

**Tourists' Perspectives on Protecting Australia's Great Barrier Reef:
Concerns, Challenges and Possible Policy Responses**

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ABSTRACT

This paper examines the potential impact of three possible Great Barrier Reef related disasters on visitor numbers to Cairns, Australia. The Great Barrier Reef is the destination's key icon and is heavily promoted featuring in almost all promotional material and marketing campaigns related to the city. Specifically the paper reports that an oil spill and coral bleaching will have a significant impact on future visitor numbers. Loss of the Great Barrier Reef's World Heritage status due to the government's approval of port dredging within the boundaries of the World Heritage Area will have a lower, though still significant impact on visitor numbers.

KEY WORDS

Great Barrier Reef, oil spill, coral bleaching, World Heritage

RESEARCH BACKGROUND

This paper explores tourists' concerns about how the Great Barrier Reef (GBR), Australia may be affected by a range of threats. Research was undertaken in Cairns, a nature based destination that promotes the GBR and nearby Wet Tropics rainforests as its key selling points. In recent years the destination has begun to grapple with concerns over the long term impact of climate change as well as more immediate threats to the GBR including coral bleaching, damage caused by tropical storms and oil spills from shipping. There is also concern about the potential loss of the GBR's World Heritage status as a result of concerns by UNESCO about dredging.

A growing body of research has identified the need for nature based destinations to ensure that their natural attractions are maintained at very high standards if they are to achieve long term economic (Huybers and Bennett, 2003) and environmental sustainability Luo and Deng, 2008). There is also a strong belief that natural regions qualifying for designation as a World Heritage Area (WHA) gain a considerable advantage from the 'brand value' that listing confers (Fyall & Rakic 2006). Any threat to either long term sustainability or loss of WHA status is postulated to have an adverse impact on tourism demand.

From the perspective of many national governments, tourism is an industry that along with other industries must compete for government resources and attention. From an insider's perspective, including tourism academics, members of the tourism industry and to some extent tourists, tourism is an important industry and must be given special attention particularly when decisions have to be made between competing interests such as forests versus mining. Natural areas are one example of where the needs of the tourism industry are often seen, by the tourism industry at least, to be more important than other competing needs such as farming, forestry and mining. Where governments have adopted a pro-environmental stance as has been the case in Australia until recently it is nature and its ally the tourism industry that has often won out over competing interests. The declaration of the Great Barrier Reef and the Wet Tropics rainforests (for which Cairns is also a gateway) as World Heritage Areas are two of many examples. However in the last two years the pro-environment direction of government at the state, and more recently at the federal level, has changed with incoming governments having a much more neoliberal view, where the environment is not seen as having the same importance in the national agenda than it has in the past. One example of this is the Federal government's recent decision to ask UNESCO to delist 74,000 hectares of Tasmanian World Heritage listed forests to allow the resumption of commercial

logging (<http://www.abc.net.au/news/2014-02-03/pressure-grows-for-federal-government-to-delist-more-of-tasmani/5233640>, accessed 4Feb 2014).

In recent decades, Australia has experienced a minerals boom and has emerged as the world's largest exporter of coal much of which is exported from Queensland. A number of coal ports lie within the boundary of the Great Barrier Reef World Heritage Area (GBRWHA). With the recent expansion of coal mining in the nearby Galilee Basin mining companies are demanding an expansion of the capacity of these ports, particularly Abbott Point which is planned to become one of the world's largest coal port. Allied with the expansion of ports will be an increase in shipping movements, coal ports and major export markets in Asia. Most shipping uses the inner reef passage (between the coast and the outer GBR because it is shorter than alternative deep water routes to the east and thus cheaper for exporters.

