

LOOKING FOR EVIDENCE THAT PLACE OF RESIDENCE INFLUENCED VISITOR ATTITUDES TO FEEDING WILD DOLPHINS

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Abstract

Purpose – To ascertain if place attachment or experiential norms influence visitor attitudes to the feeding of wild dolphins.

Design/Methodology/Approach – A cross section of beach based visitors at a popular Australian marine tourism destination were opportunistically sampled using pen and paper questionnaires.

Findings – Visitors expressed strong support for the strictly controlled minimalist reward feeding that accompanies beach based wild dolphin interactions at the Bunbury Dolphin Discovery Centre and visitors believe there are tourism benefits to be gained from the regulated feeding of wild dolphins. Results also suggest that neither place attachment nor experiential norms influence visitor attitudes to feeding of the Koombana Bay dolphin population.

Originality of the research – This location specific, snapshot, case study suggests that contrary to published theory, place attachment and experiential norms do not influence tourist attitudes to wildlife feeding, especially for charismatic iconic wildlife such as dolphins.

Keywords Dolphins, Place Attachment, Tourism, Visitor Attitudes, Wildlife Feeding

INTRODUCTION

Both place attachment and experiential norms are reported to influence the attitudes and environmental behavior of visitors to marine tourism destinations (Curtin 2006; Handriana and Ambara, 2016; Tonge et al., 2013a and 2015). Furthermore, many marine tourism situations are centered on wildlife and often involve the feeding of animals in order to guarantee sightings and facilitate close encounters with target species (Newsome, Dowling and Moore, 2005). Accordingly, this study explores the attitudes of visitors to the feeding of wild dolphins and the possible tourism benefits of such feeding at a popular dolphin tourism destination in Australia.

In the 2014-2015 Austral Summer Murdoch University collaborated with the Dolphin Discovery Centre (DDC) to survey visitors at Koombana Beach, Bunbury, Western Australia to determine their attitudes towards the provisioning of wild dolphins and gather information on visitor's knowledge about the legal, social and environmental repercussions arising from the unregulated provisioning of dolphins in the same area (Simpson, Newsome and Day, 2016). For the purposes of this article, we report on survey

data relating to place of residence of visitors to Koombana Beach, visitor attitudes about feeding wild dolphins and visitor agreement with a statement about the tourism benefits of dolphin feeding.

The aim of this article therefore is to ascertain if visitor attitudes about the feeding of wild dolphins are influenced by place attachment, in the case of Bunbury residents, or the experiential norms of international visitors who may come from countries where the feeding of wild dolphins is prohibited. Additionally, we were interested in whether there would be a need to stratify the sampling approach for an enhanced study planned for the 2017-2018 Austral summer.

1. THEORETICAL BACKGROUND

1.1. Wildlife Tourism and Feeding Wild Dolphin

Wildlife tourism covers a diverse range of tourism experiences for which non-domesticated animals (wildlife) are the principal focus (Hughes, Newsome and Macbeth, 2009; Newsome, Dowling and Moore, 2005). Butterflies, red land crabs and even glow worms have been the focus for wildlife tourism (Newsome, Dowling and Moore, 2005), humans are however most drawn to encounters/interactions with charismatic species that are accessible, larger, exciting, aesthetically pleasing, have a physical likeness to humans and/or appear to display human behaviors/emotions (Curtin, 2005; Smith et al., 2006a). Coastal and marine destinations are becoming increasingly popular locations for wildlife tourism, especially for charismatic iconic species such as dolphins (Gier, Christie and Amolo, 2017; Newsome, Moore and Dowling, 2013; Schleimer et al., 2015; Smith et al., 2006a). Dolphin experiences provide benefits to local and regional communities, profiles marine wildlife tourism and engages the public in regards to conservation and the health of the marine environment (Australia's Coral Coast, 2017; Barney, Mintzes and Yen, 2005; Markowitz, et al. 2008; RAC Parks and Resorts, 2017; Stoeckl et al., 2005).

Feeding wildlife for tourism, on the other hand, is a complex and contentious activity. Feeding wildlife facilitates the desire of wildlife tourists for up-close observation, exciting interactions and increases the chance of sighting animals, such as dolphins, in their natural habitat (Newsome, Dowling and Moore, 2005). On the human side of the wildlife interaction, there are many psychological, social and economic benefits arising from wildlife tourism experiences (Murray et al., 2016; Orams, 2002 and 2013). Many authors suggest that wildlife tourism can also contribute to conservation efforts through the use of education to raise visitor awareness and concern for the wellbeing of species targeted in the tourism experience and the natural habitat those animals need to survive (Chan and Baum, 2007; Newsome, Moore and Dowling, 2013; Chan 2014; Trave et al., 2017). There is however the potential for detrimental impacts on the target species, including changed natural behaviors, reduced breeding success and altered feeding practices, especially where feeding is a component of the wildlife experience (Christiansen et al., 2016; Newsome, Dowling and Moore, 2005; Orams, 2002). Tourism related feeding can pose additional hazards for marine wildlife including young animals being exposed to the risk of predation, injuries sustained from watercraft and problems associated with

poor water quality (Milazzo, Anastasi and Willis, 2006; Murray et al., 2016; Patroni, Simpson and Newsome, 2018).

Widely practiced and accepted as beneficial to the Australian tourism industry, regulated (government licensed) dolphin feeding programs where visitors come into close contact with wild dolphins have become iconic tourism attractions (Bach and Burton, 2016; Smith et al., 2006b). Selected visitors are invited to hand feed dolphins at beach based feeding experiences at Monkey Mia in Western Australia, Tangalooma Resort on Moreton Island and Tin Can Bay in Queensland (Bach and Burton, 2016; Orams, 1995; Smith, Samuels and Bradley, 2008). In contrast, there are strict guidelines for the reward feeding at the Bunbury DDC beach based interactions where only center staff or trained volunteers feed selected female dolphins without calves and the quality, amount and distribution of food is carefully controlled (DDC, 2015b).

1.2. Koombana Bay Wild Dolphin Population

The resident wild dolphin population of Koombana Bay is a major tourism drawcard for the regional city of Bunbury focused around the iconic Dolphin Discovery Centre tourist attraction (Bunbury Visitors Centre, 2016; Bunbury Geographe Tourist Strategy, 2015); Manlik et al., 2016). The DDC, which is located at the eastern end of Koombana Beach on the southern side of Koombana Bay (33°19'14.70"S 115°38'59.60"E), provides regulated beach based dolphin interactions; eco cruises; and dolphin swim tours, which all provide tourists with up-close dolphin encounters (DDC, 2015a). There is no feeding associated with the DDC eco cruises or the dolphin swim tours, but the DDC does provide minimalistic strictly controlled reward feeding as described above for the beach based dolphin interactions (DDC, 2015b).

In addition to the dolphin experiences offered by the DDC, visitors can also observe the wild dolphins swimming in the opening to the inlet behind Koombana Beach and further north at 'the Cut'. Despite these regulated and low impact options for watching the Koombana Bay dolphins, private boaters and recreational fishers have been observed feeding fish and fishing bait to the dolphins and other visitors have been observed attempting to interact with the dolphins in an unmanaged situation (ABC News, 2016; Bunbury Mail, 2016; DDC, 2015b).

