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Tourists Perceptions of Climate Change in Cairns, Australia

This paper will briefly review the impacts of climate change on the Wet Tropics and the Great Barrier Reef, and then will discuss the results of an exploratory study into tourists perceptions of 1) the impact of climate change on the Wet Tropics and Great Barrier Reef and the tourism industry in Cairns, and 2) what tourists can do to mitigate these impacts. A survey was administered to 81 tourists in Cairns, Australia. The results suggest that tourists have a range of outlooks concerning the impact of climate change in Cairns and the role of tourists in mitigating these impacts.

Key words: Tourist perceptions, environmental impacts, responsible tourism, climate change

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Introduction

Climate change is one of the biggest contemporary challenges facing the world today. The tourism industry is strongly influenced by climate. Global climate change will impact future tourist behavior as well as many of the natural attractions that tourists visit. In addition to changes in weather, the ecological systems in many destinations will be dramatically affected by climate change (Uyarra et al. 2005). Northern Queensland, Australia is one such destination that is particularly vulnerable to the impacts of climate change (Wilson & Turton, 2011) because of the regional economic dependence on the tourism industry and the major attractions that draw tourists to the area: the Wet Tropics World Heritage Site and the Great Barrier Reef. These two tourist destinations are among the most important World Heritage Sites in Australia. While the impacts of climate change on ecosystems and the relationship between climate change and tourism have received considerable attention in the literature, tourists' perceptions of climate change have been the focus of only a handful of studies. Becken (2004) explored tourists' perceptions of climate change and carbon-offsetting schemes and suggested that tourists can be segmented into five groups (Green tourists, skeptics, uniformed willing, Resisters, and Undecided). The five groups were based on a combination of tourists' perceptions of climate change as an issue for tourism and their willingness to participate in a carbon offsetting program by planting a tree. Gossling et al. (2006) examined tourists' perceptions of climate change and the importance of climate change in travel decisions of international tourists in Zanzibar, Tanzania. Findings from their study suggest that many international tourists are unaware of the impact of their travels on the natural environment and that future travel flows may change in complex ways. Air travel is one of the largest contributors to climate change by the tourism industry. Becken (2007) examined the tourists' perceptions of the impacts of international air travel on climate change and found that limiting travel is unacceptable for hyper-mobile international tourists despite

the impacts on climate change. The relationship between climate change and holiday decision making of UK tourists was also explored by Hares, Dickinson and Wilkes (2010).

Research by Tourism Australia shows visitors from the key markets of the UK, China, and Japan rank climate change in their top three issues of concern and importance when planning vacations (GBRMPA, 2009). Tourists' perceptions of climate change and the impact of climate change on their travel decision making are of great importance to geographically distant destinations, like tropical North Queensland. Compounding these issues is the vulnerability of natural attractions like the GBR and Wet Tropics in Queensland. This paper will briefly review the impacts of climate change on the Wet Tropics and the Great Barrier Reef, and then will discuss the results of an exploratory study into tourists perceptions of 1) the impact of climate change on the Wet Tropics and Great Barrier Reef and the tourism industry in Cairns, and 2) what tourists can do to mitigate these impacts.

Background

The Wet Tropics World Heritage Site is located in North Queensland, Australia and covers approximately 10,000 km of tropical rainforest. This area contains over 180 sites, including 40 scenic routes (WTMA, 2011). The Wet Tropics (WT) is one of the 15 World Heritage Sites in Australia that are threatened by climate change (McNamara & Prideaux, 2008). This site is known to have great economic benefit attributing over \$460 million tourism dollars per year as well as 4.25 million visitors (Prideaux & Falco-Mammone, 2007). It's a nature-based region that contributes to the tourism industry by creating jobs, leisure activities, and tourism development. The Wet Tropics rainforest holds the majority of Australia's remaining tropical rainforest (McNamara & Prideaux, 2008), and offers visitors a broad range of activities positioned systematically throughout the rainforest. The Wet Tropics runs parallel to another World Heritage Site, the Great Barrier Reef.

