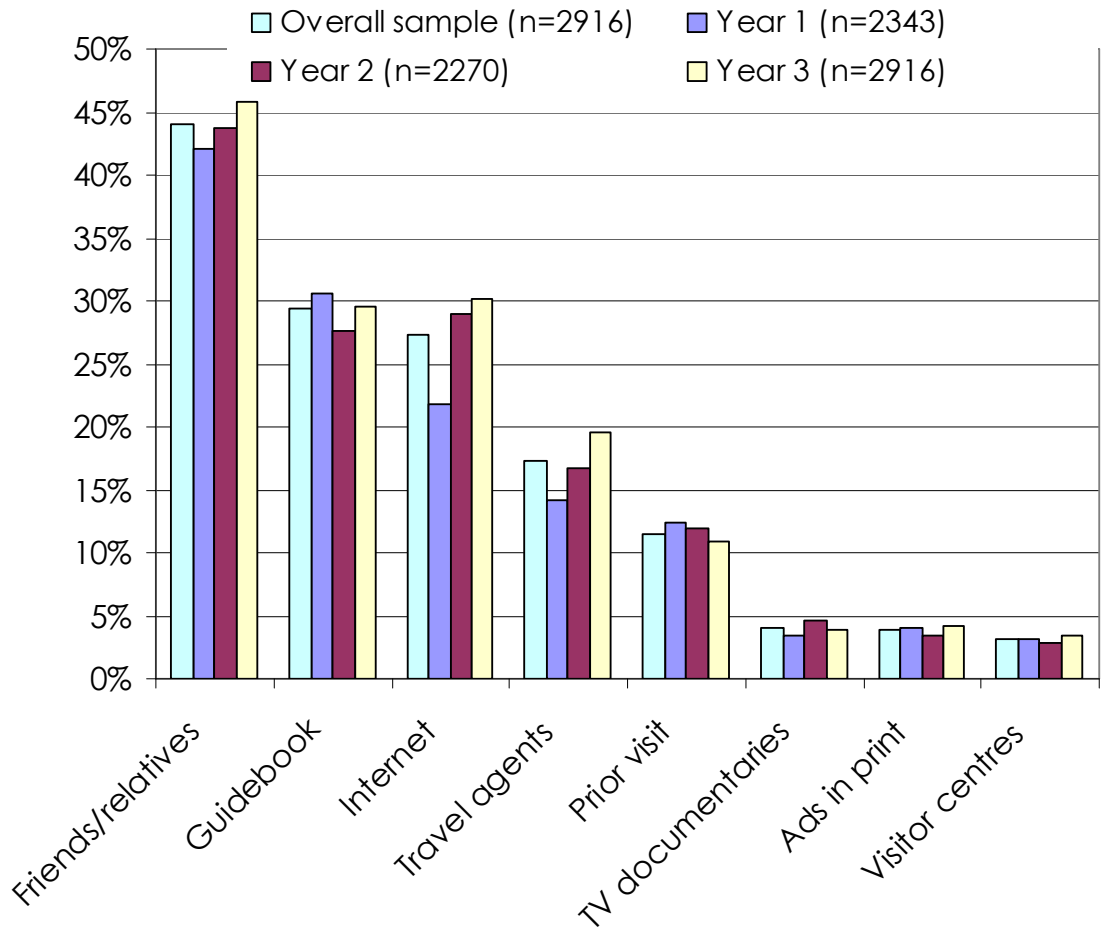


Figure 10. The information sources used by respondents to plan their holidays.

3.3 Respondents' reef experience and satisfaction

Previous visits to the reef and choice of operator

Few respondents (26.4%) had visited the GBR prior to completing this visitor survey. Two thirds of repeat reef visitors had been to the GBR once or twice before, and only 10% had been more than five times. As with repeat visitation to the region, the proportion of repeat visitors to the reef has decreased significantly, from 29.6% in 2007 and 27.7% in 2008 (χ^2=6.577, p<0.05).

Respondents' choice of operator was based for the most part on an agent's recommendation (Figure 11). This has continued its dramatic and statistically significant increase over the last two years (χ^2=243.369, p<0.05). Price also continues to be an important factor and, increasingly, we may find that the types of activities on offer, as well as the tour destinations on offer (pontoons, islands, outer reef, etc), start to impact on respondents' choices, perhaps reflecting greater product diversification.

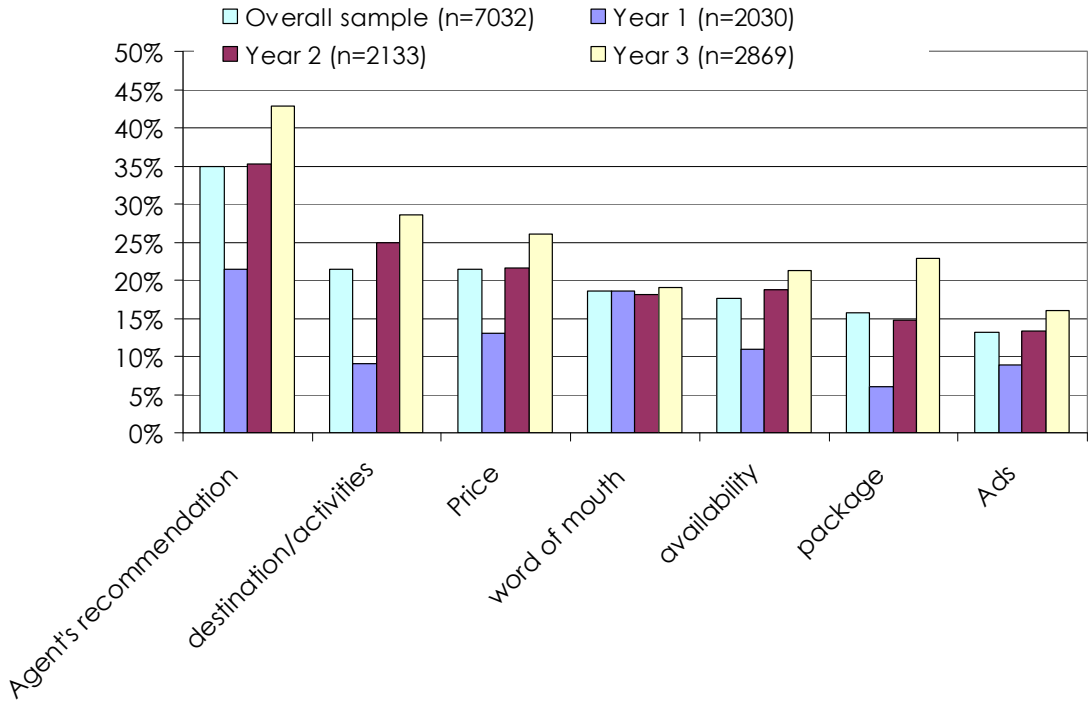


Figure 11. The sources of information used by all respondents to choose their operators.

Visits to other reefs

When asked if they had visited other reefs prior to this trip to the GBR, 48% of respondents said yes. This is a significant increase on the previous years, as 43% of respondents in 2008 had visited other reefs and 47% of respondents in 2007 (χ^2=13.083, p<0.05). More visitors had been to the Caribbean and Hawaii than in previous years, while fewer had visited reefs around South East Asia and the Indian Ocean (Figure 12).

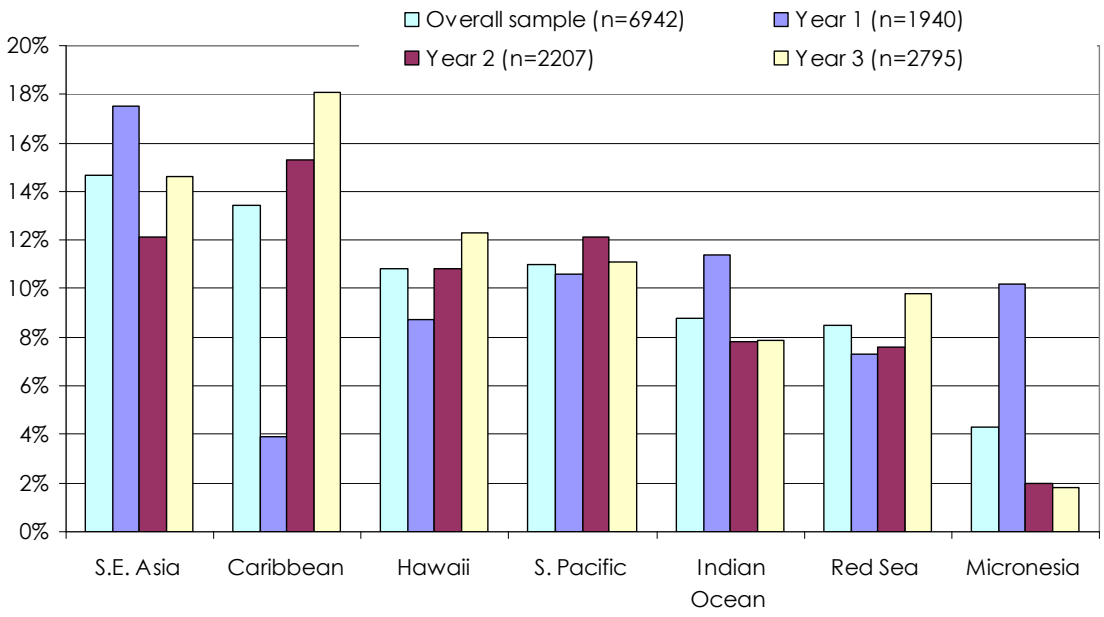


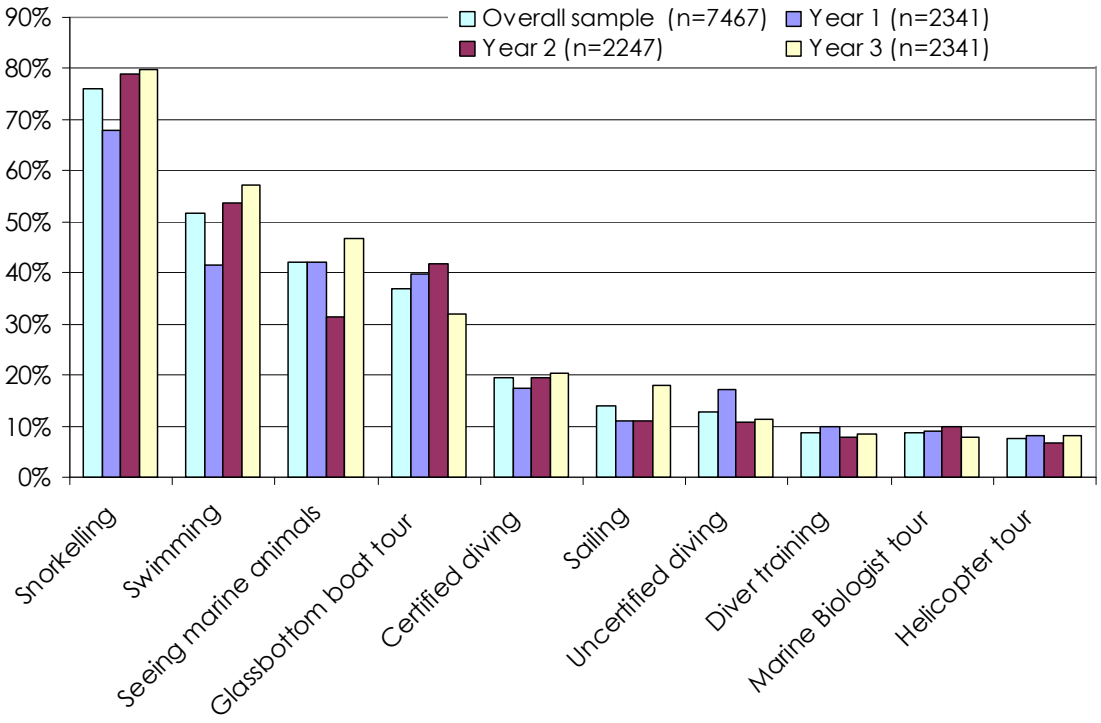
Figure 12. Reefs visited by all respondents before this visit to the GBR.

When asked to compare the GBR to these previously visited reefs, South East Asia and the Caribbean fared poorly, with 47.3% and 49.6% of respondents agreeing that those reefs were worse than the GBR. The reefs of Micronesia, the Red Sea and the Indian Ocean fared a little better, with 27.0%, 26.0% and 22.5% of respondents stating that those reefs were better than the GBR. Coghlan and Prideaux (2009b) placed these results within a destination competitiveness conceptual framework to examine how other features of the destination affect the attractiveness of the GBR region as a reef tourism destination.

Diving profile and activities at the reef

Just over one third of respondents (39.7%) planned to SCUBA dive on the reef. Of these, many had no previous diving experience (34.3%), whilst 27.8% had logged four dives or less prior to this visit, 13.6% had logged five to 10 dives and 24.3% respondents had logged more than 10 dives.

The most common activities undertaken during the trip were snorkelling and swimming (Figure 13). Seeing marine animals as a planned activity has increased significantly on previous years, an encouraging result given the surprisingly low figures recorded over the years (χ^2=125.329, p<0.05)..



*only those operators that offer a glass bottom boat or semisubmersible tour were included in this figure.

Figure 13. The activities undertaken by respondents at the GBR.

Table 12 illustrates some of the differences between international and domestic respondents in their choice of activities at the reef. Both certified and uncertified diving was more popular with international respondents, whereas glass bottom boat tours were more popular with domestic than international respondents.

Table 12: The activities of domestic and international respondents

	Domestic respondents (n=1014)	International respondents (n=1839)
Snorkelling	82.3%	78.8%
Swimming	63.3%	53.9%
Glass bottom boat*	48.3%	23.2%
View marine animals	47.4%	46.5%
Certified diving	13.9%	23.9%
Uncertified diving	7.6%	13.4%
Diver training	5.2%	10.0%

*only those operators that offer a glass bottom boat or semisubmersible tour were included in this figure.

Satisfaction levels and recommendations

Satisfaction ratings were measured on a scale of 1 to 10 and the mean satisfaction score was 8.54 (S.D. 1.349). Figure 14 shows how satisfaction scores increased during the second year of data collection and then started to decline, although not significantly (t=-1.283, p=0.199) in the third year of data collection.

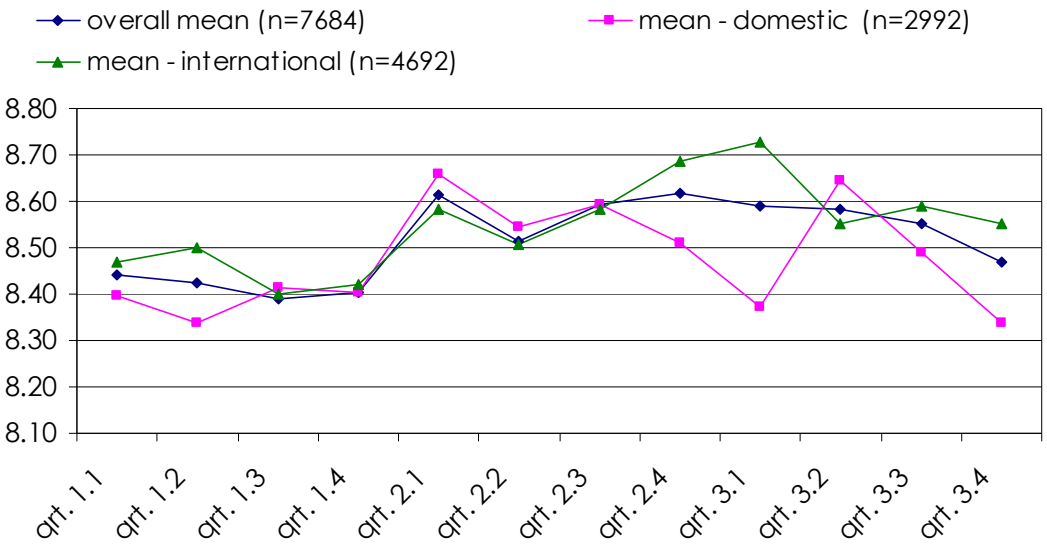


Figure 14. Changes in satisfaction between Q1, 2007 and Q4, 2009. .

When asked if their trip had met expectations, more than 95% said that the reef at least somewhat met their expectations, and 96.6% said that the trip at least somewhat met their expectations. In addition, 86.7% of respondents felt that they received value for money and 96.7% said that they would recommend the trip to others.

The factors that influenced satisfaction and the best and worst experiences remained consistent across seasons and locations. The most important factor that influenced satisfaction was the staff and their professionalism (Table 13). In year 3, this accounted for 46.6% of all responses. Furthermore, the natural environment was mentioned by more respondents in 2009 than in previous years.

Table 13: The factors that influenced trip satisfaction

	Year 1 (n= 2090)	Year 2 (n=2068)	Year 3 (n=2942)	Overall sample (n=7100)
Staff	47.6%	52.6%	46.6%	46.9%
Natural environment	23.1%	24.8%	30.3%	33.8%
Weather and sea state	27.1%	21.1%	19.5%	20.6%
Diving and/or snorkelling	14.3%	16.1%	20.7%	17.4%
Staff knowledge & Interpretation	5.0%	9.3%	4.0%	4.1%

The tourists' responses to the question "what was your best experience today?" were dominated by diving and snorkelling (48.5%), followed by enjoying the marine life (Table 14).

Staff and the level of service was far less important as a response to this question than the previous one.

Table 14: The factors described as the best experience of the day.

	Year 1 (n=2164)	Year 2 (n=2069)	Year 3 (N =2942)	Overall sample (N = 7175)
Diving / snorkelling	43.7%	47.9%	48.5%	45.7%
Marine life	24.2%	42.8%	37.9%	32.5%
Staff / service / professionalism	12.4%	12.3%	11.3%	11.4%

Some examples of the diversity of responses to the question "what was your best experience" are provided below:

- *"All the coloured fish, the delicious lunch, I really enjoyed the semisub"*
- *"Beautiful water, very clean and the colour of corals and fish"*
- *"Being far out at sea, good weather, friendly & knowledgeable crew"*
- *"Braving first dives, reef sights, being on a real sailboat for 3 days, seeing Nemo"*
- *"Child minding, organised itinerary, snorkelling the reef"*
- *"Diving and info to all tourists to prevent coral break down"*
- *"Flexibility in activities & timing - relaxing laughter at sight of my partner and I in stinger suits, plenty of kodak moments"*
- *"Midday diving - perfect light, very friendly crew made the experience comfortable and entertaining, cleaner wrasse nipped my fingers"*
- *"My family & the crew who encouraged me to take my first snorkelling experience and the reef"*
- *"Seeing manta rays and other great and rare sea animals such as sharks and turtles"*
- *"Small group, good timing for everything, well organised and informative, guitar and singer on the way home was fun"*
- *"Snorkelling & seeing all coral & lots of types of fish. All the staff explaining details of fish etc on viewing from glass bottom boat"*
- *"Spontaneous interaction with female maori wrasse seemed to enjoy my company"*
- *"The variety of colours and textures of the coral, also the quality of the coral and its fantastic condition"*
- *"There were 230 people on our boat and you felt like a very special individual"*

Compared to 2008, the weather appeared to have had a less negative impact on the visitors' experiences, accounting for less than a quarter of all responses (Table 15).

The influence of weather on the reef experience was investigated by Coghlan and Prideaux (2009c), who found that poor weather has a more pronounced effect on experiences than

good weather and reinforces the likelihood that sea sickness, cold and wet conditions, reduced water visibility, and difficult snorkelling/diving conditions will reduce overall levels of satisfaction. Poor weather was found to have a direct effect on satisfaction scores, the likelihood that reef and tour expectations were not realised, and lowered perceived value for money. Meanwhile, a quarter of respondents said that they had had no negative experiences. Some examples of the remaining 50% of responses are shown below.

Table 15: The factors described as the worst experience for the day

	Year 1 (n=2122)	Year 2 (n=2017)	Year 3 (N =2942)	Overall sample (N = 7081)
Weather / sea state (sea sick)	*26.2%*	35.1%	21.1%	24.4%
None	*26.6%*	31.4%	26.7%	25.3.%

These responses to the question "what was your worst experience today?" illustrate the range of responses in the survey. Some of the more common themes in this sub-sample include the food, the lack of colour or damage to the coral, no opportunities to see the larger animals, or feeling scared by the marine life, the cost involved, crowding, a lack of interpretation, issues with the equipment and complaints about the conduct of the staff.