To expand the port, three million cubic metres of spoil must be dredged and dumped either in a designated place within the boundary of the GBRWHA or on land. Initially the Great Barrier Reef Marine Park Authority (GBRMPA) resisted dredging on the grounds that it would damage the Reef. In February 2014 this decision was reversed in controversial circumstances (<http://www.abc.net.au/news/2014-03-03/great-barrier-authority-against-dredge-spoil-dumping-documents/5293778> accessed 12 March 2014) and dredging appears likely to be approved. In its 2013 investigation into the potential damage to the GBRWHA a UNESCO committee indicated that the World Heritage Area would be placed on the "World Heritage in Danger" list. From a tourism perspective, there is growing concern that dredging will adversely affect the iconic image of the GBR as a pristine world class attraction and also result in its delisting as a WHA. Apart from dredging there are other concerns including the impact of oil spills (GBRMPA, 2001) from shipping in the GBR inner lagoon (the main route for mineral shipping) and from damage from periodic cyclones that can cause considerable damage to the reef as was the case with Cyclone Yasi in 2011 (GBRMPA, 2022).

Cairns is a major GBR gateway located towards the northern end of the reef system and promotes the GBR as its most iconic attraction (Coghlan, Fox, Prideaux and Luck, 2010). In 2013, the city received over 2.35 million domestic and international visitors and has the highest level of tourism generated Gross Domestic Product of any Australian destination. However, threats to the GBR such as oil spills and coral damage from cyclones pose a major danger to the environmental and economic sustainability of the destination in the short term. Concerns about potential loss of WHA status add to these fears.

In the longer term, degradation of the quality of the GBR experience from climate change is also a very strong possibility particularly if international agreements to limit CO² emissions are not made in the near future. As Prideaux and Mc Kercher and McNamara (2013) argue it is difficult to predict with any accuracy the ultimate level that global temperatures will reach or the timing of various ‘tipping points’ that will generate rapid environmental change. It is however more likely to be decades rather than years before these major events overwhelm the GBR and similar ecosystems.

METHODS

The aim of the research was to determine the potential impact of oil spills, coral bleaching and possible loss of World Heritage status on the appeal of Cairns as a tourism attraction. A survey of 980 visitors to the Cairns region was collected between September 2013 and February 2014. The survey was undertaken at the domestic terminal of Cairns International Airport and the data from 876 valid questionnaires were analysed using SPSS Version 21. Descriptive analysis was employed to document the demographic information of respondents and a chi-square analysis was used to test for significant differences between domestic and international tourists in relation to their perceptions towards the Cairns regions. Respondents were asked about their preference for selecting destinations that protected the environment,

their views on how well Cairns was protecting its environment and if they would have visited the destination if its adjacent Reef had been affected by an oil spill, suffered coral bleaching (this could also occur through climate change as well as from cyclones) and loss of World Heritage status (a possible outcome of dredging). As in all surveys of this type, care must be taken in generalising the findings given the non-random nature of the survey and that not all possible market segments were sampled. For example responses of drive tourists are not included. Moreover, the problems encountered through social desirability bias skewing results should not be ignored.

FINDINGS AND DISCUSSION

Demographic profile

Demographic data is listed in Table 1. The gender of respondents was equally distributed. Over half the respondents were aged between 20 and 39 years old. Seventeen percent of the overall sample, or 42% of respondents aged 20-29, were backpackers. Most of the respondents (43.6%) were domestic visitors. International visitors included the United Kingdom and Ireland (19.9%), Europe (15.6%) and North America (12.1%). For 70.3% of all respondents, this was their first visit to the region.

Table 1. Demographic information (n=876)

	Percentage		Percentage
<i>Gender</i>	%	<i>Types of tourists</i>	%
Male	49.2	Domestic tourists	43.4
Female	50.8	International tourists	56.6
<i>Country of residence</i>		<i>Age group</i>	
Australia	43.6	Below 20	3.9
United Kingdom and Ireland	19.9	20-29	33.2
Europe	15.6	30-39	19.2
North America	12.1	40-49	11.3
Asia	5.1	50-59	15.6
Scandinavia	1.8	60 and above	16.8
New Zealand	1.1		
Latin and South America	0.5	<i>Previous visits</i>	
Others	0.2	First time visit	70.3
		Repeated visit	29.7

Concerns on holiday destination selection

Respondents were asked whether they looked for locations actively protecting the environment when selecting a holiday destination. As illustrated in Table 2, most domestic and international respondents answered either sometimes or most of the time. No significant difference was noted between the two populations. When asked whether the Cairns region protects its environment, the majority of respondents agreed (66.4%) and less than 7% disagreed (Table 3). International tourists were more slightly more likely to perceive that the region is protecting its environment than domestic respondents.

