Environmental awareness of surf tourists: the case study of Peniche, Portugal

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Abstract

The sustainability of surf destinations has gained considerable attention over the last decades and surfers have been identified as key stakeholders for the planning and development of sustainable surf tourism. In order to achieve changes in people's behavior, it is important to gain insights into their beliefs and values and how these influence their decisions. Therefore, the purpose of this study is to assess surf tourists´ environmental awareness by using the revised NEP scale (Dunlap et al. 2000) and additional questions, and thus, simultaneously enlightening the contradictory relationship between the representation of surfers and the environment, and further contribute to sustainable surf tourism planning and development.

A quantitative method was applied to this study by conducting a questionnaire amongst 145 surf tourists in Peniche, Portugal. The results show, contrary to other studies and the representation throughout media, that surf tourists do not identify with the term environmentalist. Nevertheless, they have a strong ecological worldview, meaning that they have an environmental awareness in a broader sense. The majority of the respondents display a mid-ecological to pro-ecological attitude. However, when it comes to surf related issues and the environment, it seems that there is a lack of awareness. Further, it shows that there is a high willingness to advocate for the environment, however, it became also evident that there is a lack of knowledge on how to advocate for the environment amongst most respondents. Thus, the findings suggest that there is a need to educate and engage surf tourists.

Keywords: Surf Tourists, Environmental Awareness and Attitude, Pro-environmental Behavior, New Ecological Paradigm

1. Introduction

As surfing is considered to be an "important recreational and cultural use of the coastal zone" (ASBPA, 2011), surfers have been identified as a key stakeholder group in order to better understand and manage surf sites more sustainably (ASBPA, 2011; Martin & Assenov, 2014). Therefore, surfers play an important role to identify, preserve and mitigate surfing resources and promote the basic principles of sustainability. The rise of environmentalism in the 1960s had a big influence on the practices of sustainability and in the rise of environmental activism within the surf culture, leading to the emergent of a great number of influential surf related NGOs such as, The Surfrider Foundation, Surfer Against Sewage and Save our Surf (SOS).

It is commonly argued, that surfing can encourage a deeper attachment with the natural world and thus, can lead to more environmental awareness (Bartlett, 2008). Moreover, what can encourage surfers to act as protectors of the ocean and to have more pro-environmental behavior is the fact that surfers experience first-hand pollution from sewage, urban runoff and marine plastic pollution (Martin &

Assenov, 2012). Depending on the natural resources (Reis & Jorge, 2012), protecting and preserving should be in their best interest. The representation of surfing is closely linked with romantic conceptions of nature and surfers as a community self-identify as having a keen sense of environmental awareness (Hill & Abbott, 2009a).

However, studies show (Hill & Abott, 2009a; Eddy, 2015), while surfers identify themselves as environmentally aware, their actions and activities mostly do not correspond to this representation, and show a conflicting relationship between surfers and the environment. Surfers commune with nature on surfboards made of poisonous polymers, wearing wetsuits made of oil, use indefinite amount of petrol for the endless search for the perfect wave, either travelling long distance or just driving from beach to beach to check the wave conditions. Studies show that surfers have a 50% higher carbon footprint than the average citizen, mainly due to the amount they travel (Butt, 2015). Other studies (Frank et al, 2015; Mass, 2006; Moore, 2011), however, found out that surfers tend to have a strong ecological view, whereby behavioral models suggest that a number of factors such as sociodemographic attributes can influence environmental awareness and pro-environmental behavior.

This research examines the surf tourists' environmental attitude in Peniche, Portugal and seeks to contribute to sustainable surf tourism planning and development through a clarification and understanding of the environmental awareness of surf tourists, and simultaneously enlightening the contradictory relationship between the representation of surfers and the environment.

2. Surf travel and tourism growth

Although surf tourism has gotten an increased and recognizable amount of academic research over the years, an unified definition is not available yet. Not only do the definitions of surf tourism vary, but it seems also that researcher have difficulties to come to an agreement to categorize it to one of the tourism sectors. While some researchers (e.g Orams, 1999) categorize surf tourism under the sector of marine tourism, other researchers (e.g. Buckley 2002a; Tantamjarik, 2004) identify surf tourism as the nature-based adventure tourism. Poizat-Newcomb (1999) and Dolnicar and Fluker (2003), however, argue that surf tourism is a subset of sport tourism. It is also argued that surf tourism is considered to be a subset of coastal tourism and eco-tourism, however, as mentioned before, Ponting et al. (2005) argue, that surf tourism does not fit in the eco-tourism model. Similar to the definition from Dolnicar and Fluker (2003), Ponting (2008) highlights, the primary purpose of surfing waves in his definition. As stated by Ponting (2008), "Surfing tourism is travel and temporary stay, undertaken by a surfer, involving at least one night away from the region of the surfer's usual domicile which is undertaken with the primary expectation of surfing waves." Different from the other definitions, Ponting (2008, p. 25) uses a concept formation of surfing tourism instead of surf tourism, which refers to "surfers touring, not tourists surfing". As can be extracted from the three definitions, all refer to the minimum stay of one overnight away from home and with the primary purpose of travel is to surf waves.

Surf tourism is a significant form of the worldwide tourism and recreation sector, involving human interaction with diverse coastal environments on sea and land (Buckley, 2002a), and it is considered as one of the fastest growing action sports in the world and especially in Portugal, surfing is being considered not only as an action sport, but also as an economic activity (Bicudo & Horta, 2009).

According to Borne (2014), the surf industry is worth in excess of $6 billion dollars and estimates an increase of $13 billion dollars by 2017. However, O'Brien and Eddie (2013; as cited in Ponting & Obrien, 2014, p. 385) estimated the economic scale of the surf industry between $70 and $130 billion dollars. The Global Industry Analysts (2016), projected that the surf industry by 2022 is expected to reach $9.5 billion dollars, and an annual growth rate of 5% (as cited in Larson et al. 2017). As can been seen, surfing gained more recognition on a global level over the years with a significant economic contribution for coastal communities, however, the economic aspect is not the only contribution, it has become a significant social phenomenon with environmental and social benefits (Buckley, 2002a).