- *"Disappointed with coral etc, spend a lot of money and time to get there for a boring 45 min snorkel & air con too cold on boat"*
- *"Coral was less colourful than expected - though was aware of reef damage"*
- *"Didn't see many big animals while snorkelling, food was sub-par also"*
- *"Diving equipment was worn, old and untrustworthy"*
- *"Found operator very impersonal and staff weren't friendly, too much dead coral"*
- *"Guide on tour too preachy lighten up"*
- *"Hard sales. Trip is a lot of money for a family alone then there is a push for upgrading eg photos/video/heli/tours etc etc"*
- *"I saw a shark & I panicked"*
- *"It appears that recycling does not happen"*
- *"Jellyfish, stinger suits were a bit smelly and torn in places, the buoys and ropes hard to decipher at first'*
- *"Lots of people but I accept that is the only way one can conduct an operation like this. I thought the pontoon areas would be larger"*
- *"Not enough learning info added on, incorporate knowledge into activities more, structure, up front rules for human/reef interaction"*
- *"On the extra snorkel trip I saw nothing extraordinary, I could not hear the leader and I disliked being kicked & bumped by the group"*
- *"People misbehaving, as a professional tour operator on the reef you have the duty to control peoples' behaviour"*

- *“People used up their air too fast and made the dives shorter than it should be. Besides I think some people shouldn't get certified when they clearly have no understanding or respect for the reef!!!”*
- *“Rough seas, lots of people being seasick but that’s nature for you. Have more seasick bags available and toilet was smelly”*
- *“Staff being very controlling around turtles”*
- *“The over the top safety paper work for bureaucracy that is smothering the dive industry”*
- *“The photographer - I was disappointed she didn't go in the water, my partner & I had no photos of us.”*
- *“The snorkelling wasn't guided so I didn't see much, only few animals”*
- *“The threat of being hurt by jellyfish”*
- *“Water was a little rough at first site where we stopped, which scared my daughter when she entered the water”*

4. Comparison of regional results

In this section, regional data are reported, allowing trends specific to each region to be identified as well as results to be compared across the two major data collection sites.

4.1 Respondents' socio-demographic characteristics

Origin of respondents

Tropical North Queensland has seen a few changes in the nationality of respondents over the last few years; on the one hand, the proportion of domestic respondents has declined slightly, while some of the other important markets, such as Germany and North America have started to increase again (Figure 15).

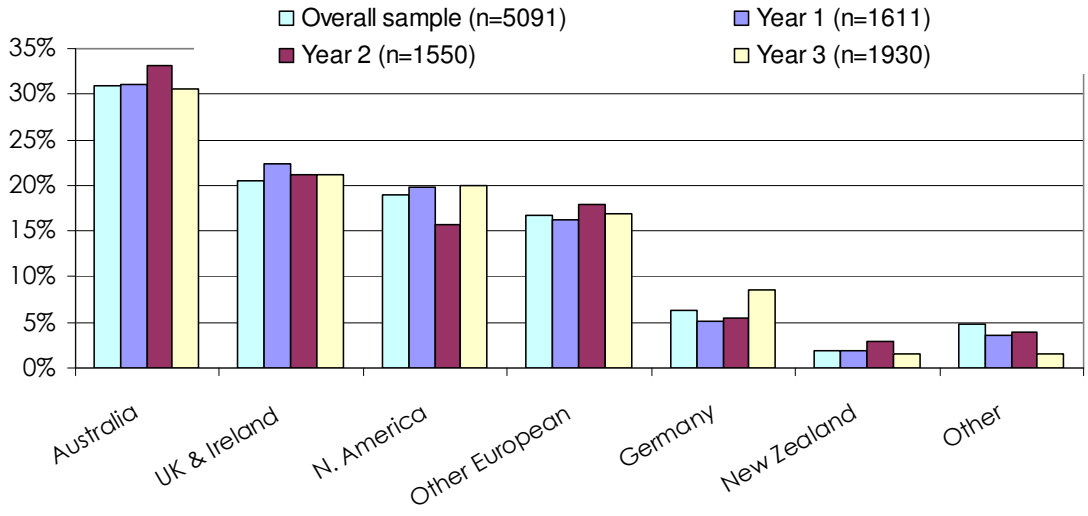


Figure 15. Origin of respondents in Tropical North Queensland.

The Whitsunday region, on the other hand, has seen a drop in the proportion of domestic respondents and a corresponding increase in British and Irish respondents, representing statistically significant differences over time ((χ^2=69.7, p<0.05). (Figure 16). Other markets such as Europe has also increased somewhat. This is confirmed by the International Visitors Survey, which reports a 6% increase in the British market, a 21% growth in the American market but a 6% decrease in the German market, (Tourism Australia, 2010, unpublished data).

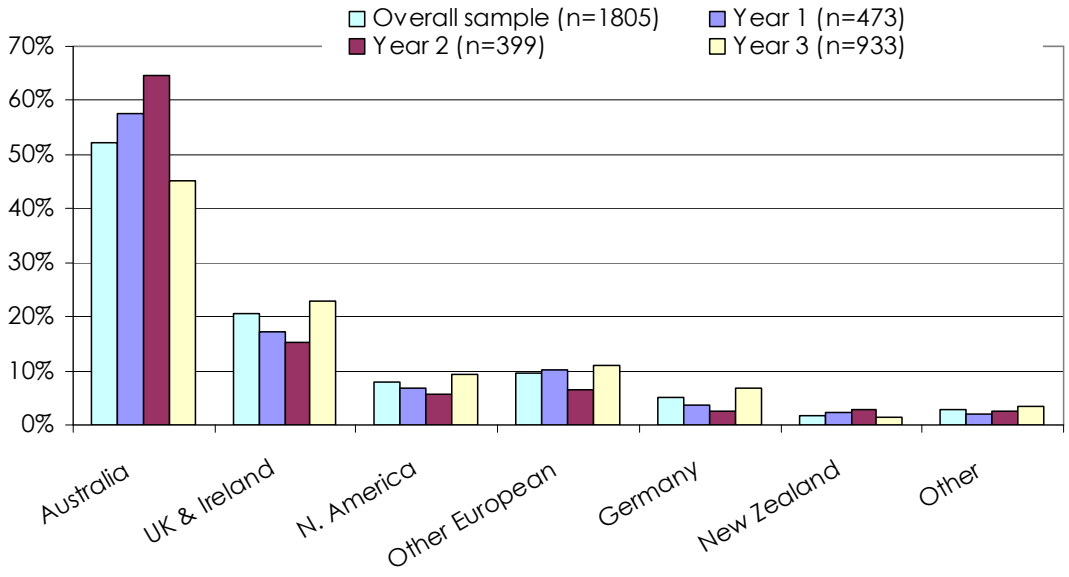


Figure 16: Origin of respondents in the Whitsundays.

Employment

In both of the regions surveyed, professionals and students made up the largest groups of respondents (Figure 17 and 18). The Whitsundays has also seen an increasing number of respondents in management positions in this last year. The number of retirees has decreased over the last few years in the Whitsundays, and remains steady in Tropical North Queensland, perhaps supporting the notion that older people have been reluctant to travel as a result of the Global Financial Crisis.

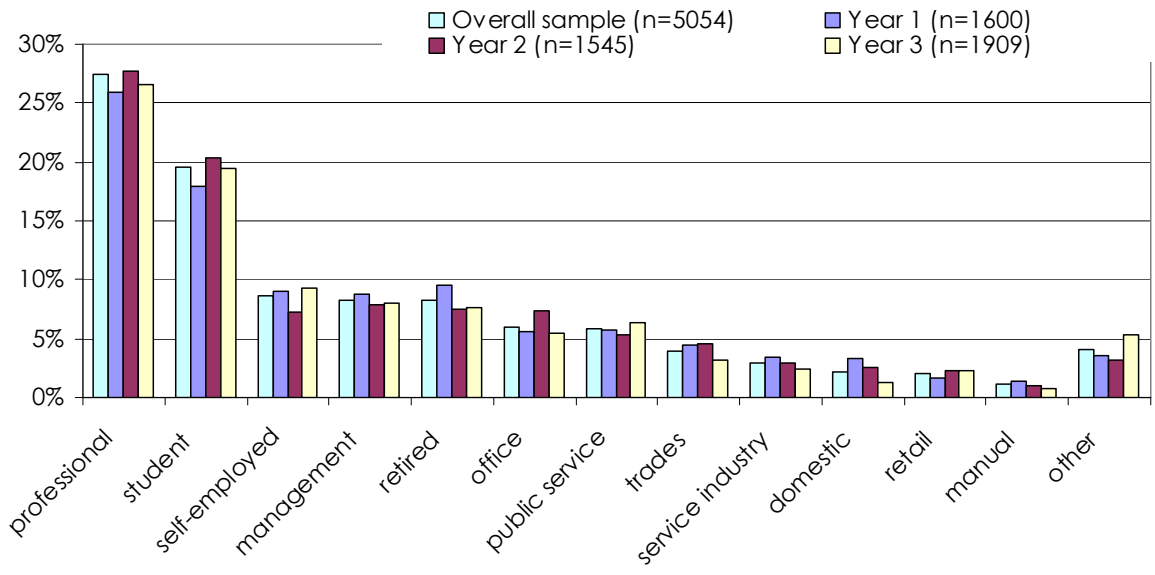


Figure 17. Employment of respondents in Tropical North Queensland.

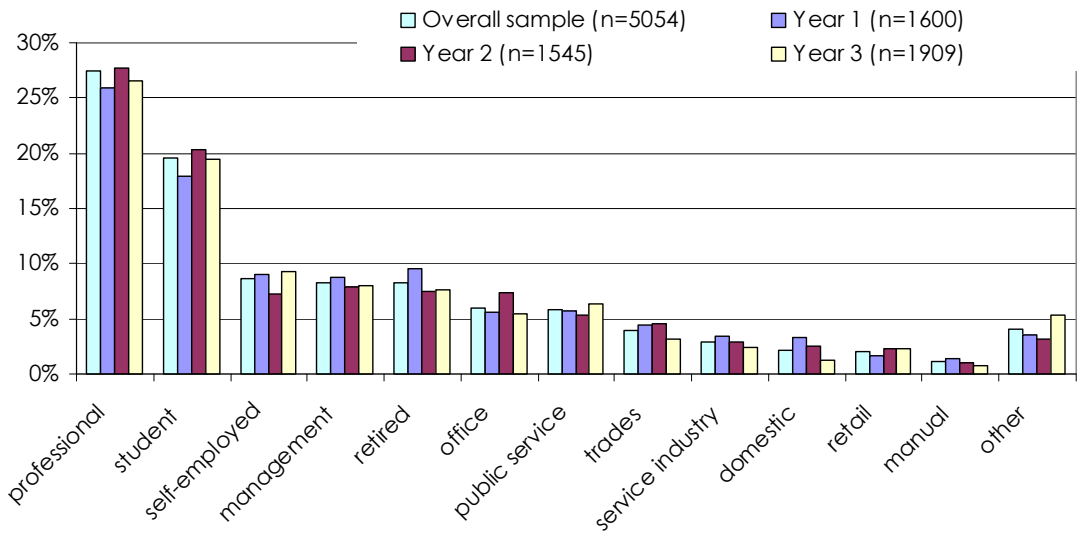


Figure 18: Employment of respondents in the Whitsundays.

Table 16: A regional comparison of domestic and international markets and their occupations

	Tropical North Queensland		Whitsundays	
	Domestic (n=581)	International (n=1312)	Domestic (n=418)	International (n=509)
Professionals	32.7%	26.9%	29.9%	25.7%
Students	10.8%	23.2%	12.9%	22.0%
Self-employed	12.4%	7.9%	14.8%	6.7%
Management	7.4%	8.2%	6.9%	7.5%
Retired	6.0%	8.2%	3.9%	3.9%
Office workers	6.2%	5.3%	5.3%	5.9%
Public Servants	6.0%	6.5%	6.9%	5.7%
Tradesmen	3.8%	1.8%	4.8%	5.1%
Service industry	2.2%	3.6%	3.3%	3.3%
Domestic duties	2.6%	0.7%	3.3%	1.2%
Retail	5.3%	0.9%	3.3%	2.8%
Manual labour	1.0%	0.7%	1.2%	1.8%
Other	3.6%	6.1%	3.5%	8.4%

Age of respondents

Both regions have a large proportion of respondents in the 20-29 year old age bracket, with similar proportions of respondents in the other age groups (Figure 19 and 20). The trend towards younger international respondents was more marked in the Whitsundays than in Tropical North Queensland with more than 60% of international respondents in the region falling into the 20-29 year old age bracket (Table 17).

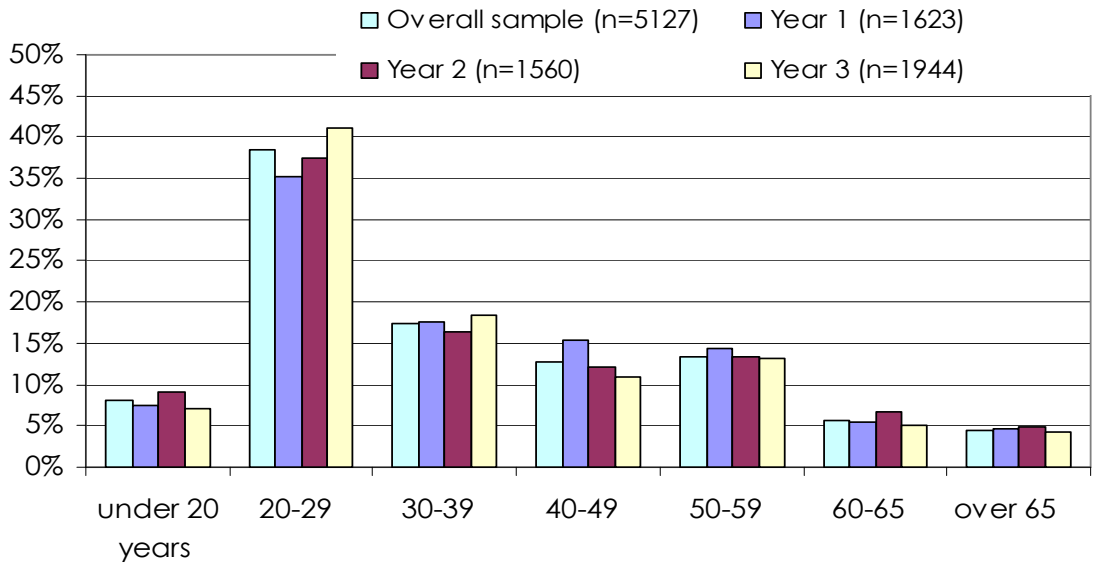


Figure 19. Age of respondents in Tropical North Queensland.

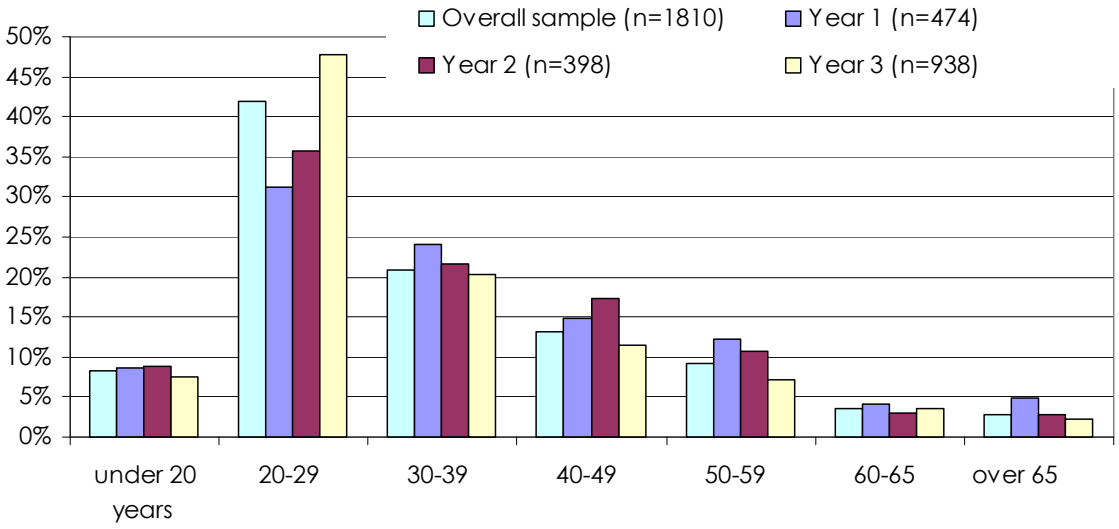


Figure 20: Age of respondents in the Whitsundays**.**

Results from the International Visitors Survey suggest that the increase in younger respondents has been from primary markets such as France and the Netherlands, rather than the mature markets (UK/Ireland, Germany and North America) or the emerging Asian

markets (Tourism Australia, 2010, unpublished data). Similar results were recorded in regional Queensland, including the Whitsundays.

Table 17: A regional comparison of age groups for the domestic and international markets

	Tropical North Queensland		The Whitsundays	
	Domestic respondents (n= 587)	International respondents (n= 1340)	Domestic respondents (n= 422))	International respondents (n= 507)
under 20 years	7.2%	7.2%	7.8%	7.3%
20-29	28.4%	46.6%	30.3%	62.1%
30-39	21.2%	17.3%	27.3%	14.6%
40-49	15.7%	8.9%	18.5%	5.5%
50-59	19.8%	10.2%	10.2%	4.7%
60-65	4.4%	5.3%	3.1%	3.9%
over 65	3.3%	4.5%	2.8%	1.9%

4.2 Respondents' travel behaviour

Travel party

The travel party composition for respondents in Tropical North Queensland was very similar to the overall sample, with most respondents travelling with their partner and about 20% travelling with friends (Figure 21). While there has been a slight drop in domestic respondents travelling with family, there has been a slight increase in respondents who were travelling alone. The Whitsundays also appeared to cater primarily for respondents travelling with partners, with a new increase in respondents travelling with friends (Figure 22). Both regions show remarkably consistent patterns of travel party composition for domestic respondents (Table 18, 19 and Figure 23).

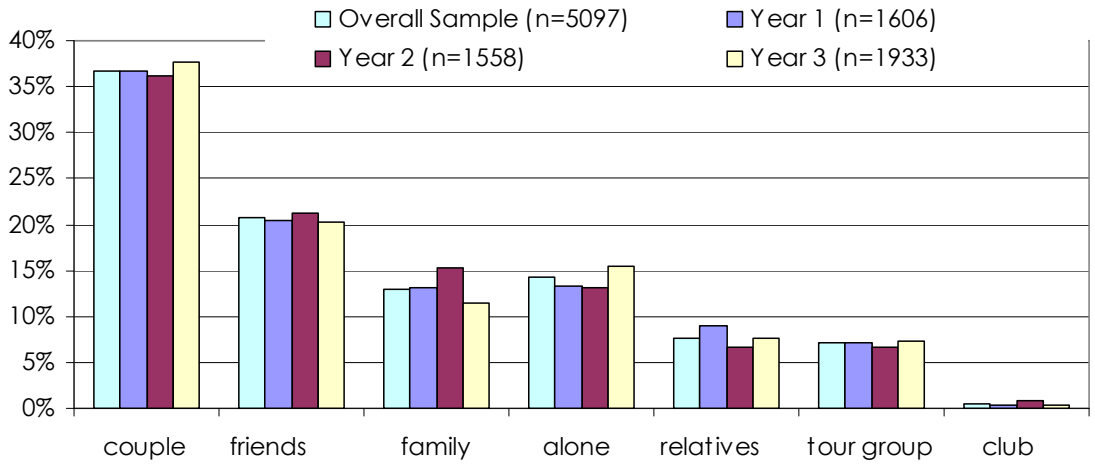


Figure 21. Travel party of respondents in Tropical North Queensland.

