

TOURIST ATTITUDES TOWARDS MARINE MAMMAL TOURISM: AN EXAMPLE FROM THE DOMINICAN REPUBLIC

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In 2002, residents of the village of Bayahibe, Dominican Republic, became concerned about their local dolphin population when eight bottlenose dolphins were captured for a Dominican dolphinarium off the coast of their village within a national park. Subsequently, a collaborative project, *El Proyecto Amigos de los Delfines*, was established to learn more about this dolphin population and to initiate conservation efforts in the region. In 2007, a survey of tourists in Bayahibe was conducted to assess the degree of interest in local sustainable marine mammal tourism. The results indicated that tourists in this area had a high concern for dolphin conservation and would rather see wild than captive dolphins. Respondents also expressed support for sustainable (vs. conventional) tourism practices.

Key words: Dominican Republic; Dolphins; Whale watching; Sustainable marine mammal tourism

Introduction

The Dominican Republic, a Spanish-speaking nation that shares the Caribbean island of Hispaniola with Haiti, has a well-developed marine tourism industry, including whale watching, scuba diving, snorkeling, deep-sea fishing, and boating (Draheim & Parsons, 2008). Tourism is an important component of the Dominican Republic's economy, being the largest earner of foreign exchange (Economist Intelligence Unit, 2008). In 2006, tourism accounted for US\$3.8 billion out of

a GDP of US\$35.6 billion (Economist Intelligence Unit, 2008).

Although the economics of the captive cetacean industry have not been adequately studied, the literature does demonstrate that revenue from whale-watching activities has grown in recent decades. From 1991 to 1998, whale-watching expenditures in the Dominican Republic grew from US\$70,000 to US\$5.2 million. In fact, the Dominican Republic has the most valuable whale-watching industry in the Caribbean, and, as of 2001, the potential for cetacean watching in the Dominican Republic had

not reached its full potential (Hoyt, 2001). However, most whale-watching operations are owned by foreign companies, with much of the revenues leaving the country (Hoyt, 2001; personal observations).

Overall, tourism growth in the Dominican Republic has been rapid in recent decades: from 1970 to 2000, stay-over arrivals in the Dominican Republic increased by 12%, compared to 5.2% in the rest of the region (Padilla & McElroy, 2005). That growth has continued: in 2000, the Dominican Republic had 3 million stay-over arrivals, increasing to 4 million by 2007 (Economist Intelligence Unit, 2008). The tourism industry in the Dominican Republic is large compared to the region as a whole: in 2000, 17% of all stay-over tourists and expenditures in the region were from the Dominican Republic (Padilla & McElroy, 2005).

In 2002, eight bottlenose dolphins (*Tursiops truncatus*) were captured off the southeastern coast of the Dominican Republic, near the village of Bayahibe and the Parque Nacional del Este (PNE, the Eastern National Park). The dolphins were captured for Manatí Park, a dolphinarium in Bávaro-Punta Cana that bills itself as an “ecotourism destination.” It offers activities such as dolphin and other animal shows and swim-with-dolphin interactions. However, their claims of being an ecotourism destination are dubious at best, as researchers have been unable to determine any positive conservation-related activities undertaken by the facility or its staff, and in fact Manatí Park has negatively affected the Dominican Republic’s wildlife through its dolphin captures (for a detailed description of the capture and its aftermath, see Parsons, Bonnelly de Calventi, Whaley, Rose, & Sherwin, in press).

The dolphins were taken from a population that had not yet been studied, and so, as in other parts of the region, there was no way to determine the impact the captures had on the population (Van Waerebeek et al., 2006). Although the government had issued permits for the capture, the permits and subsequent display of the dolphins were illegal under Dominican law #64-00 (Parsons et al., 2009). The captures may also have been illegal under an international treaty to which the Dominican Republic is a party: the Convention for the Protection and Development of the Marine Environment of

the Wider Caribbean Region (Cartagena Convention), whose Protocol Concerning Specially Protected Areas and Wildlife (SPAW Protocol) prohibits the taking of all cetaceans (Parsons et al., 2009).

Due to conflict that arose between the conservation community and the local people on the one hand, and Manatí Park on the other, a coalition of academic institutions, representatives from the Dominican government, international and domestic environmental and animal welfare nongovernmental organizations (NGOs), tourism organizations, and local community groups was formed in 2003 to address the conservation issues facing the dolphin populations in the country. *El Proyecto Amigos de los Delfines* (the Amigos Project) aims to assist in the conservation of cetaceans in the Dominican Republic through research, education, and the development of ecotourism and strong conservation policy.

