Marine environmental awareness of residents and tourists in

Valle Gran Rey, La Gomera

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Abstract

Environmental protection and nature conservation are becoming more and more important in this day. The preservation of a natural and intact environment should undoubtedly be a top priority. But today we often observe the opposite. Especially the oceans suffer from human activities. Climate change, overfishing and pollution by industry, packaging or the extraction of resources threaten the marine ecosystem and its inhabitants. In order to counter these threats, a change in society is needed. However, this change can only be achieved through increasing environmental awareness. Environmental awareness consists of various components. Knowledge about environmental problems, their causes and effects forms the basis for awareness. On the basis of this knowledge, the attitude towards the environment is formed, which in turn gives an indication of environmentally friendly behaviour. In order to increase the environmental awareness of society, education is seen and used as an effective means. This is especially true for nature-oriented experiences.

La Gomera is one of the Canary Islands surrounded by the ocean. The area is one of the most species-rich in terms of marine mammals, making it one of the best places in Europe for whale watching. An environmental organization has made it its mission to protect the whales and dolphins in the area by conducting research and education. The M.E.E.R. e.V. works together with whale watching boats and established a permanent exhibition in Valle Gran Rey, the island's main tourist destination.

A quantitative research approach has been chosen to better adapt educational measures and to get an overview of the current state of environmental awareness of the society in Valle Gran Rey. A survey was conducted on environmental knowledge and attitudes towards the environment. The focus was on the ecosystem of the sea, whales and dolphins. The New Environmental Paradigm Scale was used to query environmental attitudes. Furthermore, the interest in environmental education was examined. Four different population groups were considered: Spanish and German residents and tourists. The influence of whale watching trips and the effectiveness of the exhibition were also analysed.

A total of 223 completed questionnaires were collected. After sorting out questionnaires from nationalities other than German and Spanish, 204 questionnaires could be analysed. The statistical evaluation showed that a relatively high level of environmental awareness is present in the population. Differences between the population groups were not particularly large, but German inhabitants of Valle Gran Rey showed the greatest awareness. Furthermore, the influence of whale watching and the exhibition was found to be very positive. The participants of a tour and visitors to the exhibition are more environmentally aware than others.

Zusammenfassung

Umwelt- und Naturschutz gewinnen in der heutigen Zeit immer mehr an Bedeutung. Der Erhalt einer natürlichen und intakten Umwelt sollte zweifelsfrei von oberster Priorität sein. Doch beobachten wir heute oft das Gegenteil. Besonders die Meere leiden unter menschlichen Aktivitäten. Klimawandel, Überfischung und Verschmutzung durch Industrie, Verpackung oder den Abbau von Ressourcen bedrohen das Ökosystem Meer mitsamt seiner Bewohner. Um diesen Bedrohungen entgegen zu wirken, ist ein Wandel in der Gesellschaft von Nöten. Dieser Wandel kann jedoch nur über steigendes Umweltbewusstsein erreicht werden. Das Umweltbewusstsein setzt sich aus verschiedenen Komponenten zusammen. Den Grundstein für Bewusstsein bildet das Wissen über Umweltprobleme, deren Ursachen und Auswirkungen. Auf Basis dieses Wissens bildet sich die Einstellung gegenüber der Umwelt, welche wiederum Hinweis auf umweltfreundliches Verhalten gibt. Um das Umweltbewusstsein der Gesellschaft zu steigern, wird Aufklärung als wirkungsvolles Mittel angesehen und genutzt. Dies gilt besonders bei naturnahen Erfahrungen und Erlebnisse.

La Gomera ist eine der kanarischen Inseln und umgeben von Meer. Das Gebiet ist eines der artenreichsten Gebiete in Bezug auf Meeressäuger, was es zu einem der besten Orte in Europa für Whale Watching macht. Eine Umweltorganisation hat es sich zur Aufgabe gemacht, die Wale und Delfine in dem Gebiet zu schützen, indem sie Forschungs- und Aufklärungsarbeit leisten. Der M.E.E.R. e.V. arbeitet dazu zusammen mit Whale Watching Booten und hat eine Dauerausstellung in Valle Gran Rey, dem Haupttourismusort der Insel.

Um Aufklärungsmaßnahmen besser anpassen zu können und einen Überblick über den aktuellen Stand des Umweltbewusstseins der Gesellschaft in Valle Gran Rey zu bekommen, wurde ein quantitativer Forschungsansatz gewählt. In einer Umfrage wurden das Umweltwissen und die Einstellung gegenüber der Umwelt abgefragt. Der Fokus lag dabei auf dem Ökosystem Meer, Walen und Delfine. Zur Abfrage der Umwelteinstellung wurde die New Environmental Paradigm-Skala genutzt. Des Weiteren wurde das Interesse an Aufklärung über Umweltthemen geprüft. Vier verschiedene Bevölkerungsgruppen wurden dabei betrachtet: Spanische und deutsche Einwohner und Touristen. Außerdem wurde der Einfluss von Whale Watching Ausfahrten und die Wirksamkeit der Ausstellung analysiert.

Insgesamt konnten 223 ausgefüllte Fragebögen gesammelt werden. Nach dem Aussortieren von Fragebögen von anderen Nationalitäten als deutsch und spanisch, konnten 204 Fragebögen analysiert werden. Die statistische Auswertung hat dabei ergeben, dass ein relativ hohes Umweltbewusstsein in der Bevölkerung präsent ist. Unterschiede zwischen den Bevölkerungsgruppen waren nicht besonders groß, jedoch zeigten deutsche Einwohner von Valle Gran Rey das größte Bewusstsein. Weiterhin wurde der Einfluss von Whale Watching und der Ausstellung als sehr positiv befunden. Die Teilnehmer einer Tour und Besucher der Ausstellung sind umweltbewusster als andere.

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I declare that the work presented here is, to the best of my knowledge and belief, original and the result of my own investigations, except as acknowledged, and has not been submitted, either in part or whole, for a degree at this or any other University.

Eberswalde, 27th December 2018

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Maita Bengsch

General definitions

In this thesis different tourism related terms are used. The following definitions are suggested by the World Tourism Organization (1995):

- Tourism: The activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes.
- Tourist: (overnight) visitor staying at least one night in a collective or private accommodation in the place visited.
- Visitor: any person traveling to a place other than that of his/her usual environment for less than 12 consecutive months and whose main purpose of travel is not to work for pay in the place visited.
- Traveller - any person on a trip between two or more locations"

(World Tourism Organization, 1995, p. 17)

In the following the explanations for tourist, visitor and traveller are used synonymously, because for this research the differentiation is not in particular relevant.

Furthermore, the terms resident and local are used. The Cambridge Dictionary suggests the following definitions (Cambridge Dictionary):

- Resident: a person who lives or has their home in a place

- Local: from, existing in, serving, or responsible for a small area, especially of a country

In the following the two terms are used again synonymously for everyone who is not on vacation on La Gomera and stating La Gomera was their current domicile.

1. Introduction

Our oceans are an essential part of our ecosystem. They make the earth inhabitable by regulating our climate, drinking water, much of our food and most of the oxygen we breathe (Santoro *et al.*, 2017, p. 15). It is therefore no surprise that our oceans have economic, political, social, environmental and aesthetic values for humankind, which are mostly underestimated by humans (Santoro *et al.*, 2017, p. 15). Some of the richest biodiversity and most complex ecosystems can be found in our oceans (Mancer-Pineda *et al.*, 2013, th112). With our oceans playing such a vital role in human life, as demonstrated by the examples above, it follows that the protection of our oceans with all their resource is very important and an essential goal to humankind. It is imperative that we understand that all life is influenced by the oceans and that the oceans are affected by our behaviour.

However, our oceans are burdened by pollution, excessive fishery amongst other damaging human behaviour which seriously affect the marine biodiversity and ecosystems. In the past decades we, as humans, have caused tremendous damage to this very important resource (M.E.E.R. e.V., 2008, pp. 12–17; Boehlke, 2016, pp. 44–53).

The dangers of these actions have been recognised by many decision-making institutions. An example of this are the United Nations who published seventeen sustainable development goals, one of which deals with life below water (United Nations). However, raising awareness remains paramount as every small, sustainable action makes a difference. Tourism and marine-related activities such as whale watching have been found to have the ability to turn tourists into more environmentally aware citizens (Luo and Deng, 2008, p. 402; Tubb, 2003, p. 479; Lück, 2003a, pp. 943–944; Draheim *et al.*, 2010, p. 179).

La Gomera, the second smallest island in the Canary Islands, is surrounded by the Atlantic Ocean. The passing Canary current, an extension of the Gulf current, makes this area of the Atlantic very rich in nutrients and therefore one of the most biodiverse marine-mammal habitats in Europe (M.E.E.R. e.V., 2008, p. 29) . A total of 30 different marine-mammal species have been documented in the waters of the Canary Islands , 23 of those have been recorded on La Gomera (Ritter, 2011, p. 1). Some examples of the species which are found to reside in this area are pilot whales, the Atlantic spotted dolphin or the bottlenose dolphin. Other species use the waters off La Gomera for rearing their offspring, feeding or resting (Ritter, 2012). This makes La Gomera one of Europe's whale watching hotspots.

Like many other places in the world, this marine-mammal paradise is threatened among others by plastic debris pollution, waste water runoff and the extensive high-speed ferry traffic between the different Canary Islands (Ritter, 2012, p. 9). Not only do cetaceans heavily depend on this fragile ecosystem, but also the people who live and visit La Gomera. This leaves no room for doubt about the importance of actively combatting these problems. As La Gomera is

an island surrounded by the Atlantic Ocean it should be priority to protect this rich marine ecosystem. The threat and damage caused by humans can only be reversed through human intervention. It is therefore of utmost importance to shed light on environmental problems, to make people aware of them and to raise attention in order to reduce the impact of human behaviour on this fragile ecosystem.

M.E.E.R. e.V. (Mammals Encounters Education Research) is a German non-profit organisation which is taking steps in that direction. They conduct research as well as educate the public on whales, dolphins and their natural habitat off La Gomera, thereby promoting environmental protection practices (M.E.E.R. e.V., 2008, p. 19). They work together with whale watching companies to collect sighting data which helps build a basis for conservation effort for whales and dolphins. Other scientific studies which use the small whale watching boats as platforms for data collection are also incorporated. Furthermore, a permanent exhibition on marine mammals was established and a variety of events take place to educate locals as well as tourists.

But how aware are people in Valle Gran Rey about environmental concerns? Do they know about the richness of biodiversity in the area? And does *M.E.E.R. e.V.* reach the public with their efforts?

1.1. Purpose of the study

The overall purpose of the study is to gain a better understanding of the marine environmental awareness of the public in Valle Gran Rey, La Gomera. This includes obviously people who live there on the one hand and people who visit Valle Gran Rey for vacation on the other hand. It will further be differentiated between the two nationalities which can be found there primarily: Spanish and German. In this way, a detailed evaluation of their beliefs towards the environment can be made. With these findings it will be possible to adjust educational measures more adequately to the individual target groups, to lead the way towards more sustainable and environmentally conscious citizens with the overall aim of conservation.

But do they want to be educated anyway? Do they show interest in the marine environment at all? The motivation of residents and tourists to learn about whales, dolphins and the marine environment in Valle Gran Rey will be examined. This includes also examining topics of interest. In this way it is then possible to make specific statements about the public's willingness to be educated.

Not only the self-statement about their willingness, but furthermore their need for education will be analysed. To be able to make statements about the environmental awareness, it will firstly be examined what they already know about the marine environment off La Gomera with special focus on cetaceans. Thereby it will be possible to see gaps in their environmental

knowledge. Are they aware of the abundance of species in the area? What do they know about whales and dolphins in the area?

Secondly, the attitude towards the general and marine environment will support statements about the environmental awareness. What is their actual attitude towards the use of nature and the environment itself? The attitude towards the marine environment will also be examined to give insights about their beliefs towards the use of the marine environment.

Besides that, their perception towards environmental concerns will be investigated. This will give additional insights about their awareness. Which issues do they think are most threatening the environment? And do they think that some issues are less serious than others?

The results of these research areas will then reveal further needs for education. Therefore, the aim of this thesis is to detect gaps and differences in the environmental marine education of locals and tourists in Valle Gran Rey, La Gomera by examining their marine environmental awareness.

1.2. Research questions

To adequately be able to give statements about the mentioned areas of research, following research questions have been designed.

The main research question is: How aware is the public in Valle Gran Rey about the marine environment?

How educated are they about the marine environment, especially regarding marine mammals?

How educated are they about environmental concerns?

What is their general attitude towards the natural environment?

How is the perception of respectful whale watching?

Is there a willingness to learn and what are the issues they would like and need to learn about?

Are there differences between residents, tourists and nationalities?

Is the establishment of respectful whale watching and the work of *M.E.E.R. e.V.* contributing to a better understanding of the environment?

1.3. Limitations

As most of studies, this also has some limitations, which might have an influence on the result. The study was carried out in summer (July/August 2018), which is regarded as low season in Valle Gran Rey, La Gomera. This has an impact on the participants' socio-demographical profiles as for example the origin. While the summer of La Gomera is often considered too warm for German tourists, more Spanish tourists visit the island in this time period. This can be derived from the fact, that the Canary Islands have their high season during winter (Lipps and Breda, 2018, p. 21). Still, this can be seen as an advantage, as in this way also a great number of Spanish tourists could be interviewed. However, it is assumed that different socio-demographical profiles thus have an impact on their motivations and attitudes and that the same study might have found different results during high season.

A major factor in this field of research is the social desirability bias. As being environmentally conscious is seen to be socially desirable and as people expect someone to be environmental aware it often comes to embellished answers (Gifford and Sussman, 2012, p. 66). This effect is especially crucial for self-reported answers, where people incorrectly tend to give responses they think are more socially desired.

The study is locally limited to the municipality of Valle Gran Rey, which is the location with the richest cetacean species diversity in Europe and unique in its settings. For this reason, it is difficult to generalize the outcome of the study and transfer it to other settings.

1.4. Report Organisation

The present thesis is structured in seven chapters. Chapter one just introduces the research topic. It demonstrates the context and purpose of the study, gives a brief overview about the research questions and explains the limitations. Chapter two presents the research background. This includes a presentation of La Gomera, the whale watching industry and environmental concerns. In chapter three the relevant existing literature will be reviewed. It gives an overview of the different aspects of environmental awareness and environmental education. Chapter four shows detailed descriptions of the methods that were used in the study to collect, analyse, and interpret data applicable to the study. Chapter five presents the findings of the analysis and compares outcomes to results from other studies on environmental awareness and education. Chapter six goes more into detail by discussing and interpreting the analysed results. The research questions will be answered in this section. The last chapter outlines overall conclusions from this study, critically reviews the applied research method and presents topics that would benefit from further research.

2. Background information

2.1. La Gomera

This master thesis is geographically focused on La Gomera, the second smallest island of the Canary Archipelago. Even though the Canary Islands geographically belong to Africa with the East Coast only about 100km far away, they politically belong to Spain. In 1982, the Spanish Government acknowledged the autonomous status of the islands (Goetz, 2011, p. 27). The island provides, thanks to its volcanic origin, a lot of impressive and rather unspoiled nature. The "barrancos" are valleys formed by extreme rivers over the past centuries. While the island itself is very poor in fauna species, its waters are very rich in species. Apart from whales and dolphins, also many fish, crustaceans and other invertebrates can be found in the waters around La Gomera (Will, 2017, p. 15). While the coastal areas of the island are usually very dry, the upland accommodates one of the oldest cloud forests: the evergreen "Bosque del Cerdro", which is almost entirely protected as the island's famous National Park "Garajonay". The conservation of this ecosystem is very important for Gomeros, as one can find many established protected areas. The National Park Garajonay has been incorporated into the list of UNESCO world heritage natural sites. Two additional Natural Reserves (Reserva Natural de Puntallana and the Reserva Natural Especial de

Figure 1: Map of La Gomera (LaGomera.de, 2018)

Benchijigua), a natural park (Parque Natural de Majona), a protected landscape (Paisaje Protegido de Orone), and a rural park, make sure the structure of settlement and landscape are protected in Valle Gran Rey, one of the major tourist destinations on La Gomera. Along with eight different natural monuments these cover appr. 15% of the island (Lipps and Breda, 2018, p. 64). Thanks to the efforts made by the government to protect these natural spaces and at the same time developing and maintaining a network of hiking trails in those areas, La Gomera became part of the EUROPARC European Charta for Sustainable Tourism in Protected Areas (Carta Europea de Turismo Sostenible, 2018), providing practical management tools to local businesses so as to enable protected areas to develop tourism sustainably.

2.1.1. Tourism on La Gomera

The diverse nature attracts many tourists. Like the other Canary Islands, La Gomera's main economic factor is the tourism industry with 86.375 tourists visiting the island in 2017 (ISTAC, 2017). The numbers of tourists per year has been more or less steady over the last decade, growing very slowly (Instituto Canario de Estadisticas). According to the Canary Institute for

Statistics (ISTAC), in 2017 48,6 % of tourists came from Germany, 26% from the United Kingdom and 5,5% from the Spanish mainland. The mean age of La Gomera tourists is 50,7 and many do come repeatedly (43,9%). 47,5% of the tourists are male, 52,5% are female (ISTAC, 2017). Bock (2015, p. 61) surveyed the motivation of (whale watching) tourists in Valle Gran Rey and found that most tourists mentioned nature and ocean in the first place. These were followed by the climate/weather, hiking, no mass tourism, calmness/relaxation, whale watching, discover the Canary Island and recommendations by friends and relatives.

Tourism development began with "alternative" tourists from all over Europe (Bianchi, 2004, p. 503). Such escapists enjoyed the remoteness and simplicity of the island and started the development of a tourism industry in the 1960s (Lipps and Breda, 2018, p. 58). Subsequently, more and more people started to recognize the unique nature of La Gomera which gradually became a "hiking paradise" (Goetz, 2011, p. 80). Along with tourism, the infrastructure of the island was developed. Many apartments, holiday houses and smaller flat complexes were built rather than big hotels and holiday resorts. The main tourist destination is the municipality Valle Gran Rey in the south west of the island and many beaches, restaurants, shops and other attractions are located there. Even though La Gomera has a small airport, most tourists fly to Tenerife and then use the ferry to get to La Gomera. The biggest harbour can be found in the capital city San Sebastián, which includes a small marina for private boats, a fishing harbour and a pier for large ferries connecting La Gomera with the other islands. Even though the harbour in Valle Gran Rey is smaller, a large ferry has been operating here since winter 2017/2018 for the first time. The harbour is also used by fishing vessels, whale watching boats and private boats.

2.2. Whale Watching

Whale Watching is defined as any commercial and private activity with the goal of seeing, swimming with, and/or listening to whales, dolphins or porpoises in their natural habitat by boat, air or from land for education, recreational and/or scientific purposes (Hoyt, 2001; International Whaling Commission, 1994, pp. 33–34; Hoyt, 2008, p. 1223; Bearzi, 2017, p. 77). This definition excludes any form of "whale watching" where animals are held captive or which include interactions with trained animals (O'Connor et al., 2009, p. 31). A whale watcher is any person who is going on a commercial or private tour to see whales and/or dolphins (Ritter, 2010, p. 13). The global development of whale watching, following this definition, has been analysed since 1982. After commercial whaling drove several species of large whales close to extinction, the International Whaling Commission (IWC) declared a moratorium on commercial whaling in 1986 (O'Connor et al., 2009, p. 29). Even though the first commercial whale watching trips already began in the 1950s in California, it was only when whaling was stopped that whale watching became increasingly popular. In some areas, it was a great alternative for

retired whalers, as they had a lot of knowledge about the animals and their habitat (Orams and Lueck, 2016). In the following years and decades, the whale watching industry grew bigger and bigger, giving the populations of wild cetaceans the possibility to recover and bringing economic development to communities around the world (O'Connor *et al.*, 2009, p. 29). According to studies conducted by Erich Hoyt, approximately four million people in 31 countries went whale watching in 1991. Whale watching became one of the fastest growing industries and in 1998 there were already nine million whale watchers world-wide. The latest available study of global numbers stems from 2008, when around 13 million people in 119 countries were documented (Hoyt and Parsons, 2014, p. 60). The massive and rapid growth of the whale watching industry indicates the broad appeal these charismatic animals have on people (Bearzi, 2017, p. 77).