Therefore, it is hardly surprising that for many coastal areas, surfing has become a lucrative market and plays a significant role in the tourism strategies. As Ponting (2008) points out, surf tourism seems to be present on almost every surfable coast worldwide. This could be argued with the fact that surfing became more accessible to many people around the world over the years by the increasing prevalence of surf schools in many tourist destinations (Stranger, 2011).

As surf tourism has developed, the characters of surf tourists and types of surf travel have also evolved and changed. Tantamjarik (2004) argues, that surf travel has changed over the years and that the surf travelers are no longer just backpackers who are searching for the perfect wave, but that "surf travelers are even beginning to resemble the leisure traveler willing to pay a little more for some higher-end amenities when they travel, and choosing to engage in weeklong surf vacations packages at beachfront hotels and resort" (Tantamjarik, 2004).

Although the topic of surfing is relatively new in the academic area, research on surfing has steadily increased in the past 15 years (e.g Beaumont & Brown, 2016; Booth, 2013; Evers, 2009; Lanagan, 2002; Martin & Assenov, 2012; Nazer, 2004; O'Brien & Ponting, 2013; Ponting, 2015; Ponting, McDonald, & Wearing, 2005; Preston-Whyte, 2002; Usher & Kerstetter, 2015; Waitt, 2008; Wheaton, 2007). For example Ponting, McDonald and Wearing (2005) and Buckley (2002a, 2002b), explored surf tourism in the Indo-Pacific Islands and discussed the growth of surf tourism and - the surf industry. O'Brien and Ponting (2013) analyzed a strategic approach to managing surf tourism in Papua New Guinea (PNG) in their research. Within the research of Ponting et al. (2005), it was found that surf tourism does not fit the ecotourism model.

3. Surf tourism and sustainable development

Sustainable surf tourism, likewise as sustainable tourism, adapts the principles of sustainable development and therefore, the overall aim is to respect the current and future, economic, social, cultural and ecological welfare of the local community, and create tourist satisfaction. However, there are major barriers to sustainable development within surf tourism and as can be extracted from the quotation above, every surf destination has its own set of challenges. To assess and measure the sustainability of surf tourism in less developed countries, some models have been developed. For instance, the Surf Resource Sustainability Index (SRSI) by Martin and Assenov (2012), which is a "multidimensional approach by placing sustainability indicators into qualitative and quantitative modules for analysis, serving as a theoretical compass pointing at surf habitat conservation issues" (Borne & Ponting, 2015). Ponting and O'Brien (2013, 2014) propose the Frame Analysis for Sustainable Surf Tourism (FASST) which consists of five variables, whereby it considers the impact of economic neo-liberalism; the need for coordinated planning and limits to growth; the advantages of systematic attempts to foster cross-cultural understanding; the social benefits associated with the development of surfing at the village level; and the need for surf tourism to contribute to poverty alleviation in destination communities (Ponting & Obrien 2014). Additionally, the Stoke certification was created in 2014, to assess the sustainability of surf hotels and resorts (Borne & Ponting, 2015).

4. Environmental awareness and behavior

As our society faces major challenges regarding environmental protection and restoration, various governments have undertaken the task of responding to these challenges by establishing policies and standards to regulate the impact of human activity. However, Milton (1993) argues, that it does not only depend on governments and other entities, but also on the individuals choices and their behavior towards the environment.

Besides, the European Commission (2005) points out, that most people blame and hold the governments and industries accountable for (a) negatively impact the environment and (b) to manage the environmental protection and restoration. However, they emphasized in their 2005 campaign, that environmentalism concerns us all and starts with the individual; the way of a lifestyle is what leads to environmental impact and through environmentally conscious behavior and awareness in the daily life, pollution can be minimized and the environment can be affected positively. Therefore, pro-environmental behavior and awareness of individuals is important to be taken into consideration when it comes to understanding and promoting a more sustainable development.

According to Culiberg & Rojšek (2008; as cited in Ham, Mrčela & Horvat, 2016), "environmental awareness is the attitude regarding environmental consequences of human behavior. Starting from the typical definition of attitude, environmental awareness is a predisposition to react to environmental issues in a certain manner". Whereby, pro-environmental behavior is "a behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built world" (Kollmuss & Agyeman,

2002). The model below shows one of the oldest and simplest theory of pro-environmental behavior (Burgess et al., 1998), which proceeds on the assumption that knowledge of the environment leads to environmental awareness (attitude) and this results in pro-environmental behavior.

Figure 1 Early model of pro-environmental behavior by Burgess et al. (1998).

Source: Kollmuss & Agyeman (2002)

This model can be categorized into the linear models, which include the theory of reasoned action, the theory of planned behavior, and models of predictions of environmental behavior. Nevertheless, Kollmuss & Agyeman (2002, p. 241) address, that according to various research these models are insufficient for illustrating a linear progression between knowledge, awareness and behavior. Instead, quantitative research showed that there is a gap between awareness and behavior, and that environmental behavior intentions are rather influenced by environmental knowledge and awareness, thereby arising in actions (Kollmuss & Agyeman, 2002).

Ham, Mrčela & Horvat (2016) also argue, that environmental awareness may be the first step to pro-environmental behavior, however, it does not mean just because a person is environmentally aware, that this person has necessarily a pro-environmental behavior. Overall, environmental awareness has a broad implication and it not only implies knowledge about the environment, but also attitude and values. Moreover, it is a complex undertaking to try to understand what forms environmental awareness and pro-environmental behavior, and thus it is a complex variable to measure.

However, several instruments and theoretical frameworks have been developed in order to comprehend environmental awareness and to explain what influences an individual to participate in pro-environmental behavior (Van Liere & Dunlap, 1989; Fishbein & Ajzen, 1975/1980; Stern et al, 1995; Kollmuss & Agyeman, 2002).

