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Touristic big-game fishing in San Michael Island (Azores): evaluating anglers' profiles, perceptions about the destination and business revenues

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RESUMO/ABSTRACT

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Tourism is growing at a fast pace in the Azores' archipelago. The landscape and marine wildlife have been viewed as relevant attractions of this destination. The ocean which surrounds the islands encompasses many market opportunities and niches such a surfing, fishing, scuba diving, shark diving and dolphin and whale watching, among others. This paper examines angler opinions about the destination, angler profiles and business revenues of touristic big-game fishing in the island of San Michael, Azores (Portugal). For this purpose, a survey was carried out to visitors who engaged in that activity and to vessels' owners. In addition, some information was gathered from official data sources. The results reveal that this activity already generates a reasonable contribution to the touristic revenue of the island. There is also evidence based on respondents' opinion that such an emerging market niche has a potential to expand and compete with other touristic regions in the practice of this recreational activity.

Keywords: big-game fishing, recreational fishing, anglers, tourism, San Michael island, Azores

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Abstract

Tourism is growing at a fast pace in the Azores' archipelago. The landscape and marine wildlife have been viewed as relevant attractions of this destination. The ocean which surrounds the islands encompasses many market opportunities and niches such a surfing, fishing, scuba diving, shark diving and dolphin and whale watching, among others. This paper examines angler opinions about the destination, angler profiles and business revenues of touristic big-game fishing in the island of San Michael, Azores (Portugal). For this purpose, a survey was carried out to visitors who engaged in that activity and to vessels' owners. In addition, some information was gathered from official data sources. The results reveal that this activity already generates a reasonable contribution to the touristic revenue of the island. There is also evidence based on respondents’ opinion that such an emerging market niche has a potential to expand and compete with other touristic regions in the practice of this recreational activity.

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Introduction

The Azores is a small, archipelagic, isolated and a dispersed island region, where nearly 2.3% of the Portuguese population lives. The archipelago is composed of nine islands, being San Michael the largest with a surface of 746,82 km² and the most populous with approximately 131 thousand inhabitants. The main economic activities are public services, commerce, fishing, cattle rearing and production of dairy products.

In the context of the European Union (EU) the Azores belongs to set of ultra-peripheral regions together with French Overseas Departments (Martinique, Guadeloupe, Reunion, and French Guyana), the Canary Islands (Spain) and Madeira (Portugal). The definition of ultra-peripheral regions is based upon some characteristics such as relative isolation from the main trading markets, reinforced in most of the cases by insularity, limited extent of local domestic market due to the size of the population, geographical and climatic conditions limiting endogenous development and economic dependence on a small number of, or sometimes a single, products. This specificity which harms economic growth and development has been officially recognised in the paragraph 2 of article 299 of the Treaty of Amsterdam. In the case of the Azores exportation mainly based on dairy products.

However, there is a belief that it is possible to make a better use of the existing natural resources and diversify the exportation basis namely through tourism. Indeed, tourism expanded in the Azores over the last two decades and is considered a promising activity. As a result of a policy orientated towards promotion of the destination and the increase of the logging capacity highly supported by EU funds, the number of guests in the accommodation units rose by 155% between 1994 and 2014, yielding an average annual growth rate approximately equal to 4,8%. The growth rate, however sharpened from 2014 to 2015, reaching a figure equal to 22%, likely due entrance of low cost airlines which started to fly from the mainland to the San Michael island, as a consequence of process of liberalisation.

The landscape and marine related activities constitute the main attractions of the Azores as a touristic destination. This archipelago is an emerging touristic destination for marine-related recreational activities such, surfing, whale and dolphin watching and, more recently, scuba diving and shark diving. Indeed, it is worth saying that despite being a small region the archipelago includes a maritime territory of 953,633 Km^2 with an average depth of 3000 meters 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 Km^2 (the 3rd largest EEZ of the European Union and the 11th in the world).

Therefore, not surprisingly the ocean is frequently viewed as one of the main economic resources of the region. Despite this, there is however an absence of research trying to evaluate the economic and social benefits associated to touristic marine-related activities. This paper attempts to evaluate angler profiles, the revenues associated to touristic big-game fishing in San Michael's island as well as angler opinion on the quality of emerging destination.