As in much of the Caribbean, most tourists to the Bayahibe area participate in all-inclusive packages at coastal resorts, although some are independent travelers. As a result, the local community sees little of the tourist revenue produced in the area, except through wages (which are generally low) and the occasional tourist dollar spent in town (personal observations). One reason cited as a limiting factor for the growth of a cetacean-watching industry in many areas is a high leakage of revenues out of the country coupled with the fact that many all-inclusive packages do not offer cetacean-watching trips (Hoyt, 2001; Hoyt & Hvenegaard, 2002); another is the lack of solid data about local cetacean populations (Hoyt & Hvenegaard, 2002). All of these points are relevant to the tourism situation in Bayahibe.

The island of Saona is part of the PNE off the coast of Bayahibe. Various cetacean species frequent the waters surrounding the park, and in particular the coastal waters of Saona, including bottlenose dolphins, Atlantic spotted dolphins (*Stenella frontalis*), Pan-tropical spotted dolphins (*Stenella attenuate*), seasonal humpback whales (*Megaptera novaeangliae*), short-finned pilot whales (*Globicephala macrorhynchus*), and sperm whales (*Physeter macrocephalus*) (Whaley, Parsons, Sellares, & Bonnelly de Calventi, 2006; Whaley, Wright, Bonnelly de Calventi, & Parsons, 2007). One ex-

cursion popular with tourists staying at the nearby all-inclusive resorts is a boat trip to Saona. The current study was undertaken to see if a viable marine mammal-watching industry could be successful in Bayahibe, and if sustainable tourism could be a viable economic alternative to the consumptive, and arguably nonsustainable, practice of live-capture for the dolphinarium industry.

Method

During the summer of 2007, tourists ($n = 206$; 95% confidence level, 6.83 confidence interval) in public areas of Bayahibe and La Romana, two municipalities in the southeastern tourist area of the Dominican Republic, were surveyed to determine their attitudes towards dolphins and dolphin-based tourism, and to collect basic demographic information on tourists in this locale. The questionnaires were provided to the tourists in their choice of language: English, French, or Spanish (each format totaled approximately one third of the final surveys collected), and had been pretested on another group of tourists from the same area at an earlier date. The survey was revised based on the pretest results.

Respondents were given the questionnaires and asked to complete them independently. Respondents were selected on a "first person encountered after the completion of the previous questionnaire" basis, a convenience sampling method that has been utilized in similar studies. All of the questionnaires were distributed by the same person to ensure that the procedure was consistent, and the distributor did not prompt or interpret the questions for the participants.

No identifying information was obtained from respondents in order to keep their responses confidential. As the project was implemented through the auspices of a nongovernmental organization, it did not go through a formal review board; however, two of the authors have undergone ethics training and similar project methodology has been used extensively in other surveys. No sensitive information was asked of the respondents, and as identifying information was not obtained, none of the responses could be traced back to the survey participants.

The survey instrument contained a series of

closed-ended questions with some open-ended questions to gather demographic data. A variety of forms of questions were used, including 5- and 6-point Likert scales. Respondents were asked questions that fell into several different categories: the perceived value of dolphins, the potential for marine mammal tourism in Bayahibe, preferred elements of a dolphin-watching trip, dolphin-human interactions, and demographic information. The authors analyzed the survey data using Stata/SE version 9.1.

Results

Tourist Demographics

Survey respondents were 47.3% male and 52.7% female ($n = 169$). Respondents were multinational, with the majority being of European origin (68.9% Western European, 22.0% American and Canadian, 7.7% Caribbean, and 1.7% other; $n = 182$). In terms of age ($n = 200$), most respondents were 26 and older, with 35.9% being 26–40, and 35.9% being 41–60. Only 3.4% of respondents were over 60 years of age, 4.5% of respondents were under 18, and 17.5% were 19–25.

Most respondents were staying in the Dominican Republic as part of an all-inclusive package (70.5% participating in such a program; 29.5% were not; $n = 200$). The highest level of education attained by the participants varied, although nearly half (47%) had a university degree or higher (5.4% did not graduate from high school; 48.6% obtained only a high school diploma; 33% obtained only an undergraduate degree; 8.1% obtained only a master's degree or equivalent, and 4.9% obtained a doctorate degree or equivalent; $n = 185$).