The Great Barrier Reef (GBR) is one of the seven natural wonders of the world (Lonely Planet, 2010) and is a main tourist destination in Australia spanning an area of 348,000 km off the Queensland coast (Coghlan & Prideaux, 2009). The Reef was voted “best destination” by the World Travel and Tourism Council as part of the Tourism for Tomorrow awards in 2007 (WTTC, 2007). The GBR is one of the largest and most diverse coral reef ecosystems in the world. Tourists experience the reef in a variety of ways including boat tours, fishing, scuba diving, snorkeling, island visits, and scenic flights. Both the GBR and WT are threatened by climate change.

Impact of climate change on the Wet Tropics Heritage Area

The Wet Tropics is an area that has been severely impacted by climatic change during the last decade (Prideaux & Mammone-Fay, 2007). Areas of the rainforest are drying up resulting in wild fires that are penetrating into rainforest vegetation resulting in the migration of species (Hughes, 2010). In recent years, the rise in temperatures in the Wet Tropics has increased the chance for possible extinction of some endangered species. In total, 98 species of rainforest fauna are considered rare or threatened as well as 1,130 species of plants (WTMA, 2011). Some species cannot adapt to the new environment and have to migrate in order to survive. Seventy four percent of rainforest bird species will become threatened under IUCN criteria as a result of projected warming (Hughes, 2010; Lesley, 2010). Climate change has lead to the inability for some smaller areas of the rainforest to grow and has made it difficult for the rainforest to expand. This biosecurity threat could negatively impact the tourism industry.

Impact of climate change on the Great Barrier Reef

Climate change is currently the most substantial threat to the Great Barrier Reef and the

marine tourism industry it supports. Over the last century, tourism has become the largest commercial activity in the region (GBRMPA, 2009). Each year the reef contributes an estimated AU\$5.1 billion to the national economy, provides over 50,000 jobs, and is visited by approximately 1.9 million people annually (GBRMPA, 2009). Climate change has already had significant impact on the Reef including higher water temperatures that cause mass coral bleaching and increase the occurrence of coral diseases (Prideaux, 2011; Miles, Kinnear, Marshal, O’Dea, & Greer, 2009). The Reef has experienced three major recent coral bleaching events in 1998, 2002, and 2006. Increasing sea temperatures is considered to be the ‘biggest risk factor’ for the reef because of its direct relationship to coral. Unusually high temperatures are stressful to corals (GBRMPA, 2009). Many animals that are part of the Reef ecosystem will see significant reductions in numbers as most species directly or indirectly rely on coral as a source of food and protection.

Climate change could also result in changes in the weather. Increasingly erratic weather, elevated rainfall, and more common and harsh storms can directly impact the tourism industry by reducing the number of days tour operators are open for business, causing damage to infrastructure, and increasing the number of cancellations and trip re-scheduling. Weather is also a large motivating factor for people to travel to a tourist destination (Biggs, 2011), and can have a large influence on their overall satisfaction when visiting a destination like Cairns (Coghlan & Prideaux, 2009). Climate change can negatively impact the tourist experience of the reef by causing more frequent instances of seasickness, high tides, and decreased visibility for sightseeing, snorkeling and diving. The impacts of climate change are likely to be greatest in areas like Cairns because of its reliance on the tourism industry that is focused around the GBR and WT to attract a tourist. In 2009 and 2010 there were a series of workshops on climate change for marine tourism operators in the GBR region, and in a survey of GBR tourism operators found that taking action to reduce the

impacts of climate change on the GBR was of the utmost importance (Zeppel, 2011). Against this brief background, the purpose of this study is to analyze international tourists' perceptions of the impacts of the threats of climate change on the Great Barrier Reef and the Wet Tropics World Heritage Area and the resulting impacts on the tourism industry in Cairns, Australia.