Big-game fishing is a form of recreational fishing, targeting large fish such as tuna and marlin. Although very popular in some touristic regions the economic and social literature on the issue is almost inexistent. The few existing studies address angler profiles and economic value of bill fishing, which can be considered a subset of the topic addressed in this paper (since tuna fishing does not belong bill fishing category). The main purpose of this work is thus to shed some light on this almost unstudied topic with an application to the Azores.

The paper is organised as follows. Section 2 presents a literature review. Section 3 contextualises the big-game fishing in the Azores. Section 4 presents the results regarding angler profiles, perceptions about the destination and evaluates business revenues provided by this activity. Finally, section 5 concludes and summarises.

Literature Review

As stated by Ditton, Holland and Anderson (2002) in addition to being an outdoor recreation activity for residents, fishing can also be considered a form of tourism. In such a case, not surprisingly touristic regions with such an attraction may compete with each other for visitors. Moreover, tourism is a big business globally and may impact the development of some small and isolated island states (Milne, 2008).

Indeed, tourism is viewed as bringing benefits and a form of poverty alleviation (Van Egmond, 2007). This may be particularly relevant to small island states, which are characterized by small local markets and isolation from major trading markets (Milne, 1990).

Expenditures made by tourists within a certain region are income for the businesses that operate there and have a multiplier effect thought the economy. Indeed, the money that visitors spend in a community is likely to be the benefit which residents and policy makers probably recognize most readily. Therefore, the evaluation of level and the determinants of the expenditures are by itself an interesting topic (Santos & Vieira, 2012).

According to Ditton and Stoll (2003) billfish anglers spend a lot of money to go fishing, more than many other anglers and much more than tourists in general. Therefore, although the number of billfish anglers may be small, their economic effect is disproportionally high due to greater expenditures per angler, having significant impact on local and regional economies (Fisher & Ditton, 1992).

A few studies have addressed demographic characteristics of billfish anglers and are mainly available for the U.S and some Caribbean countries. Some examples are Clark, Ditton and Chaparro (1999) and Ditton and Stoll (2000). The latter authors summarize available evidence the demographic profile of billfish anglers residing in U.S. as follows: 45% live in small cities and towns, 72% are male, 64% are married, 64% are between 25 and 44 years of age and 50% have a high school education or less. However, they also report that demographic profile varies significantly by sub-population groups. For instance, tournament and charter boat billfish anglers are typically 46-50 years of age and highly educated (college graduates or above).

Tourism and big-game fishing in San Michael Island

Tourism and fishing

The information on Table 1 includes some figures on the tourism in the San Michael island, gathered from official statistics. As we can observe, the number of guests registered in the accommodation units equalled 204,2 and 226, 2 thousand in 2009 and 2014, respectively (57% of the total of guests registered in the Azores). However, during the same time period the average revenue per visitor dropped from 161 to 130 euros. The total revenues of the accommodation units were equalled $29{,}3\times10^6$ euros in 2004.

Table 1 – Some data on tourism in San Michael island

	2009	2014
Number of visitors in the Azores	357.372	396.449
Number of visitors in San Michael	204.288	226.166
% of visitors in San Michael	57%	57%
Total revenue of the accommodation units	32.842.174€	29.330.741€
Average revenue (per visitor) of the accommodation units in San Michael	161 €	130 €

Source: Regional Department of Statistics, Azores

Information on the main activities performed by the visitors is very scarce. However, averaging the values reported by the regional office of statistics of the Azores (SREA, 2007), based on a surveys carried out in 2001 and 2005-2006, we obtain that 3,6% of the visitors practiced sport fishing (which apart from big-game fishing also includes coastal trolling fishing, *zagaia* fishing and spear gun fishing, among others). Applying this figure to San Michael yields an estimate that touristic sport fishing may have involved nearly 8142 people in 2014.

Tourism and big-game fishing

This section shortly describes the big-game fishing activity in San Michael's island, Azores (Portugal). In particular, how it works, what kinds of fish that are caught and the characteristics of the vessels used. This recreational activity attracts people from different points in the world in order catch a trophy, sometimes nearly 300 kg. This fishing is carried on board of a vessel and is made with a cane and reel which vary in function of the type and weight of the fish to capture.