1.3. Place of Residence and Place Attachment

While some countries follow the Australian model of promoting dolphin feeding for tourism, other countries take a different view. Wild dolphin feeding was banned in the USA in 1972 (although in some locations dolphin watching operations routinely ignore this ban) and the accreditation scheme of the Dolphin Space Program of the Moray Firth, Scotland prohibited tourism operators feeding wild dolphins in 1995 (Christiansen et al., 2016; Donaldson, Finn and Calver, 2010; Woods-Ballard et al., 2003). Curtin (2006) postulates that tourist opinions on the acceptability of dolphin feeding are a product of both an individual's values and the regulations and practices considered acceptable in the country in which they reside. On that basis, one might expect that Australians are likely to consider government regulated wild dolphin feeding as acceptable whereas

tourists from the USA or Scotland would not support the feeding of wild dolphins for tourism purposes.

A second factor that may influence visitor attitudes and behaviors regarding the feeding of wild dolphins is the concept of place attachment. Place attachment is the attachment or bond a person has to a particular place for functional, emotional or symbolic reasons (Tonge et al., 2013a). The ease with which Bunbury residents can make repeat visits to the DDC should enhance the development of place attachment to the DDC and the Koombana Bay dolphins. Bunbury residents could form “place identify” attachment (Williams and Vaske 2003, 831) to the DDC based on emotional or psychological connection with the area or because of a sense that “everybody’s happy” (Tonge et al., 2013b) as a result of visiting the DDC, which enhances social bonding with family and friends because everyone is enjoying themselves (Tonge et al., 2013a). A “place dependence” attachment (Williams and Vaske, 2003, 831) could also arise, based on functional aspects of the DDC as it provides activities that meet the needs of visitors in terms of entertainment and getting enjoyment from up-close interactions with the wild dolphins of Koombana Bay (Tonge et al., 2013a).

Many studies demonstrate that visitors who experience place attachment have greater concern for the management and protection of a place and its wildlife, and that place attachment promotes enhanced environmental attitudes/behaviors (Tonge et al., 2013a and 2015). In the case of wild dolphin feeding, it is likely that visitors with a place attachment will be highly concerned about the welfare of the dolphins and oppose actions, such as unregulated/illegal feeding, that could harm the dolphins (Tonge et al., 2013a). Place attachment is usually only experienced by regular, repeat or long-term visitors to an area and first time or short stay visitors are unlikely to form that level of attachment (Tonge et al., 2015).

Halpenny (2010) and Tonge and others (2013 and 2015) report that the influence of place of residency on the environmental attitudes and behaviors of visitors is under researched, despite the importance of place attachment to inform management and encourage positive environmental behaviors. Positive behaviors of visitors experiencing place attachment include volunteering and the spreading of conservation messages to other visitors to help with self-regulation (Tonge et al., 2013a and 2015), which could be of great value in controlling unregulated dolphin feeding.

2. METHODS

2.1. Study Area

Located approximately 180 kilometers south of the state capital of Perth, the City of Bunbury is the second largest urban center in Western Australia and a major regional center and tourist destination (City of Bunbury, 2015; Fenech, 2011). The southwest of Western Australia enjoys a Mediterranean climate (Simpson, 2011; Simpson and Newsome, 2017), so popular summer activities for visitors to Bunbury include swimming, sightseeing, shore and boat based fishing, boating on the coastal waters, interacting with the wild dolphins, and other nature based tourism experiences (Fenech,

2011; City of Bunbury, 2017). Koombana Beach and the DDC are walking distance north of the central business, shopping and entertainment district on the southeastern shore of Koombana Bay and the adjacent holiday accommodation precinct.

2.2. Visitor Survey

During two periods in the Austral summer of 2014-2015, visitors to Koombana Beach in the area around the DDC completed pen and paper questionnaires in an opportunistic cross-sectional survey (Rindfleisch et al., 2008; Coolican, 2014). In addition to other aspects, the questionnaire asked visitors about: their usual place of residence; their attitudes towards wild dolphin feeding; and their agreement with the statement that 'Dolphin feeding benefits tourism' ranked on a five point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

2.3. Data Analysis

The 116 completed questionnaires are analysed using 95% confidence intervals of proportions (reported as percentages) and Pearson' chi-square test for categorical data (Howell 2010) to investigate whether place of residence and/or DDC visitation influences visitor attitudes towards the feeding of wild dolphins and the tourism benefits of dolphin feeding. Numeric values appear as the Value \pm 95% Confidence Interval, which is likely to contain the mean response of the broader visitor population. While participant responses appear in this article as percentages, chi-square statistical analyses were calculated using count values for categorical variables and responses to the Likert ratings (Berenson et al., 2006). The $\alpha = 0.05$ confidence level is used to determine statistical significance of analyses. The existence of a relationship between visitor support for wild dolphin feeding and support for the statement that 'Dolphin feeding benefits tourism' is investigated by calculating Persons coefficient of correlation and testing the significance of that value (Edwards, 1962).

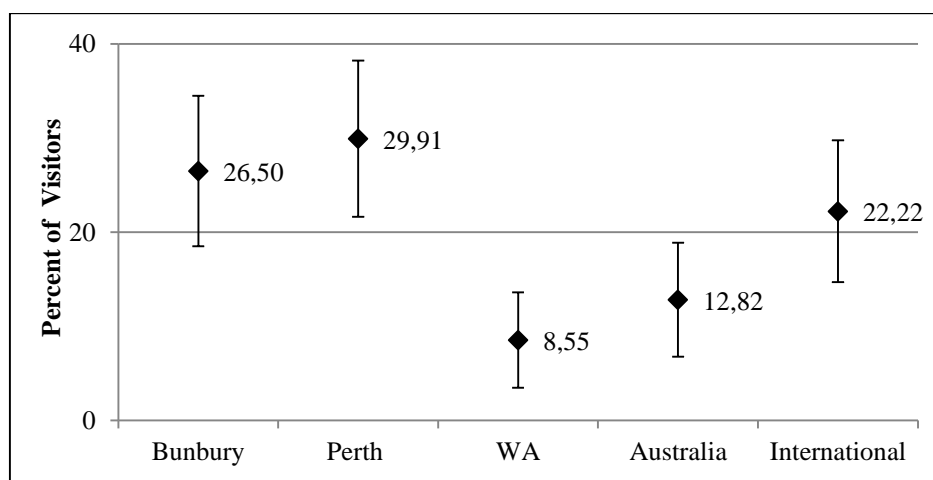
Comparisons between visitor responses and mean (no effect) values are analyzed using the 'Goodness of Fit' application of the chi-square test. The overall rates of visitation to the DDC and visitor attitudes to feeding wild dolphins apply the chi-square test for independence between the relevant categories. The chi-square test for the difference between proportions analyses differences in the rate of DDC visitation for visitors from each location. The post-hoc Marascuilo Procedure confirms the statistically significant differences in this analysis of DDC visitation (Berenson et al., 2006). In the instances where frequencies of five (5) or less arose during chi-squared analyses, the Williams Correction is applied (McDonald, 2014).