Year	No of countries and territories with commercial whale-watching	Number of whale-watchers	Direct expenditure in millions of US $	Total expenditure in millions of US $	Average annual increase % from previous period	Sources
1981	3	400,000	$4.1	$14	–	Kaza, 1982; Kelly, 1983; Sergeant, pers. comm., 1984
1988	–	1,500,000	$11–16	$38.5–56	20.8%	Kraus, 1989
1991	31(ck)	4,046,957	$77	$317.9	39.2%	Hoyt, 1992
1994	65	5,425,506	$122.4	$504.3	10.3%	Hoyt, 1995
1998	87	9,020,196	$299.5	$1,049	13.6%	Hoyt, 2001
2008	119	12,977,218	$872.7	$2,113.1	3.7%	O'Connor *et al.*, 2009; Hoyt & Iñíguez, 2008

Figure 2: Development of whale watching worldwide (Hoyt and Parsons, 2014, p. 60)

Whale Watching can bring a number of benefits. These range from a better appreciation and understanding of the marine environment, conservation of the animals and their habitat, cultural identification of heritage for local communities to recreational aspects and a unique experience for whale watchers. On the economic side, the establishment of Whale Watching creates new employment possibilities and is an additional source of income for tourism destinations - not just for Whale Watching operators but also for indirect service providers like hotels (Hoyt, 2007, p. 8). Additionally, it offers a possibility for researchers to conduct scientific research, leading to increased knowledge about cetaceans and their habitat(s).

But Whale Watching also has its downsides. An apt example of this is the Canary Island of Tenerife. Throughout the Canary Islands around 1,000,000 people went on trips to see cetaceans in 1998, approximately 85% of them can be ascribed to Tenerife (O'Connor *et al.*, 2009, p. 48). The number decreased to 600,000 in 2008, probably due to a shorter season and a reduction of boat licenses and illegal operators (O'Connor *et al.*, 2009, p. 47). However, mass tourism, which had been established on the island well before, still characterizes Tenerife's Whale Watching industry today. One can recognize clear similarities in the types of

trips and holiday packages offered to tourists: short, cheap and run very often (O'Connor *et al.*, 2009, p. 47). This type of whale watching has led to many operators complying poorly with the legal regulations, i.e. getting too close to the animals, or grouping too many boats around cetaceans. This often leads to scenarios where one can see more boats than whales (Lipps and Breda, 2018, p. 67). Bearzi (Bearzi, 2017, pp. 81–82) describes how unsustainably managed Whale Watching is increasingly impacting the animals and hence can become an additional threat. Disturbing the animals by approaching too fast or with too many boats at once, very likely causes whales and dolphins to suffer from stress. This in turn might lead to long-term consequences such as decreasing female reproduction and therefore a decrease in population size. Furthermore, Bearzi describes that groups of animals change their behaviour or even leave their habitats, alter their acoustic behaviour and even show physiological responses.

Whale Watching therefore must be managed sustainably with attention given to conservation efforts, educational and scientific output (Hoyt, 2007, p. 1). According to the World Tourism Organisation, "sustainable whale watching meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems" (Egas, 2002, p. 4). In particular, the fulfilment of the above-mentioned benefits would represent a type of "sustainable Whale Watching".

To this end, organisations such as the NGO Whale and Dolphin Conservation (WDC), or the IWC have established guidelines which aim to provide a framework for legal regulations while also giving operators a helpful tool to manage their trips responsibly. These guidelines document how to approach the animals, provide a minimum distance, inform how to behave when more than one boat is present and provide some essential rules such as not feeding or swimming with the animals (Egas, 2002, pp. 18–21). Legal regulations are often connected to a special license, which acts as an indicator for tourists to detect an accredited operator. Not only operators, but also tourists can have an impact by choosing a tour operator operating sustainably. In order to positively impact the industry, one should pay attention to regulations, licenses and their adherence. Further indicators for respectful whale watching are research and public education activities, skilled on board guides and crew, the establishment of interpretation centres and collaborations between operators and conservation organisations (Ritter, 2010, pp. 40–42).

2.2.1. The marine environment off La Gomera

In Valle Gran Rey one can observe what is considered a best practice approach to sustainable Whale Watching. Based on the size of the area, the waters in the south and southwest of the

Island is the most biodiverse habitat of whales and dolphins in Europe (M.E.E.R. e.V., 2008, p. 29). A total of 23 different species have been recorded (Ritter *et al.*, 2011, p. 1). Due to the cetacean species diversity described above, the sighting rates are high year-round. The cetacean "high season" lasts from March until May with sighting rates above 95%. Many different factors contribute to this biodiversity. Firstly, the Canary Current (part of the North Atlantic Gyre) brings cold and nutrient-rich water to an area in which warm waters are normally poor in nutrients. The Canary Current is driven by steadily blowing north-eastern trade winds. It causes eddies in the south of the islands which in turn bring nutrients from the deep sea. This provides ideal conditions for squids which are a preferred prey of pilot whales (M.E.E.R. e.V., 2008, p. 26). In summary, the Canary Current, the trade winds, the deep sea and the smaller currents are the causes for very rich available food resources. These in turn, attract many whales and dolphins to the area (Boehlke, 2016, pp. 6–8). Secondly, the island acts as protection from the trade winds. The lee sides in the south west of Gomera leads to calm waters offering whales and dolphins a place to rest. In particular, humpback and blue whales travelling from feeding grounds in the north to breeding grounds in the tropical waters, who use the calm and nutrient-rich waters to rest and feed on their journey (Boehlke, 2016, p. 6). Other species such as the short-finned pilot whale pilot whale or the common bottlenose dolphin became resident in the archipelago (Ritter, 2012, p. 11). These species can be seen on a very regular basis. Other species commonly seen in the area are rough-toothed dolphins, Atlantic spotted dolphins and Bryde's whale. Less frequently, one can spot fin whales, beaked or sperm whales (Elejabeitia C. & Urquiola E., 2009, p. 5). A complete list of all different whale and dolphin species can be found in the Appendix on page I.

Protection

The Natura 2000 network aims to protect nature and wildlife by connecting nature protection areas in Europe. These can be for example special areas of conservation (SACs) for wildlife. SACs are sites of community importance which are "designated by the Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favorable conservation status, of the natural habitats and/or the populations of the species for which the site is designated" (Official Journal of the European Communities, 1992, No L 206/9). Protected areas are designated under the Habitats Directive and include both terrestrial and marine sites. According to the Habitat Directive, registered in Annex II all "animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation" (Official Journal of the European Communities, 1992, Nr. L206/22) should be protected. In Annex II, bottlenose dolphin and loggerhead turtles are listed. Both species have core habitats around the Canary Islands. One of their core habitats can be found in the south-west of La Gomera, where hence a Special Area of Conservation was established. The "Franja Marina Playa de Santiago – Valle

Gran Rey" extends over 13,139 HA along the southern coast (Elejabeitia C. & Urquiola E., 2009, p. 4). Even though the area is protected, and a management plan was developed in 2011, the implementation and monitoring of measures is low. Additionally, in 2012, the island was declared a biosphere reserve. Accordingly, the strategic plan has the aim of implementing a marine reserve (La Gomera Reserva de la Biosfera, p. 17). To date no progress has been made in this regard. Boehlke (2016, S.54) states that effective regulations are missing, and that people do not know about the existence of protected areas. Further measures which protect cetaceans are special whale watching regulations passed into law by the government of the Canary Islands in 1996. Due to their inefficiency, the government amended them in 2001 (Elejabeitia C. & Urquiola E., 2009, p. 6). The regulations cover fundamental elements of Whale Watching, including the necessity of a guide to inform the guests, a code of conduct for the approaching and observing of the whales and the licensing process for commercial Whale Watching boats (Weisenberger, 2005, p. 52). Licensed tour operators can be identified by the flag "Barco Azul". Furthermore, the regulation stresses the importance of environmental education. The full regulations can be found on page II.

Whale Watching on La Gomera

Part of the following information has not been scientifically documented and is based on own research, interviews during an internship at *OCEANO Gomera* in winter 2017/2018 and internet research on the operator's websites. This chapter will describe current whale watching operators and the situation in Valle Gran Rey as of summer 2018.

Approximately 1% of the 611,000 whale watchers on the Canary Islands observed animals on La Gomera in 2008 (O'Connor *et al.*, 2009, p. 48). By this time two tour operators, *OCEANO Gomera* and *Excursiones Tina*, were offering boat trips to see whales and dolphins in Valle Gran Rey. Since then, *Amazonia*, *Yani* and *Speedy* (as part of *Excursiones Tina*) started to run three new whale watching vessels. Lastly, in 2018 another new boat, *Pura Vida*, entered the market. Unfortunately, there are no statistical numbers of how many whale watchers can be recorded today, but with four new boats offering tours it is fair to assume that figures have risen considerably since 2008. Despite this growth in the past years, impacts on the animals are still relatively low and the character of the trips generally is very different to the ones offered on the neighbouring island of Tenerife. This also is related to the comparably slow growth of the tourism industry (again in comparison to Tenerife) and the early starting research projects on marine mammals based on La Gomera, which has put the industry on a rather different basis until today (Bock, 2015, p. 48).

All operators are putting some effort into operating sustainably and respectfully towards the animals, including attempts to conduct tours according to the Canary legal whale watching regulations. The standard of the operators is similar and only differs slightly in terms of boat size and additional services. Excursions typically last 3-4 hours and cost around 40€ and while

some also offer food, beverages and a stop to go swimming or snorkelling, others focus only on whales. To reduce competition (time-wise), departures are set differently to make sure that there are not too many boats out at the same time around the animals. Following the Canary Regulations for whale watching all boats are equipped by a skilled captain and guide. The guide's responsibility is to inform the guests about marine biodiversity and to search for animals together with the captain. *Excursiones Tina* and *Yani* operate the largest vessels with a capacity of 50 passengers. Both operate from the harbour in Valle Gran Rey, and also offer tours from and to Playa Santiago in the South of the island (see map on page 5). The bigger vessels offer small buffets and sometimes entertainment with live music. The smaller speedboat *Speedy* can carry up to 12 passengers. Those three operators offer additional tours to see Los Órganos, basalt rocks in the very North of the island. *Amazonia*, *Pura Vida* and *OCEANO* do have smaller boats with a maximum capacity of 10 passengers. *Amazonia* and *Pura Vida* for example offer stops to go swimming or snorkelling when being close to the coast. The captain often transmits via radio to other boats where animals can be found. When another boat arrives, even more care is taken, and usually the first boat leaves the sighting to search for a new group of animals. In this way, it is meant to keep the impact of whale watching on the whales as low as possible. Unfortunately, however, this is not always the case. Sometimes operators want their customers to enjoy the whales and dolphins as long as possible and may diverge from respectful conduct. Bock (2015, pp. 49–50) noted that a potential for conflict is noticeable, as not all operators are putting enough effort into sustainable whale watching. She furthermore documented that the "race for the best sighting" is often disturbing the whales and dolphins, and thus having a negative effect on the whale watchers experience, apart from exacerbating the competition between operators. Customers therefore need to be educated about whale watching regulations to be able to react in critical situations, for example when too many boats are around one group of animals.

2.3. M.E.E.R. e.V.

Marine biologist Fabian Ritter started researching marine mammals off La Gomera as early as 1995 for his diploma thesis which then evolved into a long-term study about the whales and dolphins in the waters surrounding La Gomera. This research is still ongoing today (Ritter *et al.*, 2011, p. 1). The project *M.E.E.R.* La Gomera was founded in 1997 to continue the research and subsequently the non-profit association *M.E.E.R.* was founded in 1998. The objectives of the organisation "are the promotion of environmental protection, scientific research and public education, especially concerning cetaceans and their natural habitats and the study of the whales and dolphins off La Gomera" (M.E.E.R. e.V., 2018). The focus of research is the impact of Whale Watching vessels on whales and dolphins. Using special standardized sighting sheets, the crews of *OCEANO*'s boats (and formerly the ones run by the Club de Mar)

documented practically every sighting since 1996. In particular, they record the species, the exact location and general behaviour, groups sizes, the groups composition, as well as other data. This research helped to get insight into abundance and distribution of the different cetacean species. Behavioural observations contributed to illuminate species-specific behaviours and on how to behave respectfully during Whale Watching tours off La Gomera (M.E.E.R. e.V., 2008, p. 39). Further studies incorporated photo-identification on several species rough-toothed dolphins (Mayr and Ritter, 2005), habitat partitioning, inter-island movements of bottlenose dolphins, and much more. In 2012, a model for a marine protected area (Ritter, 2012) was elaborated, and in 2017, the first land-based observation platform on the coast of La Gomera (Ritter *et al.*, 2018) was established. Furthermore, research deals with the topic of ship strikes - collisions of vessels with whales or dolphins (Carrillo and Ritter, 2010). *M.E.E.R. e.V.* cooperates with research institutions and other organisations and publishes research results in scientific journals and at conferences or workshops, as well as the Scientific Committee of the IWC. *M.E.E.R. e.V.* is for example part of the research association *European Cetacean Society.* Scientific findings are furthermore supposed to act as a basis for decision-makers in politics and other bodies to support the conservation of whales and dolphins. Due to the continuous scientific work of the organisation the waters off La Gomera are one of the most investigated areas of the Canary Islands and in Europe in terms of abundance and distribution of cetaceans (M.E.E.R. e.V., 2008, p. 19). The overall goal of their research is "to contribute to the **public awareness** about the needs of the oceans and the seas, as well as to stimulate **conscientious behaviour** how we humans can deal with nature in a sustainable way" (M.E.E.R. e.V., 2018).

Education

In October 2008 the organisation *M.E.E.R. e.V.* established the first permanent exhibition on La Gomera, situated in the basement of the office building of *OCEANO Gomera*. The exhibition *Dolphins and Whales off La Gomera – Biodiversity in a changing World* acts as an interpretation centre which aims at informing guests about whales, dolphins and their habitat. As a result of the internationality in Valle Gran Rey, the exhibition was set up in three languages (Spanish, English and German). Nine large banners inform about the different species of marine mammals, the Canary Islands as their habitat, Whale Watching in general as well as threats to marine life. The results of different research and studies are also displayed. Different exhibits such as the bones of a sperm whale and life size fabric models convey realistic impressions of the animals. The International Fund for Animal Welfare (IFAW) and *OceanCare* additionally dedicated banners dealing with the issues of ocean noise and marine debris. Guests further have the possibility to inform themselves about marine conservation and possibilities to contribute to it. A small kids area allows children to read children books, take a small quiz or to draw and craft marine life related templates. A brochure representing the

content of the exhibition can be purchased. According to the official website of *M.E.E.R. e.V.,* guests have the opportunity to listen to original sounds of whales and dolphins, to participate in events like lectures or see movies and slide shows.

Together with their partner, *OCEANO Gomera*, different information talks and theme evenings with varying contents are hosted on occasion in the exhibition. Once a week an information talk about whales and dolphins off La Gomera is given in German. Sometimes special events for children or guest lectures are also organized.

Through the exhibition and the manifold events, it is possible for the *M.E.E.R. e.V.* and the operator *OCEANO Gomera* to offer education on whale watching for everyone who is interested.

Figure 3: Exhibition in Valle Gran Rey (M.E.E.R. e.V., 2018)

2.4. Threats to marine life

Environmental problems in today's world have become more and more geographically dispersed. In many cases the impact can be observed less directly and also the causes are more complex (Dunlap *et al.*, 2000, p. 426). Formerly, attention to biodiversity was mainly focused on rainforests, due to the constant discovery of new species and their gradual disappearance through anthropogenic actions, or coral reefs in the marine realm. During the past 20 years this has shifted and the marine ecosystem has gained increased attention (Mancer-Pineda *et al.*, 2013, p. 112). Reasons are the increasing pressure the human population is exerting upon the oceans and that the human population is dependent of the enormous benefits, or ecosystem services the oceans (Mancer-Pineda *et al.*, 2013, p. 125) deliver. In the following, the most important threats marine life is facing today will be presented. At the same time a reference to La Gomera is made to emphasize the impact of each threat on this small oceanic island.

Climate change is a global problem which affects the whole planet. The latest International Panel of Climate Change (IPCC) Report (*Global Warming of 1.5 °C*, 2018) outlines the scenario of an 1,5°C increase in temperature compared to a 2°C increase. If nothing changes and the temperature continues to increase at its current rate it is very likely to rise by 1,5°C between 2030 and 2052 (*Global Warming of 1.5 °C*, 2018, p. 1). Limiting global warming to 1,5°C (compared to 2°C) will presumably lead to a reduction of the increase in ocean temperature and ocean acidity, as well as a very likely reduction in the decrease of ocean oxygen levels. Hence, it will bring less harm to the marine biodiversity and ecosystems, the fishing industry and all functions and services from the oceans (*Global Warming of 1.5 °C*,
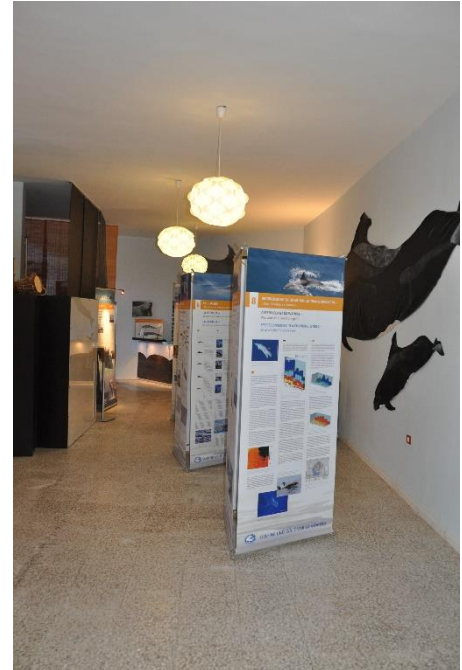
2018, pp. 1–2) as well as sea level rise. These results show very clearly the need to reduce emission, which is necessary to be able to reduce the impact of climate change while it still possible. The impact of climate change on marine mammals are the following: The rising water temperature effects the sensible sea dwellers and might lead to changing habitats. Increased solar radiation influences the lifecycle of the smallest organisms, which will have an impact on the food web, and hence also on whales and dolphins (M.E.E.R. e.V., 2008, p. 16).

The **extraction of resources** like oil or gas has a more direct impact on marine mammals. Oil spills can hardly be avoided and can seriously affect the mammal's health. Oil drilling releases 100 litres of sludge contaminated with heavy metals (pro 1000 tons of pumped up oil).). This sludge will mortify everything in the locality of 500 metres (Boehlke, 2016, p. 51). Boehlke (2016, p. 51) adds that fossil fuel power plants releases huge amounts of mercury into the atmosphere, which will later fall into the oceans. Mercury and other heavy metals influence the fertility of marine mammals and weakens their immune system. There are no power plants or oil drilling platforms around the Canary Islands, but still toxic substances find their way into the marine mammals via plastics, filter feeders or clung to organic substances. PCB (polychlorinated biphenyl) and PAH (Polycyclic Aromatic Hydrocarbons) are natural components of carbon and oil and have been found at high concentration in the tissue of bottlenose dolphins on the Canary Islands. (Boehlke, 2016, pp. 50–51).

Plastic debris pollution is a very relevant topic. Since the invention of plastic about 100 years ago, it became indispensable in the human society. Although a very convenient tool for nearly everything, it is clear today that it also brings a series of disadvantages. The problem is that plastic is not degradable and therefore stays in the environment for hundreds of years. Only a very small proportion of all plastic is recycled today, and huge amounts end up in landfills and the oceans (Maheshwar, 2018, p. 8). Microplastics have been found in all parts of the ocean even in the Arctic ice and come from many different sources like tyre wear particles or from fishing nets (Gerdts and Gutow, 2017). Many small organisms mistake these microplastics for food and thus it enters into the food chain. Just lately Austrian researchers found microplastics inside human stool (Bettina Liebmann *et al.*, 2018): Six out of eight participants ingested sea food during the observation phase. Plastics were not only found inside humans. Birds, fish, crustaceans, invertebrates, turtles and marine mammals are all known to mistake plastic debris for food. These very often lead to their death (M.E.E.R. e.V., 2008, p. 14). In 2018, a dead sperm whale was found in Indonesia. Inside the whale 6 kilogram of plastic were found, including 115 plastic cups and even sandals (Guy, 2018). Furthermore, ocean inhabitants often get entangled in marine litter, which also can potentially cause death or severe injuries (Orams and Lueck, 2016, p. 3). There is much photographic evidence of turtles or dolphins entangled in nets or plastic bags around La Gomera. According to Boehlke (2016, p. 52) especially plastic

bags are still used on a daily basis. Most of that pollution gets carried away by the currents and samples of plankton showed evidence of ingested microplastics.