Table 18: A comparison of travel parties by domestic and international markets in Tropical North Queensland

	Domestic respondents (n =583)	International respondents (n=1333)						
		Overall (n=1333)	UK /Ireland (n=348)	N. American (n=382)	Germany (n=152)	Other EU. (n=321)	Asia (n=60)	Other (n=70)
Couple	36.9%	37.9%	44.5%	31.9%	25.7%	38.6%	50.0%	50.0%
Family	20.1%	7.7%	4.3%	10.2%	2.0%	8.1%	18.3%	12.9%
Friends	18.5%	21.2%	21.3%	19.9%	27.0%	23.5%	20.0%	5.8%
Relatives	10.6%	6.5%	6.0%	9.9%	2.6%	4.3%	1.7%	11.4%
Alone	8.2%	18.5%	17.5%	14.1%	32.2%	19.9%	8.3%	18.5%
Tour group	4.8%	8.2%	6.0%	13.8%	10.5%	5.6%	1.7%	1.4%
Club	0.9%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.2%

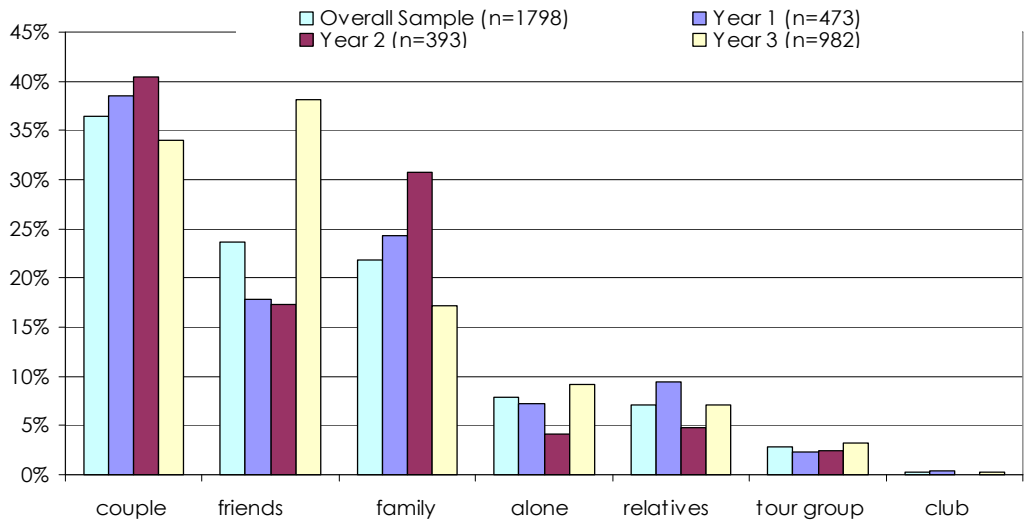


Figure 22: The travel party of respondents in the Whitsundays.

Table 19: Comparison of travel parties by domestic and international markets in the Whitsundays .

	Domestic respondents (n=419)	International respondents (n=503)						
		Overall (n=478)	UK /Ireland (n=215)	N. American (n=84)	Germany (n=63)	Other EU. (n=100)	Asia (n=16)	Other (n=25)
Couple	40.3%	28.8%	44.4%	29.8%	25.4%	27.0%	50.0%	44.0%
Family	28.6%	7.7%	6.5%	10.7%	6.3%	6.0%	12.5%	16.0%
Friends	16.9%	39.1%	42.8%	28.5%	39.7%	48.5%	6.3%	24.0%

Relatives	9.8%	4.8%	3.7%	9.5%	4.8%	2.0%	0.0%	12.0%
Alone	2.9%	14.5%	14.0%	17.9%	14.3%	13.8%	25.0%	4.0%
Tour group	1.0%	5.2%	6.0%	3.6%	9.5%	26.7%	6.3%	0.0%
Club	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%

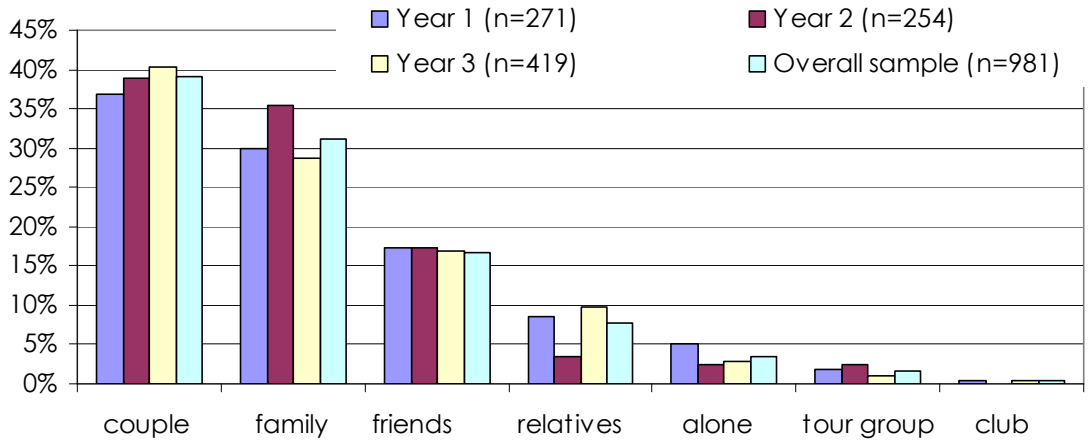


Figure 23: The travel party composition of domestic respondents in the Whitsundays over time.

Previous visits and length of stay

In analyzing repeat visitation across the regions, it is apparent that the Whitsundays has a greater share of repeat visitors (22.9%) when compared to Tropical North Queensland, (19.4%). Of those that had visited the region previously, over half (62.5%) had visited Tropical North Queensland once or twice before, and 60.9% had visited the Whitsundays once or twice previously. For both regions, the length of stay was less than five nights for over half of the respondents. .

Accommodation and transport

Accommodation patterns were highly dependent on the region of data collection. Given the number of younger respondents and students in the Whitsundays, backpacker accommodation was as important as holiday apartments, and more important than resorts and hotels at that data collection site (Figure 24, Table 20). Accommodation preferences in Tropical North Queensland were more evenly distributed between hotels, backpackers and holiday apartments (Figure 23).

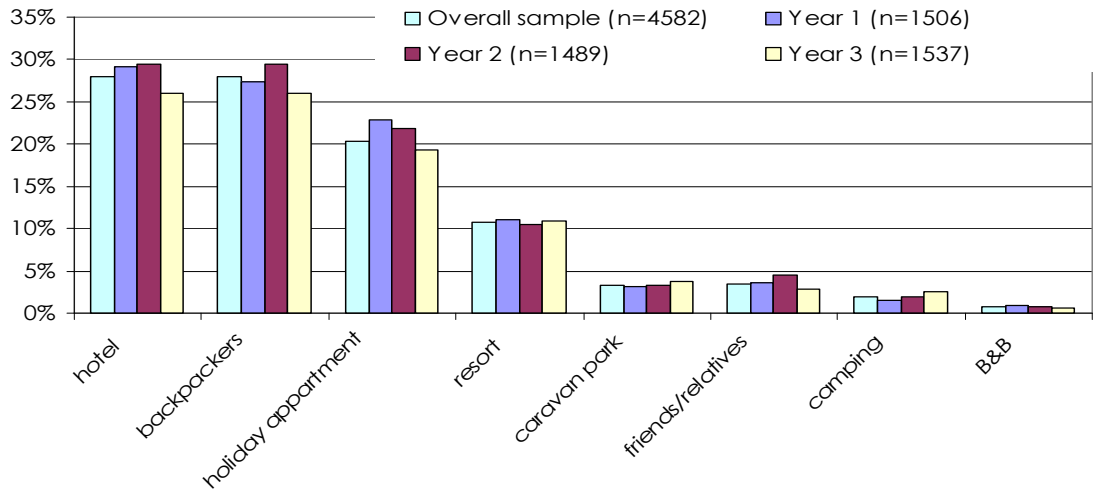


Figure 23. Accommodation choices for respondents in Tropical North Queensland.

Table 20: A regional comparison of the accommodation preferences of domestic and international respondents

	Tropical North Queensland		Whitsundays	
	Domestic respondents (n =483)	International respondents (n =1039)	Domestic respondents (n =288)	International respondents (n =352)
Holiday apartment	33.4%	14.0%	32.3%	10.8%
Hotel	27.9%	35.9%	20.1%	14.2%
Resort	17.8%	7.8%	29.9%	8.0%
Backpackers	7.0%	34.9%	2.1%	42.3%
Friends/relatives	5.8%	1.5%	4.5%	2.0%
Caravan park	5.1%	3.2%	5.2%	9.4%
Camping	3.0%	2.7%	1.4%	7.7%
Other	0%	0%	4.5%	5.6%

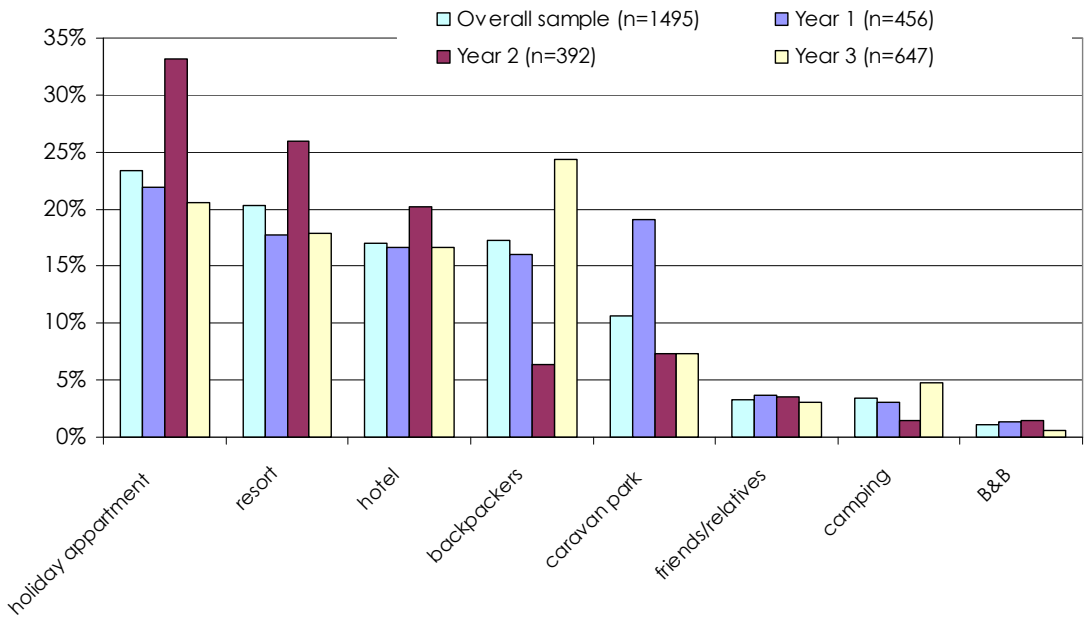


Figure 24. Accommodation choices for respondents visiting the Whitsundays.

Transport patterns were similar between the regions, with air transport accounting for over 50% of respondents' transport choices in Tropical North Queensland (Figure 25) and just under 50% of respondents in the Whitsundays (Figure 26). There were some interesting regional differences between international and domestic tourists; international tourists in the Whitsundays were less likely to travel by plane than either international or domestic tourists in Tropical North Queensland. Domestic tourists were more likely to rent a car in Tropical North Queensland, and to travel by private car in the Whitsundays (Table 21).

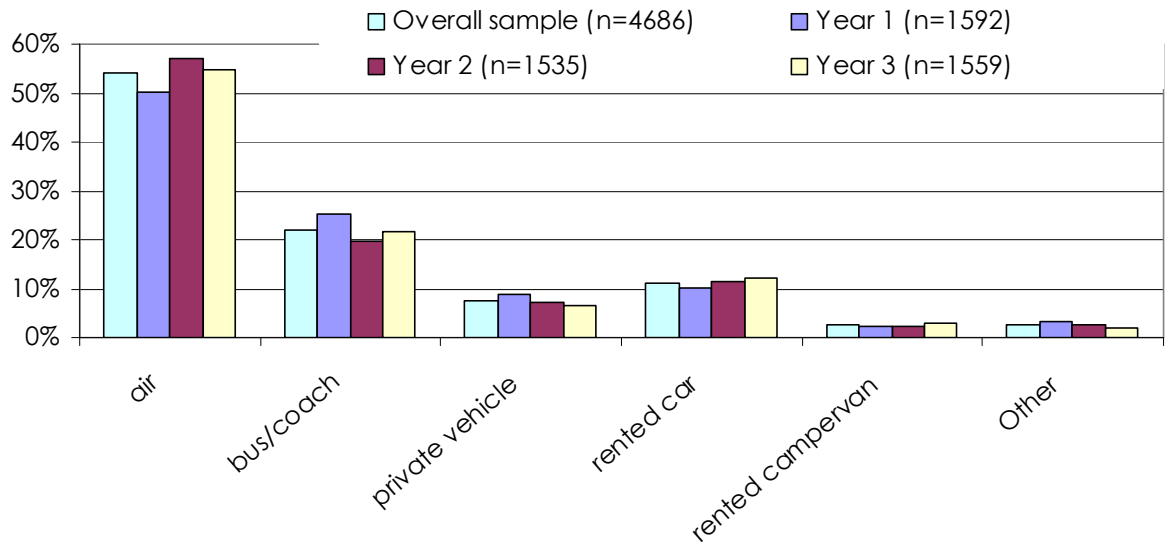


Figure 25. The transport choices of respondents in Tropical North Queensland.

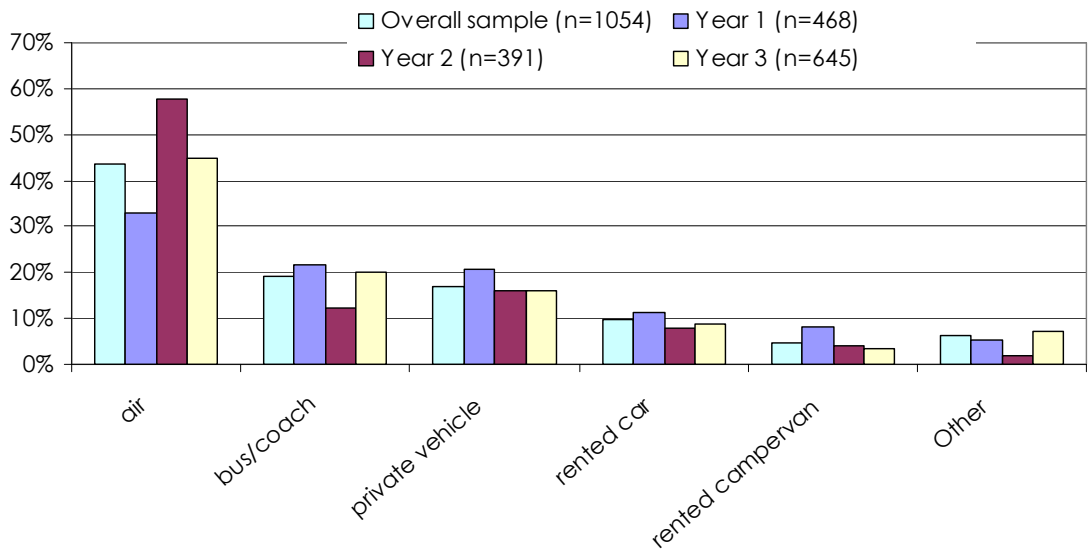


Figure 26. The transport choices of respondents in the Whitsundays.

Table 21: A regional comparison of the modes of transport used by domestic and international respondents

	Tropical North Queensland		The Whitsundays	
	Domestic respondents (n=499)	International respondents (n=1045)	Domestic respondents (n=286)	International respondents (n=352)
Air	50.5%	56.7%	65.4%	28.1%
Rented car	18.8%	8.9%	4.2%	12.9%
Bus/Coach	13.2%	25.5%	3.6%	33.0%
Private vehicle	11.8%	4.1%	19.2%	13.6%
Rented campervan	1.8%	3.6%	0.7%	5.4%
Other	3.9%	1.2%	6.9%	6.5%

Location of last holiday

To identify the major competitor destinations for Tropical North Queensland and Whitsundays respondents were asked to list up to three alternative destinations they considered for this trip and to list the destination they visited on their last holiday. This data is useful for destination marketing organizations in determining the competitor sets they need to be aware of when developing marketing campaigns.

The most popular single destinations given in response to “where did you spend your last holiday?” are outlined in Table 22. New Zealand remains a popular location for all respondents and the Gold Coast has become increasingly popular for domestic visitors.

A thematic/regional analysis of the same answers reveals trends that are shown in Table 23. This shows a slight decrease in the popularity of Europe, whilst most other destinations have increased in frequency of responses by all respondents. In 2009, the number of domestic respondents indicating that their last holiday was taken in Australia increased, indicating that Tropical North Queensland is gaining in popularity with those domestic respondents who

prefer to holiday in Australia but at the same time may be losing ground to overseas destinations that are attracting an increasing share of the Australian holiday market.

Table 22: The last holiday location of respondents in Tropical North Queensland

OVERALL RESPONDENTS	Year 1 (n=1538)	Year 2 (n=1479)	Year 3 (n= 1437)
New Zealand	4.8%	5.8%	5.1%
USA	4.0%	5.4%	5.3%
France	3.9%	4.8%	2.4%
Thailand	4.5%	3.7%	2.4%
Gold Coast	1.6%	2.9%	2.4%
Spain	4.6%	4.1%	3.0%
INTERNATIONAL RESPONDENTS	(n=1056)	(n=984)	(n=964)
USA	5.0%	7.2%	7.3%
New Zealand	4.6%	6.2%	4.8%
Spain	6.2%	5.7%	4.3%
France	5.2%	7.0%	3.2%
Italy	2.9%	3.7%	2.9%
Thailand	5.2%	4.1%	2.6%
DOMESTIC RESPONDENTS	(n=482)	(n=495)	(n= 473)
Gold Coast	4.2%	6.9%	7.3%
New Zealand	5.2%	5.7%	5.7%
Europe	2.4%	3.6%	3.0%
Sydney	1.9%	2.6%	3.2%
Tasmania	3.5%	2.4%	3.0%

Table 23: Regional analysis of last holiday locations for respondents in Tropical North Queensland

OVERALL RESPONDENTS	Year 1	Year 2	Year 3
Europe	30.7%	28.5%	25.6%
Australia, except Qld	15.8%	15.7%	18.1%
N. America (inc. Caribbean)	15.8%	14.4%	16.9%
NZ, Pacific & S.E. Asia	15.5%	17.6%	16.2%
Queensland	8.8%	11.7%	9.2%
Africa and Latin America	9.0%	6.9%	8.0%
Asia	4.4%	5.2%	6.0%
INTERNATIONAL RESPONDENTS			
Europe	40.1%	38.4%	34.1%
N. America (inc. Caribbean)	20.4%	19.1%	23.2%
NZ, Pacific & S.E. Asia	14.5%	16.1%	15.2%

Africa & Latin America	11.3%	8.9%	10.9%
Australia	6.1%	6.7%	7.2%
Asia	4.5%	5.7%	6.8%
Queensland	3.1%	5.1%	2.6%
DOMESTIC RESPONDENTS			
Australia, except Qld	37.2%	32.1%	40.8%
Queensland	21.3%	25.3%	22.4%
NZ, Pacific & S.E. Asia	17.2%	18.9%	17.9%
Europe	10.3%	11.3%	8.8%
N. America (inc. Caribbean)	6.1%	5.3%	4.1%
Africa & Latin America	4.1%	2.8%	1.9%
Asia	3.8%	4.3%	4.1%

The most popular single destinations given in response to "where did you spend your last holiday?" by visitors to the Whitsundays were similar to the responses given in Tropical North Queensland and are shown in Table 24.

Table 24: The last holiday location of respondents in the Whitsundays

OVERALL RESPONDENTS	Year 1 (n=434)	Year 2 (n=383)	Year 3 (n= 591
Gold Coast	6.2%	6.0%	3.1%
Thailand	3.0%	3.7%	3.2%
Spain	3.0%	2.6%	2.2%
New Zealand	2.5%	4.7%	3.2%
USA	2.5%	3.1%	1.9%
INTERNATIONAL RESPONDENTS	(n=190)	(n=136)	(n=315)
Spain	6.2%	7.4%	3.8%
France	5.2%	5.9%	3.2%
Thailand	5.2%	5.9%	3.4%
USA	5.0%	5.1%	2.8%
New Zealand	4.6%	3.7%	3.2%
Gold Coast	2.9%	2.2%	0.2%
DOMESTIC RESPONDENTS	(n=482)	(n=247)	(n= 270)
Gold Coast	4.2%	8.1%	6.7%
New Zealand	5.2%	5.3%	3.2%
Tasmania	3.5%	2.8%	1.7%
Sydney	1.9%	2.4%	2.5%

A thematic/regional analysis of the same answers reveals trends that are shown in Table 25. As in Tropical North Queensland, we see a decrease in travel to Europe, and an increase in domestic respondents who travel within Australia.