4.1 The New Ecological Paradigm Scale

As mentioned before, the importance of what shapes the relationship between environmental awareness and environmental behavior has been a major focus by many researchers since the early 1970s. Several researcher have developed measurement instruments and theories to understand and explain what influences environmental awareness and pro-environmental behavior. In comparison to the other survey instruments, the NEP scale (Dunlap et al., 2000) was chosen for this study to measure environmental awareness due to its practicability and its high Cronbach's Alpha of .83 (Dunlap, 2008, p. 10).

Moreover, the NEP scale measures environmental attitudes without mentioning any specific issues as the aforementioned scales. The aforementioned scales can be considered as a multiple-topic assessment technique (Hawcroft & Milfont, 2010).

The NEP concept was developed by Dunlap and Van Liere due to the need of an alternative way of ecological thinking and it is opposed to the Dominant Social Paradigm (DSP), which view point claims that humans are superior to all other species, it is basically 'anti-ecological' and therefore damaging to the environment. Moreover, it became obstructive for any sociological efforts to understand and describe new ecological problems and constraints (Dunlap & Van Liere 1978).

The NEP, builds on assumptions contrary to the DSP. As the DSP is comprised of the basic belief that technology will spare the planet and that humans are exempt from environmental forces, the NEP rather focuses on humans as a part of nature and human activities as driver of global environment changes (Dunlap, 2008, p. 11).

The NEP scale, which is used to measure environmental beliefs, attitudes and values as well as endorsement of fundamental paradigm or worldview, became a widely used scale (Dunlap et al. 2000, p. 427; Ek & Söderholm, 2008; Mobley, Vagias, & DeWard, 2010).

Many studies, conducted in recent decades, report a strong support for the NEP scale in different samples, whether they are the general population or special interest groups (Dunlap et al., 2000, p. 428). The original version of the NEP can be understood as a scale for measuring the emergence of values, political perspectives, economic and technological institutions that support the principles of sustainable development. Its global goal is to raise the environmental orientation of subjects (Peattie, 2010).

The revised version of the NEP scale, published by Dunlap in 1990, contains four major changes compared to the first version from 1978. On the one hand, an extension of the range of items in the direction of the ecological world view was made. In addition, negative and positively formulated items were balanced, as well as the outmoded terminology employed in the previous scale was eliminated (Dunlap et al., 2000).

First published in 1978, the NEP scale originally consisted of twelve items, with eight items as pro-NEP and only four items as anti-NEP, which was an issue that could lead to higher agreement with the NEP than it is in reality. However, revised NEP scale contains fifteen items, with eight positively formulated items and seven negatively formulated items (Dunlap, 2008, p. 6). Finally, the name of the NEP scale was changed. NEP, in its initial publication, meant "New Environmental Paradigm Scale," and in its new 1990 edition, it was changed to "New Ecological Paradigm Scale", in order to cope with the measurement and explanation of the global environmental measures (Dunlap et al., 2000).

The 15 items of the new NEP scale can be divided into the following five areas: "the reality of limits of growth (1, 6, 11), anti-anthropocentrism (2, 7, 12), the fragility of nature's balance (3, 8, 13), rejection of exemptionalism (4, 9, 14) and the possibility of an ecocrisis (5, 10, 15)" (Dunlap et al., 2000, p. 432). As can be seen in Table 1, the assertions in green are supposed to support the NEP, meaning that they are matching ecocentrism by supporting environmental ethics. On the contrary, the statements in black support DSP, meaning that these are matching anthropocentric orientations. Therefore, disagreement within the seven even numbered items display a pro-ecological orientation and agreement would display a pro-DSP orientation, whereby agreement within the eight odd numbered items display a pro-ecological orientation (Dunlap et al. 2000).

Table 1 The five facets of an ecological worldview.

THE FIVE FACETS OF AN ECOLOGICAL WOLRDVIEW
THE REALITY OF LIMIT OF GROWTH
NEP 1 – We are approaching the limit of the number of people the earth can support.
NEP 6 – The earth has plenty of natural resources if we just learn how to develop them.
NEP 11 – The earth is like a spaceship with very limited room and resources.
ANTI-ANTHROPOCENTRISM
NEP 2 – Humans have the right to modify the natural environment to suit their needs.
NEP 7 – Plants and animals have as much right as humans to exist.
NEP 12 – Human were meant to rule over the rest of nature.
THE POSSIBILTY OF AN ECOCRISIS
NEP 5 – Humans are severely abusing the environment.
NEP 10 – The so-called 'ecological crisis' facing humankind has been greatly exaggerated.
NEP 15 – If things continue on their present course we will soon experience a major ecological catastrophe.
THE FRAGILITY OF NATURE'S BALANCE
NEP 3 – When humans interfere with nature it often produces disastrous consequences.
NEP 8 – The balance of nature is strong enough to cope with the impacts of modern industrial nations.
NEP 13 – The balance of nature is very delicate and easily upset.
REJECTION OF EXEMPTIONALISM
NEP 4 – Human ingenuity will insure that we do NOT make earth unlivable.
NEP 9 – Despite our special abilities humans are still subject to the laws of nature.
NEP 14 – Humans will eventually learn enough about how nature works to be able to control it.

Source: Dunlap et al. (2000).

All in all the NEP scale focuses on pollution hazardous wastes, ozone depletion, deforestation, loss of biodiversity, climate changes on a global level (Stern, et al., 1992).

4.2 Surfers and the Notion of being Environmentalists

The stereotype of a surfer, which was widely distributed and perpetuated by the media, was mostly young, unemployed, uneducated, living on the fringes of society as part of a marginal group without value contributions to society (Johnson & Orbach, 1986), however, this has been rebounded by several studies over the years (e.g. Dolnicar & Fluker, 2003; Nelsen Pendleton & Vaughn, 2007).

Dolnicar and Fluker (2003) conducted two studies based on demographic and psychographic characteristics of surf tourists. The studies reported, counter to the common stereotype, that surfers often have a high income level and at least a college degree, as well as that surfers consider environmental quality, remoteness, local culture and the natural surroundings as most substantial.