But pollution is not only comprised of plastics. **Sewage**, domestic and industrial discharges often contain pathogens and chemicals are led untreated into coastal waters. The Canary Islands have a special problem with untreated sewage. In Tenerife for example, 21% of all sewage gets into the ocean without any treatment (Moreno, 2017). La Gomera has nine spillages, six of them are not authorized (La Opinion de Tenerife, 2017). A massive toxic algael bloom in summer 2017 is assumed to be a consequence of untreated sewage, even though other factors may have been contributing as well (Berástegui, 2017).

Once the oceans were very rich in life and fish inhabited the seas in abundance. When humans began to interfere and catch fish on a large scale for diet or medicine this began to change. Many species are caught excessively, almost three quarters of the species which are hunted commercially are reaching their limits (M.E.E.R. e.V., 2008, p. 12). On the one hand this leads to close extinction of some species. On the other hand it may lead to some species changing their prey and diet and an imbalance of the food web (Citarasu, 2018, p. 1). On La Gomera the fishing industry was once flourishing, but is now suffering from an increasing unavailability of fish (Ritter, 2003, p. 54). The high population density on the main islands and weak control also contributed to the coastal fish populations being **overfished** (Boehlke, 2016, p. 45). Traditional fishermen on the island now use more sustainable and selective fishing methods such as lines. Additionally, as in many other places of the world, huge fleets fishing with trawl nets or pelagic longlines in the open sea can have a bigger impact. Repeated observations of undernourished dolphins indicate that overfishing potentially has an impact on marine mammals off La Gomera (Ritter, 2003, p. 54).

Fishing also leads to one of the biggest threats to marine life worldwide: **Bycatch**. Not only whales and dolphins, but also turtles, birds and sharks are often caught together with fish (Boehlke, 2016, p. 45). That often ends deadly for them. Worldwide, around 300,000 cetaceans and 1 million seabirds lose their life because they get stuck in nets or lines (M.E.E.R. e.V., 2008, p. 12). Even though these fishing methods are not used around La Gomera and resident marine mammals are not threatened by bycatches (Ritter, 2003, p. 47), on the neighbouring island Tenerife the fishing industry is responsible for the death 13,7% of stranded dolphins there (Boehlke, 2016, p. 45).

Decreasing marine biodiversity as a result of overfishing, environmental changes or habitat loss is a threat itself to the marine ecosystem. On the one hand this can lead to close extinction of species. On the other hand it may lead to some species changing their prey and diet and an imbalance of the food web (Citarasu, 2018, p. 1). The decrease of marine biodiversity is of special concern as the change is permanently (Bohnsack and Ault, 1996, p. 73).

Whales and dolphins use the ability of water to conduct sound much faster than air to orientate, locate their prey or communicate, sometimes over hundreds of kilometres to communicate (Stephan *et al.,* 2017, p. 246). Once the oceans were a very quiet place. But since seismic activities, shipping traffic and military sonar devices and many other human activities became prevalent, the ocean has become a very noisy place (Citarasu, 2018, p. 1). Marine mammals are very sensitively to **ocean noise,** which can result in disturbance, injury, temporary loss of hearing, behavioural responses, masking or stress (Erbe *et al.*, 2018, p. 280). Military manoeuvres have often led to marine mammal mass strandings. In the Canary Islands they were already ascribed to such marine manoeuvres. The direct cause of death were decompression sickness and acoustic traumata (Stephan *et al.,* 2017, p. 247). Such manoeuvres are prohibited to date in the archipelago. Nevertheless, many anthropogenic activities, as well as "the high and still increasing use of fast ferries and the generally high abundance of shipping craft of any kind in the Canary Islands" (Ritter, 2003, p. 56) increase the risk of noise pollution for cetaceans in this area. This risk is also valid for whale watching vessels. A high concentration of boats around the animals can lead to a significant noise disturbance. This has been acknowledged by the Canaries government incorporated into the revised Whale Watching regulations in 2000 (Ritter, 2003, p. 55). Physical damage has for example been recorded for sperm whales. A huge number of whales were unable to hear approaching ships due to noises and subsequently collided (Boehlke, 2016, p. 49).

Due to the high levels of shipping traffic in the oceans, **collisions** between vessels and whales or dolphins increased in the past decades and became a topic of concern internationally. A study revealed that 89% of all accidents world-wide involved vessels moving faster than 14 knots (Laist *et al.*, 2001, p. 49). Hot spots for collisions are places where a high occurrence of cetaceans and intensive shipping traffic overlap (Carrillo and Ritter, 2010, p. 131). Especially between the Canary Islands, high speed ferries travel with 30-40 knots and consequently pose a threat to cetaceans in this area. Between 1991 and 2007, 64 stranding cetaceans on the Canary Islands probably died because of ship strikes, 61 of them since the use of high speed ferries (Boehlke, 2016, p. 50). Most of them were sperm whales, but dolphins have been observed off La Gomera with distinct marks of screw propellers (M.E.E.R. e.V., 2008, p. 14). *M.E.E.R. e.V.* is engaged itself with this topic and has proposed speed limits and special observers on board, as well as other measures to reduce the ship strike risk.

3. Literature Review

3.1. Environmental Awareness

When in the 1960s and 1970s tensions between the economic development and the use of natural resources came up, including pollution of the environment and depletion of natural

resources caused by economic growth people began to focus on this topic (Kitchin, 2009, p. 565). Consequently, the environmental movement was born. Environmentalism is the "ideology that evokes the necessity and responsibility of humans to respect, protect, and preserve the natural world from its anthropogenic (caused by humans) afflictions" (Jharotia, 2018, p. 2). With environmental problems becoming more and more relevant in the past decades, awareness for these problems grew as well. Since the 1970s when research about environmentalism started, an increasing sensitization for environmental problems in developed countries became apparent (Rippl, 2004, p. 6; Preisendörfer, 1996, p. 219). Even though research has been going on for almost 50 years, nowhere in literature can a "cast-in-stone definition" for environmental consciousness be found (Amoah *et al.*, 2018, p. 2). Difficulties in defining and naming the concept occurs are a result of the intersectionality of the topic (i.a. psychology, sociology, environmental studies or marketing literature) (Schlegelmilch *et al.*, 1996, pp. 12–13) and because it has its origins in political discourse and in everyday language rather than science (Bogun, 2000, p. 3). In environmental studies, the first thing to note are the different terms: Environmental consciousness, environmental concern, environmental beliefs or environmental awareness. They all attempt to describe the primitive beliefs people have about the natural environment (Boeve-de Pauw and van Petegem, 2013, p. 552)[1]. For the purpose of this thesis, the term "environmental awareness" is used and understood as "understanding the fragility of our environment and the importance of its protection" and "an integral part of the [environmental] movement's success" (Jharotia, 2018, p. 2). Environmental awareness hence includes environmental knowledge (e.g. understanding the fragility of the environment) and environmental attitude (e.g. comprehend the importance of its protection). In the following both components will be explained in detail.

3.1.1. Environmental knowledge

Environmental knowledge is the level of knowledge and information a person has about nature, trends and developments in ecological areas of attention, about methods, thought patterns and traditions particularly in regard of environmental aspects (Haan and Kuckartz, 1996, p. 37). It is the knowledge someone possesses about the interrelationships in ecosystems (Kaiser and Frick, 2002, p. 182) and thus is the "mean to overcome psychological barriers such as ignorance and misinformation" (Frick *et al.*, 2004, p. 1598).

Reviewing literature, one will note that environmental knowledge is distinguished into different categories. Frick et. Al (2004, p. 1599) differentiate between three categories. The first one is *system-related knowledge*, which includes all knowledge that refers to the operating principles of the ecosystem. It also includes the knowledge about the existence and roots of

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[1] This definition was firstly used by Dunlap and van Liere (2000, p. 427) to describe their New Environmental Paradigm (NEP).

environmental problems. The most cited example is knowing that climate change is related to carbon dioxide (CO_2) emissions. *Action-related knowledge* is the knowledge about environmental behaviour and possible ways to act environmentally friendly. Referring to the first example, that would mean to know what to do in order to reduce CO_2 emissions. The last category is *effectiveness knowledge* which means that people can discern the relative gain or benefit of their behaviour. They know about the potential impact of different kinds of behaviour for the environment, such as distinguishing if it is better to drive an older car less often or to buy a new and fuel-efficient car. This thesis lays a focus on system-related knowledge, which still will be referred to as environmental knowledge here. To measure environmental knowledge Haan and Kuckartz (1996, pp. 57–58) recommend open or multiple-choice questions to sample basic knowledge about the environment.

3.1.2. Environmental attitude

Attitude in general is the predisposition of an individual towards an object or aspect to evaluate it in a favourable or unfavourable manner (Katz, 1960, p. 168). This includes the verbal expression of the attitude via an opinion and the nonverbal expression in the form of beliefs. Traditionally, attitudes are categorized into affective, cognitive and conative components (Gifford and Sussman, 2012, p. 65). The affective component are the feelings one has about an object, cognitive are the thoughts and evaluation about it and the conative component refers to the intentions for behaviour and action. Referring this to environmental attitude reflects the individual predisposition towards the environment. Schlegelmilch *et al.* (1996, p. 13) highlight that environmental attitude is "capturing individual's level of concern about specific or general aspects of the environmental [and] ecological [..] phenomena". Haan and Kuckartz (1996, p. 37) go more in detail and describe environmental attitudes as fears, indignation, anger, normative orientations, values and the willingness for action, which lead to a point of view that perceives the actual environmental situation as untenable. On the one hand that should include emotional attachment and on the other hand mental engagement towards environmental problems. Thus, this definition covers all aspects of an attitude. To measure environmental attitude, the New Environmental Paradigm scale with 15 items is used in thus study and will be explained in the following subchapter.

New Environmental Paradigm

The Dominant Social Paradigm (DSP) was first mentioned by Pirages and Ehrlich in 1974 and later defined by Dunlap and Van Liere in 1978. The DSP is seen as a worldview in which "our belief in abundance and progress, our devotion to growth and prosperity, our faith in science and technology, and our commitment to a laissez-faire economy, limited governmental planning and private property rights" (Dunlap and van Liere, 1978, p. 19) are dominant.

Contrary to the DSP, Dunlap and Van Liere recognized the need for a more ecological worldview and consequently termed it the New Environmental Paradigm (NEP). The NEP was based on beliefs for limits of growth, a steady state economy, a balanced nature and the basic fundament that nature not solely exists for human use (Dunlap and van Liere, 1978, p. 19). Most studies on environmental attitudes concentrated on specific topics like pollution, rather than the general pro-environmental orientation. This led to the development of a 12-item Likert-scale to measure the extent that society accepts the ideas of the NEP. In 2000, Dunlap and van Liere decided to review the scale which has become a widely used measure for an environmental worldview. Environmental problems became more complex and they decided to add a total of three items. These address the exemption from ecological constraints of the modern industrial society and the likelihood of an ecocrisis in times of growing awareness for global problems. They created five facets (limits of growth, anti-anthropocentrism, fragility of nature's balance, rejection of exemptionalism and the possibility of ecocrisis), each of which contain three items. Additionally, the scale was renamed New Ecological Paradigm (NEP). The eight odd-numbered items were worded as to reveal a pro-environmental orientation, while the seven even-numbered items were formulated to reveal a antienvironmental orientation (Dunlap, 2008, p. 9).

The goal of the NEP is to measure the primitive belief people have about the relationship between humans and the environment. According to Dunlap (2008, p. 10), the NEP is mostly used as a measure of ecological beliefs, attitudes, concern and values, even though he prefers the description ecological worldview. It is very important to remember, that the scale does not validate the actual environmental behaviour (Schleyer-Lindenmann *et al.*, 2018, p. 157). The NEP-scale is revealing an overall conviction and therefore is independent of the always changing actuality of specific environmental problems (Schleyer-Lindenmann *et al.*, 2018, p. 157). Since the revision, it became the scale with most usage in different fields of research for endorsement of the NEP internationally (Boeve-de Pauw and van Petegem, 2013, p. 553).

3.1.3. Environmental awareness and behaviour

To be fully environmental conscious, knowledge and attitude are necessary, and one also must act and behave environmentally friendly. Most definitions of environmental consciousness include the actual behaviour (Urban, 1986, p. 365; Jiménez Sánchez and Lafuente, 2010; Haan and Kuckartz, 1996, p. 37). The behaviour is not covered in this study, because it has the focus on the environmental education about the marine ecosystems. Still, a short excursion will be made to understand the influence of knowledge and attitude on behaviour.

Most importantly, there is a clear gap in the question whether there is an influence between knowledge, attitude and behaviour or not. Even though theoretic literature ascribes knowledge and attitude a central relevance, this can only partly be confirmed empirically (Kaiser and Frick,

2002, pp. 181–182). Rippl (2004, p. 19) for example sees knowledge not being a stable component of environmental consciousness, but rather having a loose relationship to the subjective perception of the environment. Others found that knowledge has a certain influence on attitude, as people who are convinced that the environment is deteriorating, will have a positive attitude towards it (Fransson and Gärling, 1999, p. 379; Bradley *et al.*, 1999, p. 21). Knowledge indirectly creates attitude by delivering reasons to act ecologically (Roczen *et al.*, 2010, p. 129). Hence, knowledge is necessary, but not the only and sufficient precondition for environmental attitude and behaviour (Frick *et al.*, 2004, p. 1598; Roczen *et al.*, 2010, p. 129; Dierkes and Fietkau, 1988, p. 81).

Even when education and thus environmental knowledge leads to a pro-environmental attitude, it is not necessarily an indicator for pro-environmental behaviour. Research resulted in tenuous relationships between the two components and people are often more concerned about ecological aspects than their inclination to behave accordingly (Preisendörfer, 1996, p. 233). Other studies however, found a strong relationship (Poortinga *et al.*, 2004, p. 87) . Gifford and Sussman deliver a reason for that disagreement (Gifford and Sussman, 2012, p. 66), saying that general attitude may not predict a specific behaviour, as each behaviour has different predictors with it. It is however shown that specific attitude can be used to predict a specific action in the same way general attitude may predict general behaviour.

In summary, it can be said that all three mentioned components are somewhat related. The relationship between them differ from not being related to being totally related, which shows that it is different in each case study and that additional factors may influence the interconnectedness of the components.

3.1.4. Influences on Environmental Awareness

In this study the environmental awareness of Spanish and German residents and tourists in Valle Gran Rey, La Gomera were compared. To better understand the factors influencing the difference between cultures and nationalities relevant scientific literature was reviewed.

"Culture is shared by all, or almost all, members of a social group and shapes one's attitudes and behaviour" (Boeve-de Pauw and van Petegem, 2013, p. 554). Consequently, it can be expected that environmental awareness differs between nationalities, cultures or groups. There are different predictors influencing the state of environmental awareness across cultures. Milfont and Schultz (2016, p. 194) found psychological distance, values and social norms to be particulary important.

Psychological distance has different dimensions (Milfont and Schultz, 2016, p. 195). It is spoken of likelihood distance when problems are perceived to be uncertain. Temporal distance is present where problems are far away in the future. Social distance can be spoken of where problems strike people who are different than oneself and geographical distance where

problems occur far away from where one lives. All these dimensions are affecting environmental awareness negatively. Geographical distance further is described by spatial bias which is a further phenomenon studied by Schultz and colleagues. It "refers to an individual's tendency to incorrectly assess global environmental conditions as worse than local conditions" (Schultz *et al.*, 2014, p. 269) and shows that people perceive problems more severe when viewed worldwide, than problems on a local level. The personal responsibility for the environment is higher for the local environment and decreases with increasing distance, vice versa the perceived risk of environmental threats increases with distance (Schultz *et al.*, 2014, p. 270). A further finding was that the spatial bias was greater for young and happy people who live in small communities (Schultz *et al.*, 2014, p. 287). Biospheric- and altruistic values were also found to have an influence on environmental attitude across cultures. The construct and measurement of biospheric-values and environmental values overlap, so there is a strong connection between these two values. Altruistic-values (judging on the cost or benefits for others) were also found to be associated with attitude (Milfont and Schultz, 2016, p. 196). Moreover, social norms, in particular injunctive (perception of what other people approve or disapprove, respectively motivation comes from social rewards or punishment for engaging in environmental behaviour or not) and descriptive norms (perception of actual engagement of people in a behaviour and whether they motivate and inform people about its effectiveness) (Smith *et al.*, 2012, p. 4) produce pro-environmental attitude.

According to Inglehart (1995, p. 57) cross-national differences can be explained by objective problems and subjective values. Objective problems, as experiencing environmental degradation increase environmental awareness. Subjective values are related to a shift from materialist values which emphasize economic and physical security to post-materialist values where emphasis is on self-expression and quality of life. Cultures or countries with higher post-materialist values are more likely to have a positive environmental attitude.

This has been confirmed in studies where countries have been compared, showed that the country one lives in has a major impact on the average level of environmental awareness. On the one hand, it was shown that people living in wealthier countries showed more concern (Franzen, 2003, p. 297) and that the gross domestic product (GDP) has a major influence on one's awareness (Kemmelmeier *et al.*, 2002). When asked for the most severe problem a nation is facing, more people in living in developed countries cited environmental issues (Dunlap *et al.*, 1993, p. 8). Dunlap et al (1993, p. 11) further found little difference in the level of concern between less economically developed and industrialized countries. Brechin (1999, p. 793) found that inhabitants of poorer nations may be very much more aware of local problems, while problems at a global level may be less perceived.

Not only nationality, but additionally socio-demographic factors can have an impact on environmental awareness. Comparing environmental awareness with the participants' age,

most literature agrees that younger people show more concern than older people do: Younger people are more inclined to criticize industrial and governmental policies, as they are not yet integrated into social structures (Gifford and Sussman, 2012, p. 68; Boeve-de Pauw and van Petegem, 2010, p. 135). In most cases women have more positive attitudes towards the environment compared to men, nevertheless it was also found that women had less environmental knowledge (Gifford and Sussman, 2012, p. 68). This was explained by women's lesser tendency to engage lesser encouragement into science studies, but higher altruistic values, stronger ethics of care and compassion. Men on the other hand are in general more independent and competitive (Dietz *et al.*, 2002; Boeve-de Pauw and van Petegem, 2010, p. 135). Higher educational levels and degrees as well as the quality of the education itself (public or private) correlate with higher environmental awareness. During education one gets exposed to different beliefs and ideas, which in turn can encourage a more liberal-minded lifestyle which in turn supports being more caring about the environment (Boeve-de Pauw and van Petegem, 2010, p. 135). Dunlap et al. (2000, p. 436) state that endorsement for the NEP was mostly shown by young, educated and liberal adults. Modest correlations of the NEP with age, income and level of education were found by Hawcroft and Milfont (2010, p. 146). Contrarily, it was argued by Uysal et al. (1994, p. 293) that sociodemographic variables do not play a major role in influencing awareness. This finding was for example confirmed by Lück, 2003c, p. 237), Schleyer-Lindenmann *et al.* (2018, p. 163) and Luo and Deng (2008, p. 395).

When comparing the awareness levels across cultures it is important to use a method that functions equivalently (Boeve-de Pauw and van Petegem, 2013, p. 557). In that way, the results are valid and testable. The NEP, which as used to measure the environmental attitude in this study, has gathered usage across many different cultures and nationalities including Germany and Spain and hence was considered to be an adequate instrument.

3.1.5. Current State of Research on Environmental Awareness

Various studies have been conducted into researching environmental awareness across different fields of interest and have found a high level of awareness all over the globe (Rippl, 2004, p. 13). Still, it differs between specific study groups as every group is affected by different influences. Each case is different and nonetheless similarities can be found. In the following, previous literature will be reviewed to provide a short overview of environmental awareness in general, across cultures, towards marine ecosystems, of tourists and whale watchers. In the past decades research sampled most of the world's population to learn about their concern for disastrous effects of human actions, limits of economic growth, the importance of environmental protection and the coexistence of humans and nature. The results showed consistent high levels of concern (Milfont and Schultz, 2016, p. 196). Going more into detail, results became less consistent.