Table 25: Regional analysis of last holiday locations for respondents in the Whitsundays

OVERALL RESPONDENTS	Year 1	Year 2	Year 3
Europe	30.7%	22.8%	23.3%
Australia, except Qld	15.8%	20.5%	18.9%
N. America (inc. Caribbean)	15.8%	10.8%	11.6%
NZ, Pacific & S.E. Asia	15.5%	14.5%	16.8%
Africa and Latin America	9.0%	3.4%	6.0%
Queensland	8.8%	23.4%	18.9%
Asia	4.4%	3.9%	4.6%
INTERNATIONAL RESPONDENTS			
Europe	40.1%	43.7%	35.0%
N. America (inc. Caribbean)	20.4%	15.6%	18.5%
NZ, Pacific & S.E. Asia	14.5%	14.1%	17.8%
Africa & Latin America	11.3%	7.4%	8.6%
Australia	6.1%	8.1%	5.4%
Asia	6.1%	3.7%	5.1%
Queensland	4.5%	7.4%	9.6%
DOMESTIC RESPONDENTS			
Europe	23.3%	11.4%	9.3%
Queensland	23.1%	32.1%	29.9%
Australia, except Qld	22.4%	27.2%	35.1%
NZ, Pacific & S.E. Asia	13.2%	15.9%	15.7%
N. America (inc. Caribbean)	7.6%	8.1%	3.7%
Asia	5.3%	4.1%	3.7%
Africa & Latin America	5.1%	1.2%	2.6%

Alternative destinations considered

Respondents were asked to state alternative destinations they considered when planning this trip. New Zealand and Sydney were identified as the major alternatives to a Cairns holiday while Cairns, New Zealand and Fiji appear to be the Whitsundays' main competitors (Table 26 and 27).

Table 26: Alternative destinations considered by respondents in Tropical North Queensland

Destination	Year 1 (n=2813)	Year 2 (n=3028)	Year 3 (n=3008)
New Zealand	7.0%	6.4%	6.9%
Sydney	6.5%	7.0%	6.4%
Fiji	4.2%	3.8%	3.9%
Melbourne	3.3%	3.9%	2.6%
Thailand	2.9%	3.4%	3.6%
USA	2.1%	3.0%	2.6%

Table 27: Alternative destinations considered by respondents in the Whitsundays

Destination	Year 1 (n=4013)	Year 2 (n=4552)	Year 3 (n=1332)
Cairns	9.5%	6.8	6.5%
New Zealand	4.5%	6.0%	6.6%
Fiji	4.3%	7.4%	6.6%
Sydney	4.2%	3.3%	4.5%
Thailand	1.9%	3.0%	4.9%

Motivations

The Great Barrier Reef remains the single most important travel motivation for respondents in both regions. The marketing strategies of each region, '74 islands' in the Whitsundays and 'Reef meets the Rainforest' for Tropical North Queensland, was mirrored in the ratings given by respondents to different motivations in the two regions. In Tropical North Queensland, seeing the rainforest was the sixth most important motivation, while going to the islands was only the 11th most important motivation (Figure 27). In the Whitsundays, going to the islands was ranked fourth and seeing the rainforest was ranked 12th (Figure 28)

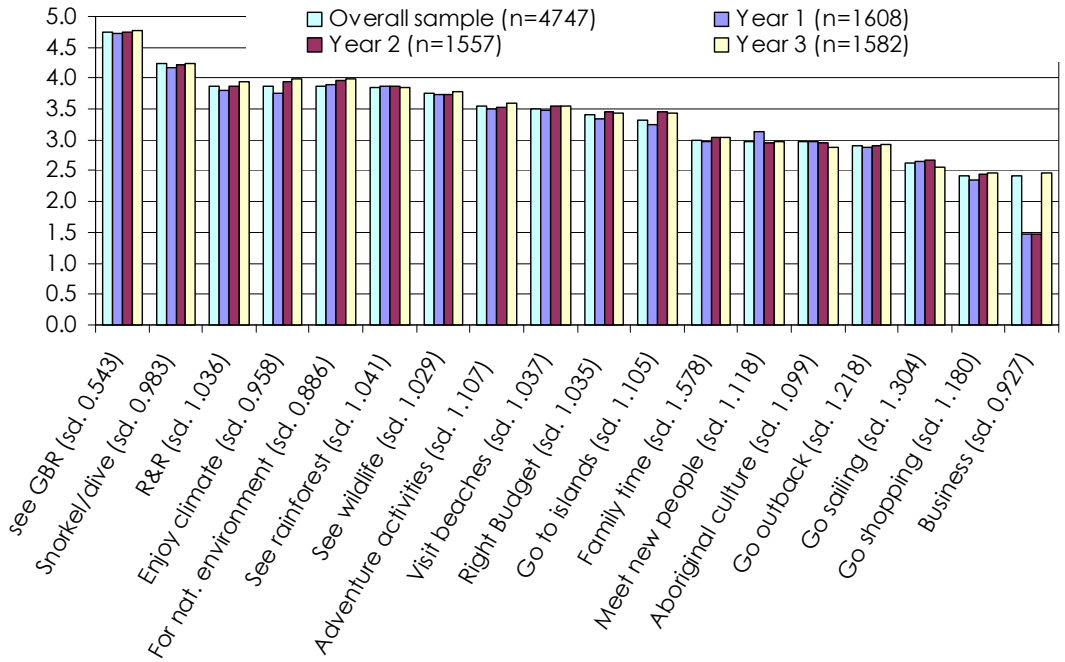


Figure 27. Respondents' motivations to visit Tropical North Queensland (as mean, measured on a Likert scale, where 1 = not very important and 5 = very important).

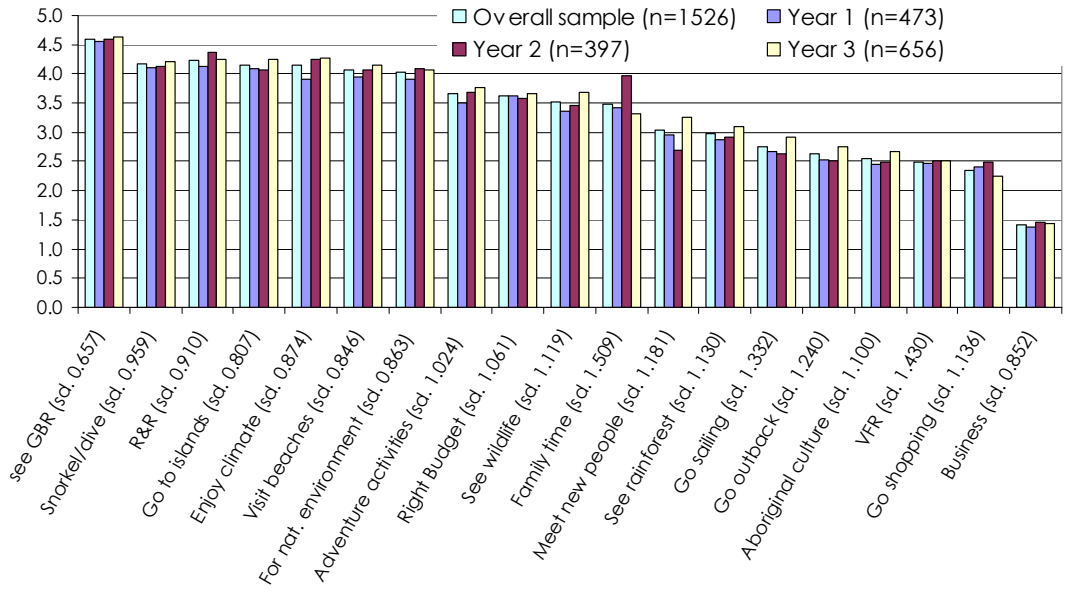


Figure 28. Respondents' motivations to visit the Whitsundays (as mean, measured on a Likert scale, where 1 = not very important and 5 = very important).

Information sources

Informal information, such as word of mouth from friends and relatives, remains the single most important source of information regarding the region visited in both Tropical North Queensland and the Whitsundays (Figures 29 and 30). It is growing rapidly as a source of information about the Whitsundays, with more than half of the respondents saying they had consulted friends and relatives about the region prior to their visit. While guidebooks are the second most frequently cited source of information about Tropical North Queensland, respondents in the Whitsundays are increasingly more likely to use the internet to plan their holiday.

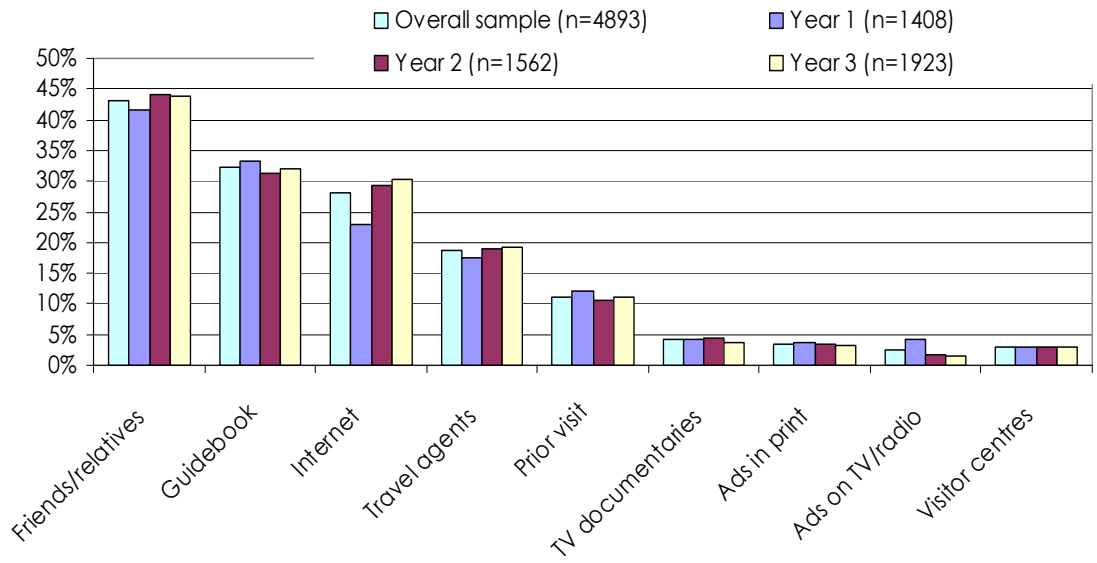


Figure 29. The information sources used by respondents in Tropical North Queensland to plan their holiday.

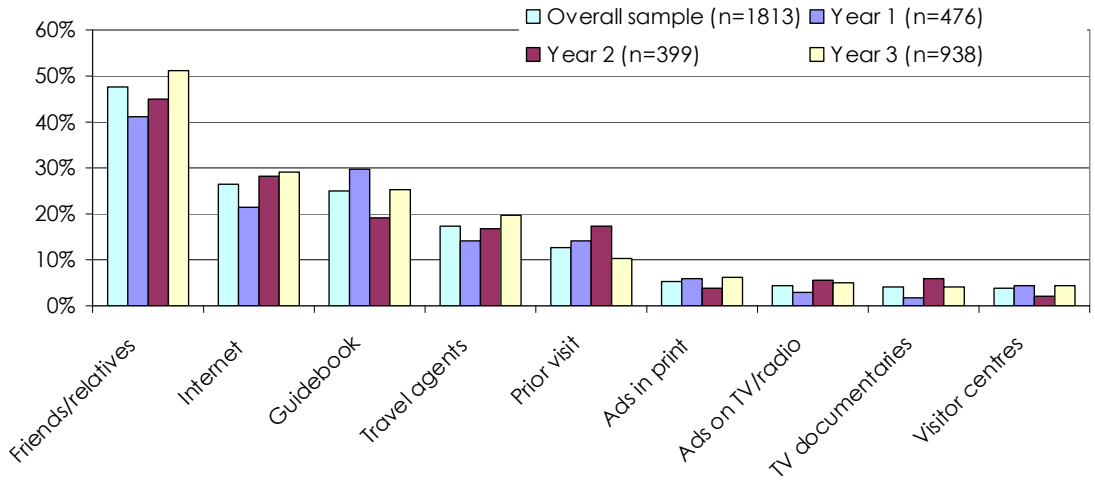


Figure 30. The information sources used by respondents in the Whitsundays to plan their holiday.

4.3 Respondents' reef experience and satisfaction

Previous visits to the reef and choice of operator

Fewer respondents in Tropical North Queensland had visited the GBR prior to completing this visitor survey compared to the Whitsundays (23.3% and 32.1% respectively). In both regions, two thirds of repeat visitors had been to the GBR once or twice before.

Respondents' choice of operator was primarily based on recommendation by travel or booking agents (Figure 31 and 32). Price sensitivity was more apparent in the Whitsundays, with its strong backpacker market, while product differentiation appears to be taking place in

Tropical North Queensland, with more than a quarter of respondents basing their decision on the types of activities and destinations (pontoons, islands, etc) offered by different operators.

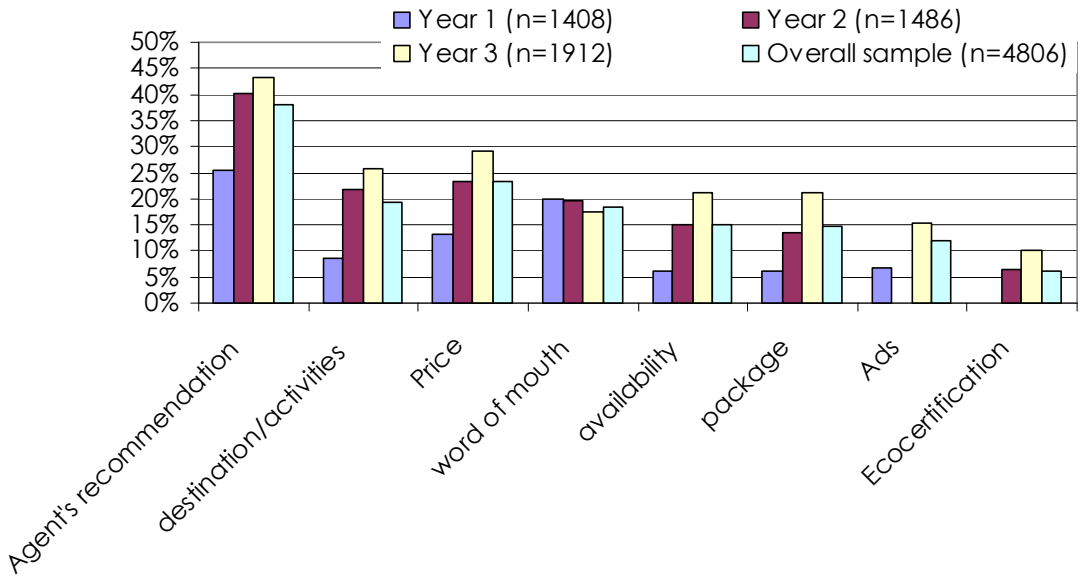


Figure 31. The sources of information used by respondents in Tropical North Queensland to choose their operator.

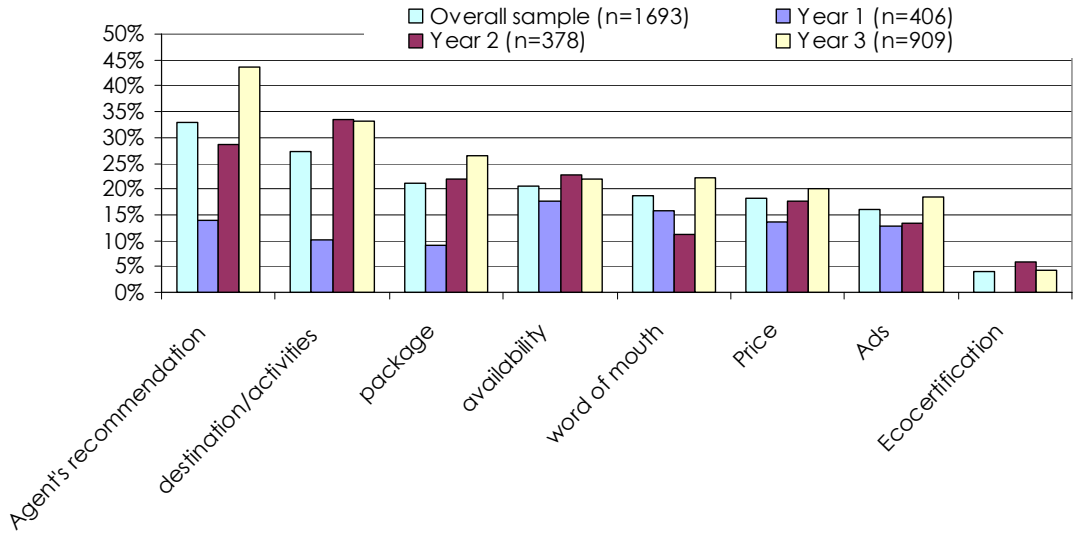


Figure 32. The sources of information used by respondents in the Whitsundays to choose their operator.

Visits to other reefs

When asked if they had visited other reefs prior to this trip to the GBR, a slightly larger number of respondents in Tropical North Queensland said yes (49.7%) than in the Whitsundays where 40.4% of respondents indicated they had a previous reef experience

outside of the GBR. The most frequently visited reefs were South East Asian reefs, and reefs in the Caribbean (Figure 33 and 34).

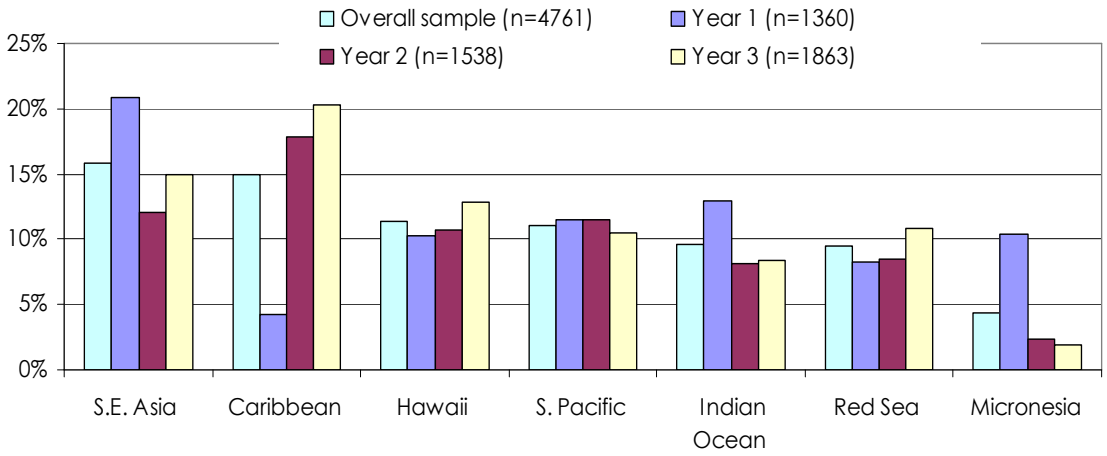


Figure 33. Reefs visited by all respondents before this visit to Tropical North Queensland.