3. RESULTS

3.1. Usual Place of Residence

The questionnaire asked visitors to Koombana Beach in the 2014-2015 Austral summer (hereafter ‘visitors to KB’ or ‘KB visitors’) if they were a Bunbury resident, Perth resident, from rural or regional Western Australia (WA) or an international visitor (Figure 1).

Figure 1: Usual place of residence of visitors to Koombana Beach, Bunbury, Western Australia in the Austral summer of 2014-2015.

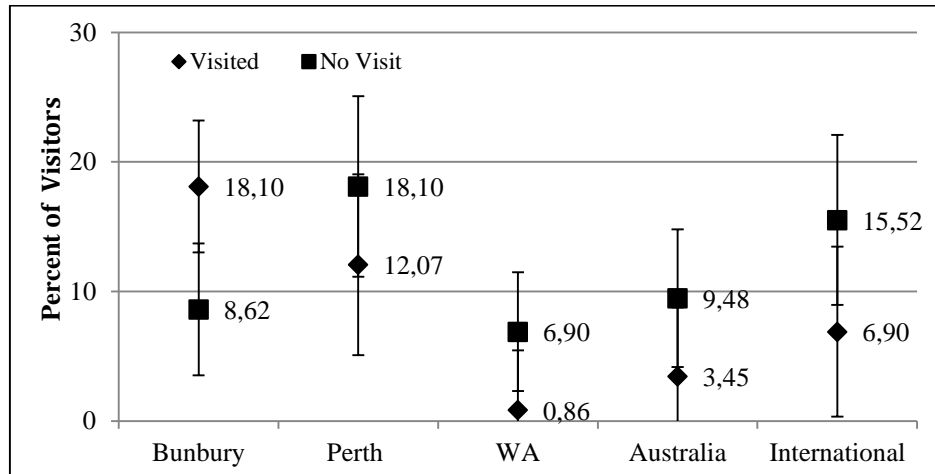


The differences in where people traveled from to visit to Koombana Beach indicated in Figure 1 are statistically significant ($\chi^2 = 19.19$; p-value = 0.0007; df = 4). It is perhaps of no surprise that a significantly higher proportion of visitors are from Perth and Bunbury. There is also a high portion of international visitors. Chi-square testing supports the suggestion of the overlap in the 95% confidence intervals with there being no difference in the proportion of visitors from those three locations ($\chi^2 = 0.6676$; p-value = 0.7162; df = 2). It is somewhat surprising that visitors from rural or regional WA and other parts of Australia are significantly lower than for the other categories.

3.2. Dolphin Discovery Centre Visitation

Despite the high degree of overlap in the 95% confidence intervals (Figure 2), there is a statistically significant difference in DDC visitation rates based on the usual place of residence for visitors to KB ($\chi^2 = 16.05$; p-value = 0.0030; df = 4). This difference is a product of the higher rate of visitation by the Bunbury residents, with there being no evidence ($\chi^2 = 4.009$; p-value = 0.2605; df = 3) of a difference in visitation rates for non-Bunbury residents.

Figure 2: **Dolphin Discovery Centre visitation rates for visitors to Koombana Beach in the 2014-2015 Austral summer across the 5 place of residence categories.**



These findings align with the post-hoc testing of all combinations of DDC visitation rates based on usual place of residence (Table 1), which confirms that the only statistically significant difference in visitation rates is between Bunbury residents and visitors from rural or regional WA.

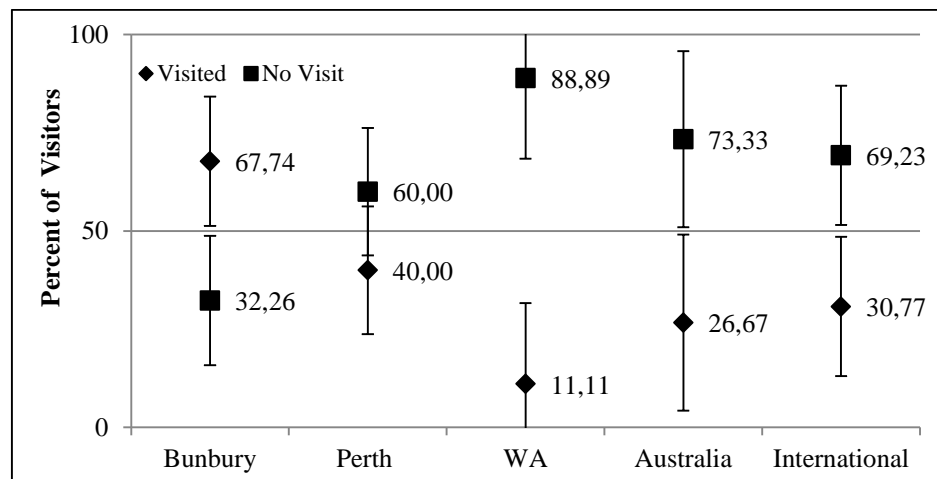
Table 1: **Outcomes of Marascuilo Procedure post-hoc testing (Critical Value = 9.448; df = 4) of Dolphin Discovery Centre visitations rates based on place of residence for visitors to Koombana Beach in the Austral summer of 2014-2015.**

Usual Places of Residence	ADP ¹	CR ²
Bunbury – Perth	0.2774	0.3632
Bunbury – Regional WA	0.5663*	0.4135
Bunbury – Australia	0.4108	0.4366
Bunbury – International	0.3697	0.3803
Perth – Regional WA	0.2889	0.4113
Perth – Australia	0.1333	0.4345
Perth - International	0.0923	0.3779
Regional WA – Australia	0.1556	0.4773
Regional WA – International	0.1966	0.4264
Australia – International	0.0410	0.4488

1. Absolute Difference in Proportions 2. Critical Range * ADP>CR → Statistically Significant Difference

There is evidence of a relationship between the usual place of residence of visitors to KB (Figure 3) and their rate of DDC visitation for visitors from each place of residence ($\chi^2 = 26.79$; p-value < 0.001; df= 4). A majority of Bunbury residents who visited KB that summer had also visited the DDC. A minority of visitors from regional WA, from other Australian States and from International locations report visiting the DDC in the Austral summer of 2014-2015. While visitors to KB who are residents of Perth visited the DDC above the average visitation rate, a minority of Perth residents had visited KB and the DDC (Figure 3).