Nowadays, surfers have been identified as a key stakeholder group in the planning and development of the sustainability of surf tourism, and further it was indicated that they are more likely to inherent pro-environmental behavior (ASBPA, 2011; Scarfe et al., 2009). They point out, that the role of surfers is vital when considering the sustainability of surfing resources within coastal planning and project development. For instance, as Butt (2010) argues, surfers can identify certain areas that should be avoided by developers, and he further suggests that surfers are vital to promote the following principles: "conserving and enhancing natural and cultural heritage; sustainable use of natural resources; understanding and enjoyment of the environment through recreation; and sustainable social and economic development of communities" (as cited in Martin & Assenov, 2014).

Despite the complexity of the relationship between surfers and the environment, and the questionable representation of surfers being environmental 'stewards' (Larson et al., 2017; Wade, 2007), it could be argued that the notion of surfers being environmental conscious comes from the ideological trend of the traditional soul surfer. Kampion (2003, as cited in Heywood & Montgomery, 2008) argues, that the direct relationship of man to nature was part of the traditional 'soul surfer' platform, and that it is also the characteristic of the eco-centered approach in environmental ethics.

Mass (2006) investigated the pro-ecological stance between surfers and non-surfers, and results showed that surfers scored also significantly higher on the NEP scale than non-surfers. "In the surfing study group, all statements yielded pro-ecological results in more than 80% of the group except for statements 6 and 10 (on the NEP scale), yielding pro-ecological views of 66% and 73% respectively. In contrast to Moore's (2011) and Mass's (2006) study, Larson's et al. (2017) study showed that non-surfers reported slightly higher NEP scores than surfers. The fact that mostly surfers, except in Larson's et al. (2017) study, tend to have a more pro-ecological orientation on their responses to the NEP scale, could maybe be argued with the increasing movement towards sustainability within the surf industry (Borne & Ponting, 2015).

In a survey of surf tourists, Frank et al. (2015) used as well the NEP scale and found that the majority of respondent's environmental attitude showed a very strong ecological view, only a few anthropocentric aspects were identified. Further, Frank et al. (2015) used a form of recreation specialization, such as the willingness to pay to protect environmental resources (Oh, Ditton, Anderson, Scott & Stoll, 2005; as cited in Larson et al., 2017) to assess the pro-environmental behavior of surf tourists and found out that the majority (86%) were willing to pay an accommodation tax earmarked for environmental protection. A very recent study (SustainableSurf, 2018), shows that the act of surfing does result in raising environmental awareness and action, and further shows that surfers engage in pro-environmental actions at much higher rates than non-surfers. For instance, as reported, the majority (84%) stated that surfing would increase their environmental awareness.

As the studies show, surfers, seem to be overall an environmentally conscious group of people, which has led to the emergent of a great number of environmental grassroot organizations, raising for example awareness of the dolphin slaughter in Japan, or through Surfrider Foundation and other NGOs, protecting and preserving the beaches around the world. However the studies have also shown inconsistencies within the self-representation of being an environmentalist or environmental conscious and their actions. It is fact that their consumptions and use of toxic equipment and their endless travel for the perfect wave do not favor the environment and display contradictions. Also, it seems that surfers are overly concerned within their surfing environment. Therefore, the author notes that it is overstated

to say that surfers are environmentalist and it should not be generalized. The author hypothesized that the level of environmental awareness could be also influenced by the surf level of the surfer. For instance, experienced surfers who are more committed could be more environmental conscious than a beginner or intermediate. It is fact that surfers play an important role when considering the sustainability of surf destinations, and therefore, should be included in the planning and development of strategies. Thus, understanding their environmental awareness is crucial.

5. Methodology

A deductive research approach is applied in this research, since there is sufficient theory available, which can be used to build a theoretical framework for this research. Data collection and data analysis will be proceeding on the basis of this theoretical framework. Conclusions and recommendations will logically result from available facts and collected data. Thus, this research follows a top down approach, meaning the research is starting with general (theory) and moving on to specifics (data), the application of controls to ensure the validity of data, and the operationalization of concepts to ensure clarity of definition (Saunders et al., 2009).

According to Saunders et al. (2009), the case study strategy has considerable ability to generate answers to the question 'why', as well as 'what?' and 'how?'. Since the main research question is a 'What' and 'How' question, the case study strategy is most applicable for this research, as well as because the research was applied to Peniche, Portugal. Additionally, the research applied a survey strategy, which tends to be used in quantitative research, involving sampling a representative proportion of the population. A questionnaire was conducted amongst 145 surf tourists in Peniche, Portugal.

A survey questionnaire was designed to collect quantitative and qualitative data from surf tourists staying in the study area. The survey aimed to characterize the environmental awareness of these surf tourists. The questionnaire included 19 open-end and closed-end questions, as well as the adaption of the revised NEP Scale (Dunlap et al., 2000). The questionnaire was segmented into five parts. In the first part, respondents were firstly asked if they believe if surf tourism impacts the environment and culture at a destination and thus indicate their strength of agreement and disagreement on a Likert scale in relation to the stated item impacts. The second part included questions about their environmental advocacy and awareness. The NEP scale was used in the third part of the questionnaire, in order to assess information about the environmental attitudes and ecological world view. The NEP scale, as described in Table 1, consists of 15 items and is expressed in a Likert scale with the statements 1 - Strongly Disagree (SD), 2 – Disagree (D), 3 – Neutral (N), 4 – Agree (A), and 5 – Strongly Agree (SA). The fourth and fifth part of the questionnaire queried about the socio-demographic information and about their stay.

After pre-testing the questionnaire, some changes have been made and additionally a Portuguese version of the questionnaire was compiled. The questionnaire was applied at the Peniche Surf Camp in Baleal, and one day at the Meo Rip Curl Pro – WSL., during September – October 2017.