The island has two marinas, one located in Ponta Delgada, the largest city of the archipelago, and the other in Vila Franca do Campo. It is mainly through these two infrastructures that most of the marine-related touristic activities all take place, including recreational fishing and bill fishing.

The Azorean waters receive the influence of the Gulf Stream, causing higher temperatures to be higher and higher salinity. The Gulf Stream separates the salty and warm waters of the Sargasso Sea from the cold waters of North America. Together with its northern extension towards Europe (the North Atlantic Drift), the Gulf Stream is a powerful, warm, and swift Atlantic ocean current that originates in the Gulf of Mexico and stretches to the tip of Florida, and follows the eastern coastlines of the United States and Newfoundland before crossing the Atlantic Ocean. It is this stream of warm water that brings tuna and billfish, also attracted by an elevated concentration of food (small fishes), which are also moving in the stream due to the high temperature.

The term billfish used in this paper refers to some pelagic and highly migratory fish. Of these, we highlight the tuna and marlin. Tuna can be bluefin tuna (thunnus thynnus), bigeye tuna (thunnus obesus), flying tuna (thunnus alalunga) and yellowfin tuna (thunnus albacares). With respect to marlin, these may be white marlin (tetrapturus albidus) or blue marlin (makaira nigricans).

The bluefin tuna and blue marlin may reach up to 300 kg, the bigeye tuna may reach up 150 kg, the flying tuna 45 Kg and white marlin 35 kg. The billfish (marlin) are usually caught and released, since they have little nutritional and culinary value, allowing a greater sustainability of the species.

This type of fishing is done on board of a vessel and since it intends to catch big fish the vessel must have certain size, ideally above 10 meters. However, some of the vessels engaged in that activity in San Michael's island are below that size. As we can see from the figures included in Table 1, the number of vessels with a licence for touristic sport fishing equalled 18 (in 2009) and 16 (in 2014). Between this time period the average vessel's size varied between 8,0 and 8,2 meters. The size ranged between 7,1 and 1,6 meters.

Table 1 - Vessels with permission for touristic sport fishing

Year	Number of vessels	minimum size	maximum size	Average size
2009	18	7,7m	14,6m	8,1m
2010	17	7,1m	14,6m	8,0m
2011	16	7,1m	14,6m	8,1m
2012	15	7,7m	14,6m	8,2m
2013	14	7,7m	14,6m	8,1m
2014	16	7,1m	14,6m	8,1m

Source: Data gathered from *Secretaria Regional dos Transportes e Turismo* and *Associação Açoriana de Pesca Desportiva de Mar*.

In order to be able to go out and fishing all vessels are required to have insurance for the crew and passengers. The crew consists of a skipper (captain) and a deck maid. The skipper controls the boat and looks for the best spot for fishing. The deck maid does the all the preparation of the canes and baits and helps in placing the fish on board.

Table 2 – The distribution sport fishing visitors, by type of fishing

Type of fishing	**% of anglers**
Big-game fishing	24,8
Coastal trolling	23,8
Spear gun fishing	27,1
Zagaia fishing	9,2
Other types	15,1

Source: Survey carried out to sport fishing vessels' owners (2014)

In order to have idea on the distribution the main sport fishing activities practiced by tourists, and in order to overcome the absence of such information in the official statistics, we carried out a questionnaire to the sport fishing vessels' owners during the summer of 2014. The results are depicted in Table 2 and reveal that 24,8% of those who visit the Azores for fishing are mainly involved in big-game fishing. Considering this share and the estimate of the number of touristic anglers mentioned in the previous section we may say that nearly 2019 visitors went big-game fishing in 2014.

Angler profiles, perception about the destination and business revenues

The questionnaire

In order to obtain information on anglers profile, as well as their perception about the destination and expenses we carried out a survey to a set of bill big-game fishing visitors in 2014. For this purpose, and in order to reach the anglers we benefited from the help, collaboration and knowledge of the owners of the vessels. The questionnaire included information on individual characteristics such as gender age, education and nationality. It also collected information on whether the angler went alone to the Azores or with a companion (e.g. spouse), number of trips to the sea for big-game fishing and the expenses (accommodation, transportation, meals, vessel rental, gifts, and other expenses) associated with the experience. This process resulted in a set 96 valid questionnaires.