Comparing the environmental knowledge about green sea turtles of tourists and residents in Taiwan, Chao and Chao (2017, p. 219) found locals to possess more local environmental knowledge than residents. This goes in line with the results of a study by Penney (2014, p. 72), who compared knowledge about the nature of residents and tourists in a Algonquin Park in Canada. Similar levels of knowledge of the importance of protection were found in Romanian Nation Park (Szell, 2012, p. 82). Lastly, Garla et al. (2015, p.131) found tourists level of knowledge about sharks in the western South Atlantic to be significantly higher than of residents. In a comparison of whale watching tourists and general tourists in Scotland, it was found that whale watching tourist had more knowledge about environmental issues and local species (Parsons *et al.*, 2003, p. 108).

Looking at the environmental attitude, the same inconsistency can be noticed. In Hawaii for example, residents were found to be more concerned and responsible for marine resources than tourists (Vaughan and Ardoin, 2014). Testing the value for and pride of Fuerteventura's landscape, again scores were higher for local residents (Díaz *et al.*, 2010, p. 314). Different results were found by Leetworthy and Wiley (1997, p. 29) in Florida, where an Environmental Concern Index was used. The mean scores of residents and visitors showed no statistical difference. Although Garla et al. (2015, p. 131) found differences in the level of knowledge, tourist und residents agreed both with the importance of the protection of sharks. Furthermore, they found that residents had fewer positive attitudes towards sharks. In Szell's study (2012, p. 83) tourists of the Romanian National Park were significantly more willing to pay for conservation efforts, more concerned with environmental issues and held more positive attitudes. Studying the attitude towards shellfish aquaculture in Provincetown, Massachusetts, results show that visitors are more sceptical about the extractive activities, while residents are inclining to support it (Maggio, 2015, p. 38). In a comparison of Western Australian residents and tourists, visitors showed stronger support for environmental protection (Dowling, 1993). Chao and Chao (2017, p. 218) used the NEP to measure environmental attitude of tourists and residents in Taiwan. The mean score of tourists was higher and the difference significant. Examining the environmental motivation of whale watchers and the general public in Scotland, whale watchers resulted to have a much higher level (Rawles and Parsons, 2005, p. 131).

Different studies dealt with the perception of threats to marine mammals. In Aruba for example, tourists perceived threats to marine mammals more seriously than residents, with a significant result for over-fishing (Luksenburg and Parsons, 2014, p. 141). Oil spills, chemical pollution, litter and sewage were considered to be the most serious threats. In the study of Scott and Parsons (2001, p. 37) dredging activities, quarrying operations and military activities were perceived as being minor threats. Moderate threats in this case are the extraction of oil and pollution, while by-catch, sewage and climate change are moderate to serious. Oil spills and overfishing were seen serious threats. Their sample was additionally asked to name three

threats and overfishing, sewage and litter (in this order) were quoted most often (p. 68). When Scottish city inhabitants were asked to rate threats to marine mammals, again overfishing, by-catch and pollution (in form of oil spills and sewage), marine litter and climate change were ranked as serious threats. Ocean noise was seen a minor or no threat to marine life (Howard and Parsons, 2006, p. 4340).

All in all, it can be said that there is already a great deal of research on environmental awareness in various areas. However, due to different research methods and different influences on environmental awareness a comparison and transfer proves to be difficult. Each research case must be looked at individually.

3.2. Environmental Education

In order to promote environmental awareness, a thorough understanding of the environmental issues must be established within the community (Jharotia, 2018, p. 2). This may be accomplished with environmental education.

It is important to understand what environmental education is about. According to Bayar (2014) environmental education aims to raise awareness and concern about economic, social, political and ecological relations so that people have the opportunity to acquire knowledge, value, attitude, commitment and skills to be able to protect the environment (Zheng *et al.*, 2017, p. 4681).

In the following subchapters, literature will be reviewed to get an overview about the impact of environmental education on environmental awareness and its implications in the tourism and whale watching industry.

3.2.1. Environmental Education in Tourism

Tourism has great potential for environmental education and provide the tourists more than just having a good time. It does not only have a positive effect on their satisfaction and enjoyment, it may also increase knowledge, change attitude towards a more pro-environmental attitude, create an intention and willingness for environmental behaviour and in the best case scenario lead to an actual change of behaviour (Orams, 1997, p. 298). Education in tourism can be applied best at cultural heritage sites or in the natural environment (Lück, 2003a, p. 943).

A common approach in tourism is the concept of interpretation. Tilden (1957, p. 8) defined it as "an educational activity which aims to reveal meaning and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply communicating factual information". Another definition of the Society for Interpreting Britain's Heritage put more emphasis on the influence on environmental awareness: It is 'the process

of communicating to people the significance of a place or object so that they enjoy it more, understand their heritage and environment better; and develop a positive attitude toward conservation' (in: Moscardo, 1999, p. 8). Consequently, the difference to environmental education is the informal method of imparting information, rather than a formal approach. This stresses the focus on enjoyment, as the target groups are at leisure, rather than in school (Moscardo *et al.,* 2004, p. 231).

Simonds (1990, in: Lück, 2003, p. 943-944) suggested that education in nature-based tourism can lead to increased environmental awareness. This has been validated by various studies. Tubb (2003, p. 479) for example evaluated the effectiveness of education in Dartmoor National Park in England and found a scope to modify behaviour due to increased knowledge and improved attitude. It was further argued that a destination has the ability to remould and shape tourists into "responsible travellers, and environmentally and socially conscious citizens" (Luo and Deng, 2008, p. 402).

Challenges of education in tourism are formed by tourists being essentially different: They often vary in age, level of education, culture and language making communication difficult (Orams, 1997, p. 297). It was further mentioned that the time-frame often is extremely limited, the difficulty to gain an audience and make them listen or participate and frequent distractions make education a challenging task.

Marine Tourism

As we already learned in the chapter above, environmental education works best in natural settings. Thus whale watching provides "excellent opportunities to discuss the impacts of tourism, the importance of responsible, sustainable tourism, and marine conservation issues in general" (Draheim *et al.,* 2010, p. 179). For sustainable whale watching it is even highly recommended to include an educational component (Egas, 2002, pp. 18–21). The effectiveness of education in marine tourism has for example been found by Orams (1997) who studied the effectiveness of an education programme at a Dolphin Feeding Programme in Australia and found increased knowledge, as well as behaviour intentions. Evaluating the onboard marine environmental education in the San Juan Islands in Washington, Andersen and Miller (2006a, p. 112) found a positive influence on attitude, behaviour and the touristic experience.

4. Methodology

The following chapter introduces the methodology chosen for this study. Therefore, the research design will be explained and substantiated. The population and sample will be introduced. Afterwards the design of the questionnaire and its analysis will be resolved.

4.1. Research Design

For the secondary research previous literature was reviewed. Therefore, academic studies, news articles, books and government documents have been examined. After completing the literature review, it becomes clear that further primary research is needed. Even though there is a variety of literature dealing with the concepts of environmental awareness and education in tourism in general and in marine tourism, including comparisons between residents with tourists, this cannot be simply referred to a different location such as Valle Gran Rey, La Gomera. Findings differ in research method, location, sample or results and therefore cannot be generalized.

Consequently, a deductive research approach was chosen to be most accurate. In deductive research one infers from the general to the particular (Bieger, 2010, p. 26). This means applying the theory of the secondary information into the primary information, to predict the outcome and then use the theory to compare it with the gathered data and explain the results (Mason, 2014, p. 53).

To gather primary information and to be able to answer the research questions a quantitative research method was used. Quantitative research in form of surveys are a widely used tool in leisure and tourism research to solicit information from a large number of people (Smith, 2017, p. 60). Questionnaires are considered to be very informative concerning comparisons and to measure interferences (Veal, 2018). For this study, pre-designed questionnaires were distributed face-to-face to participants and then self-administered. This has different advantages: Firstly, surveys are not as cost and time consuming as other research methods (Wessel, 1996, p. 104). Standardized questionnaires and response options are helpful to be able to compare results of the survey (Mason, 2014, p. 77). If participants fill out the survey themselves, the researcher has less influence on the responses and participants also have more time and space to think about their answers (Wessel, 1996, p. 106). Conducting a face-to-face survey, people are more unlikely to refuse participation, the response rate is usually higher and the researcher has the possibility to answer questions, when respondents do not understand something (Mason, 2014, p. 81).

However, it also has disadvantages: Due to pre-determined design with given response it is not possible to get in-depth information and therefore limits the possibility to provide extensive and detailed data (Smith, 2017, p. 77). Given that being environmentally concerned is socially desired, people tend to provide responses where they appear to be more concerned that they really are. This problem is even more severe in face-to-face and self-reported surveys (Gifford and Sussman, 2012, p. 66; Mason, 2014, p. 77).

4.2. Population and Sample

This study aimed at gaining insight of marine environmental awareness of locals and tourists in Valle Gran Rey, La Gomera. The population in this case are residents, having their main residence at the place as well as and tourists being on vacation. As resources are too limited to survey everyone, a sample will be drawn as a representative group of the large population. Due to the fact, that the population in Valle Gran Rey consists of Spanish locals, but also many Germans live there, the sample will be divided into four groups: Spanish residents, Spanish tourists, German residents and German tourists.

For the results to be as representative as possible, a sample of 200 questionnaires was required. A mixed method of cluster sampling and random sampling was chosen. Smith (2017, pp. 105–107) suggests to cluster the research area into geographical units and then select every nth entity. Geographical clusters were the different beaches Playa del Ingles, Playa de Valle Gran Rey, Playa de Vueltas and Playa Charco del Conde in Valle Gran Rey (for tourists) and the different villages La Calera, La Playa, Borbalan, La Puntilla and Vueltas (for residents). Every third tourist on the beach and every third employee of an office or store was asked. During the survey it was taken care that an even distribution of the different groups was maintained. To increase the response rate, participants were given the chance to win a whale watching tour.

4.3. Survey Design

The most important consideration when designing and formulating a questionnaire is to make it understandable for everyone. One should use easy formulations in short and uncomplicated questions and answers. The wording should avoid unclear and abstract terms. Secondly, questions should be formulated very precisely. They should only ask about one clear dimension and be unambiguous. A further issue to avoid are suggestive questions, like "Are you in favour of whale watching regulations?". Hence, questions should always be formulated neutrally (Wessel, 1996, pp. 168–171). Questions can be closed-ended or open-ended. While close-ended questions provide a consistent set of answers, open-ended question invite the respondent to add own views. The advantage of closed-ended questions are that these are easier to answer, thus more questions can be asked when less open-ended questions are involved (Smith, 2017, pp. 77–81). Smith (2017, p. 81) suggests a well-thought structure for the questionnaire: Firstly, a short introduction of the study purpose is recommended. Some simple questions should follow to motivate the respondent to complete the questionnaire. The next part contains core questions, representing the essential issues. At the end of the questionnaire, demographic questions should be asked and a brief thank-you should then close it.

For questionnaires dealing with environmental awareness, certain types of questions are needed (Haan and Kuckartz, 1996, pp. 58–59): To learn more about environmental knowledge, multiple-choice questions or simple polling of the information level should be used. To test environmental attitude the measurement arrangement of different statements on a Likert-scale are recommended. A Likert scale can be used to express the strength of the view or to decide for the mid-point as a neutral position (Mason, 2014, p. 116).

In the following it will be explained how this theoretical background was applied into praxis. Considering the above-mentioned theory, other related studies with a similar study background were consulted. Research questions used in these studies were taken as inspiration for this questionnaire (Kiesewetter, 2007; Weisenberger, 2005; Luksenburg and Parsons, 2014; Bock, 2015; Kessel and Tischler, 1984; Rawles and Parsons, 2005; Scott and Parsons, 2001). The final questionnaire contains 22 questions in six different subject areas and has four pages. It was translated into German, Spanish and English, to make it as easy as possible for people to participate.

The introduction of the survey explains the purpose of the study, gives an approximated time frame for the completion of the questionnaire and an assurance that all data is treated anonymously and confidentially. Furthermore, an email-address is provided in case the respondent is interested in the results. On top of the questionnaire the logo of the university and the organisation *M.E.E.R. e.V.* were added, to indicate professionalism.

The first part of the questionnaire is about the organisation *M.E.E.R. e.V.*. It was asked whether the organisation was known in the first place. This is followed by questions about what *M.E.E.R. e.V.* is doing, to control how much is known about the organisation's work and activities. Question 2 deals with the level of cognisance about the exhibition and, in case the respondent had visited it, as well about their satisfaction level. The next part tests the environmental attitude by using the New Environmental Paradigm, which is explained in chapter 3.1.2. Because the 15 used statements are more complex and require more attention than other questions, questions 4-6 were kept simple again. They deal with the personal experiences with whale watching in Valle Gran Rey. Question 10 asks to rate different aspects of whale watching to see if aspects of sustainable whale watching score higher than others. Different questions throughout the questionnaire aimed at sampling knowledge about the marine environment in Valle Gran Rey (4, 7-9 and 14). The perception of threats for the marine environment - globally and locally - were measured with questions 11-13. This is used as a further indicator for environmental awareness. The last complex of questions concerned the respondent's willingness to learn. Question 16 asked if they are interested in further possibilities to learn and question 17 asked which topics they would be interested in. Some answers were predetermined, but the option "Other" was added to give the possibility for further suggestions. In the end of the questionnaire participants were asked for sociodemographic

data: Age, gender and educational level. As another indicator for environmental awareness, participants are asked whether they are member of an environmental organization or are donating, respectively. To detect whether the participant was living on the island or jut on vacation, question 22 was about the nationality and current domicile. Tourists were additionally asked about the length of their stay and how many times they have visited La Gomera.

4.4. Data Collection

A pilot study of 13 questionnaires was conducted before the actual survey on site to test understandability and feasibility of the questionnaire. These had to be printed beforehand in Germany, because of the lack of possibilities to print in Valle Gran Rey. Consequently, the pilot study was sent to residents and previous tourists, who were known from my time of the previous internship. Participants of the pilot study were asked whether they thought the questionnaire was understandable, if the time frame to fill it was okay and if they had any recommendations. Taking the according feedback into consideration, small adjustments referring to wording and order of the questions were made.

The actual survey was conducted over a period of three weeks from 25th July till 16th of August 2018. As already mentioned above, tourists were approached on the different beaches of Valle Gran Rey. Each beach was sampled once a day. Persons who were sleeping or in conversation were excluded and skipped. Residents were approached in every third shop, office or facility.

The complete survey was conducted by the same person. It was taken care that everyone was approached in the same way. A small introduction of the purpose and background of the study was given to every participant. During that introduction the anonymity was emphasised, to encourage participants to complete the questionnaire honestly. Those who agreed to participate were asked to complete the questionnaire themselves on the spot, while I waited without prompting or interpreting the questions. In case a participant had a question, a factual and neutral answer was given without influencing them.

4.5. Data Analysis

The data collected with the questionnaire has been analysed with the statistical analysis software package SPSS. The programme was used to apply descriptive and inferential statistics. Descriptive analysis was used to describe and summarise the data, while inferential data uses statistical tests and to extrapolate from the sample to a population (Mason, 2014, p. 144). Statistical tests were used to obtain concrete findings and conclusions (Dwyer *et al.*, 2012, p. 13). Chi-square tests for independence will "detect whether there is a relationship between two categorical variables or if they are independent" (Dwyer *et al.*, 2012, p. 24). In

every test, the null hypothesis was that there is no relationship between two variables. In turn, the alternative hypothesis was that the two variables are related. The tests used a 95% confidence interval, which in turn means a significance level of 5%. The dependent and independent variables for chi-square tests are determined in the following. Statistical tests analyse the influence of the independent variable on the dependent variable. Dependent variables are clustered along the research questions.

Independent variables are

- Sociodemographic data: Age (18), Gender (19) and Education (20)
- Target groups: Spanish residents, Spanish tourist, German residents and German tourists (22)
- Marine-related activities: visiting the exhibition (2a) and having been on a tour (5)

Dependent variables are

- Marine environmental knowledge about: location (4), species (7), regulations (8), protected area (9) and ship strikes (14)
- Environmental attitude: NEP (3), attitude towards whale watching (10) and willingness to act (15)
- Perception of threats: worldwide (11), on La Gomera (12) and impact of ferries (13)
- *M.E.E.R. e.V.*: knowledge about the organisation (1) and knowing the exhibition (2)
- Willingness to learn: interest (16) and topics (17)

Answers for the only open-ended question 2c) were translated into English and clustered into categories. The answers of the following questions were categorized as follows:

- Visit of the exhibition (2a): "yes" and no ("no" and "no, but still planning to do so")
- Participation in whale watching (5):"yes" and no ("no", "no, but elsewhere" and "no, but still planning to do so")
- Number of species (7): correct ("21-30") and wrong ("0-5","6-10", "11-15", "16-20" and "more than 30")
- Perception of threats on a global level (11): threatening ("very threatening" and "threatening"), "unsure" and not threatening ("less threatening" and "not threatening at all")
- Age (18): 30 and younger ("under 20" and "20-29"), 30-59 ("30-39", "40-49" and "50-59") and 60 and older ("60-69" and "70 and older")
- Education level (20): Secondary school/high school (including subcategories in German and Spanish) and university degree ("bachelor degree", "master degree" and "PhD")

5. Results

This chapter will present the results of the descriptive and inferential statistical analysis. These will be structured along the research questions and explained step by step. An overview of response rate and the sociodemographic results will be given. The results were subsequently be compared to findings of the literature review.

5.1. Response Rate

During the research phase a total of 228 questionnaire was handed out. Five of these were not returned, due to lack of time. Of all persons approached 15 denied participation, typically because of lack of interest or they simply did not feel like it. Hence, the total response rate was 91,77%. The high response rate is explained by the generally relaxed atmosphere on the island. Especially tourists asked to participate on the beaches were very open and had time. They were not in a rush, similar to the residents spoken to in offices and shops.

All questionnaires were completed, but 19 were removed from the sample, because the participants had different nationalities than German and Spanish. The final sample thus contained 204 questionnaires. The overall feedback of respondents was positive and interested, and many wanted to talk about environmental issues after the completion.

5.2. Socio Demographic results

The analysis of the socio-demographic data revealed that 55,4% of respondents were female respondents, 40,2% were male, nine participants did not answer the question (n=204). This finding goes in line with other socio-demographic statistic, which also found a higher percentage of women. Studies focusing on whale watching tourists on La Gomera found similar results (Bock, 2015, p. 59; Kiesewetter, 2007, p. 47). Overall tourism statistics found more female tourists as well (ISTAC, 2017).

Figure 4: Age distribution of sample (own illustration)

Three quarters of the participants are between 30-59 years old (73%). 7,9% are above 60 years old, while 17,6% are under 30 years old (n=204).
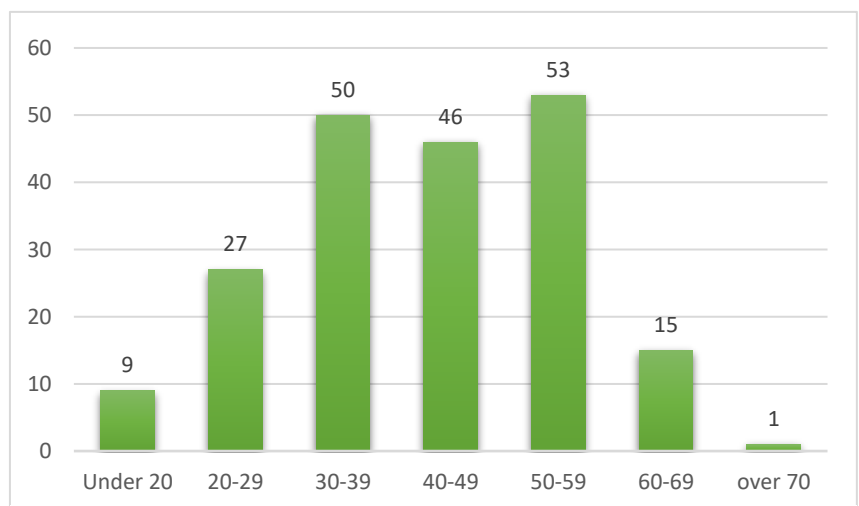
While 47% participants have a secondary/high school certificate, 49,5% have a university degree (n=204).