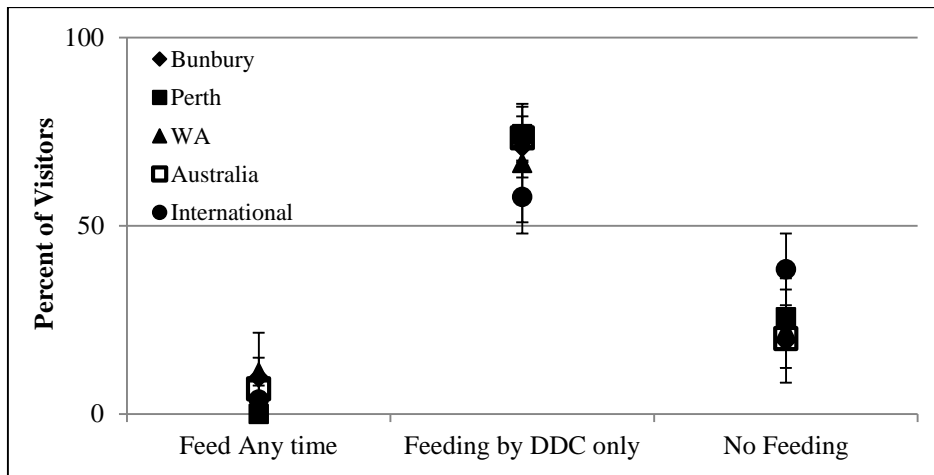
Figure 3: **Within category (Place of Residence) visitation rates to Dolphin Discovery Centre by Koombana Beach visitors in the 2014-2015 Austral summer.**



3.3. Attitudes about Wild Dolphin Feeding

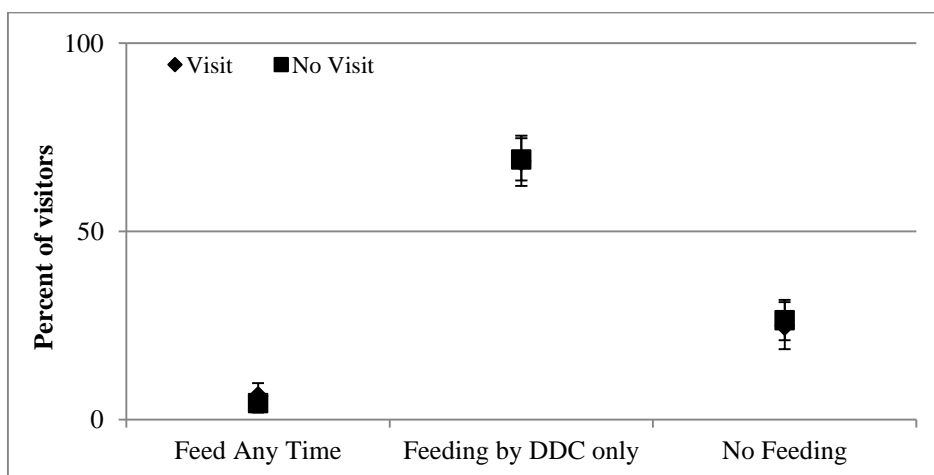
As reported above, there are statistically significant differences in both the usual place of residence of visitors to KB and the rates at which KB visitors also visit the DDC. There is however no evidence (Figures 4 and 5) that the attitudes of visitors to KB were influenced by either the usual place of residence ($\chi^2 = 7.659$; p-value = 0.4675; df= 4) nor by whether or not they had visited the DDC ($\chi^2 = 0.3184$; p-value = 0.8528; df= 2).

Figure 4: **Attitudes of Koombana Beach visitors to feeding wild dolphins in the 2014-2015 Austral summer categorized by their usual place of residence.**



Support of visitors to KB for the government regulated minimalist reward feeding that accompanies the DDC beach based dolphin interactions (Figure 4) is statistically significant for visitors from Bunbury ($\chi^2 = 20.92$; p-value < 0.001; df= 2); Perth ($\chi^2 = 30.91$; p-value < 0.001; df= 2); other Australian states ($\chi^2 = 11.35$; p-value = 0.0034; df= 2); and international visitors ($\chi^2 = 12.53$; p-value = 0.0019; df= 2). There is likely to be an equivalent level of support among visitors from rural and regional WA ($\chi^2 = 4.917$; p-value = 0.0856; df= 2), but power of the chi-squared test is limited by the small sample size for that group (n = 9; 5.2% of participants).

Figure 5: **Attitude of Koombana Beach visitors to feeding wild dolphins in the 2014-2015 Austral summer based on Dolphin Discovery Centre visitation.**

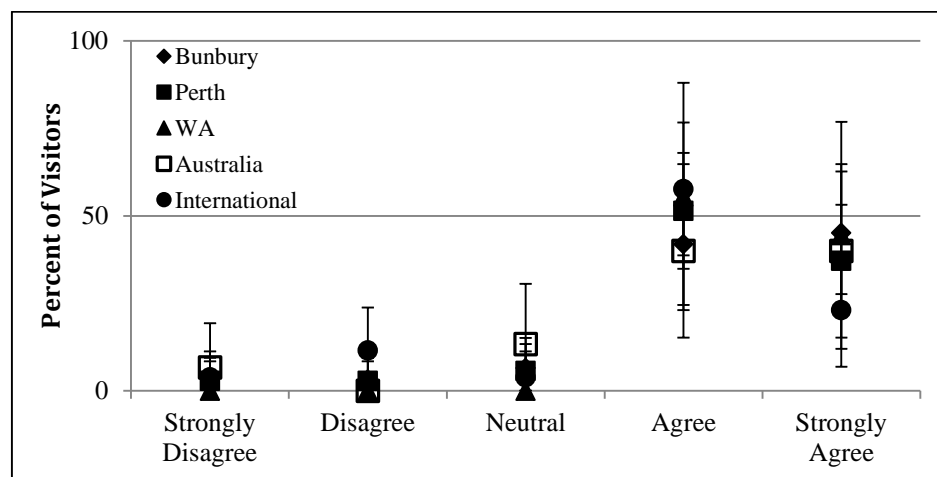


Similarly, the support for reward feeding that accompanies the DDC beach based dolphin interactions (Figure 5) was statistically significant for both KB visitors who had visited the DDC ($\chi^2 = 30.45$; p-value < 0.001; df= 2) and visitors who had not visited the DDC ($\chi^2 = 45.02$; p-value < 0.001; df= 2).

3.4. Perceived Tourism Benefits

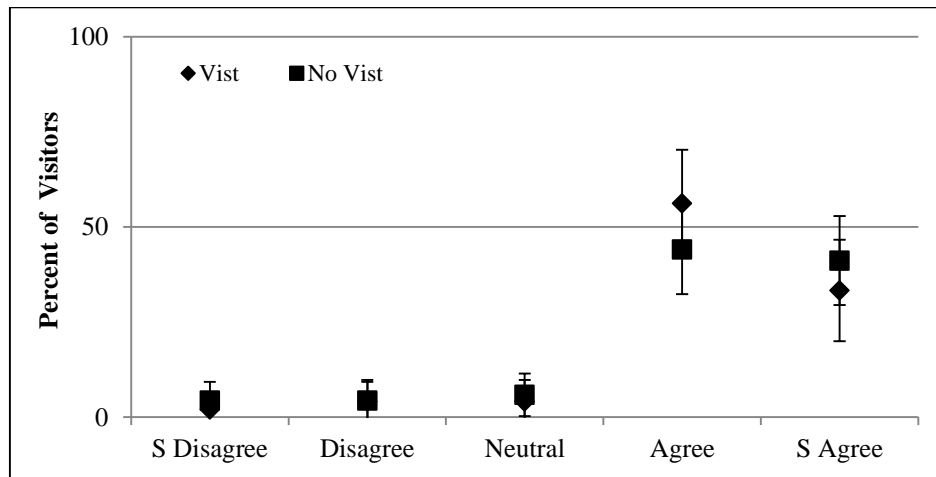
Visitors to KB were asked their level of agreement with the statement ‘Feeding dolphins benefits tourism’ (Figure 6). There is no evidence ($\chi^2 = 16.31$; p-value = 0.4312; df= 12) of a difference in the response of visitors as a result of their usual place of residence with a statistically significant proportion of visitors from all locations either Agreeing or Strongly Agreeing with the statement (Table 2). Interestingly, there is no correlation between KB visitors support for wild dolphin feeding and their agreement with the statement that ‘Dolphin feeding benefits tourism’ ($r = 1112$; t-statistic = 1.194; p-value = 0.1174).