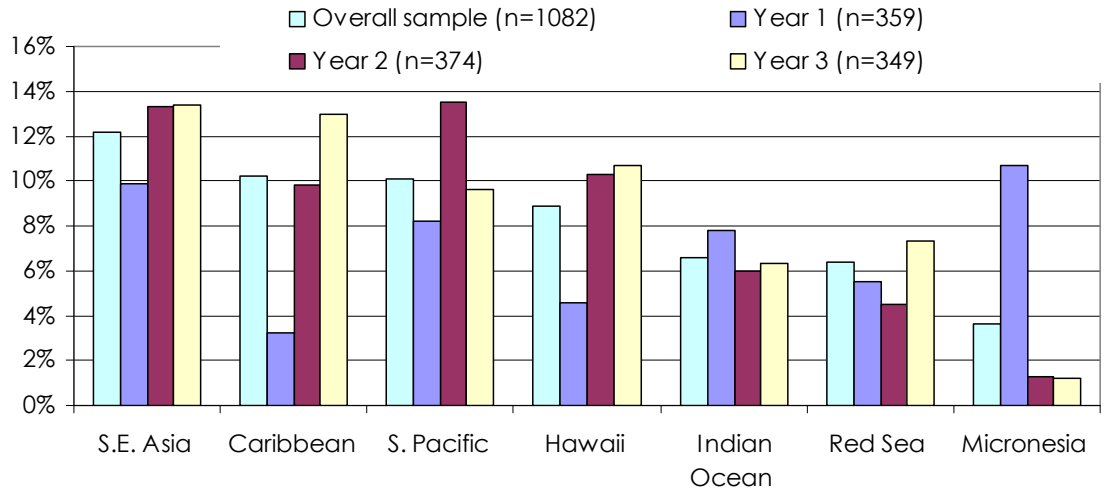


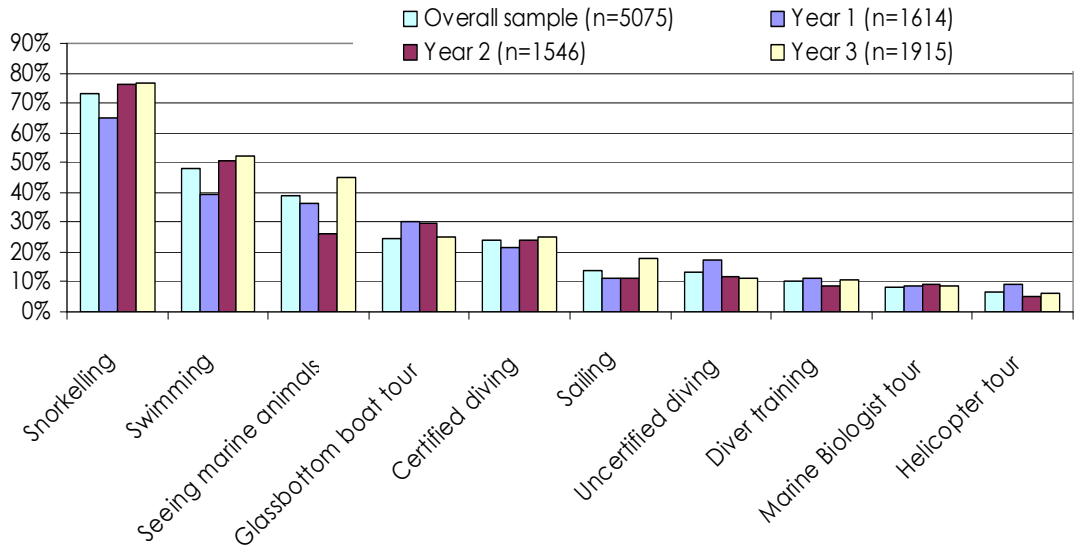
Figure 34. Reefs visited by all respondents before this visit to the Whitsundays.

Diving profile and activities at the reef

Intentions to dive while visiting the reef, and the actual diving profiles of respondents were quite different across regions. In Tropical North Queensland, nearly half the respondents (42.5%) planned to SCUBA dive on the reef, while in the Whitsundays the proportion was lower (29.0%). Of the respondents planning to dive in Tropical North Queensland, many had no previous diving experience (35.7%), while 24.0% had logged four or less dives prior to this visit, 15.0% had logged five to 10 dives and 25.3% of respondents had logged more than 10 dives. In the Whitsundays, an even greater number of respondents had no previous diving

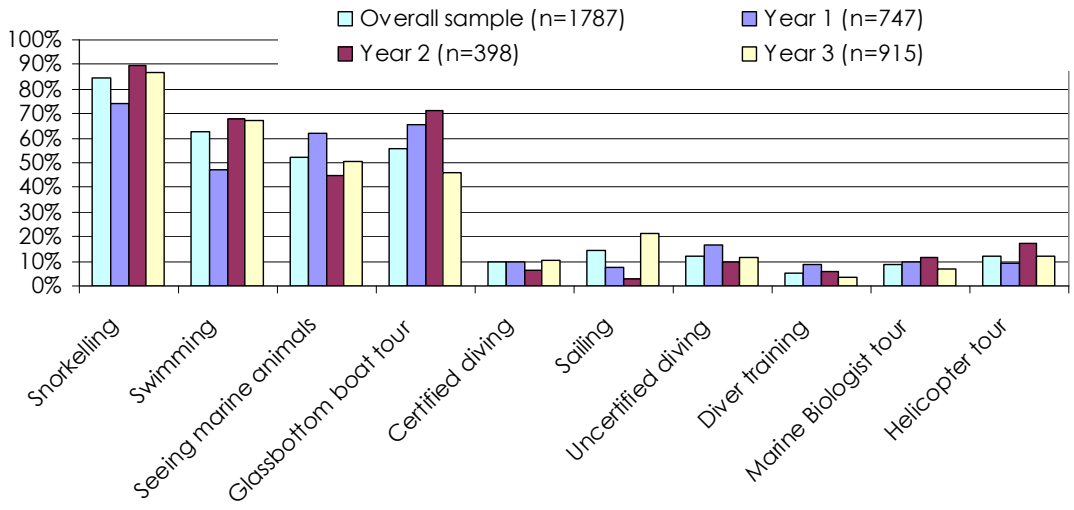
experience (41.1%), while 23.0% had logged four or less dives prior to this visit, 11.7% had logged five to 10 dives and 24.2% of respondents had logged more than 10 dives.

The most common activities undertaken in both regions were snorkelling, swimming and seeing marine animals (Figure 35 and 36). This was followed by glass bottom boat tours, which has declined slightly in popularity in both regions. Certified diving is slightly less commonly undertaken by respondents in the Whitsundays when compared to Tropical North Queensland, and the other activities do not show much variation between regions. Table 28 confirms that glass bottom boat tours have a more specific market in the Whitsundays with nearly two thirds of domestic tourists and only one third of international respondents going on a glass bottom boat tour.



*only those operators that offer a glass bottom boat or semisubmersible tour were included in this figure.

Figure 35. Activities undertaken by respondents in Tropical North Queensland.



*only those operators that offer a glass bottom boat or semisubmersible tour were included in this figure.

Figure 36. Activities undertaken by respondents in the Whitsundays.

Table 28: A regional comparison of the activities of domestic & international respondents

	Tropical North Queensland		The Whitsundays	
	Domestic respondents (n=589)	International respondents (n=1319)	Domestic respondents (n=419)	International respondents (n=478)
Snorkelling	79.1%	75.7%	86.9%	86.4%
Swimming	60.4%	48.7%	67.3%	67.1%
View marine animals	42.7%	46.0%	54.4%	48.0%
Glass bottom boat*	37.5%	19.7%	63.7%	31.2%
Certified diving	17.8%	28.0%	7.3%	13.2%
Uncertified diving	8.1%	13.0%	7.3%	13.2%
Diver training	7.3%	12.1%	6.8%	15.0%

*only those operators that offer a glass bottom boat or semisubmersible tour were included in this figure.

Satisfaction levels and recommendations

The mean satisfaction scores showed a slight variation between regions, with a mean of 8.59 (SD. 1.299) in Tropical North Queensland and 8.25 (SD. 1.502) in the Whitsundays. Figure 38 shows how satisfaction scores have fluctuated over the quarters; with satisfaction peaking in the second quarter of 2008 and then decreasing slightly in the Whitsundays, and remaining relatively constant since the end of 2008 in Tropical North Queensland (Figure 37). In both regions, satisfaction scores show significant variations over time ($F= 2.404$, $p<0.05$ in TNQ and $F=3.121$, $p<0.05$ in the Whitsundays). International respondents

appeared to rate their satisfaction significantly higher than domestic respondents in Tropical North Queensland (t=-2.204, p<0.05), whilst there no obvious pattern in the Whitsundays (Figure 37 and 38).

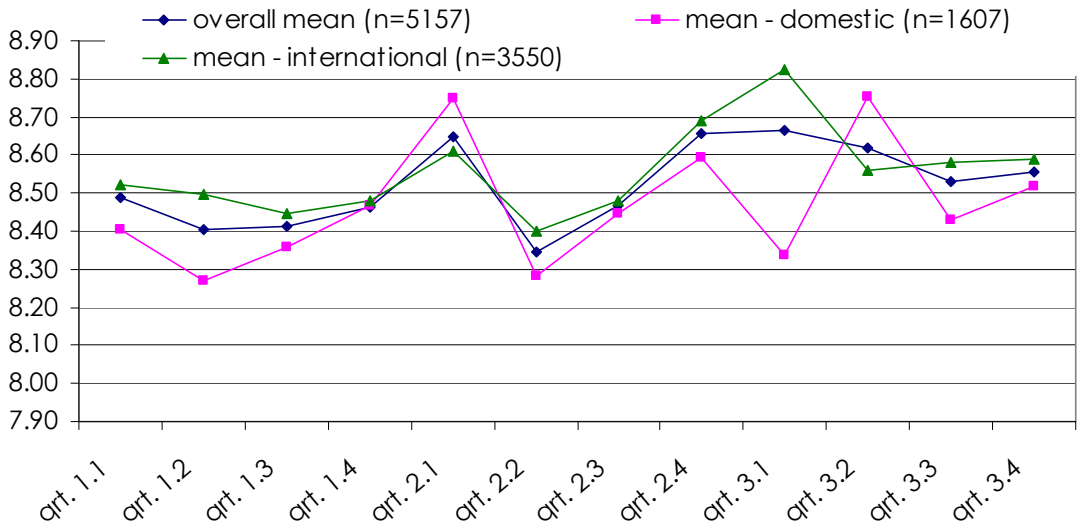


Figure 37. Changes in satisfaction between Q1, 2007 and Q4, 2009 for respondents in Tropical North Queensland.

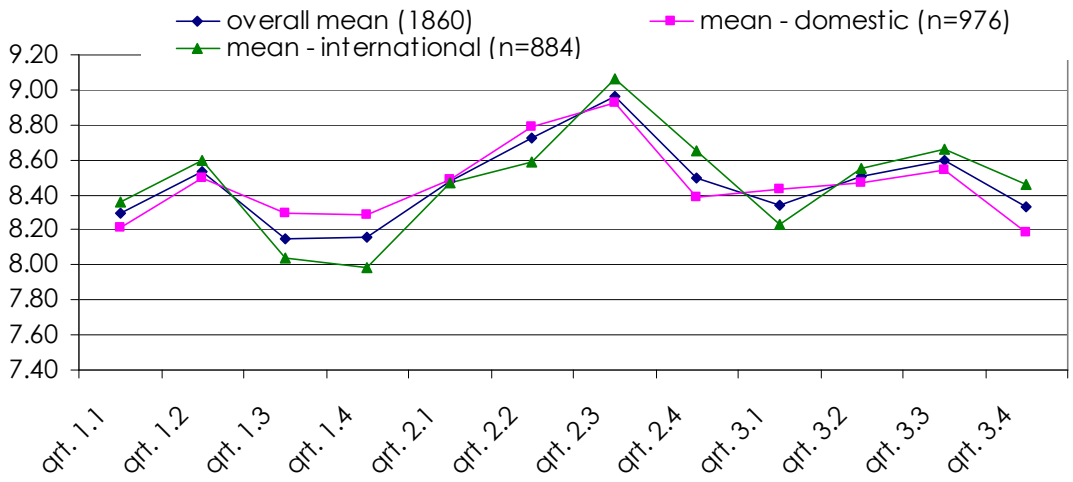


Figure 38. Changes in satisfaction between Q1, 2007 and Q4, 2009 for respondents in the Whitsundays.

When asked if the reef met their expectations, the positive response rate was slightly higher in Tropical North Queensland (96%) than in the Whitsundays (91.9%) and similarly when asked if the trip met their expectations (97.2% said yes in Tropical North Queensland and 91.2% said yes in the Whitsundays). In addition, 88.8% of respondents in Tropical North Queensland and 79.6% of respondents in the Whitsundays felt that they got value for money, and 97.1% of respondents in Tropical North Queensland and 90.3% of respondents in the Whitsundays said that they would recommend the trip to others.

The factors that influenced satisfaction and the best and worst experiences remained consistent across years and locations. The most important factor that influenced satisfaction was the staff and their professionalism (Table 29). This accounted for 49.9% of responses in the Tropical North Queensland data set, and 40.3% of responses in the Whitsundays. The weather and the sea state were mentioned by a greater number of respondents in the Whitsundays than in Tropical North Queensland.

Table 29: The factors that influenced trip satisfaction for respondents in TNQ

	Year 3 (n= 1510)	Year 2 (n= 1409)	Year 1 (n=1443)
Staff	49.9%	47.3%	48.3%
Weather and sea state	18.3%	17.8%	24.7%
Natural Environment	18.3%	25.1%	23.1%
Diving and/or Snorkelling	21.3%	17.2%	14.1%
Staff knowledge & Interpretation	5.6%	4.5%	2.8%

Table 30: The factors that influenced trip satisfaction for respondents in the Whitsundays

	Year 3 (n= 749)	Year 2 (n=367)	Year 1 (n=426)
Staff	40.3%	44.7%	43.2%
Weather and sea state	32.7%	18.0%	23.0%
Natural environment	21.5%	19.9%	23.5%
Diving and/or snorkelling	19.0%	12.8%	12.7%
Staff knowledge & interpretation	4.3%	3.75%	2.1%

The tourists' responses to the question "What was your best experience today?" were dominated by diving and snorkelling (49% in Tropical North Queensland and 48.1% in the Whitsundays), followed by enjoying the marine life (Table 31 & 32). Staff and the level of service was less important in the Whitsundays than in Tropical North Queensland.

Table 31: The factors described as the best experience of the day by respondents in TNQ

	Year 3 (N =1467)	Year 2 (n=1406)	Year 1 (n=1490)
Diving / snorkelling	49.1%	43.5%	43.6%
Marine life	40.0%	33.5%	24.9%
Staff / service / professionalism	13.1%	11.0%	12.3%

Table 32: The factors described as the best experience of the day by respondents in the Whitsundays

	Year 3 (n =783)	Year 2 (n=371)	Year 1 (n=447)
Diving / snorkelling	48.1%	48.8%	44.7%
Marine life	33.0%	26.1%	23.3%
Staff / service / professionalism	7.9%	11.6%	12.5%

The tourists' worst experiences were highly dependent on the weather and the state of the sea (Table 33 & 34), but it is also worth noting that over a quarter of respondents reported no worst experience in either Tropical North Queensland or the Whitsundays.

Table 33: The factors described as the worst experience for the day by respondents in TNQ

	Year 3 (n =1298)	Year 2 (n=1367)	Year 1 (n=1465)
Weather / sea state (sea sick)	21.3%	25.4%	28.6%
None	26.3%	22.5%	24.6%

Table 34: The factors described as the worst experience for the day by respondents in the Whitsundays

	Year 3 (n =693)	Year 2 (n=368)	Year 1 (n=426)
Weather / sea state (sea sick)	20.3%	26.6%	25.1%
None	27.6%	21.2%	28.9%

5. Additional research results

5.1 A focus on ecotourism, interpretation & marine animals

Ecotourism accreditation, interpretation, and a nature-based product play a very important role in the development of the GBR marine tourism industry. In a practical sense, operators who successfully obtain eco-certification are eligible to apply for long-term permits and receive other benefits and recognition, including GBRMPA support at trade events.

Delivering high-quality interpretation is an important component of the ecotourism accreditation (Ecotourism Australia, 2003). In addition, although few respondents mention it as one of the factors that influences their satisfaction with the tour (Table 13 and 29), good interpretation is known to correlate with higher satisfaction scores (Wearing et al., 2008).

Because of the importance of interpretation in creating a quality visitor experience, its role in ecotourism certification, and its use in promoting conservation messages, several additional questions regarding interpretation provided during the reef trip were asked during this third year of data collection (see Appendix B). The questions focused on respondents' existing level of knowledge, their perceptions of threats to the reef, and the conservation messages they received during the tour, as well as the influence of interpretation on respondents' environmental behaviour, both at the reef and after their visit. In addition, we examine ecotourism accreditation as a marketing tool and finally, report on some of the trends relating to the seasonality and availability of tourism-relevant marine resources.

Knowledge of the reef and impacts of interpretation

Most respondents (80%) had not accessed any information about the GBR prior to this trip and respondents' knowledge of the reef was generally relatively low (Figure 39). A third of respondents correctly identified corals as a type of animal (33%) and a further 40% referred to corals as both an animal and a plant, presumably referring to their symbiotic relationship with zooanthallae. Fifteen per cent believed that they were plants, and the remaining 12% said they were either minerals/rocks (6.0%), fish (0.5%) or said that did not know what corals were (5.5%).

While there was no difference between international and domestic respondents regarding their knowledge of the nature of corals, international respondents were significantly more likely to say that they were not sure what coral bleaching is, and domestic respondents were more likely to think that it is dead coral, or sunburnt coral ($\chi^2 = 53.054$, $p<0.05$) (Table 35).

Table 35. Differences between domestic and international respondents concerning knowledge about coral bleaching

	Dead coral	Coral that has lost its algae	Thriving coral	Sunburnt coral	Normal coral	Don't know
Domestic (n = 289)	32.5%	30.4%	1.4%	17.3%	0.7%	17.6%
International (n =656)	26.2%	29.3%	1.4%	6.9%	0%	35.2%

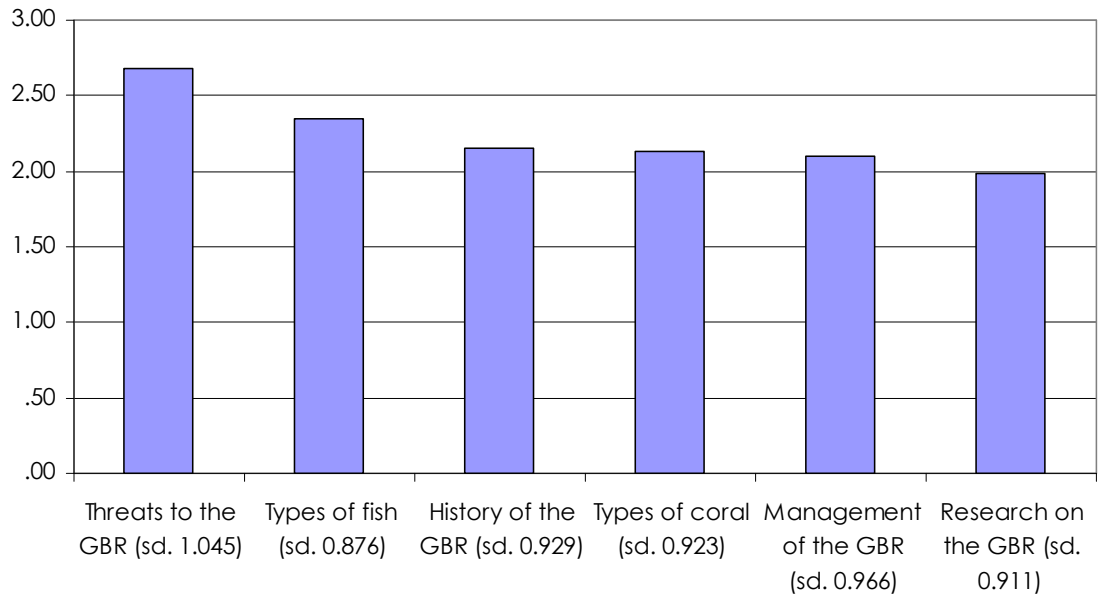


Figure 39. Mean level of respondents' knowledge regarding the GBR (on a scale of 1–5, where 1 = no knowledge and 5 = excellent knowledge) (n=747).

For 70% of respondents, their trip did increase their knowledge of the reef, There was no statistical difference between international and domestic respondents for this result. When asked what types of interpretation they found helpful in gaining a better understanding of the reef, many considered informal conversations with crew to be of most help (Figure 40). Informal conversations were considered significantly more helpful than marine biology talks on board, videos or books and brochures available during the trip (Table 36).

Table 36: A t-test comparison of means between the perceived helpfulness of informal conversations with crew and other commonly used types of interpretation

	Mean	df	t -test	P value
Informal conversations compared with marine biology talks.	-.251	556	-6.474	.000
Informal conversations compared with videos on board	-.532	390	-9.714	.000
Informal conversations compared with books/brochures.	-.506	489	-11.699	.000

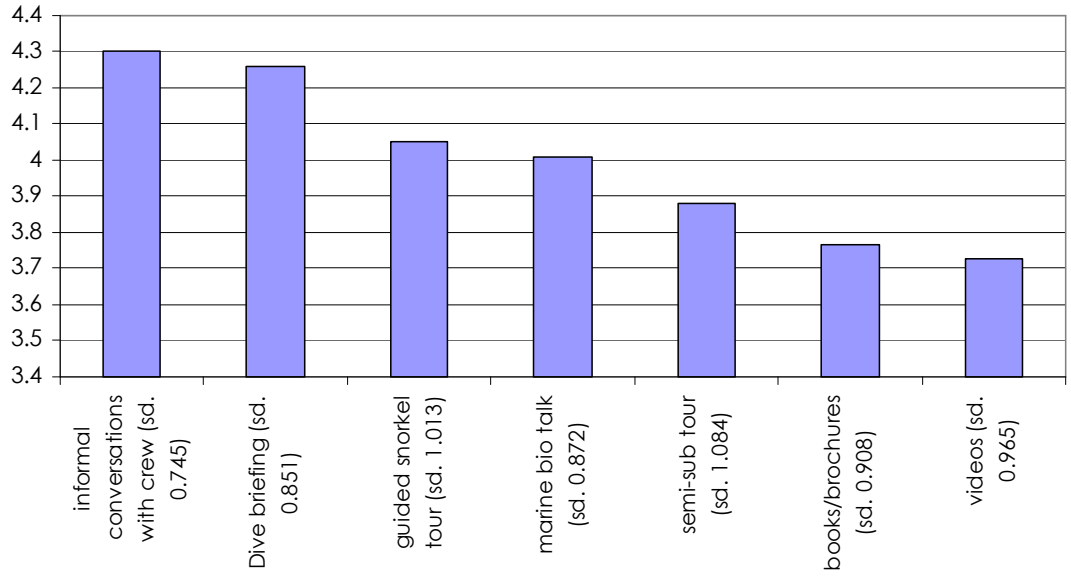


Figure 40. Respondents' assessment of how helpful different types of interpretation sources were to their understanding of the reef (on a scale of 1–5, where 1 = not at all helpful and 5 = very helpful) (n=641)

Interestingly, different patterns emerged between international and domestic respondents, with domestic tourists significantly more likely to prefer videos, guided tours and semi-submersible tours (Table 34).