Convenience survey sampling of asking every potential and willing participant that was participating within the activity at the time the researcher was at the site was utilized. Therefore, data was collected from 145 surf tourists, who agreed and were willing to collaborate in this study.

6. Results

6.1 Surf Tourist Profile.

As several studies have shown, certain factors, such as gender, age and educational level affect the level of environmental awareness and PEB. Thus, socio-demographic data was collected from all respondents in order to identify whether these variables influence environmental awareness. Moreover, information about their stay was asked. A total of 145 surf tourists participated in this research and fully completed the questionnaire.

The questionnaire was conducted in Peniche Surf camp and during one day at the Meo Rip Curl Pro Championships 2017.

As can be seen in Table 2, the main socio-demographic characteristics of the surf tourists are presented. Therefore, the results show that the majority (63,4%) of respondents that participated were male, whereby only 36,6 % of the respondents are female. The age range of the respondents followed a distribution of 18 - 64 and presents that a large proportion (61,4%) of respondents are young adults between 18-29 years, and 35,9% are aged between 30-44 years.

The educational level shows a widespread distribution (82,8%) of the respondents with a higher education, whereby the majority (42,8%) of respondents stated to be employees, followed by being a student with 26,9%, which also can be observed in table 3. Additionally, the surf level of respondents was queried in order to explore differences of environmental awareness within the surf skills. Results showed that the majority (46,9%) of respondents are classified as beginners, whereby only 15,9% are classified as experienced surfer.

The majority (21,4%) of respondents are from Germany, followed by domestic surf tourists (17,9%) from Portugal, meaning that the overall majority (82,1%) are international surf tourist mostly from Europe, with a few exception from United States, Australia, Canada, Russia, and Brazil.

Additional information about the respondents stay was queried, and results show that the majority (56,6%) of respondents visited Peniche for the first time, whereby most of them (36,6%) visiting for 4-7 days, followed by 8-15 days (24,1%). Further, it showed that most of the respondents (44,8%) stay in surf camps, and the majority is travelling with friends (37,2%), while 36,6% are travelling alone. Regarding the importance of a sustainable accommodation, almost three quarters (71,0%) of the sample indicated that they do find it important that their chosen accommodation is sustainable managed.

Table 2 Surf Tourist Profile.

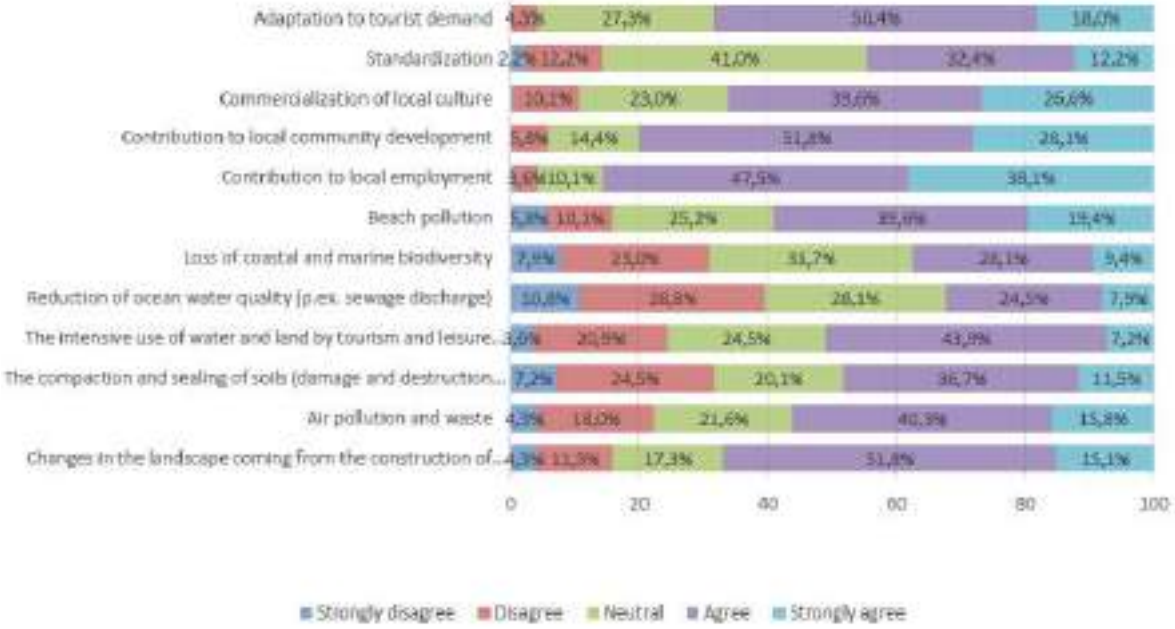
SURF TOURIST PROFILE	FREQUENCY	PERCENTAGE
Gender		
Male	53	36,6
Female	92	63,4
Age		
18-29	89	61, 4
30-44	53	35,9
45-64	4	2,8
Education Level		
High School	24	16,6
Higher Education	120	82,8
Other	1	0,7
Profession		
Employee	62	42,8
Freelancer/Entrepreneur	28	19,3
Student	39	26,9
Unemployed	8	5,5
Other	4	2,8
Surf Level		
Beginner	68	46,9
Intermediate	54	37,2
Experienced Surfer	23	15,9

6.2 potential impacts of surf tourism on surf destinations

This section deals with the respondents' belief whether surf tourism has impacts on the environment and culture at surf destinations. Thus, respondents were asked to rank from strongly disagree to strongly agree on twelve possible impact statements. Out of 145 respondents, 139 respondents do believe that surf tourism impacts the environment and culture at surf destinations.

All answers are listed in Figure 2 and range from strongly disagree to strongly agree. The following results are compiled from agree and strongly agree. Therefore, the majority (85,6%) of the respondents agreed that surf tourism contributes to local employment, followed by contribution to local community development (79,9%) and changes in the landscape with 66,9%. Overall, higher agreement rates are within the first five statements that concern the cultural impacts, rather than the following seven ecological impact statements. 59% of the respondents agreed with the cause of beach pollution and only 32,4% agreed with the reduction of ocean water quality.