Figure 6: Support among visitors to Koombana Beach in the 2014-2015 Austral summer for the statement that ‘Dolphin feeding benefits tourism’ categorized by their usual place of residence.



Additionally, there is no evidence ($\chi^2 = 2.7246$; p-value = 0.6049; df= 4) that visiting the DDC influences the level of agreement among the visitors to KB regarding the tourism benefit of feeding the wild dolphin (Figure 7).

Figure 7: **Support among visitors to Koombana Beach in the 2014-2015 Austral summer for the statement that ‘Dolphin feeding benefits tourism’ categorized by whether or not that had visited the Dolphin Discovery Centre.**



As for the usual place of residence analysis, visitors who had visited the DDC and those who had not visited the DDC either Agreed or Strongly Agreed with the statement regarding the tourism benefit of feeding dolphins to a statistically significant degree (Table 2).

Table 2: **Statistical significance of the within category support of visitors to Koombana Beach in the 2014-2015 Austral summer for the statement that ‘Feeding dolphins benefits tourism’ based on their usual place of residence.**

Place of Residence	Chi-squared Statistic	p-value	Degrees of Freedom
Bunbury Residents	31.31	<0.001	4
Perth Residents	38.82	<0.001	4
Rural and Regional WA	14.47	0.0059	4
Other Australian States	11.08	0.0256	4
International Visitors	28.49	<0.001	4
Visited Dolphin Discovery Centre	58.10	<0.001	4
Never Visited Dolphin Discovery Centre	54.35	<0.001	4

4. DISCUSSION

4.1. Place of Residence and DDC Visitation

In the Austral summer of 2014-2015, approximately 80% of the visitors to KB were residents of Bunbury, Perth or visiting from an international location, with each of those three groups equally represented. Very few KB visitors were residing in rural and regional WA. There is some evidence that the rate of DDC visitation is higher for Bunbury residents than visitors from other locations, but the usual place of residence of other visitors to KB does not significantly influence the overall rates of DDC visitation.

There are a number reasons for expecting the rate of DDC visitation by Bunbury residents to be higher than the visitation rate for visitors from other locations. Proximity and ease of access, local knowledge, exposure to advertising or media promotion, and word of mouth recommendations would all encourage Bunbury residents to visit and investigate the DDC for themselves (Mohd and Ramli, 2014). Additionally, the DDC engages with local schools and facilitates educational and volunteer programs to spread the word of their conservation efforts and activities, which would encourage additional visits by local residents and family groups (DDC, 2015c; Mohd and Ramli, 2014).

On that basis, Bunbury residents are likely to develop place attachment for the DDC, which should result in more return visits and additional positive testimonials to friends and family encouraging them to visit (Tonge et al., 2013 and 2015). Place attachment theory (Tonge et al., 2013 and 2015) suggests this would boost repeat visitations to the experience that the DDC offers, which should also enhance environmental awareness and behaviors such as opposing the unregulated/illegal feeding of the Koombana Bay dolphins. Repeat visitors to KB and the DDC from other locations, Perth residents for example, could also experience place attachment and therefore also exhibit enhanced environmental awareness environmental behaviors (Halpenny, 2010).

Even without place connection, the popularity of dolphins as wildlife tourism icons could motivate visitors from places other than Bunbury to visit the DDC. Studies of visitor opinion have shown that along with proximity to place, the target species is an important component of a meaningful wildlife experience (McIntosh and Wright, 2017). As previously noted in this article, dolphins are charismatic animals displaying intelligence and playfulness relatable to humans, which engages with visitor emotions and contributes an important element of the human-dolphin interaction (Smith, Lee and Newsome, 2006). Motivation to visit the DDC would be strong among visitors to KB, because experiencing an emotional connection to wildlife is one of the most important psychological benefits gained from spending time in natural settings (Curtin, 2005; McIntosh and Wright, 2017; Smith et al., 2006a; Zeppel and Muloin, 2008). The DDC facilitates wild dolphin experiences that provide visitors with the opportunity to learn about wildlife, which is an important motivator for visitors to view wildlife and at the same time as providing an opportunity for connecting with nature, which may not be a common occurrence in their everyday life (DDC, 2015d). The DDC dolphin interactions offer exciting and thrilling opportunities for visitors to be in close proximity to wild dolphins and to experience something new, especially if the visitors are from countries

that prohibit the feeding of wild dolphins (Duerden and Witt, 2010; McIntosh and Wright, 2017; Mohd and Ramli, 2014).

While it is possible to speculate about the motivation of KB visitors to attend the DDC, this topic requires additional research. The enhanced replicate study will explore visitor motivations more deeply by incorporating an Importance-Performance Analysis (IPA) to incorporate visitor satisfaction (Tonge and Moore, 2007; Taplin, 2012) in surveying visitors to KB. With the exception of the underrepresented group of KB visitors from rural and regional WA (5%), the lack of evidence for a difference in visitation rates gives confidence that stratified sampling based on place of residence will not be required in the follow up study.

4.2. Attitudes To Wild Dolphin Feeding

Regardless of the usual place of residence of visitors to KB or whether or not they had visited the DDC, visitors strongly supported (approx. 70% in both cases) the regulated minimalistic reward feeding provided as part of the DDC beach based dolphin interactions. There is very little support for people illegally feeding the Koombana Bay dolphins and again there is no evidence that the usual place of residence of visitors to KB or visitation to the DDC influenced by their responses (approx. 5% in both cases). While there is more support (approx. 25%) for not feeding the wild dolphins than for illegal feeding, this was also significantly less than the support for the regulated feeding.

Place attachment research (Tonge et al., 2013a and 2015) suggests that Bunbury residents (and other frequent or long-term visitors) would have a strong concern for the welfare of the Koombana Bay dolphins. As a result, Bunbury residents feel a sense of responsibility and care for the animals and would therefore want the DDC management to protect the welfare of the dolphins, possibly to the extent of not having the dolphins being fed at all. Similarly, research suggests that international visitors from countries that have banned dolphin feeding would not support any feeding of the wild dolphins, because regulation, education, and experiences in their own country prohibit wild dolphin feeding and research shows that norm influences the values of such visitors (Curtin, 2006; Dickman, et al. 2015).