Table 34: A t-test comparison of means for interpretation preference differences between domestic and international respondents

	Origin of respondents	Mean	Std. Deviation	T-Test Value
Videos on board	Domestic (n =188)	3.95	.799	4.084, p<0.05
	International (n =l262)	3.58	1.043	
Guided snorkel tour	Domestic (n =124)	4.29	.961	3.128, p<0.05
	International (n =291)	3.96	1.014	
Semi-sub or glass bottom boat	Domestic (n =196)	4.09	.929	3.744, p<0.05
	International (n =245)	3.72	1.166	

Perceptions of threats to the reef and conservation messages

When asked to identify the most important interpretation message they received during their trip to the GBR, many respondents (29.2%) identified that the reef needs protection as a key message. Other choices were that the reef is very diverse (19.3%), that the reef is fragile (16.0%), that the reef is slow growing (15.3%), not to stand or touch the reef (10.6%) or that it is big (9.6%). Responses were similar between international and domestic respondents.

When asked to name three major threats to the reef, one in every six responses referred to people in general (15.3%). More specifically, however, respondents were able to identify pollution (25.5%), climate change impacts (22.7%), commercial activities in the marine park (14.9%), physical damage to the reef and coral breakages (7.3%), Crown of Thorns Starfish (4.1%) and other responses (10.31%) that did not fall into these categories, e.g. disease. Domestic respondents were significantly more likely to identify climate change/coral bleaching and crown-of-thorns starfish as threats to the GBR, than international respondents ($\chi^2 = 56.457$, $p<0.05$) (Table 35).

Table 35: Threats to the GBR as identified by respondents (n=1708, as multiple responses were recorded)

	All Respondents	Domestic Respondents	International respondents
People in general	**15.30%**	**15.18%**	**15.91%**
Pollution, including	**25.43%**	**24.82%**	**26.94%**
general pollution	18.07%	16.31%	19.69%
litter/garbage	3.02%	2.98%	3.40%
water pollution	1.37%	0.57%	1.85%
oil spillages	1.51%	2.41%	1.11%
agricultural pollution	0.80%	1.42%	0.52%
land runoff/sedimentation	0.66%	1.13%	0.37%
Climate change, including	**22.60%**	**25.82%**	**21.98%**
climate change generally	16.37%	18.72%	15.77%
increasing water temp.	3.58%	3.12%	4.00%
bleaching	1.18%	1.70%	0.96%
rising sea levels	0.75%	1.13%	0.74%
ocean acidification	0.71%	1.13%	0.52%
Commercial activities	**14.95%**	**11.91%**	**15.25%**
tourism	8.58%	6.52%	10.07%
fishing	5.09%	5.25%	5.18%
mining	0.05%	0.14%	0.00%
Physical damage to the reef structure	**7.31%**	**7.80%**	**13.99%**
physical damage	3.82%	2.70%	4.59%
boats/ships/anchoring	2.88%	2.27%	3.26%
divers and snorkellers	2.64%	1.13%	3.55%
coral/animal removal	1.23%	0.43%	0.07%
storm/cyclone damage	0.85%	0.99%	1.41%
Crown of thorn starfish	**4.10%**	**9.08%**	**1.70%**
Other	**10.31%**	**5.39%**	**4.23%**

Respondents were also asked to name an endangered species found on the reef. Turtles were most commonly cited (35.5%), often at species level. Next, sharks were cited by 22.2% of respondents, whilst corals themselves accounted for 15.3% of responses. Other animals that were commonly identified as endangered include Maori wrasse (*Cheilinus undulatus*) (3.1%), giant clams (4.8%) and anemone fish (3.1%). Whales and dolphins were mentioned by 5.4% and 1.1% of respondents respectively, despite not being reef animals in the strictest sense.

Again, as we compare international and domestic respondents, we find a number of differences regarding which animals are perceived to be endangered (Figure 41). In particular, sharks were more likely to be noted as endangered by international respondents than domestic respondents, while the opposite is true for turtles ($\chi^2 = 40.950$, $p<0.05$).

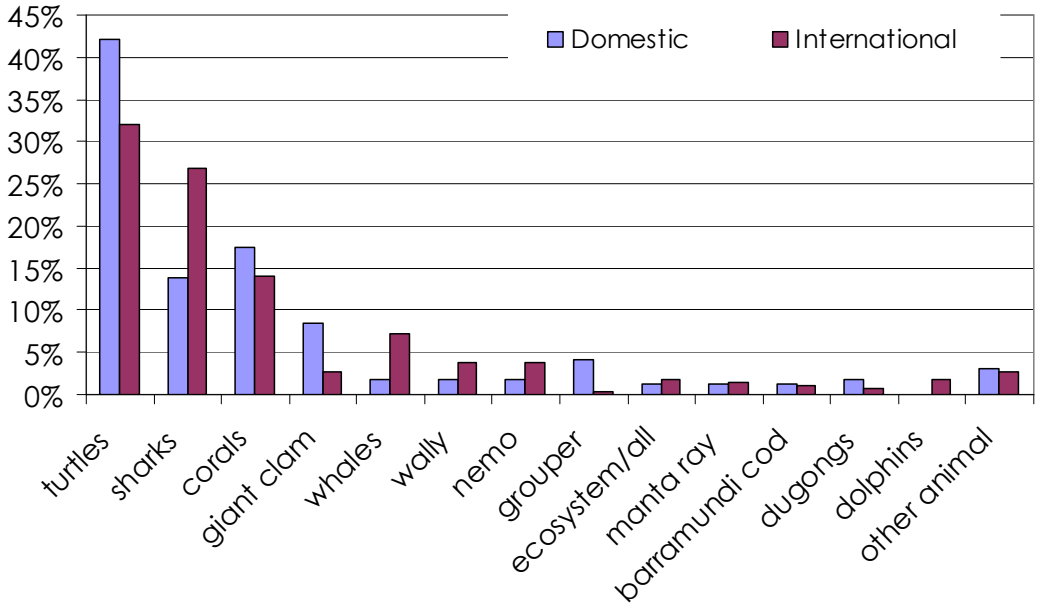


Figure 41: comparison of international (n=249) and domestic (n=129) respondents' perceptions of threatened species on the reef.

Impacts on environmental behaviour

Respondents successfully recalled many of the environmental behaviours that they were told to observe during their trip (Figure 42). More than 80% of respondents recall being told not to stand on or touch the coral and not to remove anything from the reef, while fewer respondents recalled being told not to chase the marine life (51.3%) and less than half (44.2%) recalled being told not to feed the marine life. There were no differences based on the country of origin of respondents.

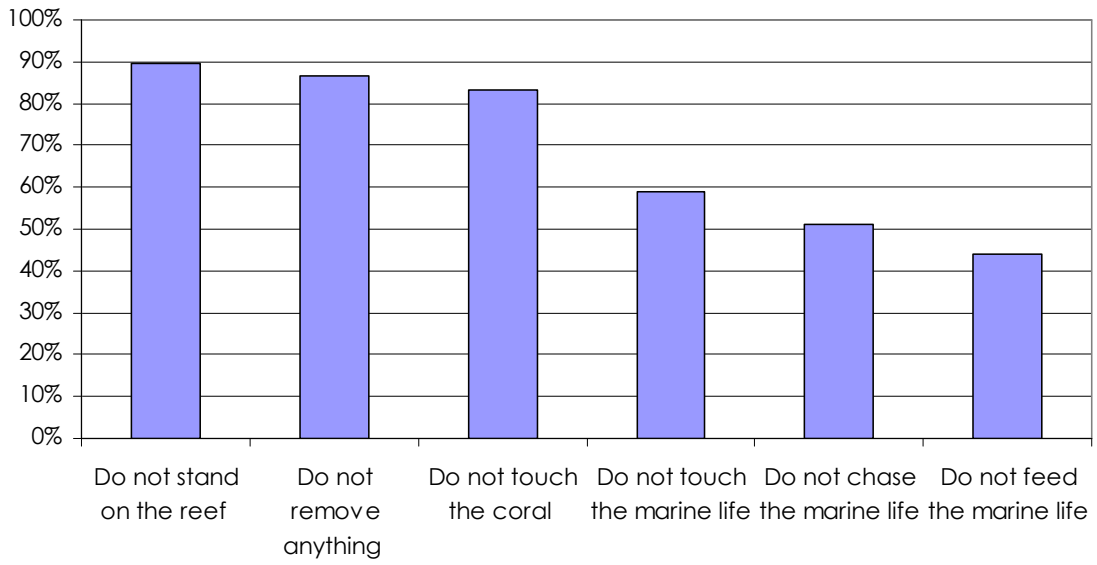


Figure 42. The percentage of respondents who could remember the environmental behaviours included in the interpretative messages during their trip (n=734).

The information passed onto respondents was relatively successful at changing environmental behaviours and attitudes, with over 50% of respondents agreeing that it made them change their attitudes and behaviour at least a little (Figure 43). No differences were noted between international and domestic respondents.

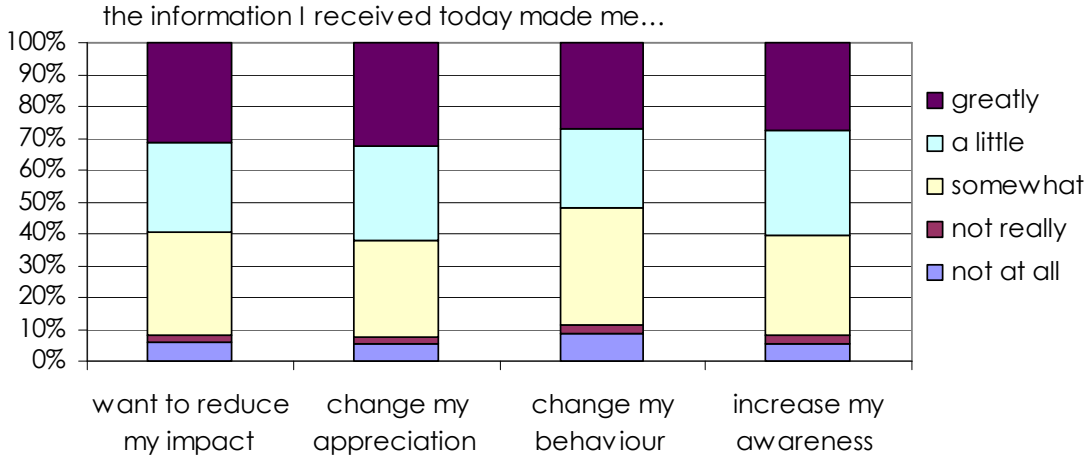


Figure 43. The impact of the information provided on respondents' attitude and behavior (n=701).

Finally, when asked about specific behaviour, respondents were most likely to agree that they would not remove anything from the reef or stand on the reef than more general practices such as becoming more involved in environmental issues (Table 36). Again, we find that by comparing international and domestic respondents, differences in behavioural intentions emerge, with domestic respondents more likely to adopt environmentally friendly

practices and international respondents more likely to obtain more information about the reef or become more involved in environmental issues.

Table 36: The respondents' level of agreement with the following statement as a result of their visit to the reef (on a scale of 1–5, where 1= strongly disagree and 5= strongly agree).

	Overall Res. (n=734)	Domestic Res. (n=227)	International Res. (n=507)	T-test, p value
	Mean (sd)	Mean (sd)	Mean (sd)	
I will not remove anything from the reef	4.74 (0.641)	4.70 (0.655)	4.70 (0.620)	Not significant
I will not stand on the reef	4.70 (0.759)	4.69 (0.808)	4.70 (0.769)	Not significant
I will tell friends about the reef	4.48 (0.792)	4.37 (0.804)	4.53 (0.772)	-2.918, p<0.05
I will not feed the marine life	4.39 (0.985)	4.48 (0.890)	4.37 (1.007)	Not significant
I will not touch the marine life	4.29 (1.049)	4.29 (1.023)	4.29 (1.055)	Not significant
I will adopt more environmentally friendly practices	4.04 (1.033)	4.17 (0.918)	3.99 (1.075)	2.589, p<0.05
I will get more information about the reef	3.45 (1.022)	3.29 (1.014)	3.53 (1.016)	-3.332, p<0.05
I intend to become more involved in environmental issues.	3.01 (0.986)	2.89 (0.942)	3.06 (1.001)	-2.577, p<0.05

Ecotourism accreditation

Ecotourism accreditation may be considered as a tool for promoting co-management, industry best practice (supply-side aspects) and as a marketing tool (demand-side aspects). The visitor surveys collect information on respondents' awareness of the accreditation status of their chosen operator, as well as the importance of ecotourism accreditation in their choice of operator. Figure 32 indicates that ecotourism accreditation was generally not considered as one of the immediate factors influencing the choice of operator, with only 5% of respondents citing it as a consideration when selecting their tour operator. Instead, factors such as the recommendations of an agent, the destination and activities offered by the operator and the availability and schedule of the tour were more important decision factors. In addition, less than 50% of respondents noticed the ecotourism status of the operator that they selected to visit the reef. This figure declined from 54.6% in the first year, 45.3% in the second year to 42.0% in this third year of data collection. This figure was generally slightly higher for respondents who had travelled with an ecotourism certified operator than those who had not (Table 37).

While these results do not appear to support the importance of ecotourism accreditation as a marketing tool, a technical report designed to segment visitors to the reef based on their stated travel motivations suggests otherwise (Coghlan & Prideaux, 2012b). Using travel motivations as variables to distinguish between respondents, two overarching clusters were identified based on the importance they place on seeing the outback, going to the beaches, visiting the islands, seeing wildlife, meeting new people and experiencing Aboriginal culture. Figure 11 shows that segment (Cluster) 1 (the larger segment) rated these motivations consistently higher than segment 2 (Table 38).

Table 37: The proportion of respondents travelling with certified and uncertified operators who noticed the ecotourism accreditation status of their operator

	Ecotourism accreditation	
	Uncertified	Certified
Year 1	52.8%	59.5%
Year 2	37.5%	48.6%
Year 3	31.1%	44.8%
Total	39.2%	49.7%

Table 38: The importance rating of motivations (on a scale of 1 to 5) for the two segments

Segment Number		Seeing the outback	Going to the beaches	Visiting the islands	Seeing the wildlife	Meeting new people
1	Mean	3.25	3.93	3.79	3.94	3.38
	Std. Deviation	.984	.776	.831	.847	.932
2	Mean	1.94	3.06	2.93	3.18	2.38
	Std. Deviation	1.140	1.183	1.287	1.240	1.153

There also appeared to be a group of core travel motivations such as snorkelling/diving, seeing the GBR, R&R, having some family-time, enjoying the climate, seeing the rainforest and having an affordable holiday. These core motivations were high for both segments of respondents, representing some of the stronger "pull' attributes of the destination.

Further analysis identified that Segment 1 included a higher proportion (64%) of the respondents who noticed their operator's ecotourism accreditation status, as well as 70% of the 195 respondents who choose an operator because of its ecotourism accreditation. They also appeared to be highly representative of those respondents who noted a change in knowledge (70% of the 948 respondents whose knowledge had greatly increased), behaviour (66.7% of the 1119 respondents who did change their behaviour) and appreciation for the reef (66.0% of the 1362 respondents who did change appreciation of the reef). Finally, they included 68.7% of the 729 respondents who asked for additional information about the reef.

The technical report suggests that segment 1 may be likened to Tourism Australia's 'Experience Seekers' category, as they appeared to have the characteristics proposed by Tourism Australia such as: being more demanding and discerning about brands and

communication, and looking to learn something – new information, angles, insights. Both of these characteristics are indicative of an ecotourism market.

Another interesting trend to emerge from the report was the changing proportion of segment 1 and segment 2 respondents. Segment 1 showed a steady increase in numbers while segment 2 showed a proportional decrease (Figure 44). This may indicate a move towards a great number of 'Experience Seekers', demanding value for money, sophisticated and environmentally friendly products and services, good interpretation and a variety of attractions in a destination.

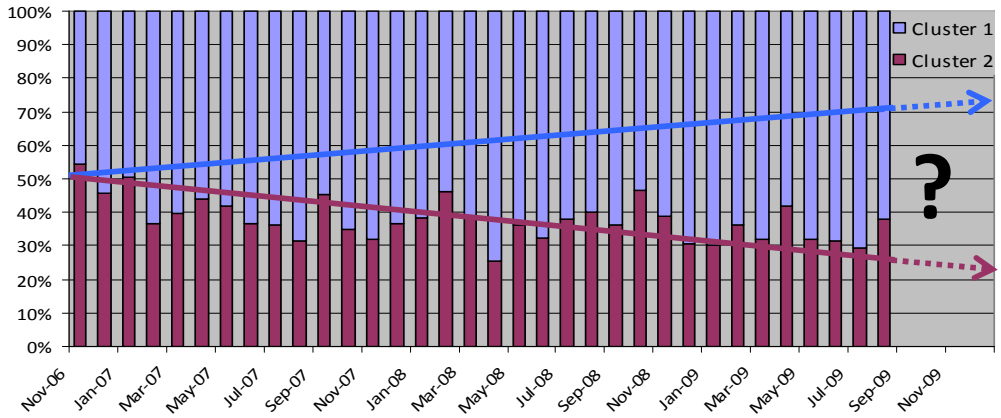


Figure 44: The changing proportion of Segment 1 and Segment 2 respondents and the trend lines demonstrating this change over time.

Availability of marine resources: popular marine species

A final analysis in this section examined the most sighted marine animals as recalled by respondents. To prompt recall, respondents were provided with a list of possible marine animals. Figure 45 shows those most commonly recalled. One noticeable feature of this list is that sessile animals, such as corals, anemone fish and giant clams, are most likely to be sighted and recalled by respondents. There was not a strong link, however, between the abundance of the types of animals and the frequency with which respondents said they had seen the animal on their trip.

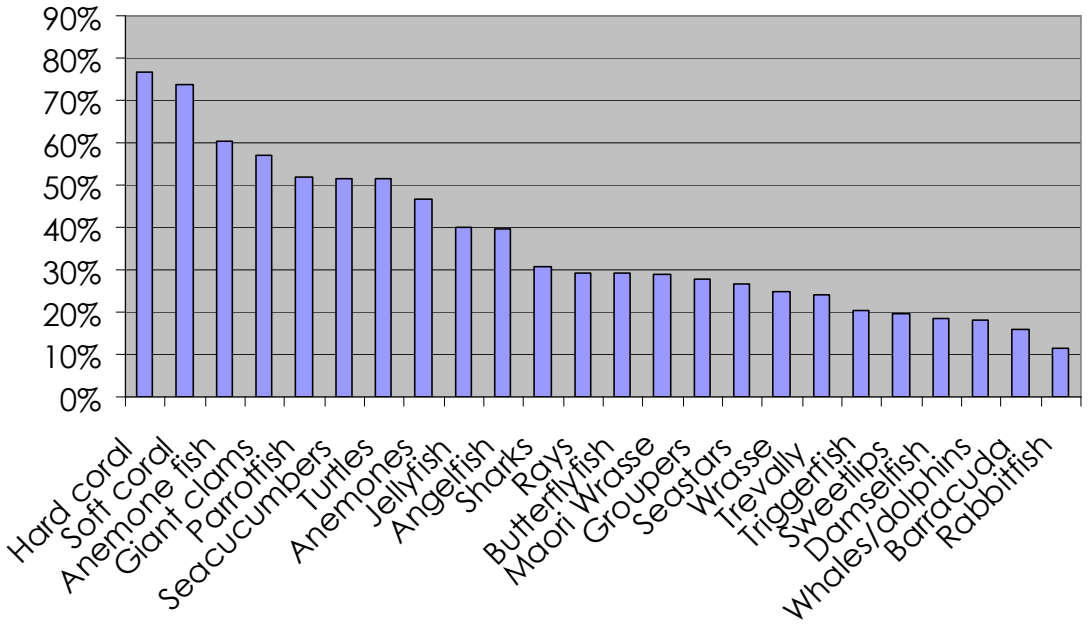


Figure 45. The frequency with which types of marine animals were seen by respondents (n=3147).