Figure 2 Respondents perception of potential impacts of surf tourism on surf destinations.



6.3 Ecological attitude: NEP Scores

The collected NEP data is presented in Table 3, and shows the frequency of each item, as well as the mean and the standard deviation. As mentioned before, a high level of agreement with the odd numbered items reflects a high mean and indicates a pro-ecological view. A high level of disagreement with the even numbered items would reflect in a low mean and indicates a pro-ecological view. As the even numbered items are negatively-keyed, the mean scores were calculated after adjustment for direction, so that all items with higher scores indicate pro-NEP worldview.

As can be seen in Table 3, the mean scores for the eight pro-NEP items range from 3,54 to 4,28, whereas, the mean scores for the seven even DSP items range from 2,14 to 4,02. All items, except item 6, indicate a 'positive' mean score (greater than 3), and thus support a pro-ecological behavior. Regarding the 6th item, it seems that respondents support some DSP beliefs. As it shows, the odd numbered items had higher scores, whereas almost all items, except the 1st, 3rd and 11th, had mean scores greater than 4. In the following the NEP scores for each item are presented within the five subscales.

THE REALITY OF LIMIT OF GROWTH: As the three items (1,6,11) within this subscale show, there is a concern with the limits to population growth regarding the carrying capacity of the earth, with equity and development issues, and limits to human interference with nature (Erdogan, 2009).The results show that the majority (68,3%) of the respondents embrace beliefs about population control (item1). Item 6 on the other hand provides a DSP view, and the results show that almost three quarters of the respondents (73,1%) agree with the idea of unlimited resources and with the need to learn to develop them. Regarding item 11, the majority (62,7%) of the respondents agree with the limits of natural resources to human interference with nature. However, as it shows within this subscales, it seems that respondents are less accepting the NEP valuation of nature and are more aligned with the DSP value on economic growth.

ANTI-ANTHROPOCENTRISM: This subscale consists of two pro-DSP items (2,12) and one pro-NEP item (7), having a pro- NEP worldview would mean that the ideas of item 2 and 12 would not be accepted. The results show that the majority (63,5%) of respondents reject the anthropocentric view at item 2, whereby 24,8% accept it, and 11,7% have a neutral perspective on the idea of item 2. A considerable number of respondents (74,5%) oppose the anthropocentric view at item 12. The anthropocentric idea that plants and animals have as much right as humans to exist (item 7) is supported by the vast majority (88,2%), and opposed by only 4,1%, whereby 7,6% have a neutral view on it. The results of item 7 suggest that one does not have to be an environmentalist in order to acknowledge the right of existence of plants and animals. As can be seen, the results for all three items incline to a pro-NEP worldview.

Table 3 NEP items with frequency, mean, and standard deviation of responses.

	% DISTRIBUTIONS							
NEP ITEMS	**SD**	**D**	**N**	**A**	**SA**	**N°**	**Mean°°**	**ST.D°°°**
1. We are approaching the limit of the number of people the earth can support.	4.1	14.5	13.1	36.6	31.7	145	3.77	0.72
2. Humans have the right to modify the natural environment to suit their needs.	29.0	34.5	11.7	20.0	4.8	145	3.63	0.64
3. When humans interfere with nature it often produces disastrous consequences.	6.0	10.3	13.8	51.0	24.8	145	3.90	0.85
4. Human ingenuity will insure that we do not make the earth unlivable.	11.7	27.6	30.3	21.4	9.0	145	3.12	0.40
5. Humans are severely abusing environment.	0.7	0.7	8.3	50.3	40.0	145	4.28	1.05
6. The earth has plenty of natural resources if we just learn how to develop them.	2.1	9.0	19.9	46.9	26.2	145	2.14	0.32
7. Plants and animals have as much right as humans to exist.	0.7	3.4	7.6	44.8	43.4	145	4.27	1.04
8. The balance of nature is strong enough to cope with the impacts of modern industries.	33.1	43.4	9.7	9.0	9.0	145	3.91	0.84
9. Despite our special abilities humans are still subject to the laws of nature.	6.0	5.5	12.4	45.5	36.6	145	4.13	0.92
10. The so-called "ecological crisis" facing human kind has been greatly exaggerated.	23.4	38.6	24.1	6.9	6.9	145	3.65	0.64
11. The earth is like a spaceship with very limited room and resources.	3.4	11.7	22.1	52.4	10.3	145	3.54	0.81
12. Humans were meant to rule over the rest of nature.	47.6	26.9	9.0	13.1	3.4	145	4.02	0.97
13. The balance of nature is very delicate and easily upset.	0.7	7.6	7.6	52.2	26.9	145	4.02	0.99
14. Humans will eventually learn enough about how nature works to be able to control it.	11.0	24.1	24.1	36.6	4.1	145	3.01	0.35
15. If thing continue on their present course, we will soon experience a major ecological catastrophe.	2.1	3.4	17.2	41.4	35.9	145	4.06	0.86

SD=Strongly Disagree, D=Disagree, N=Neutral, A= Agree, SA= Strongly Agree;
N° = Number of participants who responded to each item;
Mean°° = Mean scores after adjustment for direction. Higher score indicates pro-NEP worldview;
St.D. °°° = Standard deviation.

ANTI-EXEMPTIONALISM: A pro-NEP worldview assumes that people reject human exemptionalism views which are based on the idea that humans are exempt from the constraints of nature. This view supports the human domination and domination of economy over nature (Erdogan, 2009). The subscale consists of two pro-DSP items (4,14) and one pro-NEP item (9). The results for item 4 show that 39,3% of the respondents have an anti-exemptionalism worldview, whereby 30,3% have a neutral view on the idea of this item, and 30,4% indicated to have an exemptionalism worldview. The vast majority (82,1%) of respondents believe the idea of item 9, that 'despite our special abilities, humans are still subject of laws of nature'. Regarding item 14, the results show that 35,1% of the

respondents have an anti-exemptionalism worldview, 24,1% are neutral, and as the majority (40,7%) of respondents agree with this item it seems they have an exemptionalism worldview.