The lack of support for the illegal feeding of the Koombana Bay dolphins aligns with both the concept of place attachment and the expectation that international visitors would be less likely to support the feeding of wild dolphins. The strong support for regulated reward feeding at the DDC beach based interactions and the Strong to Very Strong agreement that 'Dolphin feeding benefits tourism' are however at odds with the expected responses of visitors to KB. It is possible that most KB visitors support regulated feeding on the basis that this controlled practice is structured to minimize the negative impacts of feeding on the Koombana Bay dolphins while meeting the desire of visitors for up-close human-dolphin interactions, therefore alleviating their concern for the welfare of the dolphins (Sitar et al., 2017; Tonge et al., 2013a).

Previous studies, including those of Chan (2014) and Sitar and others (2017), report that the most important aspect of the wildlife experience for tourists in marine destinations with dolphin watching experiences is receiving education and knowledge about the

wildlife they see. The majority of tourists surveyed by Sitar and her colleagues commented on the importance of operators holding the correct government licensing and following codes of conduct established to minimize harm to wild dolphins. Similar results are reported in the Newsome, Lewis and Moncrieff (2003) study of visitor attitudes to feeding stingrays at Hamelin Bay, Western Australia, where most of the visitors surveyed were highly concerned about the health and safety of the rays and expressed the view that education would achieve the greatest change in visitor behaviors. The high level of support among KB visitors for regulated feeding as part of the educative beach based dolphin interactions at the DDC is consistent with findings of the earlier studies of Chan (2014), Newsome, Lewis and Moncrieff (2003), and Sitar and her colleagues (2017).

4.3. Perceived Tourism Benefits

As mentioned above, a significant majority of KB visitors Agree or Strongly Agree with the statement that 'Dolphin feeding benefits tourism' and neither their usual place of residence or DDC visitation influenced visitor responses. The high level of support for the statement among visitors to KB may be explained by the popularity of dolphins amongst wildlife tourists and because feeding facilitates the desire of visitors to experience an up-close interaction (McIntosh and Wright, 2017; Smith, Lee and Newsome, 2006) with the Koombana Bay dolphins. This response is expected from KB visitors who experience place attachment, as they recall good times at Koombana Bay and associate the tourism experience as a positive one based on their emotional connection with the area (Tonge et al., 2013a and 2015). As discussed in the previous section, the safety and welfare of dolphins is a major concern of wildlife tourists and this would suggest that KB visitors might oppose the feeding of the Koombana Bay dolphins, yet this article demonstrates strong support for the DDC reward feeding and agreement that the feeding benefits tourism. Strong agreement with the statement among visitors to KB, regardless of their usual place of residence, highlights that the perceived tourism benefits are very important to KB visitors. It is however interesting to note that there is no correlation between the support of individual KB visitors for feeding wild dolphins and their agreement that 'Dolphin feeding benefits tourism'.

CONCLUSION

Overall, visitors to Koombana Beach believe there are tourism benefits in the regulated feeding of the wild dolphins. Visitors expressed strong support for the strictly controlled minimalist reward feeding that accompanies the Bunbury Dolphin Discovery Centre (DDC) beach based wild dolphin interactions, there was however very little support for people illegally feeding the wild dolphins in Koombana Bay. These outcomes provide evidence that visitors support tourism related feeding of wild dolphins, providing the feeding experience is regulated and controlled to protect the welfare of the dolphins and to minimise negative impacts that feeding may cause.

While this location specific snapshot provides some insight into the association between place attachment and visitor attitudes, more research is needed to understand and confirm the ability of place attachment to predict visitor behaviors towards wildlife and visitor

satisfaction with the tourism experience. Greater understanding is needed regarding the interplay between place attachment and visitor attitudes to wildlife feeding, especially for charismatic iconic wildlife such as dolphins. Our finding that there is also a lack of evidence for experiential norms influencing attitudes of international visitors to feeding the Koombana Bay dolphins also warrants additional investigation. Further research into the attitudes/perceptions of visitors based on their place of residence will help inform dolphin tourism programmes both in the Australian and international context.

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REFERENCES

- ABC News (2016), *Feeding dolphins encourages beggar behaviour, marine biologist warns*. Viewed 18 July 2017, <http://www.abc.net.au/news/2016-01-26/beggar-dolphins-put-at-risk-koombana-bay-bunbury/7114158>
- Australia's Coral Coast. (2017), *Meet the Monkey Mia Dolphins*, viewed 10 July 2017, <http://www.australiascoralcoast.com/attractions-events/monkey-mia-dolphins>
- Bach, L. and Burton, M. (2016), "Proximity and animal welfare in the context of tourist interactions with habituated dolphins", *Journal of Sustainable Tourism*, Vol. 25, No. 2, pp. 181-197, <https://doi.org/10.1080/09669582.2016.1195835>
- Barney, E., Mintzes, J., and Yen, C. (2005), "Assessing knowledge, attitudes, and behaviour towards charismatic megafauna: The case of dolphins", *The Journal of Environmental Education*, Vol. 36, No. 2, pp. 41-55. <https://doi.org/10.3200/JOEE.36.2.41-55>
- Berenson, M.L., Levine, D.M. & Krehbiel T.C. (2006), *International Edition Basic Business Statistics: Concepts and Applications, 10th Edition*, Pearson Education Inc, New Jersey, USA
- EVOLVE Strategic Solutions (2015), *Bunbury- Wellington & Boyup Brook Regional Tourism Development Strategy 2015-2019*, City of Bunbury, Western Australia.
- Bunbury Mail (2016), *Feeding Bunbury's dolphins could be a health hazard*, viewed 18 July 2017, <http://www.bunburymail.com.au/story/3674463/please-do-not-feed-the-dolphins/>.
- Bunbury Visitors Centre (2016), *Bunbury and Geopraphe Region Experience Guide 2016/17*, viewed 18 July 2017, <https://visitbunbury.com.au/listing/dolphin-discovery-centre/#/tours/12542>.
- Chan, J.K.L. (2014), "Understanding Coastal Seaside Resorts in Sabah: Its Growth Factors, Key Attributes and Operational Strategies", *Tourism, Leisure and Global Change* Vol. 1, No. 1, pp. 12-23.
- Chan, J.K.L. and Baum, T. (2007), "Motivation factors of ecotourists in ecotourism accommodation: the push and pull factors", *Asia Pacific Journal of Tourism Research* Vol.12, No. 4, pp. 349-364. <https://doi.org/10.1080/10941660701761027>
- City of Bunbury (2015), *Strategic Community Plan: Bunbury 2030*, City of Bunbury, Bunbury, Western Australia.
- City of Bunbury (2017), *Visit Bunbury*, viewed 18 July 2017, <https://visitbunbury.com.au/>.
- Christiansen, F., McHugh, K.A., Bejder, L., Siegal, E.M., Lusseau, D., McCabe, E.B., Lovewell, G. and Wells, R.S. (2016), "Food provisioning increases the risk of injury in a long-lived marine top predator", *Royal Society Open Science*, Vol. 3, No.12. <http://dx.doi.org/10.1098/rsos.160560>
- Coolican, H. (2014), *Research methods and statistics in psychology*, Psychology Press, East Sussex, UK.
- Curtin, S. (2005), "Nature, Wild Animals and Tourism: An Experiential View", *Journal of Ecotourism*, Vol. 4, No.1, pp.1-15. <https://doi.org/10.1080/14724040508668434>

