



When watching replaces hunting: An analysis of customer participation and satisfaction with cetacean-watching in the Azores

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ABSTRACT

Although cetaceans, especially whales, were hunted in the Azores until the end of the third quarter of the twentieth century, this practice was forbidden (mainly for reasons of species conservation). As a sustainable alternative, cetacean-watching today plays a vital role within the touristic sector in the Azores. This study examines the role of visitors' demographic characteristics in participation and in satisfaction with cetacean-watching activities in this archipelago. The results indicate significant differences in participation by nationality, likely due to cultural differences. Furthermore, first-time visitors are more likely to participate than repeaters. Gender, education, and age do not have any effect on participation. However, satisfaction is related to nationality, education, and gender. We also find some evidence that overlooking sample selection issues may lead to distorted conclusions regarding the assessment of the level of satisfaction. The results may be important in assisting management and policy makers to increase specific groups' participation and satisfaction. Both elements will contribute to the profitability of this industry as an alternative to hunting.

1. Introduction

The observation of whales and dolphins in their natural environment, hereinafter called cetacean-watching, is a relevant and growing marine touristic activity worldwide. For instance, O'Connor et al. (2009) report that nearly 13 million people went cetacean-watching in 2008 and that this field employed 13,000 workers and generated 2.3 billion (US dollars) per year worldwide. Other studies on the worldwide relevance of the industry include Cisneros-Montemayor et al. (2010), Knowles and Campbell (2011), and Cunningham et al. (2012).

However, the rapid growth of the cetacean-watching industry has led to a long debate and fostered scientific research on management practices and the best use of cetaceans as a natural resource. Several studies have dealt with issues such as the contribution of marine activity to wildlife conservation, spreading the notion that these mammals are worth more alive than dead (Hoyt, 1993; Alie, 2008). Other studies examine the environmental impacts of the industry, calling for regulation and sometimes questioning the presumption that cetacean-watching tourism is benign and sustainable (Lusseau, 2004; Bedjer et al., 2006).

Other research on cetacean-watching has addressed the customer side, including aspects such as preferences and interests (Shapiro, 2006; Warren, 2012), profiles (Warren, 2012; Lück, 2003; Warburton, 1999),

willingness to pay for protection (Loomis and Larson, 1994; Shapiro, 2006), and satisfaction (Orams, 2000; Moscardo, 2006; Bentz et al., 2016).

A vast body of literature has focused on the determinants of wildlife tourism participation in general. These studies indicate that participation rates vary significantly across population groups distinguished by age, race, gender, education, and economic status (see, for instance, Hay and McConnell, 1979; Rockel and Kealy, 1991; Boxall and McFarlane, 1995; Spence, 2002; Moore et al., 2008; Lee and Scott, 1994).

The literature on the determinants of cetacean-watching is not, however, abundant. With the exception of Warburton (1999), who surveys and compares the profiles of participants in cetacean-watching with that of visitors to the island of Mull in general, the existing studies provide information on participant traits but do not distinguish between who is more (or less) likely to be involved in this type of experience. This is because most of the research relies on data provided solely by the participants, as those who do not participate are not surveyed and therefore neglected (e.g. Warren, 2012; Shapiro, 2006; Bentz et al., 2016).

According to Warren (2012), previous studies conclude that whale-watchers are well educated, middle-aged, and environmentally conscious or inclined and have substantial disposable income. Forestell

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(1993), in a study conducted in Hawaii, reports that most whale watchers are first-timers. Warren (2012) carries out a study in Tofino, Canada, in which 57% of the respondents were first-timers, 46% were male, 26% were 25–35, and 25% were 45–54 years old. The majority had a university-level education, 51% were from North America, and 42% were from Europe. Warburton (1999) concludes that marine wildlife tourism in the island of Mull, West Scotland, appeals to women and younger people, and Shapiro (2006) states that the majority of whale watchers in Maui, Hawaii, are female, well-educated, in the 40–60 age range, affluent, and American.

People's satisfaction with wildlife observation has also attracted researchers' attention (e.g. Akama and Kieiti, 2003; Moscardo, 2006). In particular, satisfaction with cetacean-watching experiences has been examined by several authors, such as Warren (2012), Shapiro (2006), Valentine et al. (2004), Orams (2000), and Warburton (1999).

The analysis of satisfaction with wildlife tourism observation, including cetaceans, can be influenced by several demographic factors, such as gender, education, age, and nationality (Musa, 2002; Reynolds and Braithwaite, 2001; Shapiro, 2006; Bentz et al., 2016). It can also depend on a complex number of factors related to the experience, like whales' behavior, proximity to whales, and the quality of the service and characteristics of the trip (Orams, 2000; Valentine et al., 2004; Moscardo, 2006; Bentz et al., 2016). In any case, the studies diverge significantly on the main conclusions regarding what determines participants' satisfaction. In general, however, they implicitly agree that understanding such determinants of satisfaction, which can be viewed as an indicator of destination quality, is important for management purposes in this worldwide growing industry (Orams, 2000; Moscardo, 2006).