Methods

In July of 2011, a small exploratory research project was undertaken by the authors. A survey was administered to tourists in Cairns, Australia. The tourists were approached at two locations in downtown Cairns where large numbers of tourists congregate: the Esplanade and the Marina. The survey was part of a larger research project, but included two short open-ended questions that are the basis for this study. The two questions were

- 1.) How will climate change impact the tourism industry in Cairns?
- 2.) What can tourists do to help reduce the impact of climate change on the Great Barrier Reef and the Wet Tropics and the tourism industry of Northern Queensland?

The responses of 81 individuals were content analyzed for overlying themes. Respondents ranged in age from 18-40 and included 40 men and 41 women. Most of the respondents were from the United Kingdom, France, Italy, Germany, Holland, Ireland, Sweden, and North America.

Findings

For each of the questions several themes emerged. In regards to the impact of climate change on the tourism industry in Cairns, many of the respondents were split. Some respondents felt that climate change will result in an increase in tourism to Cairns, while others thought there would be a decrease. The logic behind these two conflicting views is representative of what

has been found in the literature in other locations. In a case study of the impacts of visitor behavior to a coastal area in the UK, Coombes and Jones (2010) found that changes in weather will likely have the greatest impact on tourist behavior. In their study, they predict that there will be an increase in visitors that want to engage in ‘beach’ activities. Similarly, some of the respondents in this study felt that the tourism industry Cairns will ultimately increase due to climate change. Their reasoning being that people come to Cairns for the warm weather and if it is warmer for longer, the high seasonal arrivals will increase overall. As one respondent put it, “being a tropical destination, most people would enjoy it.” This perspective is reflective of the relationship between climate change and weather that many tourists make. Hares et al. (2010) suggest that this perception is due to the tangible impact of climate change that tourists can relate to their own experience. While climate change is likely to cause changes in weather patterns, these patterns are extremely complex, and would not likely result in ‘warmer’ weather for destinations like Cairns. Instead the weather could likely become more erratic with potentially more devastating storms and less seasonality, all of which could cause significant negative impacts for coastal tourism destinations.

Conversely, the majority of respondents stated that there would be a significant decrease in tourism in Cairns if climate change were to negatively impact the two World Heritage Sites. As illustrated previously, the tourism industry in Cairns is highly dependent upon these sites to draw visitors. One respondent concluded that “if the reef gets destroyed, Cairns will be a much smaller tourist destination.” The destruction of the reef would decrease number of tourists in the long-term. On the other hand the tourists that come to experience the rainforest ecosystems of the Wet Tropics might not even notice a ‘visible’ difference, unless the engage in specific activities like bird watching. In a personal correspondence with Dr. Bruce Prideaux of James Cook University in Cairns, Dr. Prideaux noted that while climate change will have a dramatic impact on the level of biodiversity of the Wet Tropics, it

will still be a lush tropic forest, and on the surface will likely not appear any different to the novice tourist. The destruction of the ecosystems resulting from climate change of these two world heritage sites could provide the basis for the local industry to re-orientate and diversify, as suggested by a list of adaptations to climate change in the next several decades proposed by stakeholders in Cairns, Australia (Wilson & Turton, 2011). The respondents overall did recognize the potential impact of climate change on tourism in Cairns. However, these individuals were spread along a continuum in their level of understanding of the complexity of climate change. This continuum is similar to two of the ‘yes-group’ segments in Becker’s (2004) study, the ‘Green tourists’ and the ‘Sceptics.’

While the predicted long-term implications of climate change were conflicting in the responses of the individuals, most agreed that in the short-term, the industry will likely increase. This is reflective of some studies on climate change and tourism, particularly in the world’s most vulnerable destinations. A “see it while you can” mentality can lead to increased numbers of visitors wishing to visit the destination before it is ruined (Cederholm & Hultman, 2006).

There were also quite a few respondents who expressed that they had no idea how climate change would impact the GBR and the WT or they did not think it would have a serious affect whatsoever. This reflects the more general misunderstanding or apathy towards the long-term global impact of climate change, and/or the difficulty of ‘localizing’ the impacts of the global phenomenon (Cederholm & Hultman, 2006). These individuals share a similar perspective with the ‘Undecided’ and ‘Resister’ segments in Becker’s (2004) study. Many local tourism operators in Cairns are also less concerned about the impacts of climate change in the short-term as they have to focus their concern on crisis like the recent global economic recession.