When the same data were plotted over time to develop a sense of the seasonal availability of species, no specific trends emerge across the year of data collection (Figure 46). A longer sampling period may reveal greater seasonal fluctuations in sightings.

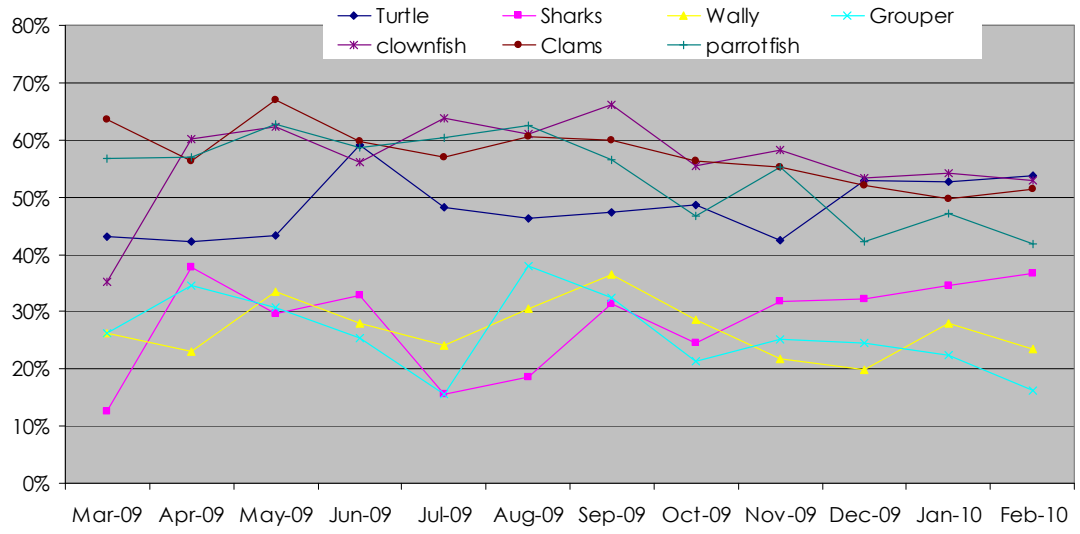


Figure 46. Monthly trends in sightings of key marine animals.

Respondents were also asked to list the most memorable animal sighting of the day. The results for this question may be analysed in two ways. A simple frequency count of each animal is presented, alongside a frequency count that considers the respondents' sightings of particular animals and how often they are listed as the most memorable animal of their trip (Figure 47). The latter figure highlights the importance of some of the animals, such as turtles, which become the most memorable animal for every second respondent who saw that animal during their trip. One interesting result was the importance of groupers. Of the 119 respondents who listed them as the most memorable animal of the day, 90 were Australian. No additional information is available that may explain this unexpected result.

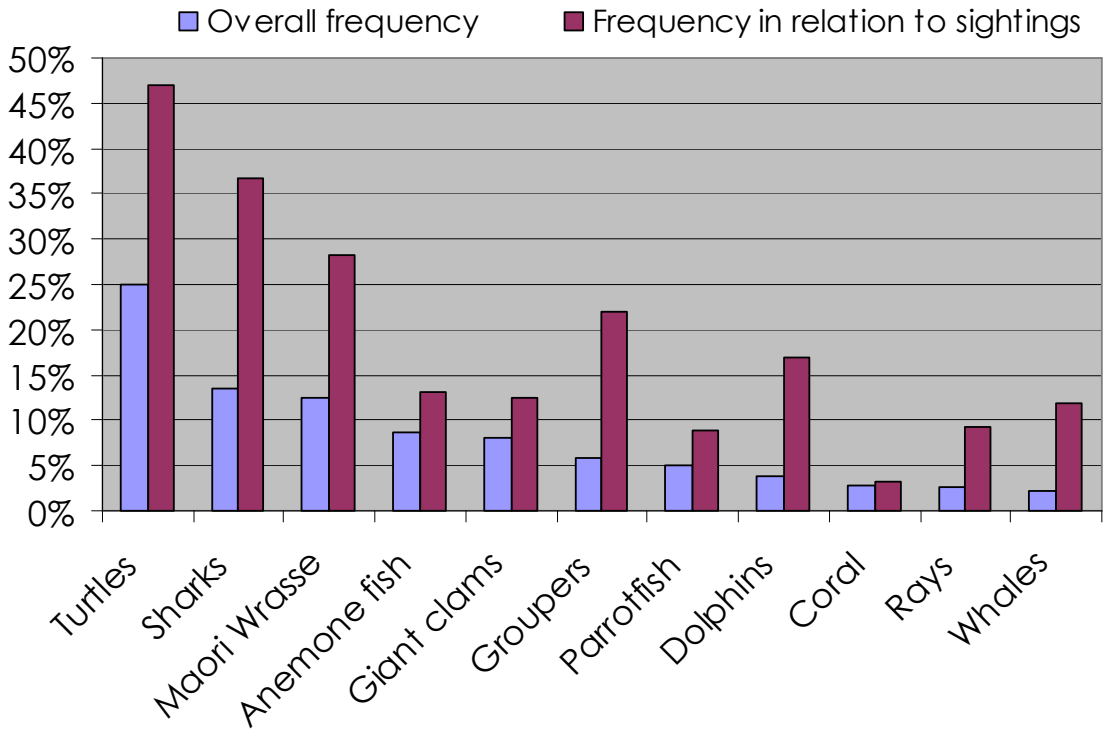


Figure 47. The frequency that animals were listed as most memorable (n=3147).

We noticed a strong overlap between the species that respondents listed as endangered and most memorable species sighted during the trip. This is most likely due to the size, charismatic nature of the species (turtles, sharks, dolphins, whales, Maori Wrasse) or media reports of these species as being under threat (corals, anemone fish), rather than a conscious link between the animal's abundance/distribution status and its status as most memorable species of the day, as no significant relationship was found when comparing most of these variables (Table 39). A significant relationship was found for three groups of animal – giant clams, groupers and dolphins – suggesting a link between the responses to the first question, "name an animal under threat", and the second question "which animal was most memorable for you?".

Table 39: A comparison between endangered species and most memorable species.

	Respondents who listed the species as endangered	Respondents who listed the species as the most memorable species of their trip	Results of Chi-squared comparison of frequencies.
Turtles	35.5%	22.6%	χ^2=0.604, df.1, p=0.437
Sharks	22.2%	14.9%	χ^2=0.408, df.1, p=0.523
Corals	15.3%	3.6%	χ^2=2.564, df.1, p=0.109
Whales	5.4%	0.8%	χ^2=0.176, df.1, p=0.675
Giant clam	4.8%	8.1%	χ^2=5.575, df.1, p=0.018*
Maori wrasse	3.1%	15.2%	χ^2=0.184, df.1, p=668
Anemone fish	3.1%	9.6%	χ^2=2.195, df.1, p=0.138
Grouper	1.7%	4.6%	χ^2=11.309, df.1, p=0.001*
(Manta) ray	1.3%	3.3%	χ^2=0.209, df.1, p=0.648
Dolphins	1.1%	4.4%	χ^2=4.102, df.1, p=0.043*

A study of the types of activities undertaken by respondents and the likelihood of seeing marine animals was reported by Coghlan et al. (2009). The results showed that the visitor's likelihood of stating that they saw marine animals also varied according to the activity they undertook. A greater percentage of respondents who had undertaken a variety of in-water and out of water activities (47.8%) reported seeing marine animals. Interestingly, of those who went snorkelling independently, only 22.7% said they saw marine animals, and even fewer underwater respondents reported seeing marine animals (12.4%). Respondents who participated in a snorkel tour were most likely to say that they had seen marine animals (54%).

5.2 Using the research: application and impact

This project has delivered research outcomes to end-users through a series of technical reports, fact sheets, academic papers, conference and industry presentations, radio interviews, steering committee meetings, and reports to partner operators who assisted with survey distribution and collection, and have a vested interest in the results.

The efforts to communicate user friendly research results is intended to make management, policy and practice of tourism on the reef more sustainable. Some of the strategies promoted by the RRRC and the ways in which they have been applied in this project are highlighted in Table 40.

Table 40: The communication strategies of RRRC and this project's communication tools-

RRRC identified communication strategies	Project 4.8.6d communication tools
Knowledge syntheses to contribute with knowledge syntheses, to solving end-user problems or exploring end user opportunities;	Quarterly tourism barometers, technical reports and fact sheets.
The development of partnerships among science, business, end-users and communities;	Partnerships across MTSRF projects: CSIRO & JCU School of Marine and Tropical Biology Reports to partner operators.
Targeted communication products designed to inform end-users on specific issues.	Boat crew information workshops,

Knowledge synthesis documents

Project 4.8.6.d was developed as a monitoring tool to detect changes in key market characteristics and variables concerning reef perceptions and satisfaction in addition to investigating specific aspects of reef tourism. Information is primarily made available to interested parties through quarterly "tourism barometers" and annual reports which may be downloaded through RRRC's website (www.rrrc.org.au) or sent directly to stakeholders. Other reports include a technical report on reef tourism seasonality (Coghlan & Prideaux, 2012a), market segmentation (Coghlan & Prideaux, 2012b), and GBR reef tourism competitiveness (Coghlan & Prideaux, 2009), all designed to address the planning and marketing interests of tourism operators themselves and destination marketing organisations such as Tourism Tropical North Queensland, Tourism Port Douglas and Daintree and Tourism Whitsundays.

Some of the key findings from the seasonality report were opportunities for product diversification, as the destination appealed to visitors with a greater level of flexibility during the tourism low season. These tend to be couples or visitors travelling with friends, and generally both younger and international first time visitors, who may be looking to take advantage of lower prices in hotels and holiday apartments. Such visitors may also take advantage of different attractions available at the destination, such as the rainforest, encouraging a level of destination packaging during the low season.

Another interesting trend specific to reef tourism in this region is the effect of weather on reef activities and enjoyment. Poor weather was mentioned significantly more often in the low season and respondents were more likely to swim and snorkel during this period (the hotter months). During the windier winter months, respondents frequently complained that the water temperature and air temperature was too cold. There are safety implications of this trend as the summer months coincide with both higher risks from marine stingers and lower staff numbers than in the peak season.

The reef competitiveness report indicated that visitors to the Great Barrier Reef leave with a high level of satisfaction, confirming that at one level the destination is competitive both nationally and internationally. However, the degree of competitiveness was not clear, particularly for international visitors who are able to visit competing reefs closer to home. The report suggested that lower travel costs to reefs closer to source markets may reduce the overall competitiveness of the Great Barrier Reef. The emphasis placed on managing and protecting the Great Barrier Reef may offer a comparative advantage over non-protected reefs. As non-protected reefs continue to decline in quality, images of a more pristine reef,

together with other images of the Great Barrier Reef experience, such as indulgence and other activities, may allow the GBR to develop a comparative advantage over competing reefs.

The segmentation report adopts a psychographic segmentation approach, with a subsequent analysis of socio-demographic, travel behaviour and experiential variables. To a large extent the segments developed from our data reflect those segments identified by Tourism Australia and Tourism Queensland in their marketing campaigns. The results presented in the technical report confirmed the importance of visiting the reef to most segments and provide some idea of the size of the different markets. They also highlighted changes in segments over time, with an apparent increase in the number of 'Experience Seekers', demanding value for money, sophisticated and environmentally friendly products and services, good interpretation and a variety of attractions in a destination. The results of the report suggest that we may be witnessing a move away from the ideological dichotomy between mass tourism and ecotourism and instead adopting a pragmatic approach to the use of the term ecotourism, and developing industry-wide practices that encourage environmental and social sustainability in the region.

In addition to the technical reports, a series of two-page fact sheets have been created to facilitate dissemination of the findings from this project. The fact sheets have been designed to highlight key issues as they emerge and to point industry and other stakeholders to the more detailed technical reports. To date, fact sheets have focused on the competitiveness of the GBR, the profile of divers as a market segment, the value of interpretation, profiling satisfied tourists, the importance of weather in the reef tourism experience and finally, trends in reef tourism experiences.

The development of partnerships

One of the operating principles of this project has been the development of partnerships. This is important as regional tourism business are commonly reliant on networks and relationships to ensure the quality of the tourist experience; according to March and Wilkinson (2009) "the experience offered by a tourist destination is more than the sum of its parts; it depends in important ways on how the organisational parts are interconnected, the way they act and interact and the relations between the actors involved". The role of partnerships is to create a division of labour and specialization, improving resources and outputs for the industry and the evolution of the industry through knowledge creation, innovation and learning.

The partnerships in this project have mainly taken place with industry, and in particular with operators who have played a central role in the research methodology. Additional partnerships have been developed with other researchers who have benefited from consistent, large-scale, longitudinal monitoring data set, or who have required access to visitors to obtain data on specific aspects of the reef tourism in Queensland. Thus, researchers from CSIRO, James Cook University's School of Marine and Tropical Science, and consultancy agencies such as Oxford Economics (on behalf of the Great Barrier Reef Foundation) have been informed by data collected through Project 4.8.6.d. Specifically, CSIRO's Sustainable Ecosystems group were able to investigate a willingness-to-pay model with regards to water quality concerns on the reef, as well as develop a model examining the potential impacts on reef-based tourism from declines in reef condition under several climate-driven coral bleaching scenarios. Researchers from James Cook University's School of Marine and Tropical Biology have used the data to investigate the occurrence of particular species encountered by tourists, such as the importance of turtles as a reef attraction (Dr Mark Hamann) and the presence and risks of jellyfish to the tourism industry (Dr Mike Kingsford).

In addition, the project has developed strong working partnerships with specific reef tourism operators. Each participating operator receives a monthly report of key information collected in the surveys. Operators are able to select variables of interest, which may then serve as performance indicators for their business. Many use the information to track customer satisfaction scores in an operational or marketing context. For example, after a change in marketing efforts, a business can compare satisfaction scores for their new market with the scores of the previous market and determine the suitability or fit of this new market. Other operators use similar information at staff meetings to provide feedback on crew performance and highlight areas of strong performance and areas which may need improving. Some operators also make these results public on their company's websites, providing information to potential customers both on the quality of the product that they are offering, but also their engagement with local researchers and their pro-active attitude towards research undertaken in the region that may benefit their business. Another example which demonstrates how the data from this project are used is a request for information to develop the content material for marine biology presentations.

Targeted communication products

The targeted communication products are designed to feed directly into industry operations. For instance, reef boat crews were seen as an end-user that could directly benefit from and apply the information collected on visitor experiences. By using models of collaborative learning, boat crews who visit the Reef on a daily basis were invited to participate in workshops to comment on the research and share their experiences, thus feeding into both knowledge creation and framing of the research questions and science.

It is important to note that participation refers not just to engaging in particular activities but to the process of being active participants in practices of social communities and constructing identities in relation to these communities. A focus on developing active citizenship through knowledge creation, developing social networks and recognition of their role as ambassadors for the Reef forms the focus of on-going seminars and workshops. The opportunities to question research agendas, express new ideas, needs or wishes are strongly encouraged through this process in the seminars.

In practical terms, the seminars lay the foundation for public participation by establishing learning environments and platforms where individuals can meet, interact, learn collaboratively and, as the occasions arise, take collective decisions (Muro & Jeffrey, 2008). In a sense, the plan targets the first three steps of the International Association for Public Participation (IAP2) model of public participation adapted from Arnstein's (1969) 'Ladder of Citizen Participation' (Table 41).

Table 41: The first three steps of International Association for Public Participation (IAP2) model of public participation

INFORM	CONSULT	INVOLVE
Public participation goal	Public participation goal	Public participation goal
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public through the process to ensure that public issues and concerns are consistently understood and considered.
Seek to achieve	Seek to achieve	Seek to achieve
Share information to promote public awareness and education	Bring people together to seek broad-based input/ and provide feedback	Bring people together to foster meaningful discussion

Example tools	Example tools	Example tools
Fact sheets Web sites Open house	Public comment Focus groups Surveys Public meetings	Workshops Deliberate polling

Adapted from the IAP2 Public Participation Spectrum 2007

Specifically, the seminars create networks between marine biologists, diving crew and researchers, in order to promote the "co-learning partnerships among scientists, end-users, business and communities" identified by the RRRC. By transmitting the most up-to-date research by the RRRC's research providers, crews will be empowered to disseminate this knowledge to the two million tourists who visit the GBR each year, encouraging best practice within the industry, a sense of knowledge ownership by crews and an effective means of environmental education for the wider community.

Translated into topics that will be of interest to boat crews, the following issues have been identified and are included in the planning of seminars and fact sheets. They fall into the broad category of marine tourism issues, such as the values of ecotourism accreditation, Reef visitor experiences and interpretation, and trends and implications of changes in tourism markets, which are of direct relevance to the target audience.

5.3 Future monitoring and research

Several key areas have been identified as core foci for the final data collection and analysis for this project. Based on GBRMPA's Outlook report, specific analysis of the seasonality and availability of marine resources was included in the project's final report. In addition, a further analysis of interpretation impact and effectiveness and ecotourism accreditation was provided to industry and GBRMPA.

In consultation with industry, the final stage of data collection in this project will focus on an importance-performance analysis (IPA) of specific attributes in the dive tourism industry. The attributes selected include operational considerations, customer service aspects of the trip, interpretation, and finally, environmental factors. The specific attributes are shown in Table 42.

Table 42: The attributes investigated in the GBR tourism importance/performance analysis.

Operational attributes	Environmental factors	Customer Service attributes
Ease of booking and checking in	Good visibility in the water	Comfort of the trip out to reef
Length of journey to reef	Quality of coral	Availability of souvenirs
Size of group	Quantity of fish	Quality of dive/snorkel equipment
Safety precautions/measures	Diversity of marine life	Quality & availability of meals on board
Cost of trip including extras	Weather	Comfort and cleanliness of the boat
Destination/s of tour/reef sites		Friendly/helpful crew & customer service
Length of time at the reef	Interpretation	Quality of boat/pontoon facilities
Variety of activities	Informative/knowledgeable crew	Quality of entertainment
Activity organisation	Quality of information provided about the reef	
General suitability & ease of access		

The IPA technique allows users to identify areas of high or low performance combined with high or low importance, providing managers with guidelines to factors that (i) are performing well and need continued investment, (ii) require additional investment as they are underperforming, (iii) are of low priority and require little investment, or (iv) are at risk of overinvestment as they are of low importance to customers. Results are commonly analysed and presented in a grid format such as that presented in Figure 48.

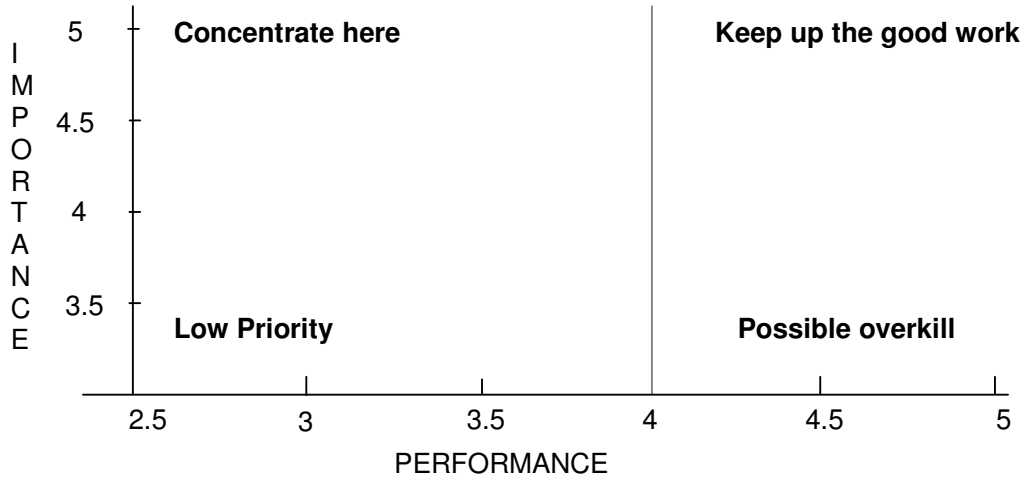


Figure 48: Quadrants used in an importance/performance analysis of service delivery.