The Perceived Value of Dolphins

Tourists placed a high value on the dolphins in the waters around the Dominican Republic, with 67.7% of respondents agreeing or strongly agreeing with the statement: "The Dominican Republic's dolphins are a national treasure" [$\chi^2(5, N = 198) = 167.88, p < 0.001$]. Another 7.1% slightly agreed with the statement, while 25.4% disagreed to some extent or other (5.1% slightly disagreed, 5.1% disagreed, and 15.2% strongly disagreed). In

addition, when given a choice, the overwhelming majority of respondents stated that they would prefer to see dolphins in the wild, as opposed to an aquarium or dolphinarium [91.6% preferred to see them in the wild; 2.5% preferred to see them in an aquarium; and 5.9% had no opinion; $\chi^2(2, N = 203) = 310.75, p < 0.001$].

The Potential for Marine Mammal Tourism in Bayahibe

While most people (70.1%, $n = 206$) did not have plans during their visit to go to a dolphinarium in the Dominican Republic, such as Manatí Park, most respondents (72.7%; $n = 206$) had gone or were planning on going on a boat trip to Saona, an area of high dolphin abundance. Although not statistically significant, a majority of respondents were willing to pay more for their boat trip to Saona if part of the focus of the trip was dolphin watching (54.7% yes, 45.3% no; $n = 201$). In addition, the majority of respondents stated that they would be interested in taking a separate boat trip to view wild cetaceans (85.2% yes; 14.8% no; $n = 203$).

Most respondents stated that they would pay somewhere between US\$30 and US\$60 for a half-day dolphin trip, with an additional 13% willing to pay between US\$61 and US\$90 (29.2% stated that they would pay less than US\$30, and 2.2% would potentially pay more than US\$91; $n = 185$). Moreover, it was found that the more a person was willing to pay for a half-day dolphin-watching trip, the more important it was to them that the tour company be involved in local dolphin conservation issues (Pearson Correlation = 0.204, $p = 0.006$).

Preferred Elements of a Dolphin-Watching Trip

Overall, most respondents felt that it was very important (64.5%) or somewhat important (17.8%) for tour companies to work on local dolphin conservation issues [10.7% of respondents were indifferent and 14.8% felt this was not that important or not important at all; $\chi^2(4, N = 197) = 257.19, p < 0.0001$]. Most respondents also felt that it was important for the tour company to be locally owned and operated [69.6% somewhat or very important; 15.5% indifferent; and 14.9% not that important or not important at all; $\chi^2(4, N = 194) =$

78.73, $p < 0.0001$], and this was significantly more important to North Americans than Europeans [$t(155) = 2.85, p = 0.002$]. Tourists were also overwhelmingly of the opinion that it was important for the people who run the trips to be trained dolphin-watching tour operators [83.8% felt it was somewhat or very important; 8.1% were indifferent; and 8.0% stated that it was not that important or not important at all; $\chi^2(4, N = 198) = 221.55, p < 0.001$].

Responses of the participants emphasized the importance of educational content being included in the trip, with 81.8% of respondents believing that this was a very or somewhat important component of a trip [12.1% were indifferent; 6.0% felt this was not that important or not important at all; $\chi^2(4, N = 198) = 166.09, p < 0.001$].

Respondents also were overwhelmingly of the opinion that dolphin-watching trips should not disturb the dolphins in the area. Only 5% felt that this was not very or not at all important, while 85.4% stated that no disturbance was somewhat or very important [9.5% were indifferent; $\chi^2(4, N = 199) = 223.14, p < 0.001$].

Dolphin-Human Interactions

Contrary to the finding that the majority of tourists were opposed to dolphins being disturbed, having the option to interact with dolphins appeared to be an important factor in respondents' choice of a tour company. Most tourists stated that it was very or somewhat important for a tour company to allow them to swim with dolphins [57.1%; 21.4% were indifferent; and 21.4% felt it was not important or not important at all; $\chi^2(4, N = 196) = 58.69, p < 0.001$]. At the same time, 62.2% of respondents slightly agreed, strongly agreed, or agreed with the statement: "Dolphins enjoy swimming with humans" [37.9% slightly disagreed, disagreed, or strongly disagreed with the statement; $\chi^2(5, N = 185) = 23.44, p = 0.0003$]. When asked whether they agree or disagree with the statement: "Dolphins are dangerous wild creatures," a majority of respondents strongly disagreed (54.9%). An additional 22.6% disagreed to slightly disagreed with this statement, while only 22.6% agreed, strongly agreed, or slightly disagreed [$\chi^2(5, N = 195) = 221.52, p < 0.001$].