Angler Profiles and Expenses

As we can observe from the data included in Table 3 most of the touristic big-game anglers were male. Moreover, 44% were at most 40 years old and only 8% aged above 60 years. Regarding the educational level, 50% of the interviews achieved tertiary education and 46% the secondary level. Most of the touristic anglers interviewed were foreigners being 42% from Scandinavian countries. As we also see, 28% travelled alone and 72% with other person. The average number of boat trips for fishing equals 1,3. Finally, on average cost (expense) supported by the angler and the partner amounted to 1545eur. Travelling and boat and equipment rental accounts to 61% of that cost.

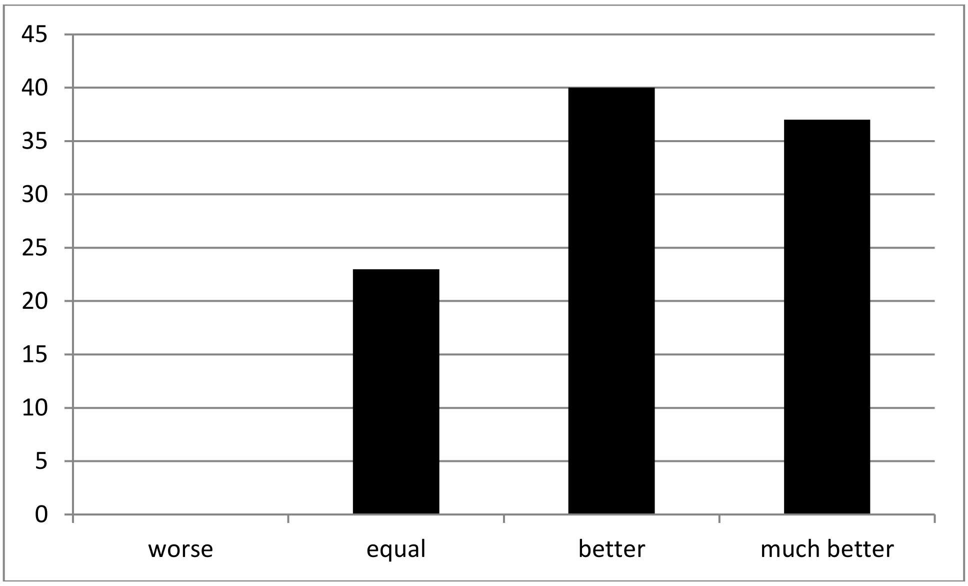
Table 3 – Anglers survey: descriptive statistics

Gender	
Males	0,91
Females	0,09
Age:	
< 30 years	0,20
31-40 years	0,24
41-50 ears	0,35
51- 60 years	0,15
> 60years	0,06
Education:	
Primary	0,04
Secundary	0,46
Tertiary	0,50
Nationality:	
Russian	0,20
Swedish	0,26
British	0,09
Canadian	0,07
Finnish	0,08
French	0,05
American	0,11
Dannish	0,06
Other nationalities	0,08
Average Expenditures (by the angler and the partner):	
Total expenditure	1545 €
on boat rental and equipment	455 €
on lodging	273 €
on food	195 €
on travelling to the Azores	494 €
on other items (e.g shopping)	128 €
Other information:	
Came alone do the Azores	0,28
Came accompanied with other person (e.g. spouse)	0,72
Average number o people in the trip to the Azores	2
Average number of trips to the sea	1,3