6. Discussion

Visitor surveys provide valuable marketing and management information on trends in tourism to the Great Barrier Reef (GBR). Monthly visitor surveys provide information on annual, seasonal and regional changes in visitor markets and experiences. These have been illustrated through quarterly barometers for the entire sample, as well as for different regions, and in particular Tropical North Queensland and the Whitsundays region. Additional trends have been covered in the technical reports summarized in an earlier section of the report.

Using the visitor surveys as a medium-term monitoring tool and for snapshot analyses we find impacts of both internal and external factors on the reef tourism industry. For example, changes in socio-demographic patterns reflect the financial climate of 2009, with a decrease in Australian visitors and retirees, who were most likely to postpone non-essential travel during the downturn. The (international) backpacker market remained strong however, particularly in Tropical North Queensland. Operators with the capacity to respond to changes in markets are more likely to be successful than those who remain tied to a particular market. A report on market segmentation by Coghlan and Prideaux (2012b) also stressed the different needs and preferences of international and domestic tourists, suggesting that the latter were more often repeat visitors, staying with friends and relatives, travelling in their own car, using knowledge from previous trips to plan their holiday, and were therefore more independent, with shorter planning time-frames concerning their travel behaviour, while the former placed greater importance on seeing the reef and going snorkelling and diving. These findings were confirmed in this study, with international tourists rating seeing the GBR, going snorkelling and diving and seeing wildlife in general (Figure 9) as part of their reef experience (Table 12). Domestic tourists, on the other hand, were motivated to visit the region for its ability to provide opportunities for rest and relaxation and to enjoy the tropical climate. The travel preferences of the domestic travel group, combined with low budget airfares and financial pressures in other spheres of life, make such travellers more susceptible to the “fly and flop” travel behaviour that is of concern to some tourism operators.

The results have also indicated changes in marketing channels and information search behaviour. The use of the internet has continued to expand over the lifespan of this project, possibly indicating a greater use of travel blogs, such as Trip Advisor, a trend that is being monitored by researchers across the tourism industry for its potential to shift marketing channels from official and content controlled information to informal, widespread electronic word-of-mouth information. In addition, we find that agents play an increasingly important role in promoting both the tourism destinations and influencing visitors’ choice of tour operator. This may have ongoing implications for visitor price sensitivity as experienced agents are able to discern the price ranges of their clients and offer them the most attractive package for their budget, potentially masking the true level of price sensitivity in the results, and impacting on product pricing through the practice of commissions and so forth. Another implication of the increasing use of agents in promoting and selecting tour operators in the region is on the value of “green” accreditation schemes as a marketing tool; agents must see the value of accreditation (along pricing/product competitiveness) to promote it to their customers or offer it as a basis for operator selection. Agents who are not well-versed in the meaning or value of accreditation may simply disregard it when selling a reef tour.

The rate of repeat visitation to the GBR has also declined in the past year, possibly relating to the decline in domestic tourism to the GBR regions, while visitation to other reefs has increased somewhat. These patterns may lead to increasingly sophisticated appraisals of the product that the GBR offers and the condition of the reef sites themselves. One area of future research is based on an importance/performance analysis (IPA) of the tourism experience. Using a modified IPA, it becomes possible to identify factors that may be labelled “delighters”, “satisfiers”, “dissatisfiers” and “frustrators” within a given customer service/tourism experience. In the context of GBR tourism, it is hypothesized that difficulties booking a trip and checking in for the tours or poor quality snorkelling equipment, may be

"frustrators", whilst an uncomfortable trip to the reef or particularly poor weather conditions may be considered "dissatisfiers", abundant fish may be a "satisfier", whilst exceptionally friendly crew or better than expected diversity of marine life may become "delighters" (Mikulic & Prebezac, 2008). Using this technique, it becomes possible to identify areas that (i) require greater investment, (ii) are of low priority, (iii) are doing well, as well as areas in which there has been an overinvestment.

Although satisfaction ratings have declined slightly, both the reef and the tour itself are meeting the expectations of the overwhelming majority of respondents. Furthermore, the natural environment and activities such as snorkelling and diving are taking a more prominent place in the factors that influence respondents' satisfaction while the role of staff remains steady. This would be consistent with more experienced tourists, less reliant on staff for guidance, but may also relate to better weather conditions experienced at the reef.

A comparison of results of surveys collected on the Cairns-based reef vessels with those collected at Reef Fleet Terminal in Cairns (Figure 1) posed some interesting questions concerning the subjective evaluation of the reef experience. Respondents at the Reef Fleet Terminal were more likely to cite staff as the most important determinant of satisfaction and, along with snorkelling and diving, as a best experience (Table 1). Furthermore, opportunities to see the GBR and to go diving and snorkelling appear as stronger travel motivations while the respondents are still enjoying the experience onboard the vessels than when they arrive back on land (Table 2). Some authors have argued that hindsight, recall and introspection play an important role in evaluating a tourism experience and in determining a tourist's image of the total experience. Furthermore, the situational context in which tourists are to assess their satisfaction as well as a general positivity bias may skew the results towards the higher end of the satisfaction spectrum when respondents complete the survey in the presence of boat crews.

Other research results suggest that the level of knowledge about the reef as a (threatened) ecological system is relatively low, with the majority of respondents indicating that they had less than average knowledge of corals and other coral species, threats, management and research at the reef. Based on studies of communication it may be that, in such cases where personal experience and knowledge are low, mass media could have a greater persuasive influence on a decision to visit a place than word of mouth. This, of course, has destination management implications for how the climate change threat to the reef is portrayed in the media, as far as industry interests are concerned. Respondents indicated that they were aware of climate change as a threat to the reef. At present, however, general pollution was cited more frequently as a threat to the health of the reef. From a natural resource management perspective, this is an interesting result as pollution is a more localized threat than climate change.

This part of the research also highlighted the importance of informal conversations with crew as a source of information about the reef. Whilst respondents said that the interpretation did influence their behaviour as well as their understanding and appreciation of the reef, the results also highlighted the importance of knowledgeable crew, perhaps more so than prescriptive "ecotourism" texts through videos, or marine biology presentations. Based on this result, the authors invited RRRC to host a series of seminars where results from project 4.8.6 could be delivered directly back to crews to reinforce their role in communicating with the two million tourists who visit the reef. Whilst there is no direct evidence to measure the impact of these seminars it is encouraging to note that the response to "did you see marine animals?" has continued to climb from a low 30% in some cases to over 70% based on the most recent (March 2010) analysis.

Finally, the report touched on some of the applications, impacts and future research. Initial results on animal sightings and the "star" species at the reef, as well as the significance of ecotourism accreditation, suggest that these are two areas that would benefit from greater research, as well as the proposed importance of performance analysis. The strength of this

research lies in its partnerships with industry, and the development of a data set that was able to monitor changes in aspects of reef tourism over time.

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Appendix A: The survey

DATE: _____ (day/month/year)

Office use: Loc ○ ● ○ ○ ○ ○ / Up ○ ○ ○ ○ ○ ● ○ ○ / ○ ○ ○ ○ ○ ○ ○ ○

Q1. Are you: ○ Male ○ Female

Q2. Where do you usually live? Australia (postcode) _____ Overseas (country) _____

Q3. Please indicate your age group:

○ Under 20 yrs ○ 20 to 29 ○ 30 to 39 ○ 40 to 49 ○ 50 to 59 ○ 60 to 65 ○ Over 65 yrs

Q4. How would you best describe your occupation: *(Please choose only one)*

○ Self-employed ○ Professional ○ Domestic duties ○ Office/Clerical ○ Manual/Factory worker ○ Retail ○ Student
○ Public Service ○ Management ○ Tradesperson ○ Service Industry ○ Retired / Semi-retired ○ Other: _____

Q5. Which of these best describes your immediate travel party:

○ Alone ○ Couple (partner/spouse) ○ Tour group ○ Club ○ Friends ○ Family with children ○ Relatives

Q6. Is this your first visit to Townsville? ○ Yes ○ No *If No, how many times have you visited Townsville?* _____

Q7. How many nights do you intend spending Townsville? _____ Nights

Q8. What is your main type of accommodation during your visit Townsville?

○ Hotel/motel ○ Backpackers hostel ○ Holiday apartment/unit ○ Bed & breakfast
○ Camping ○ Caravan park/cabin ○ Friends/relatives ○ Resort

Q9. What is your main type of transportation to Townsville?

○ Air ○ Bus/coach ○ Private vehicle ○ Rented campervan/caravan
○ Rail ○ Rented car ○ other: _____

Q10. Where did you find out about Townsville? *(Select all that apply)*

○ Internet ○ Tourist guide books ○ Friends/family ○ Advertisements in print ○ Advertisements on TV/radio
○ Travel Agent ○ Visitor centres ○ Been before ○ TV documentary ○ Other *(please specify)*: _____

Q11. Please tell us where you spent your last holiday: _____

Q12. Please list up to 3 other destinations you considered while planning your current holiday:

(1) _____ (2) _____ (3) _____

Q13. Please indicate how important each of the features was in your decision to visit Townsville:

	Not at all Important	Unimportant	Neutral	Important	Very Important
Visit the Great Barrier Reef	○	○	○	○	○
Visit the rainforest	○	○	○	○	○
See Australian Wildlife	○	○	○	○	○
Experience Aboriginal culture	○	○	○	○	○
Enjoy the climate	○	○	○	○	○
The price matched my budget	○	○	○	○	○
Experience the natural environment	○	○	○	○	○
Rest & relax	○	○	○	○	○
Snorkelling & diving	○	○	○	○	○
Spend time with my family	○	○	○	○	○

	Not at all Important	Unimportant	Neutral	Important	Very Important
Meet new people	O	O	O	O	O
Visit the beaches	O	O	O	O	O
Taste tropical fruits	O	O	O	O	O
Visiting friends & relatives	O	O	O	O	O
Experience the outback	O	O	O	O	O
Go shopping	O	O	O	O	O
Visit the islands	O	O	O	O	O
Adventure activities	O	O	O	O	O
Business/conference/meeting	O	O	O	O	O
Try reef seafood	O	O	O	O	O
To go sailing	O	O	O	O	O

Q14. Please explain why you chose this reef operator today (pick as many as apply)

O	Appealing advertisements	O	Eco-certification	O	Recommended by agent/hotel/hostel	O	Price
O	Availability/suited my schedule	O	Word of Mouth	O	Appealing destination and/or activities	O	Package

Q15. When choosing your trip, did you notice if your reef operator is eco-certified? O Yes O No

Q16. Is this your first visit to the Reef? O Yes O No *If No, how many times have you visited the Reef?* _____

Q17. Are you here to dive the Reef? O No O Yes *If Yes, how many dives have you completed before this trip?* _____

Q18. Have you visited any of the following reefs? O No O Yes

O	Caribbean	O	Hawaii	O	Indian Ocean	O	South Pacific
O	South East Asia	O	Micronesia	O	Red Sea	O	Other Aust reefs (Ningaloo)

Q19. How do the other reefs that you have visited compare with the Great Barrier Reef?

	Better	Same	Worse		Better	Same	Worse
South East Asia is	O	O	O	Red Sea is	O	O	O
South Pacific is	O	O	O	Hawaii is	O	O	O
Indian Ocean is	O	O	O	Micronesia is	O	O	O
Caribbean is	O	O	O	Ningaloo is	O	O	O

Q20. What activities have you participated in today?

O	Swimming	O	Helicopter flight	O	Certified scuba diving	O	Resort/uncertified scuba diving				
O	Snorkelling	O	Visiting the islands	O	Overnight cruise	O	Glass bottom boat/semi-sub coral viewing				
O	Sailing	O	Marine biologist tour	O	Diver training course	O	Marine biology presentation				
O	Viewing marine animals	*If yes, which animals did you see?*									
O	Maori Wrasse	O	Soft corals	O	Trevally	O	Seacucumbers	O	Whales/Dolphins	O	Gropers
O	Reef sharks	O	Clown fish	O	Jellyfish	O	Giant Clam	O	Rays	O	Sweetlips
O	Triggerfish	O	Damselfish	O	Rabbitfish	O	Angelfish	O	Butterflyfish	O	Parrotfish
O	Hard corals	O	Turtles	O	Seastars	O	Anemones	O	Barracuda	O	Wrasse

Q21. Where did you get your information about the reef?

O	A marine biology talk on board	O	Videos on board the boat	O	Guided snorkel tour	O	The Web
O	Dive master/instructor briefing	O	Books/brochures on board	O	Glass bottom boat/semi-sub tour		
O	Films, TV documentaries	O	other magazine articles/books	O	I didn't get any information about the reef		
O	Other *(please specify)* _____						

Q22. To what extent has your trip increased your knowledge about the reef? ○ Not at all ○ Somewhat ○ Greatly increased

Q23. What was the most important/memorable piece of information that you learnt at the reef today? _____

_____

Q24. Did any of the information you received today change your appreciation of the reef? ○ No ○ Yes

your behaviour on the reef? ○ No ○ Yes

Q25. Would you like more information on any of the following? ○ No ○ Yes

○ Snorkelling and diving on the reef	○ Research on the GBR	○ Reef species diversity and biology
○ Conservation and/or threats to the reef	○ History of the reef	○ Human use of the reef/benefits derived from the reef

Q26. On a scale of 1 (not at all satisfactory) to 10 (highly satisfactory) how would you rate your reef trip?

○ *1* ○ *2* ○ *3* ○ *4* ○ *5* ○ *6* ○ *7* ○ *8* ○ *9* ○ *10*

Q27. What factors influenced your satisfaction rating? _____

_____

Q28. What were the best features of the experience for you? _____

_____

Q29. What were the worst features of the experience for you? _____

_____

Q30. To what extent did the reef that you saw today meet your pre-trip expectations?

○ Not at all ○ Not very ○ Somewhat ○ Very much

Q31. To what extent did the experience that you had today meet your pre-trip expectations?

○ Not at all ○ Not very ○ Somewhat ○ Very much

Q32. Taking into account all the different elements of your trip today (comfort of the boat, quality and diversity of the reef, activities and interpretation available, professionalism of the crew, etc.), do you feel that you got value for your money?

○ Yes ○ Unsure ○ No, *If No, please explain:* _____

Q33. Would you recommend visiting the Great Barrier Reef to prospective visitors?

○ No ○ Yes ○ Unsure ○ Not to everybody: _____

Appendix B: The additional interpretation questions

Q12. Please explain why you chose this reef operator today (pick as many as apply)

○	Appealing advertisements	○	Eco-certification	○	Recommended by agent/hotel/hostel	○	Price
○	Availability/suited my schedule	○	Word of Mouth	○	Appealing destination and/or activities	○	Package

Q13. When choosing your trip, did you notice if your reef operator is eco-certified? ○ Yes ○ No

Q14. Is this your first visit to the Reef? ○ Yes ○ No *If No, how many times have you visited the Reef?* _____

Q15. Have you visited any of the following reefs? ○ No ○ Yes, *if yes, which ones?*

○	Caribbean	○	Hawaii	○	Indian Ocean	○	South Pacific
○	South East Asia	○	Micronesia	○	Red Sea	○	Other Aust reefs (Ningaloo)

Q16. How do the other reefs that you have visited compare with the Great Barrier Reef?

	Better	Same	Worse		Better	Same	Worse
South East Asia is	○	○	○	Red Sea is	○	○	○
South Pacific is	○	○	○	Hawaii is	○	○	○
Indian Ocean is	○	○	○	Micronesia is	○	○	○
Caribbean is	○	○	○	Ningaloo is	○	○	○

Q17. Did you use any information or media today that you received prior to your visit today? e.g. documentaries, web, friends/family ○ No ○ Yes

If Yes, please specify? _____

Q18. What activities have you participated in today?

○	Swimming	○	Helicopter flight	○	Certified scuba diving	○	Resort/uncertified scuba diving
○	Snorkelling	○	Visiting the islands	○	Overnight cruise	○	Glass bottom boat/semi-sub coral viewing
○	Sailing	○	Marine biologist tour	○	Diver training course	○	Marine Biology Presentation/Talk
○	Viewing marine animals	*If yes, which animals did you see?*					
○	Maori Wrasse	○	Soft corals	○	Trevally	○	Seacucumbers
○	Reef sharks	○	Clown fish	○	Jellyfish	○	Giant Clam
○	Triggerfish	○	Damselfish	○	Rabbitfish	○	Angelfish
○	Hard corals	○	Turtles	○	Seastars	○	Anemones

○	Whales/dolphins	○	Gropers						
○	Rays	○	Sweetlips						
○	Butterflyfish	○	Parrotfish						
○	Barracuda	○	Wrasse						

Q19. Which marine animal was most memorable for you today? _____

Q20. How helpful to your understanding of the reef environment was each of the following?:

	Not at all helpful	Unhelpful	Neutral	Helpful	Very Helpful	N/A
A Marine Biology talk on board	○	○	○	○	○	○
Dive master/instructor briefing	○	○	○	○	○	○
Videos on board the boat	○	○	○	○	○	○
Guided Snorkel Tour	○	○	○	○	○	○
Glass bottom boat/Semi-submersible	○	○	○	○	○	○
Books/brochures on board	○	○	○	○	○	○
Informal conversations with crew	○	○	○	○	○	○
I didn't get any information	○	○	○	○	○	○

Q21. Please indicate the extent of your knowledge about the Great Barrier Reef on the following scale below:

	No Knowledge 1	2	3	4	Excellent Knowledge 5
Types of Fish	○	○	○	○	○
Types of Coral	○	○	○	○	○
History of Great Barrier Reef	○	○	○	○	○
Threats to Great Barrier Reef	○	○	○	○	○
Management of Great Barrier Reef	○	○	○	○	○
Research on the Great Barrier Reef	○	○	○	○	○

Q23. What is coral bleaching?

○ Dead coral ○ Coral that has lost its algae ○ Thriving coral ○ Sunburnt coral ○ Normal coral ○ Don't Know

Q24. Name 3 threats to the Great Barrier Reef:

(1) _____ (2) _____ (3) _____

Q25. Name an endangered species on the Great Barrier Reef: _____

Q26. To what extent did the information you received today:

	1	2	3	4	5
Make you want to reduce your impact on the reef	○	○	○	○	○
Change your appreciation of the reef	○	○	○	○	○
Change your behaviour on the reef	○	○	○	○	○
Increase your awareness of marine conservation	○	○	○	○	○

○	Do not stand on the reef	○	Do not touch the marine life	○	Do not remove anything from the reef
○	Do not feed the marine life	○	Do not touch the coral	○	Do not chase the marine life
○	Other				

Q27. Which of the following environmental behaviours were you told today? (pick as many as apply)

Q28. To what extent has your trip increased your knowledge about the reef?

Not At All 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ Greatly increased

Q29. What was the most important/memorable piece of information that you learnt at the reef today? (Please select one only)

○	The reef needs protection	○	The reef is very diverse	○	Do not stand on or touch the reef
○	The reef is fragile	○	The reef is very big	○	The reef is slow growing

Q30. Of the following, which best describe your visit today? (please complete once response for each line)

	1	2	3	4	5	
Uninspiring	○	○	○	○	○	Inspiring
Not Educational	○	○	○	○	○	Educational
Not Enjoyable	○	○	○	○	○	Enjoyable
Disappointing	○	○	○	○	○	Fulfilling
Dull	○	○	○	○	○	Exciting

Q31. Please indicate to what extent your visit today will change your behaviour on the following scale, where 1 = Strongly disagree, 5 = strongly agree:

	Strongly Agree				Strongly Disagree
	1	2	3	4	5
I will tell friends about the reef	○	○	○	○	○
I will get more information about the reef	○	○	○	○	○
I will NOT remove beach litter that could harm marine life	○	○	○	○	○
I intend to become more involved in environmental issues	○	○	○	○	○
I will NOT make a donation to an environmental organisation	○	○	○	○	○
I intend not to stand on the reef	○	○	○	○	○
I will not remove anything from the reef	○	○	○	○	○
I will not feed the marine life	○	○	○	○	○
I will not touch the marine life	○	○	○	○	○
I will adopt more environmentally friendly practices e.g. use reusable bags, reduce carbon footprint	○	○	○	○	○