A substantive proportion of respondents believed that tourism had no impact on local dolphins (35.5% agreed, strongly agreed, or slightly agreed that there was no impact). However, the majority of respondents disagreed and felt that tourism did have an impact on dolphin populations [64.5% disagreed, strongly disagreed, or slightly disagreed; $\chi^2(5, N = 197) = 24.76, p = 0.0002$]. North Americans more strongly believed that tourism has an impact on dolphins than Europeans [$t(150) = 2.10, p = 0.01$].

Discussion and Conclusions

A majority of tourists in the Dominican Republic stated that they preferred to see dolphins in the wild, which suggests that the Dominican Republic's tourism industry might be better served by the government working to protect its wild dolphins rather than allowing their capture for the dolphinarium trade. Visitors to Bayahibe expressed a high degree of interest in cetacean-watching trips, indicating that they would pay more for a boat trip to Saona if part of the trip emphasized dolphin watching. In addition, most would be interested in taking a separate boat trip that focused on dolphin watching. This could potentially become a profitable venture for local entrepreneurs, especially as most respondents stated that they preferred locally owned and operated tour companies; in some areas, cetacean watching is a valuable component of local economies (Hoyt, 2001; Oddsson, 2003; Orams, 1999; Parsons, Wharburton, Woods-Ballard, Hughes, & Johnston, 2003). In addition, people who felt it was important for tour companies to be involved in local dolphin conservation issues stated that they would pay higher prices for trips, suggesting that dolphin-focused marine tourism could benefit both the local human population as well as the local dolphin population by providing additional funding for conservation efforts, assuming that such conservation efforts are effective at minimizing tourism impacts on the target animals.

Most respondents placed a high value on educational components to cetacean-watching trips. Cetacean-watching venues can provide excellent opportunities to discuss the impacts of tourism, the importance of responsible, sustainable tourism,

and marine conservation issues in general (Anderson & Miller, 2006; Finkler, 2001; Finkler & Higham, 2004). Although most survey respondents felt that tourism does have an impact on dolphin populations, the proportion of people who felt it does not was relatively large. Tourism does in fact have many impacts on dolphin populations; for example, marine mammal watching tourism has been shown to have a negative effect on cetacean behavior (Bejder, Samuels, Whitehead, & Gales, 2006; Buckstaff, 2004; Constantine, Brunton & Dennis, 2005; Gordon, Leaper, Hartley, & Chappell, 1992; Lusseau, 2003a, 2003b, 2005, 2006; Richter, Dawson, & Slooten, 2006; Scheidat, Castro, González, & Williams, 2004), cause a decline in dolphin abundance (Bejder, Samuels, Whitehead, Gales, Mann et al., 2006; Kürtzen 2006), and whale-watching vessels have even struck cetaceans (Laist, Knowlton, Mead, Collet, & Podesta, 2001; for complete reviews of recent additions to the whale-watching literature see Parsons, Lewandowski, & Lück, 2006; Parsons, Lück, & Lewandowski, 2006; Scarpaci, Lück, & Parsons, 2008, 2009; Richter et al., 2006). Sustainable marine mammal tourism is one way to minimize these impacts while at the same time educate tourists so that in the future they might make thoughtful decisions on how they use their tourism dollars.

Most respondents felt that dolphins enjoy swimming with humans and did not perceive dolphins to be capable of dangerous behavior. It is possible that this belief is part of what fosters the growth of swim-with-dolphin attractions where tourists are allowed to enter pools containing captive dolphins (Manatí Park, where the captured Bayahibe dolphins were taken, has such encounters), as swim-with-dolphin attractions often use language and photographs in marketing tools which suggest that dolphins enjoy these encounters (e.g., the website of Discovery Cove in Florida, USA, tells prospective visitors that they will "become acquainted with their dolphin through hugs, kisses, and rubdowns" (<http://www.discoverycove.com/DCO2/Explore/ExperienceDetail.aspx?name=Dolphin+Swim+Experience>; accessed 10/27/09); and Dolphin Discovery at Isla Mujeres, Mexico, says that their dolphins will: "tenderly say hello with their fins, they will kiss you, sing for

you, take you for a ride on their belly . . . The dolphins will be your pals for the rest of your life” (<http://www.dolphindiscovery.com/cancun-islam-ujeres/cancun-activities-dolphin-swim-adventure.asp>; accessed 10/27/09).