Angler Perceptions about the Destination

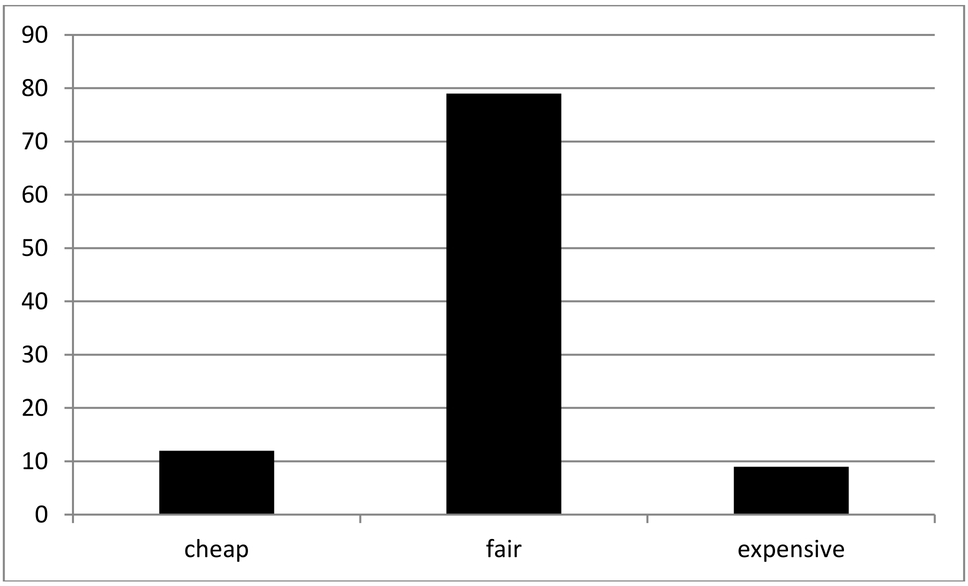
In order to have an idea on angler perceptions about this destination as compared with other alternative destinations we asked them evaluate it on scale 4-point scale of the type 1 (worse), 2 (equal), 3 (better) and 4 (much better). The results depicted in figure 3 reveal that 40% of interviewees consider the destination better and 37% much better when compared with other alternatives.

Figure 1 – Evaluation of the destination as compared with other alternatives (%)



Anglers were also asked to evaluate the destination with respect to the cost (composite price) incurred, which includes travelling expenditures, boat rental and other items associated to the trip. Despite the isolation and long distance from the origin of the visitors, the majority consider that such a price is fair (79%) and only 9% perceive it as expensive. Indeed, 12% perceive it as cheap.

Figure 2 – Evaluation of the cost (composite price) incurred



Business Revenue Analysis

This section presents an estimation for annual businesses revenue generated by touristic big-game fishing, which is a useful indicator its economic importance. A similar statement was made by Vianna, Meekan, Pannell, Marsh and Meeuwig (2012) regarding the value of shark diving in Palau. Such as in Vianna et al. (2012) an in order to reduce the influence of leakage in between sectors of the economy, the analysis of the direct, indirect and induced benefits from bill fishing is restricted to quantifying the revenues obtained by businesses directly benefiting from the presence of touristic anglers (e.g. vessels' owners, hotels, transportation, restaurants and souvenir shops).

Hence, annual businesses revenue from big-game fishing (BRBgF) industry and associated businesses is estimated though the formula:

$$BRBgF = AE \text{ x } SP \text{ x } SBgFSP$$

where AE is the average expenditure made by the angler (including the amount associated to the partner), SP is the number of touristic anglers and SBgRF is the share of the big-game fishing within the recreational fishing industry.

Since only a portion of the transportation expenditures on travelling to the island go the local airliner, we assume that 30% of the reported costs belong to the local economy (which, in any case, seems to be a conservative assumption).

Table 4 – Touristic big-game fishing businesses revenue (2014)

AE	1199€
SP	8142
SBgRF	0,248
BRBgF	2 421 040€

The value of BRBgF was estimated for the year of 2014 and equals $2{,}42\times10^{6}$ euro. The result reveals that the activity already generates a significant contribution to the touristic revenue of the island. For the sake of comparison it is worth saying that such an amount equals 8,3% of the revenues collected by the accommodation units located there.

Conclusions

The literature on social and economic aspects of recreational big-game fishing is almost inexistent. The few closest studies are on recreational billfish fisheries which may be considered a subset of big-game fishing. This paper aimed at shedding some light on that issue and focused on touristic big-game fishing activity in San Michael island, Azores (Portugal). In particular it examined angler opinions about the destination, angler profiles and business revenues.

The results indicate that big-game fishing anglers visiting the island are mainly male, aged until 40 years and have tertiary education. Furthermore, most of them are foreigners being that 42% come from Scandinavian countries. The results also revealed that the activity generates a significant contribution to the touristic revenue amounting to nearly 8,3% of the revenues collected by the accommodation units located in the island.

Furthermore, anglers perceive this emerging destination as better or much better when compared to other alternatives. Despite the isolation and long distance from the origin of the visitors, the majority consider that the cost incurred as fair and only a few perceive it as expensive. These results may suggest that such a market niche has a potential to expand and compete with other touristic regions in the practice of this recreational activity.

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