The objective of this work is to analyze customer participation and satisfaction according to nationality, gender, education, and age on cetacean-watching in the Azores archipelago, Portugal. Since participation might result from a self-selection process, evaluating satisfaction using the sub-sample of those who participated could lead to biased conclusions which, therefore, cannot be generalized. We deal with this problem by simultaneously estimating the selection (participation) and satisfaction equations.

2. Materials and methods

2.1. Study area

The study area of this investigation is the Azores islands. This is a small, archipelagic and dispersed island region, where nearly 2.3% of the Portuguese population lives. The archipelago is composed of nine volcanic islands with a mild year-round climate, with temperatures mostly varying between 14 °C in the winter and 22 °C in the summer (Macedo, 2011).

The main economic activities are public services, commerce, fishing, livestock ranching, and production of dairy products. However, there is a belief that it is possible to make better use of the existing natural resources and diversify the exportation basis through tourism (Santos et al., 2012). Indeed, tourism has expanded in the Azores over the last two decades. As a result of a policy orientated towards the promotion of the destination and the increase of the logging capacity, the number of guests in the accommodation units rose by 155% between 1994 and 2014, yielding an average annual growth rate of approximately 4.8%. This growth rate, however, sharply increased from 2014 to 2015, reaching a figure equal to 22%, due to the entrance of low-cost airlines (Torres et al., 2017).

The landscape and marine-related activities constitute the main attractions of the Azores as a touristic destination. Indeed, the archipelago is an emerging touristic destination for marine-related recreational activities such as big-game fishing, surfing, cetacean-watching, scuba diving and shark diving (Calado et al., 2011; Torres et al., 2017; Vieira and Antunes, 2017). It is worth mentioning that, despite being a

small region, the archipelago includes a maritime territory of 953,633 Km², with an average depth of 3000 m, located in the mid-Atlantic region (36–39°N and 25–31°W). This amounts to 55.2% of the Portuguese Exclusive Economic Zone (EEZ), which encompasses 1,727,408 Km² (the 3rd largest EEZ of the European Union and the 11th in the world). Therefore, the ocean is usually viewed as one of the main economic resources of the region (Vieira and Antunes, 2017).

In this EEZ, there are more than twenty-five species of cetaceans, namely whales and dolphins (Prieto and Silva, 2010; Silva et al., 2012, 2014; Bentz et al., 2013). These are usually classified as being either resident (sighted year-round such as the sperm whale, the bottlenose dolphin, the common dolphin, and the risso's dolphin), seasonal (staying around the Azores during a specific time of the year such as those which prefer warm waters and appear in the summer: Atlantic spotted dolphin, striped dolphin, pilot whale, and Bryde's whale), migratory (passing through the Azores on their way to another location, such as the blue whale, the fin whale, the sei whale, the minke whale, and the humpback whale), or rare (sporadic visitors which can appear anytime: orca/killer whale, false orca/pseudorca, beaked whales, dwarf sperm whale, pygmy sperm whale, North Atlantic right whale, and the rough-toothed dolphin, among others).

The whaling of sperm whales was practiced for more than a century in the archipelago, and cetacean catch was considered a commonplace action in the islands. Moreover, dolphins were part of the food tradition of some of the Azorean populations, and it was widely known that they were used as bait in fishing boats (IMAR, 2009).

However, in the Azores, in addition to national legislation and international conventions ratified by the Portuguese government (e.g. Berne Convention on the Conservation of European Wildlife and Natural Habitats and Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora, among others), there is an internal legislation that fully protects all cetaceans present in the region's seas. Thus, catching these mammals became strictly forbidden by the late 1980s, mainly for conservation purposes.

In the Azores, cetacean tourism was initiated as an economic activity in 1992. However, the rapid growth of activity has raised some concern about its possible impact on cetaceans, and in 1996, a joint project was initiated between the Regional Government of the Azores and the University of the Azores, whose first objective was to create specific legislation for the tourist observation of cetaceans. From this work came a legislation that regulates all activities of cetacean-watching, commercial, scientific, and recreational, and was published in 1999 (Regional Legislative Decree Number 9/99/A). This legislation had some minor amendments in 2003 and 2004 (Regional Legislative Decree Number 10/2003/A and Regional Legislative Decree Number 13/2004/A).

The main purpose of such legislation was to discipline cetacean observation activities in order to balance the interests of the protection, conservation, and management of cetaceans in the Azores and the development of regional tourism. This legislation applies to the territorial waters and exclusive economic sub-area (EEZ) of the Azores to all species of cetaceans. The legislation covers a wide range of issues such as the requirements to obtain a license for the activity as well as operation in the sea (distance to cetaceans, engine noise, among many others).

Operators are encouraged to provide accurate information on the ecology, conservation, cetaceans' behavior, and the surrounding environment to their customers. Therefore, in order to obtain a license, the company's staff must comply with the minimum requirements, such as having a technician with a medium or higher education in scientific fields related to marine biology or animal behavior, responsible for cetacean behavior counseling, for recording information on whale observations, and a guide or on-board monitor to disclose to the tourists relevant information about marine life, particularly regarding cetaceans. The crew must be academically and professionally qualified, in accordance with the law, for the exercise of their functions, with a

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