- Curtin, S. (2006), "Swimming with dolphins: A phenomenological exploration of tourist recollections" *International Journal of Tourism Research*, Vol.8, No.4, pp. 301-315.
<http://dx.doi.org/10.1002/jtr.577>
- DDC (2015a), *Dolphin Discovery Centre: Activities*, viewed on 18 July 2017,
<http://dolphinsdiscovery.com.au/enjoy/>
- DDC (2015b), *Dolphin Discovery Centre: Conservation*, viewed on 18 July 2017,
<http://dolphinsdiscovery.com.au/discover/conservation/>
- DDC (2015c), *Dolphin Discover Centre: School Holiday Program*, viewed on 18 July 2017,
<http://dolphinsdiscovery.com.au/enjoy/school-holiday-program/>
- DDC (2015d), *Dolphin Discovery Centre: Interaction Zone*, viewed 18 July 2017,
<http://dolphinsdiscovery.com.au/enjoy/interaction-zone/>
- Dickman, A., Johnson, P.J., van Kesteren, F. and Macdonald, D.W. (2015), "The moral basis for conservation: How is it affected by culture?" *Frontiers in Ecology and the Environment*, Vol. 13, No. 6, pp. 325-331. <http://dx.doi.org/10.1890/140056>
- Donaldson, R., Finn, H. and Calver, M. (2010), "Illegal feeding increases risk of boat-strike and entanglement in bottlenose dolphins in Perth, Western Australia", *Pacific Conservation Biology*, Vol. 16, No. 3, pp. 157-161. <http://www.publish.csiro.au/pc/PC100157>
- Duerden, M.D. and Witt, P.A. (2010), "The impact of direct and indirect experiences on the development of environmental knowledge, attitudes, and behavior", *Journal of Environmental Psychology*, Vol, 30, No. 4, pp. 379. <https://doi.org/10.1016/j.jenvp.2010.03.007>
- Edwards, A.L. (1962), *Statistical Methods for Behavioral Sciences*, Holt, Rinehart and Winston, New York, USA.
- Fenech, R. (2011), *City of Bunbury Tourism Strategy 2009 – 2014: Revised 2010*. Edge Tourism & Marketing, Bunbury, Western Australia.
- Gier, L., Christie, P. and Amolo, R. (2017), "Community perceptions of scuba dive tourism development in Bien Unido, Bohol Island, Philippines", *Journal of Coastal Conservation*, Vol. 21, No. 1, pp. 153-166. <https://doi.org/10.1007/s11852-016-0484-2>
- Halpenny, E.A. (2010), "Pro-environmental behaviours and park visitors: The effect of place attachment", *Journal of Environmental Psychology*, Vol. 30, No.4, pp. 409-421.
<https://doi.org/10.1016/j.jenvp.2010.04.006>
- Handriana, T. and Ambara, R. (2016), "Responsible Environmental Behavior Intention of Travelers on Ecotourism Sites", *Tourism and Hospitality Management*, Vol.22, No.2, pp. 135-150.
<https://doi.org/10.1016/j.jenvp.2010.04.006>
- Hughes, M., Newsome, D. and Macbeth, J. (2005), "Visitor perceptions of captive wildlife tourism in a Western Australian natural setting". *Journal of Ecotourism*, Vol. 4, No. 2, pp. 73-91.
<https://doi.org/10.1080/14724040409480341>
- Howell., D.C. (2010), *Statistical Methods for Psychology*, Cengage Wadsworth, Belmont, California, USA.
- Manlik, O., McDonald, J.A., Mann, J., Raudino, H.C., Bejder, L., Krützen, M., Connor, R.C., Heithaus, R.M., Lacy, R.C. and Sherwin, W.B. (2016), "The relative importance of reproduction and survival for the conservation of two dolphin populations", *Ecology and Evolution*, Vol. 6, No. 11, pp. 3496-3512. <http://dx.doi.org/10.1002/ece3.2130>
- Markowitz, T., Dans, S.L., Crespo, E.A., Lundquist, D.J. and Duprey, N. (2008), "Human Interactions with Dusky Dolphins: Harvest, Fisheries, Habitat Alteration, and Tourism", Würsig, B. and M. Würsig, M., *The dusky dolphin: Master acrobat off different shores*, Elsevier, London, UK, pp. 211-244.
- McDonald, J.H. (2014), *Handbook of Biological Statistics*. Sparky House Publishing, Baltimore, Maryland, USA.
- McIntosh, D. and Wright, P.A. (2017), "Emotional processing as an important part of the wildlife viewing experience", *Journal of Outdoor Recreation and Tourism*, Vol. 18, pp. 1-9.
<https://doi.org/10.1016/j.jort.2017.01.004>
- Milazzo, M., Anastasi, I. and Willis, T.J. (2006), "Recreational fish feeding affects coastal fish behavior and increases frequency of predation on damselfish *Chromis chromis* nests", *Marine Ecology Progress Series*, Vol. 310, pp. 165-172.
http://www.jstor.org/stable/24870016?seq=1#page_scan_tab_contents
- Mohd Isa, S. and Ramli, L. (2014), "Factors influencing tourist visitation in marine tourism: Lessons learned from FRI aquarium Penang, Malaysia", *International Journal of Culture, Tourism and Hospitality Research*, Vol. 8, No.1, pp. 103-117. <https://doi.org/10.1108/IJCTHR-04-2013-0016>
- Murray, M.H., Becker, D.J., Hall, R.J. and Hernandez, S.M. (2016), "Wildlife health and supplemental feeding: A review and management recommendations", *Biological Conservation*, Vol. 204, pp. 163-174.
<https://doi.org/10.1016/j.biocon.2016.10.034>