In fact, wild dolphins, particularly bottlenose dolphins, can be very aggressive: bottlenose dolphins have been reported killing harbor porpoises (Ross & Wilson, 1996)—a cetacean with a mass similar to that of humans—conspecifics (Dunn, Barco, Pabst, & McLellan, 2005; Patterson et al., 1998) and there is one report of a bottlenose dolphin killing a human (Santos, 1997). Wild dolphins that are regularly fed by humans (often in order to gain closer access to the animals, including to swim with them) have also displayed aggressive behavior such as pushing and biting (Cunningham-Smith, Colbert, Wells, & Speakman, 2006; Orams, Hill, & Bagnolioni, 1996; Samuels & Bejder, 2004). Other species of cetacean have also exhibited behavior in the wild that has been potentially life threatening to human swimmers (e.g., Shane, Tepley, & Costello, 1993); thus, the image of cetaceans as benign and wanting to swim with humans is essentially false. In addition to injury, there is also the risk of disease transmission from dolphins to humans, and from humans to dolphins; swim-with-dolphin attractions have specifically been named as a risk activity (Hunt et al., 2008). Humans have been infected with marine mammal strains of the *Brucella* bacterium (Brew, Perrett, Stack, MacMilan, & Staunton, 1999; McDonald et al., 2006; Sohn et al., 2003), and the Center for Food Security and Public Health at Iowa State University cites exposure to marine mammals, including casual contact with beached animals, animals at rehabilitation centers, and captive animals as a risk factor (The Center for Food Security & Public Health, 2009). Humans have also been infected by other pathogens through contact with marine mammals (see Clark, McIntyre, Evans, McInnest, & Lewis-Jones, 2005; Eadie, Lee, Niazi, & Lawlor, 1990; Norton, 2006; Smith et al., 1998; Thompson et al., 1993).

Thus, dolphin-watching tours should educate the public that dolphins, like other wild animals, rarely seek close contact with humans, which argues against the view that they typically enjoy

swimming with people, and should emphasize that like any other large wild predators (and wildlife in general) they should be treated with caution. This might decrease the demand for swim-with-dolphin attractions, which in turn would decrease the demand for wild-caught dolphins. Promoting the wild nature of dolphins on dolphin-watching trips may also reduce harassment of wild cetaceans, which is often a problem in areas where there are captive cetacean facilities that allow in water interactions with the animals (which would include the Dominican Republic)—as noted by the Scientific Committee of the International Whaling Commission,

in several locations where there are captive dolphin facilities with swim-with programs, petting pools or feeding stations, problems with human interactions with wild cetaceans have been exacerbated. Members of the public have stated that they are permitted and encouraged to engage in such actions in a captive setting, so assume it is acceptable with wild animals. This increases difficulties with awareness, acceptance and enforcement of regulations. (International Whaling Commission, 2007, p. 337)

Although this study does not attempt to record tourists' behavior, and instead relies on self-reporting, it is clear that there could be many benefits to a marine mammal tourism industry in Bayahibe; indeed, the responses of tourists seem to be supportive of the introduction of “whale ecotourism,” which has been defined as cetacean watching that reduces its environmental impacts, contributes to cetacean conservation, provides high-quality educational information, and promotes employment and societal benefits for the local host community (Parsons et al., 2007). Local community initiatives to develop whale ecotourism are under way in the Bayahibe area.

The development of whale ecotourism would provide additional support and funding for local dolphin conservation efforts, provide a viable alternative to live captures, provide additional income to Bayahibe residents, and provide an opportunity to educate tourists about dolphin and marine conservation issues. It should be emphasized, however, that any such tourism development should be carefully monitored and managed, to ensure that impacts to the target species are minimized.

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Biographical Notes

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Toby Bloom is the Director of Wildlife Ecotourism for Humane Society International, where she focuses on community-based ecotourism development as a nonextractive income alternative for communities in protected areas. Prior to joining HSI, she worked as a Sustainable Tourism Specialist for USAID projects, and has completed various sustainable tourism consultancies in Central America and the Andes. Ms. Bloom began her career as an interpretive guide in the US and Canada, focusing primarily on national parks.

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Chris Parsons is a marine mammal scientist who started his career as a zoologist at Oxford University and has since conducted research on marine mammals in Asia, Europe, North America, and the Caribbean. He has been a member of the whale-watching subcommittee of the International

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