Of all 204 questionnaires, an exact share of 50% German and 50% Spanish participants was found. 99 participants stated to be visiting the island, with a mean duration of 14,48 days. 28% of them are on their first vacation on La Gomera, while 71% already have been on the island before. This result lies well above the 43,9% found in the official tourism statistics (ISTAC, 2017). On the other side, 104 participants named La Gomera as their current domicile. Going further into detail, the results show that 26,5% are Spanish residents, while 23,5% are Spanish tourists. On the other side, 25% are German residents and 25% are German tourists (n=204). These four will be referred to when speaking of "groups" in the following.
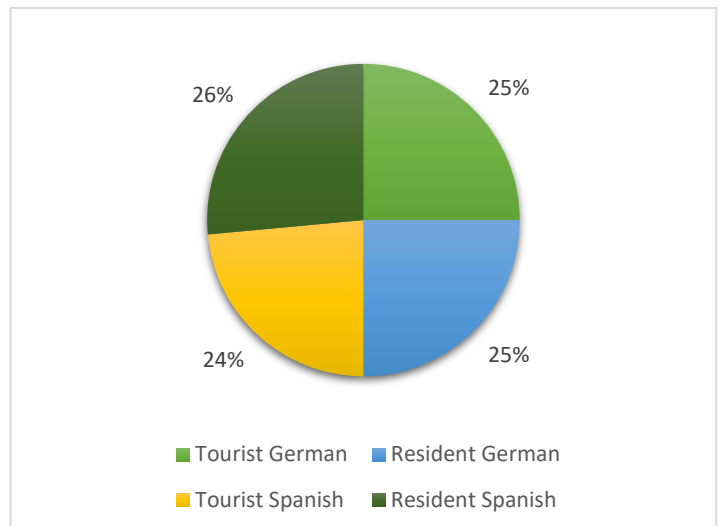

Figure 5: Distribution nationality and current domicile (own illustration, n=204)

5.3. Local marine-related activities

The local marine-related activities in Valle Gran Rey are analysed referred to their impact on environmental awareness. For those seeking marine experiences, whale watching trips are offered and a tri-lingual exhibition on whale and dolphins can be visited. The overall participation in whale watching trips, the level of awareness for *M.E.E.R. e.V.* and its exhibition will be presented, and subsequently these variables will be compared to the dependent variables.

5.3.1. Whale Watching

In this master thesis there is a focus on the role of whales and dolphins in the marine environmental awareness. In the following, the results of questions relating to whale watching will be presented. This includes question 5 and 6.

54,5% of the whole sample had already gone on a whale watching trip on La Gomera. 9,4% were still planning to participate, 5,5% have been whale watching in different places around the world and 30,7% had never been on a whale watching trip (n=204). Of the 110 participants who went whale watching on La Gomera before, 40% were German residents, 29,1% were German tourists, 25,5% were Spanish residents and 5,5% were Spanish tourists. Furthermore, they were asked which company/companies they chose/are planning to choose for their whale

watching trip. The majority (n=204) chose *OCEANO* for the trip (27%), followed by *Tina* (19,1%) and *Amazonia* (19,1%). Relating question 6 to the nationality it became clear that *Amazonia* (21,1%, n=28) and *Tina* (43,6%, n=39) were preferred by Spanish whale watching guests. On the other side, out of 55 guests of *OCEANO* just 5,5% were Spanish participants, while none of the 15 clients of *Speedy* was Spanish. In turn, 94,5% guests of *OCEANO* (n=55) and 100% of the guests on *Speedy* (n=15) in this sample came from Germany. For *Tina* the ratio is more or less balanced, with 43,6% Spanish guests and 56,4% German guests (n=39). Participants were then asked what kind of information they are looking for while planning a whale watching trip. 26,5% wanted general information about the trip, 16,2% looked for information about the animals and 9,3% informed themselves about the ocean more generally (n=204). The option was given to state other information they were looking for. Four statements were made concerning sustainability of the trip. Question 5a) referred to the sources where participants looked for information. The majority (n=204) stated that they got information from friends or family (36,8%), from the whale watching company itself (19,1%) or from the internet (6,9%). When asked to specify the website, the websites of *OCEANO*, *M.E.E.R. e.V.* and *Gomeralive* were mentioned. Guide books and brochures were used by 5,4% each. Few people (4,4%) went to the tourist information office, 3,4% went to the information evening organized by *OCEANO* and one person stated that he went to the exhibition for information search. Again, participants were given the possibility for own answers. Two respondents were working on whale watching vessels themselves. Additional sources given were Capitano Claudio[2] or the harbour of Vueltas.
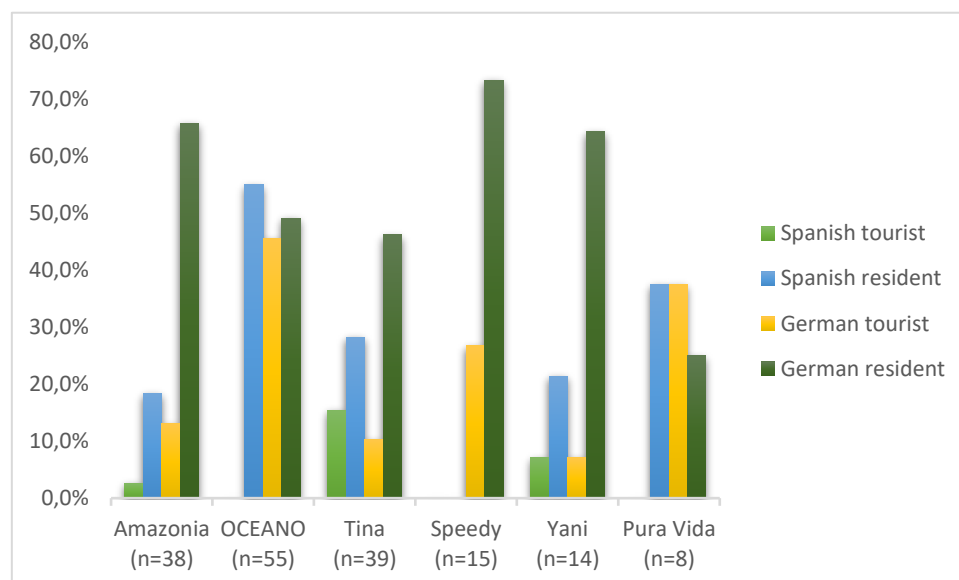

Figure 6: Which company did you choose for your booking/are you planning to choose for your whale watching trip? (own illustration)

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[2] Capitano Claudio is a former whale watching operator in Valle Gran Rey.

5.3.2. M.E.E.R. e.V.

This chapter deals with the degree of familiarity with the non-governmental organisation *M.E.E.R. e.V.* in Valle Gran Rey. The results of the overall sample and statistical tests undertaken afterwards are presented.

The first question in the questionnaire asked whether participants had heard about the organisation before. This question was answered with "yes" by 29,9% and with "no" by 69,6% (n=204). To "control" if they know the organisation in more detail or just heard about it, they were then asked what *M.E.E.R. e.V.* is representing for them the most. Of the possible answers, only two ("research" and "public education") were correct. "Research" was chosen by 78,7% of the 61 participants who have heard about *M.E.E.R. e.V.* before. 73,8% knew that *M.E.E.R. e.V.* is contributing to "public education" (n=61). A combination of these two aspects was made by 62,3% of the participants (n=61).

Influence of the target groups

These results were then related to the target group. Logistic regression was used to test coherence. For both variables (nationality and residency) a significance level of p=0,000 resulted. On the one hand, none of the Spanish tourists (n=48) had heard about the organisation whereas 11,1% of the Spanish residents (n=54) had heard about it. On the other hand, 37,3% of German tourists (n=51) and 70,6% of German residents (n=51) had heard about *M.E.E.R. e.V.* Hence the alternative hypothesis was confirmed: that German participants and residents of Valle Gran Rey had heard about the organisation more often. Of all right answers given about the main tasks of *M.E.E.R. e.V.* in question 1a) (n=38), 63,2% were made by German residents, 34,2% by German tourists and 2,6% were from Spanish residents.

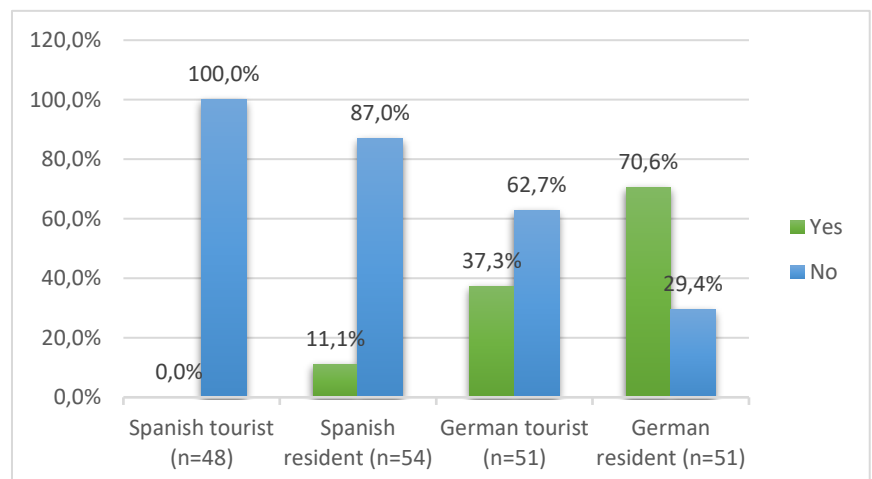*Figure 7:* Have you heard about the organisation M.E.E.R. e.V.? (own illustration)

Influence of whale watching trips

Furthermore, significant coherence (p=0,000) could be found with participants of a whale watching trip in Valle Gran Rey (question 5). 90,2 non-participants have never heard about *M.E.E.R. e.V.* before (n=92), while only 50,7 of participants have not heard about it (n=110).

Participants of a whale watching tour therefore have heard more often of the organisation than non-participants.

5.3.2.1. Exhibition

To learn more the degree of awareness for the exhibition of *M.E.E.R. e.V.* in Valle Gran Rey, participants of the survey were asked whether they had heard about the exhibition and if they had already visited it. Visitors of the exhibition were furthermore asked to evaluate it.

24,5% of the whole sample had heard of the exhibition before, 73,% had not (n=204).

Influence of the target groups

Logistic regression was used to test relationship with the target groups. With p=0,000 it can be said, that there is a significant influence of nationality and residency. German participants and residents knew about the exhibition more consistently than Spanish participants and tourists did. In fact, 58,8% of German residents had heard about the exhibition (n=51), 27,5% of German tourists (n=51), contrary to 11,1% of Spanish residents (n=54) and none of the Spanish tourists (n=48). In total, 18 participants had visited the exhibition. All but one of them were German visitors. 55,5% were German residents and 38,9% German tourists (n=18). The one Spanish visitor resides in Valle Gran Rey (5,5%, n=18).

Influence of whale watching trips

Question 5, which asked whether participants had joined a whale watching trip in Valle Gran Rey) also showed significant results. Chi square test result is p=0,000, supporting the alternative hypothesis that people who had been on a whale watching trip were more aware of the exhibition. While 56,4% of whale watching participants knew about it (n=110), 5,4% of non-participants did (n=92).

Similarly, chi-square test result is p=0,026 for coherence with a visit of the exhibition, indicating that the whale watchers are more aware of the exhibition. Out of 18 visitors, 17 had already been on a whale watching trip

Evaluation of the exhibition

The questionnaire asked to evaluate the exhibition in terms of the information available and the overall concept. As a rating system, five stars were chosen, with one star being the worst evaluation and five the best. Then people were asked in an open-ended question to state what they liked best, what they disliked and whether they had any recommendations (2c).

The information given in the exhibition was rated with a mean score of x̄=4,16. This is in line with the comments of the open-ended question. Five participants commended the information are closely related to the area, concrete, well elaborated and suitable for children. However,

two persons also mentioned that the information was partly outdated. With a mean score of x̄=3,76, the overall concept scored somewhat lower that the information. Looking at the answers of question 2c), this can be explained by using the following statements: Firstly, the presentation of information was criticised. The overload of information was said to be hard to read. Also, the presentation on banners was stated not to be very welcoming. Secondly, the room of the exhibition in general, being in the basement, with limited daylight and lightning conditions, was mentioned. Even though others described the unwelcoming environment of the room, one person also called it an inspiring environment. The design was stated by one person as being boring, but with great potential.

On the other side, a positive feedback was given for impressing pictures, the exhibition pieces (vertebrae and rib of a whale) and the life-sized models of dolphins and pilot whales.

As recommendation one participants suggests more modern media. A full list of the comments can be found in the Appendix on page XXXII.

5.4. Marine Environmental Knowledge

The following results deal with the knowledge regarding the marine environment off La Gomera. This was measured by questions 4, 7, 8, 9 and 14. All questions could be answered "wrong" or "right". For the analysis, each question was looked at individually, followed by summing the answers up to get an impression of the overall performance. To understand influences on environmental knowledge, statistical tests were used. Relevant independent variables were the group (22), the local marine-related activities (5 and 2a) and socio-demographic factors (18, 19 and 20).

Looking at the results of the complete sample (n=204), 92,2% of participants knew that La Gomera is a prime location for whale watching. When they were asked how many species had been recorded off La Gomera, 19,1% gave the correct answer. 63,7% guessed that less than 23 whale and dolphin species had been documented. The majority (71,6%) knew about special regulations for whale watching in the Canary Islands. The other two questions (no. 9 and 14) did not show a remarkable difference. 52% knew that the waters in the South and Southwest are a protected area and 54,4% had heard about ship strikes between ferries and whales and dolphins in the Canary Islands.

Influence of the target groups

When relating these results with the target groups, further coherences were revealed. For questions 4 and 14 the logistic regression analysis showed significant influence of nationality and residency. Significance for question 14 results from 72,54% of the German tourist (n=51) not knowing about ship strikes between the Canary Islands, while respectively in the other groups more than 60% knew about it (p(nationality)=0,015; p(residency)=0,011). For question 4 it

can be clearly seen, that Germans and residents knew more consistently about La Gomera being a prime location for whale watching (p(nationality)=0,019; p(residency)=0.016). Spanish tourists mostly did not know, with 81,25% answering "yes" on this question. More than 94% of each of the other target groups answered "yes". A similar result was found for question 7, where participants were supposed to guess the number of species. Germans significantly more often guessed the correct number than Spanish respondents did (p=0.001). Residents and tourists did not show such differences. In spite of that, Spanish tourists again showed the least knowledge about the occurrence of species.

Contrarily, results of question 8 and 9 showed that residents had more knowledge than tourists, while the nationality not influenced this result. However, it is noticeable that once more German tourists seemed to have the least knowledge about legal whale watching regulations and the marine protected area. Concludingly, the regression analysis for all questions together showed significance for the groups (p=0.000). German residents (n=254) answered 69,68% correctly, and Spanish residents (n=262) 63,36%. Tourists on the other hand did not show such significant results, as 49,01% of Germans (n=255) and 50,83% of Spanish tourists (n=240) gave the correct answer (compare with figure 7).
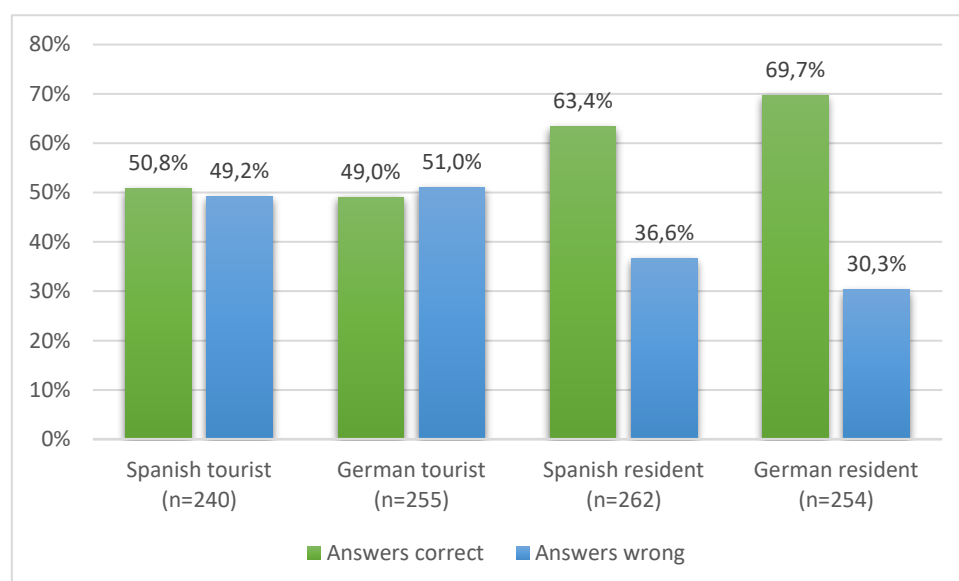

Figure 8: Sum of all question about environmental knowledge (own illustration)

German residents had the highest level of knowledge, while in two of the five questions Spanish tourists had the least knowledge (4 and 7) and in the other three German tourists had the least knowledge (8, 9 and 14). Hence, it cannot be generalized whether Germans or Spanish participants possess more knowledge.

Influence of local marine-related activities

Moreover, the influence of the local marine-related activities on the knowledge about the marine environment was analysed. This included to test whether there is an influence on

knowledge by the fact that someone participated in a whale watching trip or visited the local exhibition.

The above-mentioned questions about the marine environment were linked to question 5, to see if those going on a whale watching trip had more knowledge than others. Chi-square tests reveals that except for question 14, a significant relationship exist. This relationship is particularly remarkable when seen together with question 4, where no person who went on a trip did not know that La Gomera is a
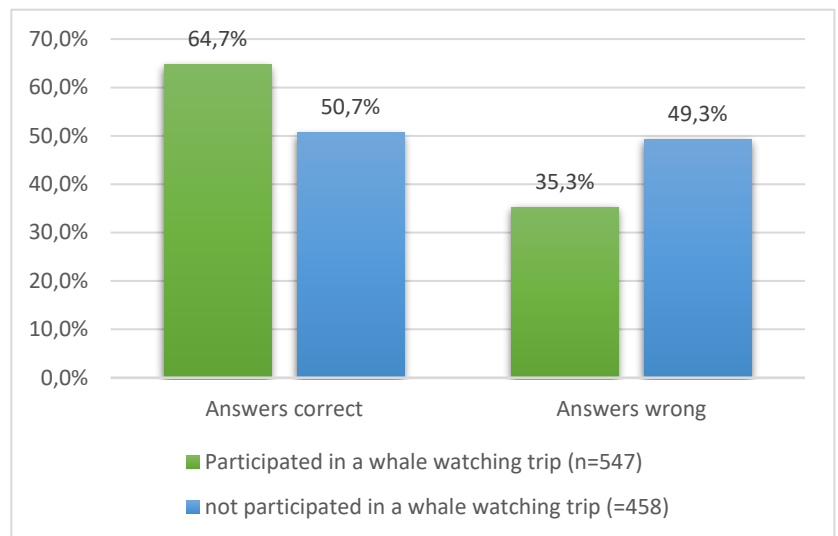

Figure 9: Sum of questions about environmental knowledge (own illustration)

prima location for whale watching (p=0,000). It was also shown that participants of a whale watching trip correctly stated the correct number of species more often than non-participants. Summing up all answers, one can see clearly that participants who went on a tour always gave a higher number of correct answers. While 50,7% of the answers were right by those who have not been on a trip (n=458), there were 64,7% right answers by participants who have taken part in a whale watching trip on La Gomera (n=547). Concluding, with a significance level of p=0,000 the null hypothesis can be ruled out and the coherence between knowledge and a whale watching trip can be postulated.

Furthermore, the coherence between a visit of the exhibition (2a) and marine environmental knowledge was tested. Except for question 4, all answers showed a significance level below 5% resulting in a coherence between the variables. Despite no significance between question 4 and 2a), the results show that everyone who visited the exhibition did know that La Gomera was a prime location for whale watching. This same result can be seen with respect to question 8 about legal regulations for whale watching. Guessing the numbers of species documented off La Gomera (question 7), 84,2% who did not visit the exhibition were wrong (n=57), while 50% of the exhibition's visitors were wrong (n=18). Putting all questions together, it can be said that there is a significant coherence between the marine environmental knowledge and a visit of the exhibition (p=0,000). Hence it can be said that persons who visited the exhibition had more knowledge about the marine environment of La Gomera.

Summarizing these results, it becomes clear that both, taking part in a whale watching trip and visiting the exhibition contributed to a better understanding of the local marine environment.

Correlations with age and education level were not given and even though gender was not showing any correlation on individual question either, it revealed coherence with all questions combined (p=0,026). Female participants showed a higher score for knowledge than male participants. Male participants had 54,7% of all answers (n=406) right, while females answered correctly in 61,32% (n=561).

To summarise, the overall marine environmental knowledge in Valle Gran Rey appears to be high. There are different variables significantly influencing this knowledge. Residents, persons participating in a whale watching trip and visitors of the exhibition were found to have more knowledge than tourists, as did persons not participating in a whale watching trip or not visiting the exhibition. Also, women were found to be more knowledgeable about the marine environment than men.