- Newsome, D., Dowling, R.K. and Moore, S.A. (2005), *Aspects of Tourism: Wildlife Tourism (Vol. 24)*, 1st ed, Channel View Publications, Clevedon, England.
- Newsome, D., Lewis, A. and Moncrieff, D. (2003), "Impacts and risks associated with developing, but unsupervised, stingray tourism at Hamelin Bay, Western Australia", *International Journal of Tourism Research*, Vol. 6, No. 5, pp. 305-323. <http://dx.doi.org/10.1002/jtr.491>
- Newsome, D., Moore, S.A. & Dowling, R.K. (2013), *Aspects of Tourism: Natural area tourism: Ecology, impacts and management (Vol. 58)*. Channel view publications, Clevedon, England.
- Orams, M. (1995), "Development and management of a feeding programme for wild bottlenose dolphins at Tangalooma, Australia", *Aquatic Mammals*, Vol. 21, pp. 137-147.
- Orams, M. (2013), "Economic Activity Derived from Whale-Based Tourism in Vava'u, Tonga", *Coastal Management*, Vol. 41, No. 6, pp. 481-500. <https://doi.org/10.1080/08920753.2013.841346>
- Orams, M.B. (2002), "Feeding wildlife as a tourism attraction: A review of issues and impacts", *Tourism Management*, Vol. 23, No. 3, pp.281-293. [https://doi.org/10.1016/S0261-5177\(01\)00080-2](https://doi.org/10.1016/S0261-5177(01)00080-2)
- Patroni, J., Simpson G. & Newsome, D. (2018), "Feeding wild fish for tourism – A systematic quantitative literature review of impacts and management", *International Journal of Tourism Research*, Vol. 20, No. 1. <http://dx.doi.org/10.1002/jtr.2180>
- RAC Parks and Resorts. (2017), *The Monkey Mia Dolphins*, viewed 7 June 2017, <https://parksandresorts.rac.com.au/the-dolphins/>
- Rindfleisch, A., Malter, A.J., Ganesan, S. and Moorman, C. (2008), "Cross-sectional versus longitudinal survey research: Concepts, findings, and guidelines", *Journal of Marketing Research*, Vol. 45, No. 3, pp. 261-279. <https://doi.org/10.1509/jmkr.45.3.261>
- Schleimer, A., Araujo, G., Penketh, L., Heath, A., McCoy, E., Labaja, J., Lucey, A. and Ponzo, A. (2015), "Learning from a provisioning site: code of conduct compliance and behaviour of whale sharks in Oslob, Cebu, Philippines", *Peer J*, Vol. 3. <https://peerj.com/articles/1452/>
- Simpson, G.D. (2011), "Cracking the niche: An investigation into the impact of climatic variables on germination of the rare shrub *Verticordia staminosa* subspecies *staminosa* (Myrtaceae)". Retrieved from <http://researchrepository.murdoch.edu.au/id/eprint/8485/>.
- Simpson, G. and Newsome, D. (2017), "Environmental history of an urban wetland: from degraded colonial resource to nature conservation area", *Geography and Environment*, Vol. 4, No. 1. <http://dx.doi.org/10.1002/geo2.30>
- Simpson, G., Newsome, D. & Day, A. (2016), "Data from a survey to determine visitor attitudes and knowledge about the provisioning of wild dolphins at a marine tourism destination", *Data in Brief* Vol. 9: pp. 940-945. <https://doi.org/10.1016/j.dib.2016.11.020>
- Sitar, A., May-Collado, L.J., Wright, A., Peters-Burton, A., Rockwood, L. and Parsons, C.M. (2017), "Tourists' Perspectives on Dolphin Watching in Bocas Del Toro, Panama", *Tourism in Marine Environments*, Vol. 12, No. 2, pp. 79-94. <https://doi.org/10.3727/154427316X14820977775343>
- Smith, A.J., Lee, D. and Newsome, D. (2006), "Production and Consumption of Wildlife Icons: Dolphin Tourism at Monkey Mia, Western", Meethan, K., Anderson, A. and Miles, S., *Tourism, consumption and representation: Narratives of place and self*, CAB International, Kings Lynn, United Kingdom, pp. 113-139.
- Smith, A.J., Lee, D., Newsome, D. and Stoeckl, N. (2006a), "Production and consumption of wildlife icons: dolphin tourism at Monkey Mia, Western Australia", Meethan, K. and Anderson, A., *Tourism consumption and representation: narratives of place and self*. CABI Publishing, Wallingford, Oxfordshire, UK, pp. 113-139.
- Smith, A., Newsome, D., Lee, D. and Stoeckl, N. (2006b), *The Role of Wildlife Icons as Major Tourist Attractions Case Studies: Monkey Mia Dolphins and Hervey Bay Whale Watching*, viewed 15 July 2017, <http://www.sustainabletourisonline.com/1004/wildlife-tourism/role-of-wildlife-icons-as-major-tourist-attractions-case-studies-monkey-mia-dolphins-and-hervey-bay-whale-watching>
- Smith, H., Samuels, A. and Bradley, S. (2008), "Reducing risky interactions between tourists and free-ranging dolphins (*Tursiops* sp.) in an artificial feeding program at Monkey Mia, Western Australia", *Tourism Management*, Vol. 29, No.5, pp. 994-1001. <https://doi.org/10.1016/j.tourman.2008.01.001>
- Stoeckl, N., Smith, A., Newsome, D. and Lee, D. (2005), "Regional economic dependence on iconic wildlife tourism: Case studies of Monkey Mia and Hervey Bay", *Journal of Tourism Studies*, Vol. 16, No. 1, pp. 69-81.
- Taplin, R.H. (2012), "Competitive importance-performance analysis of an Australian wildlife park", *Tourism Management*, Vol. 33, No. 1, pp. 29-37. <https://doi.org/10.1016/j.tourman.2011.01.020>
- Tonge, J. and Moore, S.A. (2007), "Importance-Satisfaction Analysis for Marine-Park Hinterlands: A Western Australian Case Study", *Tourism Management*, Vol. 28, pp. 768-776. <https://doi.org/10.1016/j.tourman.2006.05.007>

- Tonge, J., Moore, S.A., Ryan, M.M. and Beckley, L.E. (2013b). "A photo-elicitation approach to exploring place meanings ascribed by campers to the Ningaloo coastline, north-western Australia", *Australian Geographer*, Vol. 44, No. 2, pp. 143-160. <https://doi.org/10.1080/00049182.2013.789591>
- Tonge, J., Ryan, M.M., Moore, S.A. and Beckley, L.E. (2015), "The effect of place attachment on pro-environment behavioral intentions of visitors to coastal natural area tourist destinations", *Journal of Travel Research*, Vol. 54, No. 6, pp.730-743. <http://dx.doi.org/10.1177/0047287514533010>
- Tonge, J., Valesini, F.J., Moore, S.A., Beckley, L.E. and Ryan, M.M. (2013a), "The relation between place attachment and management preferences of visitors at remote coastal campsites in Western Australia", *Visitor Studies*, Vol. 16, No. 1, pp. 39-58. <https://doi.org/10.1080/10645578.2013.768070>
- Trave, C., Brunnschweiler, J., Sheaves, M., Diedrich, A. and Barnett, A. (2017), "Are we killing them with kindness? Evaluation of sustainable marine wildlife tourism", *Biological Conservation*, Vol. 209, pp. 211-222. <https://doi.org/10.1016/j.biocon.2017.02.020>
- Williams, D.R. and Vaske, J.J. (2003), "The Measurement of Place Attachment: Validity and Generalizability of a Psychometric Approach", *Forest Science*, Vol. 49, No. 6, pp. 830-840.
- Woods-Ballard, A.J., Parsons, E.C.M., Hughes, A.J., Velandar, K.A., Ladle, R.J. and Warburton, C.A. (2003), "The Sustainability of Whale-watching in Scotland", *Journal of Sustainable Tourism*, Vol. 11, No. 1, pp. 40-55. <https://doi.org/10.1080/09669580308667192>
- Zeppel, H. and Muloin, S. (2008), "Marine wildlife tours: benefits for participants", Higham, J. and Luck, M., *Marine Wildlife and Tourism Management*. CABI, Wallingford, Oxfordshire, UK, pp. 19-48.

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