The second part of this study sought to find out what the respondents thought that tourists could do to mitigate the impacts of climate change on the GBR and WT and the tourism industry in Cairns. The general consensus was that tourists could reduce pollution and littering, promote education of the heritage sites, minimize transportation use, and follow rules established by the local heritage sites. Regardless of the potential changes in behavior, individuals in this study indicated that they tourists are likely to continue to travel to destinations like the GBR and Wet Tropics. The mitigation of the impacts of tourism on climate change and any changes in tourist flows will be greatly dependent upon the preservation of the freedom of choice to travel to destinations (Gossling et al., 2006; Hares et al., 2010; Bigano et al., 2006; Becken, 2007).

Many of the respondents found that minimizing pollution and littering were key resources in sustaining the two world heritage sites. “Don’t pollute” was a common response. This reflects the larger movement of minimizing tourists’ environmental impacts. The consensus was that it is tourists’ responsibility to not compound or speed up the impacts of climate change on the environment by not polluting, stepping on coral, or wandering off set paths and boardwalks. These findings echo those by Hares et al. (2010), who found that consumption/disposal of waste was one of the largest contributors to climate change identified by focus groups made up of UK holiday travelers. In those focus groups the participants highlighted recycling as a mitigation measure to combat climate change. This is also one of the key action areas being addressed by marine tourism operators in Cairns (Zeppel, 2011).

A number of the interviewees thought that promoting and educating the public would be appropriate for addressing the impacts of climate change. Education was a reoccurring theme, which one interviewee suggested that tourists’ should “keep updated, try to be informed, ask questions, make ethically, morally, and environmentally friendly choices.” The

lack of education or awareness of the impacts of climate change was also apparent. An alarming amount of people had absolutely no idea how climate change was affecting these world heritage sites that Cairns is so dependent upon. Several respondents suggested that the more people are aware of the negative impacts the more likely they will want to contribute to mitigating them through their own behavior. While building awareness and knowledge of tourists visiting the region would be a good precursor to changes in behavior, knowledge alone is not enough (Becken, 2004).

One area in which there was a high level of awareness was the impact of tourism transportation on the increasing impacts of climate change. Respondents felt that all types of transportation have an impact including both local travel and global travel. There was also an awareness of the conflict between the impacts of tourist transportation, and the necessity of it for tourists to get to and experience the destinations. One respondent noted this conflict and the need for plausible alternatives, by stating that if tourists are unable to “travel by car or plane...how else would we get there? Alternative options need to be created first.” These sentiments are similar to those found in studies by Becken (2007), Gossling et al. (2006), and Hares et al. (2010). The level of awareness of tourist and the action taken to mitigate climate change impacts by tourism operators can only be truly effective if there is a larger shift in societal values and the implementation of more climate friendly technologies by the transportation industries.

Conclusions

This brief exploratory study was conducted to provide some insight into the perceptions of impacts of climate change on the tourism industry in Cairns and the ecosystems that the industry is dependent upon. While the results of this study are far from conclusive, they do shed some light on the views of a small group of tourists that can provide the foundation for future empirical studies that relate to tourists behavior, decision making,

and awareness of climate change. The findings in this study compound the results of previous studies on tourists' perceptions of climate change. While some of the tourists in this study acknowledged the issue of climate change for tourism in Cairns, there is still a gap in how this awareness can lead to future mitigation of the impacts of climate change. Tourists will continue to travel, thus future studies need to examine how current and future awareness can lead to shifts in attitudes. One direction would be to examine the attitudes of tourists in Cairns using the New Environmental Paradigm and a quasi-experimental design that examines how interventions implemented by tourism operators and awareness building campaigns in Cairns impact the environmental attitudes of tourists.

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