5.5. Environmental Attitude

The environmental attitude is part of the environmental awareness of an individual. To be able to make assertions about the attitude, firstly the New Environmental Paradigm (NEP, see chapter 3.1.2) was used to analyse the environmental worldview of participants. Afterwards the attitude towards whale watching is retrieved. Their opinion about commercial and respectful whale watching was asked. Lastly, the willingness to act more environmentally friendly was analysed by asking whether participants would accept a slower travel to La Gomera.

5.5.1. General environmental attitude

To measure the environmental attitude, the NEP was chosen as an adequate measurement tool. A 5-point Likert-scale (1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, 5 = strongly agree) was used to indicate the agreement to the NEP. Each of the 15 items was analysed individually and the mean score was used for a better comparison. The five facets (limits of growth, anti-anthropocentrism, fragility of nature, rejection of exemptionalism and possibility of an eco-crisis) are used to summarize results of the 15 items. The lower the mean score, the higher the endorsement to the NEP. One has to bear in mind, that the seven odd-numbered items express an anti-ecological worldview and consequently have been reversed for analysis. In this way, a low score consistently expresses approval to the NEP. Lück (2003b, p. 235) suggests a high approval of the NEP with a mean score being three and lower.

The whole sample has an arithmetic mean score of x̄=2,06, revealing a relatively high endorsement to a pro-ecological worldview. The first issue to notice is the considerably low

endorsement to item 6: The earth has plenty of natural resources if we just learn how to develop them. Here, the mean score is $\bar{x}=3,85$. Further items standing out are items 4 (Human ingenuity will [not] ensure that we do not make the earth unliveable, $\bar{x}=2,92$), 11 (The earth is like a spaceship with very limited room and resources, $\bar{x}=2,42$) and 14 (Humans will [not] eventually learn enough about how nature works to be able to control it, $\bar{x}=2,53$). Remarkably, those items are part of the same facets. Items 4 and 14 reflect endorsement to the rejection of exemptionalism and items 6 and 11 tap the limits of growth. Notwithstanding the high overall endorsement, participants seem to be unsure about limits of growth and the rejection of exemptionalism.

In the following, variance analysis is used to learn about the coherence of the NEP with independent variables.

Influence of the target groups

As this master thesis aims at finding differences in the environmental awareness between residents and tourists, and more particularly between German residents, Spanish residents, German tourists and Spanish tourists, these groups were compared regarding their endorsement for the NEP. Firstly, the arithmetic mean revealed the lowest score for German residents ($\bar{x}=1,91$) and the highest score for Spanish residents ($\bar{x}=2,13$). Albeit, results are serried and do not show great difference.

Looking at each item individually some differences can be found, too. The overall mean scores of Spanish participants reveal disapproval for item 4 ($\bar{x}(\text{resident})=3,24$; $\bar{x}(\text{tourist})=3,02$). German participants on the other hand showed mean scores of $\bar{x}=2,84$ (tourists) and $\bar{x}=2,6$ (residents). A significant coherence with the nationality was found on this item ($p=0.021$). Similarly, Spanish residents showed disapproval for item 14 ($\bar{x}=3,25$) and Spanish tourists showed relatively low approval ($\bar{x}=2,74$), with German residents having a mean score of $\bar{x}=1,86$ and German tourists of $\bar{x}=2,28$. Significance is given for nationality ($p=0,000$) and the combination of nationality and residency ($p=0.007$). As already mentioned above, items 4 and 14 were covered under the facet rejection of exemptionalism. The third item of this facet is item 9 with high approval of all target groups, even though Spanish participants scored a little higher than Germans. Regression analysis also found a significance coherence between the nationality and the facet *rejection of exemptionalism* ($p=0.000$). In fact, Germans were of the opinion that humans in general are not exempt from environmental forces and do belief in a relationship between the natural environment and human beings.

Vice versa, German participants showed significantly less approval to the facet *limits of growth* (items 1, 6 and 11) with $p=0.011$. This is especially notable in item 11, where Spanish participants had relatively low scores ($\bar{x}(\text{resident})=2,26$; $\bar{x}(\text{tourist})=1,79$) compared to Germans

($\bar{x}$(resident)=2,76; $\bar{x}$(tourist)=2,61). Here, Spanish residents showed the greatest agreement. All four target groups seemed to disagree on item 6; with Germans scoring 4 and above.

A last finding here is that German tourists seem to endorse less with item 2 ($\bar{x}$=2,65): Humans [do not] have the right to modify the natural environment to suit their needs. This means, that German tourists appear to be thinking that they do have the right to modify nature. A significant coherence was found with this item on whether someone is a tourist or a resident (p=0,026).

Furthermore, all target groups have very similar mean scores for items 5, 6, 7 and 15 and agree on these statements. A noticeable approval of German residents was found for item 10, that the so-called "eco-crisis" is [not] greatly exaggerated ($\bar{x}$=1,41). Together with item 5 and 15, statement 10 forms the facet *possibility of eco-crisis* and an overall high endorsement that an eco-crisis is a possibility can be found there. This facet was especially approved by German residents. In the same way, there was approval of all target groups on the other two facets as well: *anti-anthropocentrism* (items 2, 7 and 12) and the *fragility of nature's balance* (items 3, 8 and 13) with mean scores all between 1-2.

Concludingly, corresponding with the overall mean scores of the groups, no clear predication can be made whether one group has a more positive environmental attitude than another. Differences can be seen for individual items and facets, but these balance for the overall attitude.

NEP		German Residents	German Tourists	Spanish Residents	Spanish Tourists	Significance (p)
1.	We are approaching the limit of the number of people the Earth can support	2,08	2,39	2,39	2,17	
2.	Humans have the right to modify the natural environment to suit their needs	2,08	2,65	2,02	2,19	p(group)= 0,026
3.	When humans interfere with nature it often produces disastrous consequences	1,63	1,94	1,78	1,83	
4.	Human ingenuity will ensure that we do not make the earth unliveable	2,6	2,84	3,24	3,02	p(nationality)= 0,021
5.	Humans are seriously abusing the environment	1,37	1,57	1,5	1,33	
6.	The earth has plenty of natural resources if we just learn how to develop them	4,02	4	3,73	3,67	
7.	Plants and animals have as much right as humans to exist	1,24	1,43	1,33	1,25	
8.	The balance of nature is strong enough to cope with the impacts of modern industrial nations	1,57	1,63	1,91	1,79	
9.	Despite our special abilities, humans are still subject to the laws of nature	1,63	1,47	1,76	1,75	
10.	The so-called "ecological crisis" facing humankind has been greatly exaggerated	1,41	1,86	2,15	2,04	p(nationality)= 0,006
11.	The earth is like a spaceship with very limited room and resources	2,76	2,72	2,26	1,79	p(nationality)= 0,001
12.	Humans were meant to rule over the rest of nature	1,33	1,43	1,77	1,34	
13.	The balance of nature is very delicate and easily upset	1,55	1,94	1,44	1,63	p(group)= 0,026
14.	Humans will eventually learn enough about how nature works to be able to control it	1,86	2,28	3,25	2,74	p(both)= 0,007 p(nationality)= 0,000
15.	If things continue on their present course, we will soon experience a major ecological catastrophe	1,55	1,59	1,5	1,77	

Table 1: Comparison of mean scores of target groups with significance value (p)
1= I strongly agree, 5= I strongly disagree
Mean scores showing disagreement were marked in red
(own illustration)

Influence of local marine-related activities

The local marine-related activities like whale watching trips and the exhibition about whales and dolphins were additionally found to show coherences and differences.

Most statements have been agreed on by both, whale watchers and none-whale watchers, in a similar way, results not showing a difference in the mean score over 0,24. The overall mean scores were very close, with whale watching guests having a mean score of $\bar{x}=1,97$ and non-whale watching guests $\bar{x}=2,14$. One remarkable result was related to item 11: Whale watching guests agreed less with this item ($\bar{x}=2,52$) than others did ($\bar{x}=2,2$). On the other hand, items 3, 4, 5, 10, 14 and 15 show noticeable differences, with those participating in whale watching scoring lower in each case. Testing these results with variance analysis, all items except of 14, reveal a significance level of $p<0.05$. However, the significance value for statement 14 is $p=0.060$ and therefore still remarkably low as well. The alternative hypotheses that there is a relationship between a whale watching trip and endorsement to these items hence was supported. Subsequently, the different facets where these items belong to also show a significance value proving coherence as one can see in table 2. Due to significance for three of five facets and the overall mean scores of whale watching participants show slightly more endorsement to the NEP, it can be assumed that whale watchers have a more positive environmental attitude.

	Participated in a whale watching trip ($\bar{x}$)	Not participated in a whale watching trip ($\bar{x}$)	Significance (p)
Limits of growth	2,87	2,76	0,372
Anti-Anthropocentrism	1,66	1,69	0,751
Fragility of nature's balance	1,62	1,84	**0,010**
Rejection of exemptionalism	2,25	2,5	**0,020**
Possibility of eco-crisis	1,45	1,88	**0,000**

Table 2: comparison of facets of NEP and question 5 (own illustration)

The influence of a visit of the exhibition on the endorsement for the NEP was analysed . Except items 1, 11 and 13, visitors had lower mean scores than non-visitors. While items 11 and 13 show very little differences between the two groups, on item 1 the gap is greater. Non-visitors had a mean score $\bar{x}=2,10$ and visitors $\bar{x}=2,44$. Still, most visitors agreed more with the NEP. Particularly, items 2, 8 and 14 showed a distinct gap between mean scores. The results for

statement 14 showed the highest approval of all independent variables ($\bar{x}$=1,39) for visitors of the exhibition. Non-visitors on the other side scored with $\bar{x}$=2,43. This is the greatest difference between compared groups and can be also confirmed statistically with p=0,001. Despite this being the only significance, which can be found for this comparison, there is still a hint that visitors of the exhibition at least for this sample have a more positive environmental attitude. The overall mean score of visitors is $\bar{x}$=1,83 compared to $\bar{x}$=2,18 of non-visitors.

Influence of socio-demographic variables

A comparison with socio-demographic variables shows very little significant results. Female participants had slightly lower mean scores on items 2, 7, 10, 11, 12 and 14. The only significant value was found for item 2. In this case, females have a mean score $\bar{x}$=2,05 and males $\bar{x}$=2,55. All other statements were evaluated more or less in the same way by female and male respondents. Taking a closer look at the five facets, all facets show females agreeing more than males. The facet *anti-anthropocentrism* showed a significance value of p=0,001, confirming that females agree more with humans not being the most important entity in the world.

Correlations with age can be found on items 2, 4 and 9. It was found that participants over 60 years old were agreeing less with items 2 and 4. The mean score for item two is $\bar{x}$=2,69 for respondents over 60, while it is $\bar{x}$=2,2 for participants between 30-59 and $\bar{x}$=2,22 for participants under 30 years old. Furthermore, disagreement between the age groups could be found for item 9, with participants over 60 agreeing the most ($\bar{x}$=1,38) and persons under 30 agreeing the least ($\bar{x}$=1,97).

It is interesting to note that a comparison with the support of environmental organisations does not show remarkable results. Persons supporting an environmental organisation had a mean score of $\bar{x}$=1,96 and persons who do not, had a mean score of $\bar{x}$=2,06.

All in all, we saw from this analysis that the overall acceptance of the NEP is relatively high. A direct comparison of the target groups results is difficult, as the overall performance is very serried and detailed results differ. In some facets, Spanish participants scored lower, on others in turn Germans showed more approval. Therefore, the overall results are balanced out and no significant difference between the groups could be found. Coherence in turn between whale watching guests/non-whale watching guests and visitors/non-visitors of the exhibition was revealed. Persons taking in part in the local marine-related activities of Valle Gran Rey hold a more pro-environmental attitude. Lastly, gender also seems to have an influence on a pro-environmental attitude, with females endorsing more to the NEP than male participants.

5.5.2. Attitude towards respectful whale watching

In this chapter it will be analysed how participants perceive different aspects of whale watching. Ten different items were given for evaluation on their importance on a 5-point Likert-scale. Six of these items tap respectful and sustainable whale watching, while the other four reflect aspects of more commercial whale watching. 1 in this case stands for very important, while 5 stands for not important at all. The mean score of each item expresses the overall approval or disapproval. Furthermore, statistical tests reveal the degree of correlation with independent variables.

The whole sample evaluated "conservation of the animal's habitat" ($\bar{x}=1,08$) with 94,6% rating it "very important", "skilled guides, skipper and crew" ($\bar{x}=1,23$) with 85,3% choosing "very important" and "not disturbing the animals" ($\bar{x}=1,26$) with 87,7% stating it to be "very important" to be the most central aspects of whale watching. 75% stated that it was "very important" and 18,6% stated it was "important" for them to get "background information about the animals during the trip" (n=204). The arithmetic mean in this case is $\bar{x}=1,31$. Further "possibilities to inform oneself after the trip (e.g. information centre)" was rated by 43,1% as "very important" and "important" by 40,7% (n=204). Participants were more unsure about "on-board research" (20,1%, n=204), but still the majority is in favour of it. Only 4,9% thought it was not important at all. The commercial whale watching aspects were rated less distinctly by the sample. 32,8% of the sample are of "no opinion" for "being as close as possible to the animals". Still the majority disagrees that it was important to get very close, with 14,7% saying it is "less important" and 31,4% saying it was "not important at all". Similar results were found for "food and beverages on board" and "stops to go swimming or snorkelling". 51,4% stated "entertainment on board" was "not important at all" and 17,2% stated it was "less important". The mean score in this case was $\bar{x}=4,08$, which makes it the least important aspect.

Influence of the target groups

Analysis of variance was used to test coherences between the attitude towards whale watching and the target groups. Significant results were found for the following aspects of whale watching. It was more important for tourists ($\bar{x}_{Germany}=3,26$; $\bar{x}_{Spain}=3,33$) to get "as close as possible to the animals" than it was to residents ($\bar{x}_{Germany}=3,69$; $\bar{x}_{Spain}=3,79$). The significance value is p=0,012 and therefore the alternative hypothesis (tourists are more eager to get as close as possible to the animals during whale watching) was supported. This is the only relationship with the target groups.

The following coherences were related to nationality. The "on-board entertainment" is more important to Spanish participants ($\bar{x}$tourist=3,6; $\bar{x}$resident=3,79) than to Germans ($\bar{x}$tourist=4,59; $\bar{x}$resident=4,74; p=0,000). A similar result was found for "on-board food and beverages", but in this case Spanish tourists and residents do not agree, as Spanish tourists had a mean score of $\bar{x}$=3,6 and Spanish residents $\bar{x}$=3,1. On the other side, German groups seem to agree with tourists having a mean score of $\bar{x}$=4,59 and residents of $\bar{x}$=4,74. Still, significance is only shown for nationality (p=0,000). Hence, the alternative hypotheses can be accepted that Spanish persons place more value on "stops for swimming/snorkelling" than Germans do (p=0.010). In turn, it is significantly more important to Spanish persons that research is
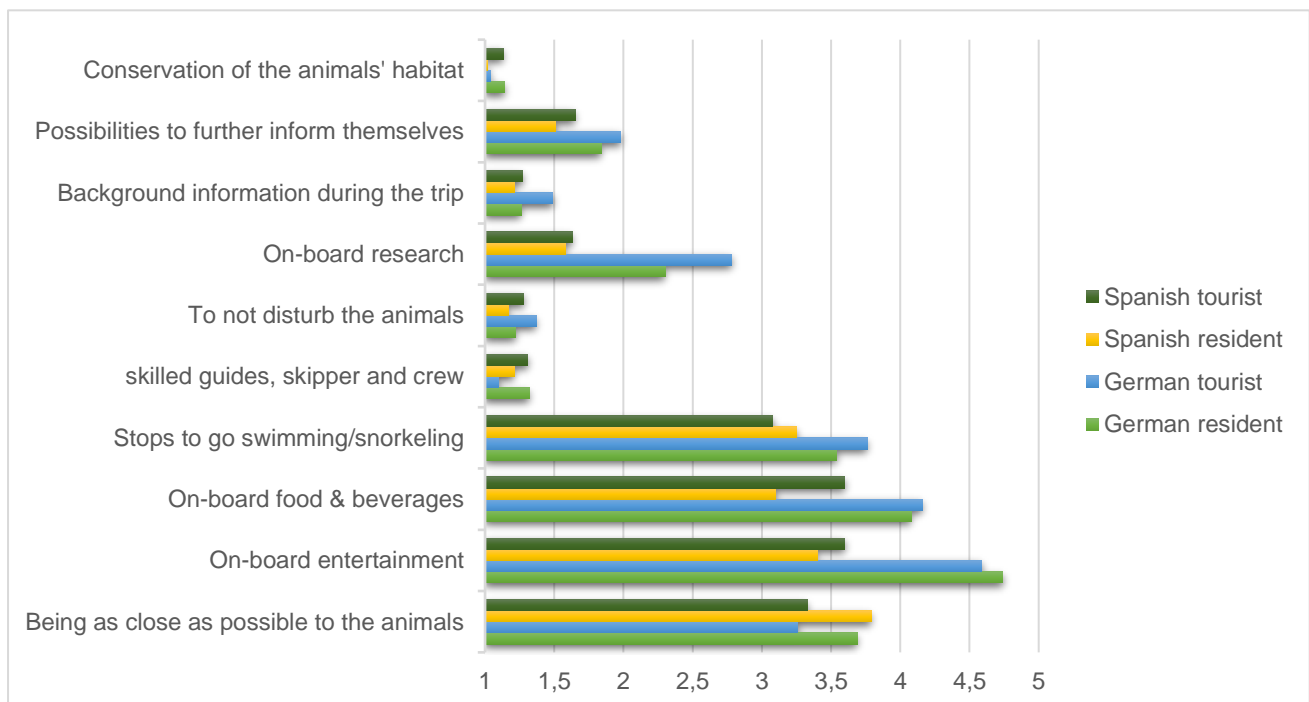

Figure 10: Comparison of mean scores with target group: "Please rate different aspects of whale watching according to their importance (1=very important, 5=not important at all)" (own illustration)

conducted during a whale watching trip (p=0,000). One the one side, Spanish residents had a mean score of $\bar{x}$=1,58 and tourists of $\bar{x}$=1,63. On the other side, German participants showed more variance, with residents having a mean score of $\bar{x}$=2,3 and tourists $\bar{x}$=2,78. Moreover, Spanish participants showed more interest in further possibilities to inform themselves than Germans (p=0,002). This difference between Germans ($\bar{x}$tourist=1,98; $\bar{x}$resident=1,84) and Spanish participants ($\bar{x}$tourist=1,65; $\bar{x}$resident=1,51). Results for the other aspects were similar and resemble the result of the overall sample.

Altogether, it can be said that coherences and differences could be found between the groups and the perception of aspects of whale watching. For tourists it is more important to get very close to the animals. On most other aspects tourists and residents agreed. Germans were significantly less concerned about aspects of commercial whale watching than Spanish

participants. Aspects of respectful whale watching were important to both nationalities, whereas Germans put less value on on-board research activities and additional information possibilities.

Influence of the tour operator chosen

There can be seen coherences with the tour operator chosen for a whale watching trip. The arithmetic mean scores of answers to question 10 were compared to the tour operators chosen. In the following the highest and lowest importance to aspects will be highlighted. Chi-square test was used to test coherences, but it did not show significant results. Still, the results give an overview on the differences between the tour operators. These results are presented in figure 11.