Table 2. Selecting holiday destination where actively protects its environment

	Never	Sometimes	Most of the time	Always
Domestic tourists (n=367)	12.3%	46.0%	31.1%	10.6%
International tourists (n=482)	15.8%	42.7%	33.4%	8.1%

Chi-square=4.124; p-value>0.05

Table 3. Perception on the Cairns region in protecting its environment

	Yes	No	Maybe
Domestic tourists (n=363)	61.7%	8.3%	30.0%
International tourists (n=485)	69.9%	4.9%	25.2%
Overall tourists (n=876)	66.4%	6.4%	27.2%

Chi-square=7.492; p-value<0.05

Perceptions of Great Barrier Reef

A significant difference was noted in the role of the GBR as a motive for visiting Cairns. Almost 90% of international respondents visited the GBR during their trip, while only half of domestic respondents visited the GBR (Table 4). Table 5 shows respondents' rating of the GBR experience. The overwhelming majority of respondents, regardless of their status as a domestic or international visitor, who visited the GBR reported a good experience. Table 6 reports tourists' perceptions about the information they received on the reef trip and if it changed their appreciation of the Reef. Around half of the respondents perceived that the information they received enhanced their appreciation of the Reef. However, the remainder were either doubtful or disagreed that their visit had affected their appreciation.

Table 4. GBR visitation during this trip to the Cairns region

	Yes	No
Domestic tourists (n=265)	54.5%	45.5%
International tourists (n=477)	86.8%	13.2%

Chi-square=108.762; p-value<0.05

Table 5. Rating on the GBR experience

	Good	Fair	Poor	Awful
Domestic tourists (n=210)	87.6%	10.5%	1.0%	1.0%
International tourists (n=419)	82.8%	13.8%	1.9%	1.4%

Chi-square=2.687; p-value>0.05

Table 6. The influence of information recipient on reef appreciation

	Yes	No	Maybe
Domestic tourists (n=209)	44.7%	39.6%	15.7%
International tourists (n=421)	51.6%	25.8%	22.6%

Chi-square=1.351; p-value>0.05

Perceptions of hypothetical scenarios

Three hypothetical questions were asked about possible adverse impacts on the GBR. Significant differences were seen in each hypothetical situation between domestic and international respondents. Respondents were asked if they would have made this trip to Cairns if the Reef near Cairns was damaged by a major oil spill (Table 7). A high proportion of international respondents (52.2%) indicated that they would not have made this trip. Domestic respondents were more inclined to respond that they would have continued with their trip. Similar findings were noted if the Reef near Cairns was affected by a major coral bleaching (Table 8). Over a third (39.7%) of international respondents would not have visited the region under this situation. This finding was not surprising because visiting the GBR was the main purpose for international tourists coming to the region. As for domestic tourists, coral bleaching did not seem to be a major concern. Surprisingly, losing the GBR's World Heritage status did not seem to have as significant an impact as an oil spill or coral bleaching. Only 12.7% of domestic and 13.4% of international respondents indicated that they would definitely not have visited Cairns as illustrated in Table 9.

Table 7. Visit intention if the reef near Cairns was damaged by a major oil spill

	Yes	No	Maybe
Domestic tourists (n=348)	37.4%	37.9%	24.7%
International tourists (n=477)	18.9%	52.2%	28.9%
Overall tourists (n=876)	26.6%	46.2%	27.1%

Chi-square=35.982; p-value<0.05

Table 8. Visit intention if the reef near Cairns was affected by a major coral bleaching

	Yes	No	Maybe
Domestic tourists (n=354)	43.5%	26.8%	29.7%
International tourists (n=478)	22.0%	39.7%	38.3%
Overall tourists (n=876)	31.2%	34.2%	34.6%

Chi-square=44.571; p-value<0.05

Table 9. Visit intention if the GBR lost its World Heritage status

	Yes	No	Maybe
Domestic tourists (n=355)	61.7%	12.7%	25.6%
International tourists (n=476)	51.5%	13.4%	35.1%
Overall tourists (n=876)	55.9%	13.1%	31.0%

Chi-square=9.744; p-value<0.05

Environmental protection and destination selection

Table 10 presents domestic and international respondents' perceptions on selecting a holiday destination that actively protects its environment (columns) and whether they perceived the Cairns region was protecting its environment (rows). The majority of both domestic and international respondents indicated a significant tendency towards selecting destinations that actively protect their environment and perceived that the region is protecting its environment. It revealed an important message that visitors do consider environmental protection issues when selecting holiday destinations.