THE POSSIBILITY OF AN ECOCRISIS: The NEP stresses on human dependence to nature and disastrous outcome of human interference to nature (Erdogan, 2009). The subscale consists of two pro-NEP items (5,15) and one pro-DSP item (10). The results show that an overwhelming number of respondents (90,3%) agree with the statement 'Humans are severely abusing the environment (item 5), indicating a pro-NEP worldview. Regarding item 10, only 13,8% of the respondents agree with the statement and thus support a DSP view, however, the majority (62%) disagrees and thus supports the NEP-view, whereby 24,1% indicated to be neutral about it. Concerning item 15, the majority (77,3%) of respondents agree with the statement 'If things continue on their present course we will soon experience a major ecological catastrophe', and thus has a pro-ecological worldview.

THE FRAGILITY OF NATURE'S BALANCE: This subscale hold the idea that there is a balance between nature and human interference, and that this interference can endanger nature (Erdogan, 2009). Two items (3,13) are pro-NEP and one item (8) is pro-DSP. The results show, that the majority (75,8) of respondents agree with item 3 and thus, support the NEP worldview regarding this statement. Concerning item 8, 76,5% disagree with that 'The balance of nature is strong enough to cope with the impacts of modern industrial nations', meaning that they oppose the DSP view on this statement. Further, the results show, that the majority (79,1%) believe that 'The balance of nature is very delicate and easily upset' (item 13), therefore, agreeing with a pro-NEP worldview.

Table 4 presents the statistics on the environmental attitudes of the respondents according to the NEP subscales. The results show that the mean scores for the subscale 'Possibility of an ecocrisis' has the highest rate (M= 4.00; SD=0.85) and the subscale 'Limits to growth' has the lowest average score (M= 3.15; SD= 0.61).

Table 4. Environmental attitude scores according to NEP subscales

NEP SUBSCALES	N	MEAN	ST.D
Fragility of nature's balance	145	3.94	0.89
Limits to growth	145	3.15	0.61
Anti-anthropocentrism	145	3.97	0.88
Anti-exemptionalism	145	3.42	0.56
Possibility of an ecocrisis	145	4.00	0.85

Table 5 presents the descriptive statistics for the whole NEP items together. As can be seen below, the scores varied between 2.14 and 4.28, with an average score 3.90.

Table 5. Descriptive statistics for the NEP Score variable.

	N	Min.	Max.	Mean	St.D.	Quartile 1	Quartile 2	Quartile 3
NEP Score	145	2.14	4.28	3.70	0.57	3.54	3.90	4.04

Furthermore, as described, the distribution of the respondents were categorized according the ecological classifications based on Thomas (2013), which is presented in Table 6.

Table 6 Ecological attitude scores according to categories.

	Anti-ecological NEP Score in (1.3)	Mid-ecological NEP Score in)3.4)	Pro-ecological NEP Score in)4.5)
% of respondents	14.7%	56.6%	28.8%

The results in Table 6 show that the majority (56,6%) of the respondents are mid-ecological, whereas 14,7% are anti-ecological and 28,8% are categorized as pro-ecological.

6.4 Comparing Means

The independent sample t-test evaluates the statistical difference between the means of two independent or unrelated groups. In this part the test was conducted to compare the NEP scores between gender, age, education and surf level in order to test the hypothesis.

Hypothesis 1 – 'The socio-demographic characteristics of surf tourists influence their environmental attitudes'.

Gender

H0: $\mu 1 \leq \mu 2$ Women have a lower or equal global NEP score mean than man.
HA: $\mu 1 > \mu 2$ Women have a higher global NEP score mean than man.

As can be seen in Table 7, the mean of females is 3,74 and the mean for men is 3.65. Using one-tailed 0,05 criterion, the null hypothesis (H0) is not rejected, since p-value = 0,17 > 0,05. The alpha value indicates that no statistically significant difference exists between the global mean of females and males. Thus, in this study pro-ecological attitude is not depending on gender.

Table 8. Gender and NEP subscales.

NEP SUBSCALES	GENDER	N	MEAN	ST.D	t	g.l.	P
Fragility of nature's balance	Male	92	3.96	0.92	-1.366	21.04	0.19
	Female	53	3.91	0.86			
Limits to growth	Male	92	3.19	0.65	-1.900	20.36	0.07
	Female	53	3.08	0.58			
Anti-anthropocentrism	Male	92	3.73	0.80	-1.119	27.19	0.27
	Female	53	4.21	1.12			
Anti-exemptionalism	Male	92	3.38	0.57	-1.501	21.53	0.14
	Female	53	3.50	0.59			
Possibility of an ecocrisis	Male	92	3.98	0.85	-1.376	22.56	0.18
	Female	53	4.02	0.88			
Score (media)	Male	92	3.65	0.76	-1.452	22.54	0.17
	Female	53	3.74	0.80			

Age

H0: Age is independent of environmental awareness.
HA: Age is dependent of environmental awareness.

A one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of age on environmental awareness. Therefore, respondents were divided into four groups according to their age (group 1: 18-29; group 2: 30-44; group 3: 45-65; group 4: 65+).