The "conservation of the animals' habitat" is very important to all guests of *Pura Vida* ($\bar{x}$=1,0) and least important to guests of *Speedy* ($\bar{x}$=1,40). Guests of all tour operators are similarly concerned with having "skilled guides, skippers and crew". The mean score for *OCEANO* here is $\bar{x}$=1,25 and $\bar{x}$=1,67 for *Speedy*. The mean score of $\bar{x}$=1,1 of *Tina* guests shows that they are very concerned about "not disturbing the animals". In fact, guests of all operators are highly concerned about that, with $\bar{x}$=1,64 being the highest mean score of guests of *Yani*. "Background information during the trip" is most important to guests of *Tina* ($\bar{x}$=1,21) and *Amazonia* ($\bar{x}$=1,24), while guests of *Speedy* ($\bar{x}$=1,53) find it to be less important. Guests of *Speedy* seek the least for "further possibilities to inform themselves" ($\bar{x}$=2,27), while guests of *Tina* think it is important ($\bar{x}$=1,72). "On-board research" is most important to guests of *Pura Vida* ($\bar{x}$=1,63), and second-least important to guests of *OCEANO* ($\bar{x}$=2,25). Research is the least important to guests of *Speedy* ($\bar{x}$=2,73). Guests of *Pura Vida* evaluate "stops to go swimming/snorkelling" to be more important ($\bar{x}$=3,13), than guests of *OCEANO* ($\bar{x}$=3,84). Again, guests of *Yani* found "on-board food and beverages" more important ($\bar{x}$=3,36), than guests of *Speedy* are ($\bar{x}$=4,33). Guests going on a tour with *Yani* showed the highest agreement to "being as close as possible to the animals" ($\bar{x}$=2,86), guests of the *Tina* in turn showed the lowest agreement ($\bar{x}$=3,85). Those who went on a tour with *Speedy* rate "on-board entertainment" the least important ($\bar{x}$=4,8), while guests of the *Tina* found it being a little more important (but with a mean score of $\bar{x}$=4,14 still "less important").

Summarising these results, it can be said that often the results are very close. Greatest differences in importance were found for "being as close as possible to the animals", "on-board entertainment", "food and beverages", "stops to go snorkelling/swimming" and "on-board

research". Guests of *Speedy* were most often found to least care about aspects, compared to other operators.
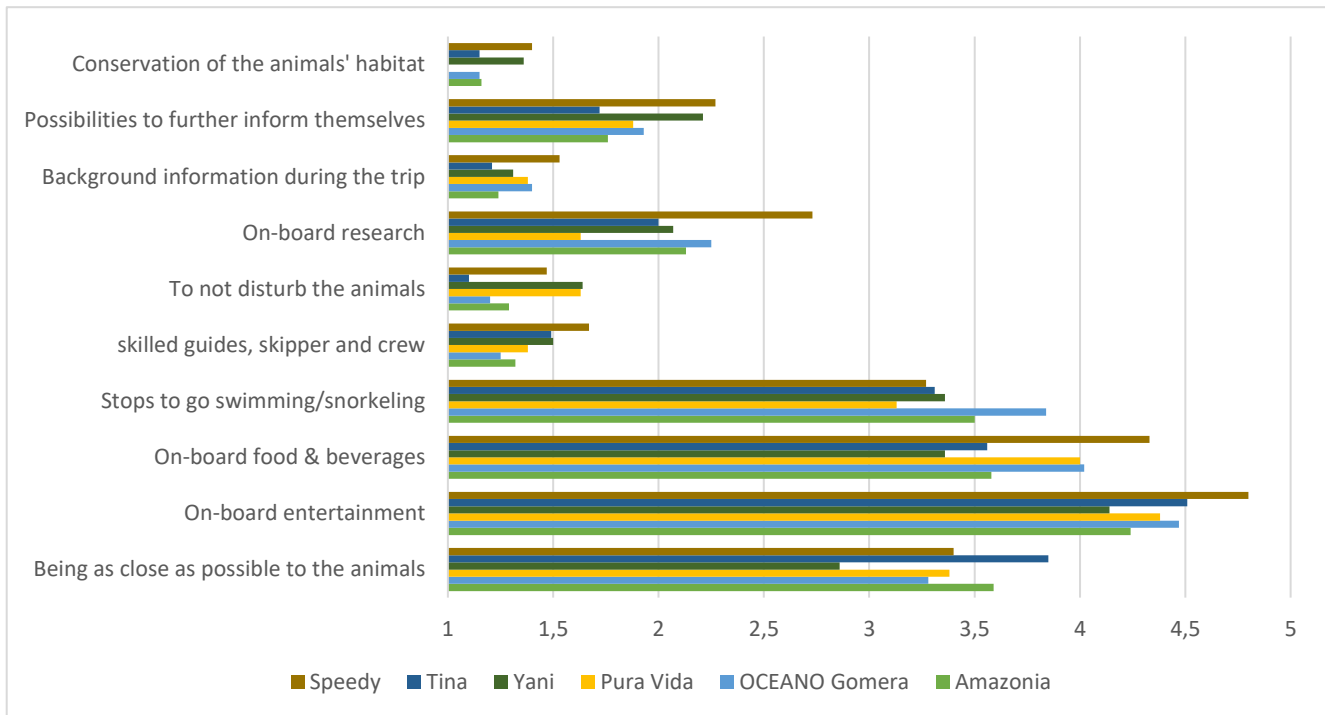

Figure 11: Comparison of mean scores with chosen tour operator: "Please rate different aspects of whale watching according to their importance (1=very important, 5=not important at all)" (own illustration)

Influence of socio-demographic variables

Noteworthy coherences with the education level and age could be found. To start with the education level, participants with a university degree put more value on getting as close as possible to the animals ($\bar{x}$=3,32), compared to participants with a degree from secondary school/high school ($\bar{x}$=3,72). The Mann-Whitney-U-test found a significance value of p=0,014. In turn, participants with a university degree think less it is important to have "possibilities to further inform themselves" ($\bar{x}$=1,86). Participants with a secondary school degree in contrast have a mean score of $\bar{x}$=1,62 on this aspect. With p=0,009 it can be said, that there is a significant coherence between the education level and the wish for further information. A Kruskal-Wallis test was used to test coherence with participants age. It results in p=0,000 for the wish on "entertainment on-board". The mean score is increasing with the age. Participants under 30 have a mean score of $\bar{x}$=3,33, participants between 30-59 of $\bar{x}$=4,20 and participants over 60 have mean score of $\bar{x}$=4,5. In fact, the younger the participant, the less important entertainment for him. The test furthermore showed significance for "food and beverages on-board" (p=0,015). Participants under 30 have a mean score of $\bar{x}$=3,19 in this case, participants between 30-59 of $\bar{x}$=3,88 and participants over 60 of $\bar{x}$=3,56.

Overall it can be concluded that aspects of commercial whale watching trips are less important to the public of Valle Gran Rey. More importance was shown for aspects of sustainable whale watching. Differences were found for especially aspects of commercial trips, with the Spanish public more agreeing on those. There are also differences in the choice of whale watching tour operator. The results show, that certain aspects are perceived differently by guests of different operators.

5.5.3. Willingness to act

Part of the environmental attitude is the willingness to act environmentally friendly. In the following the willingness to act of the public in Valle Gran Rey is analysed. Therefore, it was asked whether participants are willing to accept a slower ferry travel, if that would mean less harm for marine mammals. The impact of high-speed ferries was highlighted in chapter 2.4 and in Chapter 5.4 the results of question 14 were presented, where the knowledge about collisions between ferries and cetaceans was analysed.

Question 15 now is asking whether they are willing to do something against these collisions. A total of 96,6% said that they would (n=204). Only a total of seven participants stated that they would not accept it. One person of these seven lives in Berlin and was on his first vacation on La Gomera, one person was a Spanish tourist coming from the neighbouring island Tenerife and has been on the island more than 10 times. The other five are residents in Valle Gran Rey (three German and two Spanish).

5.6. Awareness of environmental concerns

This part of the analyses deals with the perception of environmental threats to the ocean. These will be elaborated firstly on a global level and specifically for La Gomera. Additionally, the perception of the influence of ferries between the Canary Islands will be evaluated. Each question was tested on coherence with independent variables.

Perception of threats on a global level

For the perception of global threats participants were asked to evaluate different threats on a Likert-scale (1 = very threatening, 2 = threating, 3 = no opinion, 4 = slightly threatening, 5 = not threatening at all). For analysis options will be categorized into "threatening" (1 and 2), "no opinion" (3) and "not threatening" (4 and 5).

Firstly, it is to notice that the overall perception is considerably taken seriously. All threats have a mean score below 2, which indicates that all issues are seen as very threatening to threatening by the whole sample. The overall mean score is $\bar{x}=1,42$. As most threating the sample perceives plastic pollution ($\bar{x}=1,14$), the decreasing marine biology ($\bar{x}=1,22$) and

overfishing ($\bar{x}$=1,25).The lowest ranked issues are by-catch ($\bar{x}$=1,57), ocean noise ($\bar{x}$=1,59) and ship strikes ($\bar{x}$=1,98), although these are still perceived as "threatening".

Coherence with the target groups was tested with analysis of variance and is only given for some issues. A significant relationship with nationality and current domicile can be seen for the "marine resource extraction" such as oil or gas (p(nationality)=0,005; p(group)=0.019) and for "by-catch" (p(nationality)=0,003; p(group)=0.028). Differences on these issues can also be seen in figure 12. "By-catch" is perceived as "threatening" by around 90% of the German groups each (n=51, both), while 78,5% of the Spanish residents (n=54) and 70,8% of Spanish tourists (n=48) perceive "by-catch" as "threatening". Spanish groups turn out to be more "unsure" about it. German tourists evaluate the extraction of resources less
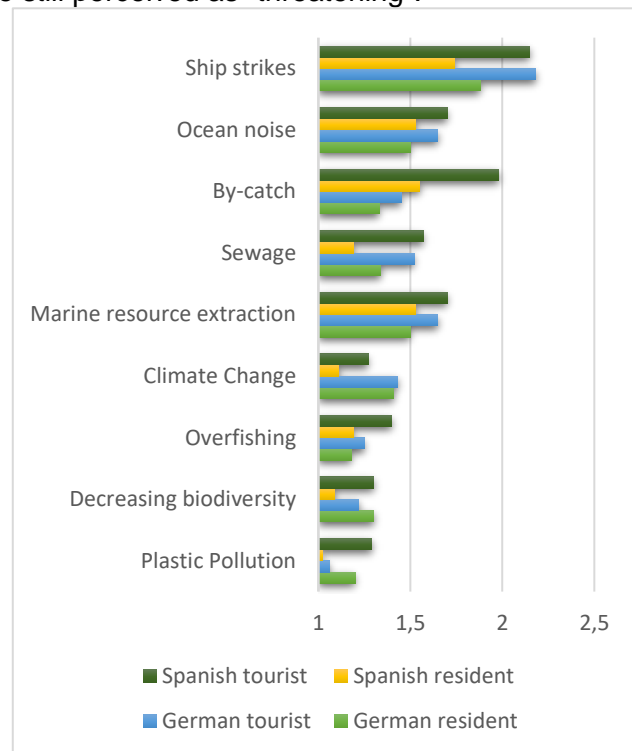

Figure 12: Comparison of mean scores with target groups "Please rate the following environmental threats to the ocean regarding their danger globally (1=very threatening, 5=not threatening at all) (own illustration

threatening than the other target groups and state to be more "unsure" about it (11,8%, n=51). In the other groups less than 4% are "unsure" if resource extraction is threatening the environment. Over 95% of each of the Spanish groups assessed the extraction to be "threatening". Residents are more concerned than tourists. This is the same finding as for how threatening "sewage" is perceived. Residents stated over 90% that is was "threatening", while tourists are more "unsure". A dependency of the group on the perception of "sewage" as a threat can be accepted with p=0,009. As it can also be seen in figure 12, differences between Spanish and German participants exist for the evaluation of "climate change". Dependency between the variables can be accepted with p=0,019. The results show that Spanish participants perceive "climate change" a bit more threatening than Germans do. Ship strikes were overall perceived to be less threatening than other issues. A significance value of p=0,028 for the group allows to accept the alternative hypothesis that residents evaluate collisions between ships and marine mammals as more threatening than tourists do.

Furthermore, it was interesting to see that significant coherences could be found for "by-catch" with question 5, whether someone has been part of a whale watching trip on La Gomera. 90% of participants who have been whale watching before evaluated by-catch as "threatening" (n=110), while 14% of non-participants stated they were unsure and 5,4% stated it was "not

threatening" (n=92). When comparing the perception of threats to a visitation of the exhibition no differences could be found.

In the following coherences with gender and the education level will be highlighted. No differences could be found for comparison with the age of participants. When comparing the results to gender, it can be seen that female participants evaluated all issues to be more threatening than male participants. The Mann-Whitney-U test shows significance for "climate change" (p=0,004), the "decreasing biodiversity" (p=0,011), "by-catch" (p=0,044), "extraction of resources" (p=0,038), "ocean noise" (p=0,003) and "ship strikes" (p=0,001). Comparison to the education level shows very close results for "extraction of resources" and "plastic pollution". For all other issues, participants with a degree of secondary/high school were found to perceive issues more threatening than participants with a university degree. The greatest differences were found for "by-catch", "ocean noise" and "ship strikes". "By-catch" for example was evaluated to be "threatening" by 91,2% of participants with a secondary school degree, while 78,2% of participants with a university degree stated that "by-catch" was threatening. Mann-Whitney-U test shows significance of p=0,005. The other two issues showed very similar results.

The overall perception that the given issues are threatening the marine environment is existing. Differences between the reference groups were especially found for those threats, which have been evaluated to be less threatening in the overall sample, such as "by-catch" or "ship strikes". Residents, female participants and those with only a secondary school degree evaluate some issues as more threatening than the other groups. The local marine-related activities such as whale watching trips and the exhibition were not influencing the perception remarkably.

Perception of threats on La Gomera

To go into more detail, participants were asked in question 12 to select the three most severe threats (in their opinion) La Gomera's marine environment is facing today. As possible answers they were given the same issues as in question 11. The issues were ranked for analysis by how often a topic was chosen.

The overall sample voted plastic pollution (68,1%), sewage (57,4%) and climate change (44,6%) as the most severe issues (n=204). The different groups ranked them exactly the same, only that German tourists found the decreasing biodiversity to be the third severe threat. More differences could be seen when comparing the results to question 5. Participants of a whale watching trip ranked the issues in a different order, which can be seen in table 3. The results of a chi-square test show significance for ocean noise (p=0,003) and plastic pollution (p=0,041). The alternative hypothesis can therefore be accepted, that a whale watching trip on La Gomera has an influence on the assessment of certain threats for the island.

Participated in a whale watching trip	% (n=110)	Not participated in a whale watching	% (n=92)
Plastic pollution	73,6%	Sewage	63%
Sewage	53,6%	Plastic pollution	62%
Decreasing biodiversity	44,5%	Climate Change	54,3%
Overfishing	36,4%	Decreasing biodiversity	34,8%
Climate Change	35,5%	Overfishing	32,6%
Ocean noise	29,1%	Resource extraction	18,5%
Resource extraction	16,4%	Ship strikes	16,3%
Ship strikes	8,2%	Ocean noise	13%
By-Catch	4,5%	By-Catch	4,3%

Table 3: Most severe threats to La Gomera chosen by non-/participants of whale watching (own illustration)

A chi-square test with question 2a) showed very similar results. Significance was found for the same issues. Very striking in this comparison is that ocean noise was ranked second highest by 50% of the visitors of the exhibition (n=18). Furthermore, none of the exhibition's visitors chose marine resource extraction as one of the most severe threats. While ship strikes are seen as most threatening by 27,8% of the visitors (n=18), only 16,3% the non-visitors chose this issue (n=49). It can be assumed, that the visitation of the exhibition has an influence on the perception of what are the most severe threats. Non-visitors go in line with the overall sample, visitors chose "plastic pollution", "ocean noise" and the "decreasing biodiversity" as the most severe threats to the marine environment of La Gomera.

Influence of gender and education level on this question is relatively low. The rankings are similar, only with a slight difference between man and women on few issues. Biodiversity was chosen more often by female respondents, while overfishing and ocean noise were ranked higher by male respondents. Significance is given for overfishing (p=0,031) and ocean noise (p=0,005). Age in turn shows significant results of chi-square test for almost all issues. Younger participants (under 30) chose "ocean noise" more often (38,9%, n=36)) than participants between 30-59 (18,1%, n=149) and participants over 60 (18,6%, n=16). Furthermore, participants over 30 chose "climate change" to be one of the most severe threats to marine environment off La Gomera, while it is only the sixth most often chosen issue for participants under 30. With p=0,000 for "climate change" and "ocean noise", the alternative hypothesis can be accepted, that age has an influence on the perception which issues are most severe to La Gomera.

Perception of high-speed ferries

A last indicator for the perception of threats to the marine environment is question 13. It asked participants to evaluate the impact of high-speed ferries on the environment on whether it is "very strong", "strong", only has "little influence" or "no influence. In addition, they were given the possibility to state "I am unsure". 27% of the whole sample evaluated the impact as " very strong" and 51,5% evaluated it to have a "strong" influence (n=204). Only one participant has the opinion that high-speed ferries do not have any influence on the environment. 6,9% stated that ferries have "little influence" and 13,7% were unsure about it (n=204).

Looking at the influence of nationality and whether someone is a tourist or resident in Valle Gran Rey, no significant coherence can be found. Still, the result show that German participants chose "strong" slightly more often and Spanish participants were "unsure" more often. 56,9% of the Germans stated "strong" (n=102), compared to 46,1% of Spanish participants (n=102). 11,8% of German participants stated they were "unsure" (n=102), while 16,7% of the Spanish were "unsure" (n=102).

Figure 13: How would you rate the impact of high-speed ferries on the environment? (n=204) (own illustration)

Participants who have joined a whale watching trip on La Gomera are less "unsure" (10,9%, n=110) than those who have not (18,5%, n=92). A similar result was found for visitors of the exhibition, here only 5,6% stated to be unsure, compared to 13,1% of non-visitors (n=61).

Comparison with socio-demographic variables also showed only little influence. Chi-square test on coherence with gender, showed a close to significance value of $p=0,053$. Results show that female respondents stated more often that the influence is "very strong" (32,7%, n=113), compared to 19,5% male respondents that found it to be "very strong" (n=82). In turn, male respondents stated more often that they are "unsure" about it (18,3%, n=82), than women were (9,7%, n=113). No coherence with age and the education level could be found.

These results show that most of the public is perceiving the impact of high-speed ferries to be either "very strong" or "strong". Still, it could be found that Spanish participants, non-whale watchers and men were more often "unsure" about it.

The overall seriousness of environmental issues is understood by the public. Few are unsure about certain threats. By-catch, ocean noise and ship strikes are seen as the least threatening
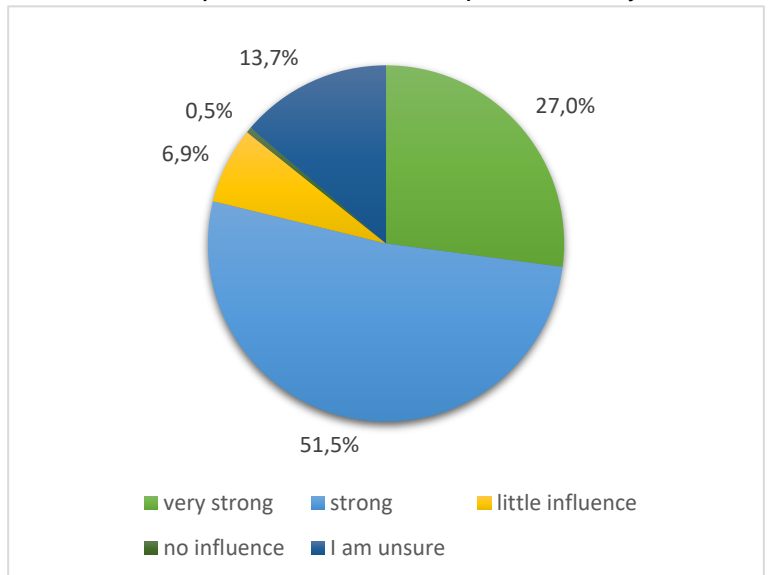
issues, while climate change, plastic pollution, the decreasing biodiversity and overfishing are perceived to be the most threatening issues. These were also perceived to be the most/least severe threats to La Gomera. Residents tend to evaluate most threats to be more serious than tourists.

5.7. Willingness to learn

During the literature review, it was revealed that environmental education is necessary for environmental awareness. Respondents were asked whether they wish for possibilities to receive information about environmental topics. A total of 87,3% answered this question with "yes" (n=204).