Table 10. Environmental protection and destination selection

		Domestic <i>The Cairns region protecting its environment</i>			International		
		Yes	No	Maybe	Yes	No	Maybe
<i>Destination actively protect its environment</i>	Never	41.9%	14.0%	44.2%	57.9%	11.8%	30.3%
	Sometimes	62.4%	7.3%	30.3%	68.3%	4.9%	26.8%
	Most of the time	69.6%	3.6%	26.8%	78.5%	2.5%	19.0%
	Always	56.8%	21.6%	21.6%	69.2%	2.6%	28.2%

Domestic: Chi-square=20.83; p-value<0.05

International: Chi-square=16.343; p-value<0.05

A cross-tab analysis was also employed on two questions: intention to visit if the Reef near Cairns was damaged by a major oil spill (rows) and perceptions on selecting a holiday destination that actively protects its environment (columns). A significant result was noted for international respondents (Table 11). Only 31.9% of international respondents would have

made this trip to the region if the Reef was damaged by a major oil spill, regardless of the likelihood of selecting holiday destinations that were actively protecting their environment.

Table 11. International tourists' perception on holiday destinations selection

<i>Destination actively protect its environment</i>	<i>Visit intention if the reef suffered from major oil spill</i>		
	Yes	No	Maybe
Never	31.9%	37.5%	30.6%
Sometimes	18.1%	56.3%	25.6%
Most of the time	13.4%	52.9%	33.8%
Always	21.6%	59.5%	18.9%

Chi-square=16.578; p-value<0.05

CONCLUSION

The research reported in this paper indicates that respondents are very concerned about the impact of damage to the GBR either through climate change or from oil spills, especially international tourists. Results indicate that half of the respondents would probably not have visited the destination if the GBR had been affected by oil spills or the coral damaged through coral bleaching. Surprisingly, loss of World Heritage was less of a concern than oil spills and climate change.

These results should send a sobering message to policy makers that tourists are concerned about the environment and will vote with their feet and turn to other destinations if the GBR is perceived to suffer from oil spills, climate change or by inference, from dredging. In an economic climate where governments of the day place job creation over the environment it is worth noting that the environment also produces jobs that in many cases have the potential to far outlive mining sector jobs.

These results indicate that the destination needs to take a very proactive position in efforts to protect the GBR including calls on the public sector to give the long term sustainability of the

GBR a higher priority than support for specific mining projects that need to be serviced by ports located in the GBR region. In an era when neoliberal economic policies tend to favor 'boosterism' type projects, such as mining, which promise rapid short term economic gains including considerable royalties, the need for long term sustainability of natural areas is easy to overlook.

Accurate research that reflects tourists' views on issues related to the sustainability of the GBR is a key element in effective advocacy of the nature that will be required to convince public sector decision makers to place the natural environment ahead of projects that harm the environment. Information of this type requires contemporary data on a range of issues including reactions to short and long term threats as well as the activities undertaken by tourists, a comparison with other reef systems they may have visited in the past, the type of information they seek on aspects of the reef ecosystem and the economic value of their holiday plus potential economic loss, or gain, derived from recommendations made about the destination to other potential visitors. To provide information of this nature, a long term tourist monitoring survey has been established to provide time series data with additional results to be published in the future.

Finally, the findings do not support the contention made by Fyall & Rakic (2006) that destinations gain considerable advantage from the 'brand value' that listing confers. This may be a result of the World Heritage brand having relatively low brand recognition or other less obvious reasons. This finding requires additional research.

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