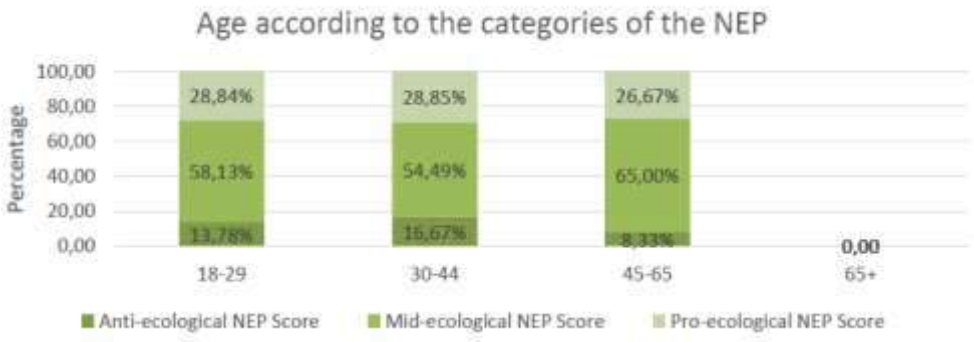
As can be seen in Table 8, the mean for group 1 = 3,70; group 2 = 3,68; group 3 = 3,95. Using one-tailed 0,05 criterion, the null hypothesis (H0) is not rejected, since p-value = 0,38 > 0,05. The alpha value indicates that no statistically significant difference exists between age and ecological awareness. Thus, the Bonferroni results are not provided

Table 8. Age and NEP Score.

Age Score Media	Mean	ST.D	N	ANOVA (p)
18-19	3.70	0.40	89	
30-44	3.68	0.38	52	0.38
45-65	3.95	1.19	4	

The study of the relationship between age and environmental awareness was complemented with an analysis according to the NEP categories as described before (anti-ecological, mid-ecological, and pro-ecological). As can be seen in Figure 3, in all groups the majority (18-29= 58,2%; 30-44= 54,5%, 45-65=65%) is mid-ecological.

Figure 3. Age and NEP categories



Education

H0: Education is independent of environmental awareness.
HA: Education is dependent of environmental awareness.

To evaluate whether education has an influence on environmental attitudes, three groups were considered (group1: participants with a High School degree; group 2: participants with Higher Education (bachelor's degree, master's degree or PhD); group3: participants with 'Other' education). The mean for group 1= 3,55; group 2= 3,72; and group 3= 3,66. Using one-tailed 0,05 criterion, the null hypothesis (H0) is not rejected, since p-value = 0,41 > 0,05. The alpha value indicates that no statistically significant difference exists between education and environmental awareness.

Surf Level

H0: Surf Level is independent on environmental awareness.

HA: Surf Level is dependent on environmental awareness.

A one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of surf level and environmental awareness. Therefore, respondents were divided into three groups according to their surf level (group 1= Beginner; group 2= Intermediate; group 2= Experiences Surfer). The mean for group 1= 3,72; group 2= 3,65; and group 3= 3,69. Using one-tailed 0,05 criterion, the null hypothesis (H0) is not rejected, since p-value = 0,94 > 0,05. The alpha value indicates that no statistically significant difference exists between surf level and environmental awareness.

This section discussed the results of the data obtained from surf tourists concerning their environmental awareness. The outcomes show that overall surf tourists seem to be environmental aware and advocate for the environment, however, the outcomes also show some controversial results. Particularly in view of the fact that a considerable amount of the respondents consider the surf industry as environmental friendly and that more than half of the respondents do not know that surfboards and surfing materials are mostly environmental unfriendly. Overall the NEP outcomes showed that the scores turned out to be high, which indicates a pro-NEP worldview. Further, it showed that most of the respondents have a mid-ecological attitude and just a small portion of the respondents have an anti-ecological attitude. For the hypothesis 1 related to socio-demographics and environmental awareness, no significant differences were found, and thus it can be said that in this study socio-demographics had no influence of the environmental attitude. Further, it showed that respondents do not identify themselves as environmentalist, and thus hypothesis 2 was rejected.

7. Conclusions

Surfing exploded in popularity in the 160s and has steadily grown and maintained popularity in the past half century, and thus, is responsible for the development of a profitable surf tourism industry. However, as it has been discussed in this research, as any other form of tourism, surf tourism has led to negative impacts on local communities and every surf destination has its own barriers and set of challenges. Therefore, the dynamics of surf tourism and sustainability has gained significant attention of research in recent years, and surfers were identified to be a key stakeholder group for the development and planning of sustainable surf tourism management. However, the level of harmony between surfers and the environment has been increasingly questioned, and thus, potential links between surfers and pro-environmental behavior needs further attention, as they play an important role to identify and preserve surfing resources. In the following the key findings within this research and in conjunction with the research questions and objectives are highlighted.

Main Research Question :

What is the attitude of surf tourists towards the environment and how does the stereotype of a surfer being an environmentalist reflect reality?

• Key findings:

- Surf Tourists have a strong ecological worldview: Though it would be false to make the case for surfers as collectively environmental aware, respondents in this study have a mid-ecological to pro-ecological attitude.
- Representative amount of respondents advocate for the environment. As respondents indicated, they either advocate by supporting NGO's, recycling or through beach clean-ups. The other part that do not advocate for the environment is due to a lack of knowledge of how to help.
- Lack of awareness regarding the impacts of the surfing industry. Respondents believe that the surfing industry is environmentally friendly and are not aware that surf equipment is mostly environmentally unfriendly.
- In this study, surf tourists do not identify themselves as environmentalists.

This study responded to the need for a better understanding of surf tourists and their environmental awareness in Peniche, Portugal. Peniche is depending on surf tourism as it is one of the main economic drivers, and the town has been recently benchmarked as the first sustainable surf destination in the world. The benefit of understanding the environmental attitude of surf tourists is vital

for the town as new campaigns can be developed to promote pro-environmental behavior, as well as to educate and motivate them.

Concluding, the findings revealed that surf tourists have an environmental awareness in a broader sense, however, when it comes to surf related issues and the environment it seems that there is a lack of awareness. Therefore, findings suggest adapting strategies to spread more awareness and educate surf tourists – 1. Educating them on the impacts of the surfing industry and the production of surf boards; 2. Simultaneously provide information on sustainable alternatives; 3. Educate and engage surf tourists to advocate for the environment; 4. Educate them about their own carbon footprint and what they can do to minimize it. Further, it is suggested to consider an accommodation tax earmarked for environmental protection in surf related accommodations.

Furthermore, it should be kept in mind that environmental awareness may be the first step to pro-environmental behavior, however, it does not mean just because a person is environmentally aware, that this person has necessarily a pro-environmental behavior.

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