A linear regression analysis reveals a significant coherence of the result with the current domicile (question 22), more precisely whether someone is resident or tourist (p=0,010). While, in both cases, over 90% German and Spanish residents wished for further information, only around 80% of the tourists seek for more environmental education. A slight proportion of participants having taken part in a whale watching trip and non-visitors of the exhibition wished for more possibilities to further inform themselves. Chi-square test however does not show a significant coherence. No coherence was found with socio-demographic variables either.
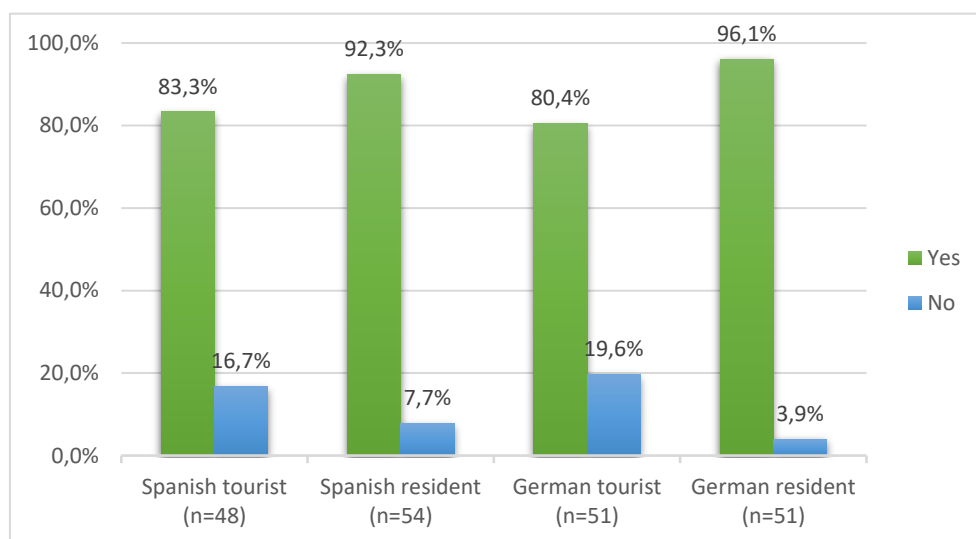

Figure 14: Do you wish to have more possibilities to receive information about environmental topics? (own illustration)

Question 17 was asked to go further into detail and reveal specific topics the participants were interested in. Different topics were pre-set; however, the respondents were given a possibility to suggest topics themselves. Answers were multiple-choice. The topics were ranked for

analysis regarding the count of choices for the issues. The overall ranking was analysed, followed by the ranking of each group individually. Topics standing out in the ranking during comparison are highlighted. Topics with most interest shown in are terrestrial conservation (53%), sustainable tourism (52%), the marine environment (51%) and marine conservation (50%) (n=204). The full list can be seen in table 4. Ten topics were mentioned in the field "Other". Additional topics of interest are for example renewable energy sources and how to include sustainability into one's life. Furthermore, geology, water, air and permaculture were mentioned.

Topic of interest	% (n=204)
Terrestrial conservation	53%
Sustainable tourism	52%
Marine environment	51%
Marine conservation	50%
Sustainability in general	46,1%
Terrestrial environment	44,6%
Whales and dolphins	40,2%
Threats marine life has to face	36,8%
La Gomera – Geography	25,5%

Table 4: topics of interest chosen by the whole sample (own illustration)

Influence of the target groups

Firstly, it is to notice that German participants ticked remarkably more topics than the other groups. A total of 463 answers was given by Germans, compared to 351 answers of Spanish participants. Subdividing now into the four target groups, one can see that residents ticked more topics than tourists did. German residents gave 267 answers, German tourists gave 196 answers, Spanish residents ticked 193 times and Spanish tourists only 158 times. This result goes in line with the overall interest in further possibilities for information, where more residents stated to be interested in more information.

When looking at the ranking of topics, the first thing to notice is that Spanish participants chose the marine environment, sustainable tourism and sustainability in general most often. The marine environment was also chosen by 49% of German tourists (n=51), whereby it got on the

Figure 15: Which topics would you be interested in? (Multiple choice, own illustration)

third place of interest, compared to being on the sixth place of German residents. Notably, German participants ranked sustainability much lower on the fifth (residents) and seventh place (tourists). In the case of German participants, nature conservation (marine and terrestrial) was chosen among the first three topics. A total of 89,8% of German residents wish for more information about terrestrial conservation (n=49). German tourists on the other hand, demand for more information about whales and dolphins in the first place, the other groups showed less interest in this topic. Summarising these results, it can be said that the Spanish public is more interested in sustainability and the marine environment, while German participants are more into nature conservation and whales and dolphins.

Influence of local marine-related activities

A difference can be seen in the range of topics between respondents who have been on a whale watching trip on La Gomera and those who have not been. 110 persons who have been on a trip gave a total of 487 answers, while 92 non-whale watchers gave 322 answers. Again, this goes in line with respondents who have been on a whale watching trip also being more interested in more possibilities to inform themselves. The ranking of the topics is nearly the same, except for marine conservation which stands out. It has been ranked first by respondents who have joined a whale watching tour, while it is on the sixth place for respondents who have not. The 18 visitors of the exhibition have proportionally found to be given less answers (81 answers) than the 49 non-visitors (292 answers). Visitors were found to rank sustainable tourism and threats to marine life higher, while non-visitors in turn chose the marine environment and sustainability in general more often.

Influence of socio-demographic variables

The influence of socio-demographic variables was also analysed. There is no remarkable difference for the overall interest, all individual results are similar to results of the overall sample. Still, differences can be found again in the topics wished for. Female respondents are more interested in sustainable tourism, which they ranked on the first place. Male respondents on the other hand ranked it fifth. Respondents aged under 30 showed more interest in whales and dolphins than older participants. There is more interest shown in threats faced by marine life by participants older than 60 years. Persons over 60 are more interested in information about sustainability in general than persons between 30 and 59. Less interest was shown by participants under 30 where it is on the second last place.

The overall interest in more possibilities to receive information is considerably high. It was found that residents had more interest than tourists did, women more than men, whale watching participants more than non-whale watching guests and non—visitors of the exhibition more than those who have already visited the exhibition. This again goes in line with the overall

choice of subjects they were interested in. Groups being more interested in information, appeared to be choosing more topics of interest. Except for the geology of La Gomera perhaps, interest was shown in all topics. It could be seen that the various groups showed interest in different topics.

6. Interpretation and discussion

This subsequent section will pick up the results of chapter 5, compare them to the results of other studies and will then be used to answer the research questions of this study. During analysis significant differences and coherences between dependent and independent variables were found. The following subchapter discuss each research question and the corresponding results. Comparisons are made to findings of the literature review to support findings from this study. In the end, the main research question will be answered.

6.1. Environmental knowledge

How educated is the public about the marine environment, especially regarding marine mammals?

To answer this question, a total of five questions was asked concerning the knowledge about marine mammals and the marine environment off La Gomera. The overall number of correct answers was summed up to get an overview. Answers were then compared to the comparison groups. In the following the results (see chapter 5.4) will be interpreted and discussed.

The first of these questions is number 4, where participants were asked whether they knew that La Gomera is a prime location for whale watching trips. This is well-known by the public, whereby Germans and residents have the most knowledge in this case. Spanish tourists are the group who have least knowledge about it. This finding can be explained with the relatively low interest shown in whale watching trips by the Spanish tourists (see chapter 5.3.1). Everyone who has been on a whale watching trip knows that La Gomera is a very special place to see whales and dolphins, probably because they experienced it first-hand. All visitors of the exhibition are aware of the good conditions for whale watching as well.

Knowledge about the number of species of whales and dolphins off La Gomera is not as widespread as the knowledge about La Gomera being a prima location. Most of the participants thought it were less than 23 species documented. This goes in line with findings of Scott and Parsons (2001, p. 67), who found the majority of participants underestimating the total number of cetacean species in West Scotland. While no difference was found between tourists and residents, Germans assessed the correct number more often than Spanish participants.

Participants of a whale watching trip appear to know the right number of species occurring more often than people who have never been on a whale watching trip. As this basic information is often given to passengers during a trip, this result is not surprising. Again, Parsons *et al.* (2003, p. 108) found similar results, where whale watching tourists had more knowledge about local species than general tourists. As the number of species is also part of the exhibition, visitors were right on this question as well.

The knowledge about legal whale watching regulations is not as widespread as the knowledge about La Gomera being a prime location, still the majority did know about it. The fact is least known to tourists, especially those from Germany. The communication about the regulation therefore seems to be better towards residents than towards tourists. Again, whale watching guests and visitors of the exhibition appear to know about the legal regulations more frequently than non-whale watchers and non-visitors. This indicates that information about legal regulations is passed on during trips, as it is in the exhibition.

The waters in the South of the island are a marine protected area. A better communication of this fact is needed here, as only half of the participants knew about it. Once more, residents are more aware of the protected area than tourists are. German tourists appear to have the greatest need to be educated about that fact. Communication on-board and in the information in the exhibition seem to support knowledge about the protected area, as those on a trip and in the exhibition showed more knowledge yet again.

Education about collisions between ferries and whales and dolphins appears to be necessary, as only about 50% claim to have ever heard about it. Once more, German tourists are the ones with least knowledge about ship strikes. Spanish tourists come mostly from the neighboring island Tenerife. As the legal whale watching regulations and ship strikes are also important there, this can explain that they have more knowledge than German tourists. While visitors of the exhibition have heard about ship strikes more often than non-visitors, no differences were found for whale watchers. This indicates potential for communication during the trips.

The overall correct answers for the previous questions indicate the highest level of knowledge for German residents, followed by Spanish residents. Several studies comparing the environmental knowledge between residents and tourists found residents being more knowledgeable (Chao and Chao, 2017, p. 219; Penney, 2014, p. 72). The reason might be that residents are geographically closer to the marine environment and therefore have a closer connection than tourists do. Tourists are spending a limited time in the area, while residents are living very close to it. It can be assumed that this connection is partly of the reason for the higher level of knowledge.

The results of the overall of right answers also showed that whale watching is contributing to a better knowledge about the marine environment. This moreover indicates that persons who go on whale watching trips on the one hand inform themselves before the trip about the

environment. Still, the results also showed only few persons searched for information about the animals and the ocean while planning the trip (see chapter 5.3.1). On the other hand, it might be an indicator for effective knowledge transfer during a trip. Other studies recognized the potential of whale watching trips for education and dissemination of knowledge (Lopez and Pearson, 2017, p. 103; Lück, 2003a, p. 953; Orams, 1997, p. 304). Furthermore, the coherence with knowledge and a visitation of the exhibition proves that the exhibition is impacting the level of knowledge about the marine environment in a positive manner. This is however not very surprising: persons choosing to visit an exhibition to intentionally inform themselves and deal with topics about the marine environment will have a higher level of knowledge than persons who did not.

Moreover, the overall of all correct questions showed that women are more knowledgeable than men. This indicates a higher interest to engage and deal with the marine environment of females.

Three conclusions can be made at this point. Firstly, the overall level of knowledge about the marine environment regarding cetaceans is high in Valle Gran Rey. Especially aspects about whale watching, in fact knowing that La Gomera is a very good place to see cetaceans and that there are legal regulations for whale watching, are well known of the public. Knowledge about more general aspects like the number of cetacean species, protection of the marine environment and collisions between ships and animals still has potential for increase. The need for more education about these facts emerges from the results. Secondly, residents were found to be more knowledgeable about the local marine environment. This shows that the imparting of knowledge should focus on tourists. Obviously, it should not at the same time exclude residents.

Lastly, local marine-related activities, such as whale watching trips and the local exhibition of the organization *M.E.E.R. e.V.* in Valle Gran Rey are influencing the level of knowledge. Both contribute to higher level of knowledge about the marine environment.

6.2. Environmental attitude

Together with the environmental knowledge analyzed before, the environmental attitude forms the environmental awareness. The environmental attitude of the public in Valle Gran Rey was retrieved from two sides. Firstly, the general environmental worldview was retrieved by using the NEP. Secondly, the attitude towards whale watching was sampled to learn more about the opinion they have about respectful and commercial aspects of whale watching.

6.2.1. NEP

What is the general attitude towards the natural environment?

The overall mean score of the NEP sample 2,06 is showing a very pro-environmental attitude. This becomes clear when comparing this mean score to results from other studies using the NEP. Moreover, the comparison shows that there appears to be a trend to an increasing environmental attitude (see table 5). The compared studies sampled different target groups from different places in the world. Overall endorsement to the NEP was found. Even though the public endorses the NEP to a large extent, differences were found for the comparison groups of this study.

Author	Sample	Mean Score[a][b]
Dunlap and van Liere (1978, p. 22)	General public of Washington, United States	3,0 [c]
	Environmental Organization Sample	2,3 [c]
Higham *et al.* (2001, p. 30)	Ecotourists in New Zealand	3,2 [c]
Vikan *et al.* (2007, p. 220)	Students from Joao Pessoa, Brazil	2,27
	Students from Porto Alegre, Brazil	2,24
	Students from Trondheim, Norway	2,4
Jiang *et al.* (2007, p. 246)	Visitors of a marine park in Canada	2,9 [c]
	Non-visitors of a marine park in Canada	2,7 [c]
Chao and Chao (2017, p. 218)	Residents in Taiwan	1,7
	Visitors in Taiwan	1,5

Table 5: Mean score of previous studies employing the NEP scale (own illustration)

[a] Means were calculated by summing the average scores for each of the 12 items and dividing by 12.
[b] High mean scores in these studies represented higher acceptance. For a better comparison with results from this study, they have been reversed.
[c] Usage of the older 12-item scale from 1978

The first groups are the German and Spanish residents and tourists. The mean scores are highlighted and compared in table 5. Differences between the groups are not immense, but still identifiable. No broad statement can be made whether there is a difference between countries and residency. As one can see in table 6, Spanish tourists are more likely to have pro-environmental values than Spanish residents. It is the other way around for German residents and tourists. Germans who came to live in Valle Gran Rey and now call it their home show the highest endorsement. Their awareness for the natural environment might be closely connected to the reason they migrated to La Gomera. The island itself is very pristine, therefore a positive attitude towards the environment seems natural when someone choses this to be the place to live. While tourists are ranked second (Spanish) and third (German), Spanish residents have the least pro-environmental worldview. This can be explained with La Gomera being a less developed island than for example the Spanish mainland, the neighbouring island Tenerife (where most of the tourists come from) and Germany. It is assumed that the wealthier

a region and the higher the GDP, the higher the environmental attitude (Kemmelmeier *et al.*, 2002; Franzen, 2003, p. 297).

Comparison Group	Mean Score
Whole sample	2,09
German residents in Valle Gran Rey	1,91
Spanish tourists in Valle Gran Rey	2,02
German tourists in Valle Gran Rey	2.11
Spanish residents in Valle Gran Rey	2,13
Participants in a whale watching trip	1,97
Non-participants in a whale watching trip	2,14
Visitors of the exhibition	1,83
Non-visitors of the exhibition	2,05
Female participants	1,98
Male participants	2,12
Participants with a secondary school degree	2,02
Participants with a university degree	2,09
Participants aged under 30	2,08
Participants aged between 30-59	2,04
Participants aged 60 and older	2,08

Table 6: NEP mean scores of comparison groups (own illustration)

The overall mean score of people who have been on a whale watching trip indicates a higher endorsement to the NEP and therefore a more pro-environmental attitude. This can be explained with the experiences made in the nature and by observing whales and dolphins. These experiences tend to affect the environmental attitude. Being in a pristine, beautiful natural area and experiencing landscapes and wildlife like national parks or dolphin tours can lead to a higher environmental attitude (Lück, 2003b, p. 238). Experiences in nature are also necessary for the formation of an environmental attitude. The ability of whale watching to promote awareness of environmental and marine issues was found in several studies (Andersen and Miller, 2006a, p. 112, 2006a, p. 112; Duffus and Dearden, 1993, p. 155; Orams, 1997, p. 304; Lopez and Pearson, 2017, p. 103).

Visitors of the exhibition were also found to have a more pro-ecological worldview. Actively showing interest in the marine environment, whales and dolphins around La Gomera seem to be positively influencing the environmental attitude. It can be assumed that those who deal with environmental subjects also have stronger environmental beliefs.

The mean-scores do not show a real difference between the age groups and the different education levels. However, females were found to show a higher endorsement to the NEP. This can be substantiated with findings in the literature, where women were found to be

generally more environmentally aware due to higher altruistic values, stronger ethics of care and compassion (Gifford and Sussman, 2012, p. 68).

Even though the overall endorsement to the NEP is high some items in the scale were found to be less agreed to. "The earth has [not] plenty of natural resources if we just learn how to develop them" (item 6) was disagreed to coherently. Especially Germans were found to think that there are plenty of resources and that humans can learn how to develop these. This shows that the fundamental idea of humans being able to manage resources for their own good and humans having the right to extract resources is widespread. This item might be confusing, as the earth in deed has plenty of resources, but humans should not continue to exploit those in the same way they did so far.

"Humans [do not] have the right to modify the natural environment to suit their needs" (item 2), is significantly more disagreed to by German tourists and non-visitors of the exhibition. This implies that they think it is acceptable to modify the natural environment. Again, it shows that the fundamental idea of humans standing "above" nature is still present widely.

"Humans ingenuity will ensure that we do not make the earth unliveable" (item 4) shows differences between German and Spanish people. Spanish participants were disapproving this statement significantly. This might be because they think that humans are superior to nature and are "smart" enough to develop for example technical inventions that seem to help keeping the earth liveable.

Significant differences between visitors and non-visitors of the exhibition were found for item 8: "The balance of nature is [not] strong enough to cope with the impacts of modern industrial nations". Visitors of the exhibition agreed more on this item than non-visitors.

German residents are remarkably agreeing to item 10: "The so-called "ecological eco-crisis" facing humankind has [not] been greatly exaggerated". Agreeing on this item the most goes in line with German residents showing the most positive ecological attitude.

Higher agreement for item 11 ("The earth is like a spaceship with very limited room and resources") was found for Spanish participants and non-whale watching guests. This shows that these groups agree with the earth having limited room and resources.

Item number 14 is stating that "humans will [not] eventually learn enough about how nature works to be able to control it". Spanish participants were found to not agree (residents)/less agree (tourists) on this item, same as non-visitors of the exhibition. This result confirms the assumption made for item 4, that they think that humans are superior to nature and will somehow learn to how to control it.

Concludingly, it is to say that the public of Valle Gran Rey has a very pro-environmental attitude and strongly agrees with the NEP. A difference between nationality and residency has not been found for the overall result. Differences for some items revealed however, that old

fashioned fundamental ideas are still anchored in human minds. This includes for example the ability of ruling over nature and the thought of being superior to nature.

Local marine-related activities like whale watching and the exhibition are having a major impact on the environmental attitude. Those who engage with nature and wildlife directly have a more positive environmental worldview. The connection between being close to nature, and having a high environmental awareness is evident.

6.2.2. Attitude towards whale watching

How is the perception towards respectful whale watching?

It was learned that general environmental attitude is present in Valle Gran Rey. It was furthermore asked how the attitude towards whale watching is. This was assessed by evaluating certain aspects, such as sustainability and commerciality of the whale watching operations.

When looking at the results it becomes clear that commercial aspects were evaluated to be less important than the sustainability aspects. The conservation of the animal's habitat is seen as very important by mostly everyone in the sample. An equal result was found by Weisenberger (2005, p. 79) who analyzed similar aspects of whale watching from whale watching tourists on La Gomera. The same applies to the importance of not disturbing the animals.

It was also very important to the majority to have skilled guides, skipper and crew. Lück and Porter (2017, p. 8) studied the importance of motives for swim-with-dolphins tours. They found similar high importance for having knowledgeable crew and guides on board. Skilled guides and crew were rated most important by guests of *OCEANO*, where indeed very knowledgeable guides and skipper are employed.

The wish for information is generally high. Background information during the trip were rated higher than background information delivered after the trip. The same result was found by Weisenberger (2005, p. 80). A high importance of learning experiences was also found for swim-with-dolphin-tourists (Lück and Porter, 2017, p. 7). The wish for further possibilities to inform themselves was slightly expressed more often by Spanish participants. Whale watching guests who were on a trip with *Tina* and *Amazonia* rated information on-board as most important. Both vessels have knowledgeable and skilled guides on-board and put value on the dissemination of information. It was interesting to see, that guests of *Tina*, *Amazonia* and *Pura Vida* think it was good to have possibilities to inform themselves after the trip more often than guests of *OCEANO*. It was furthermore found that people with a secondary school degree showed a higher interest in further possibilities to inform themselves.

The conduction of research during the trip was seen less important than the earlier mentioned aspects, but still the majority evaluated it to be important. Spanish participants put more value on research projects on-board, while this was significantly less important to German participants. Moreover, on-board research was evaluated the second least important by guests of *OCEANO*. This in turn clashes with the fact that most of research conducted off La Gomera is done on board of *OCEANO's* boats (see chapter 2.3).

While the above-mentioned aspects were unambiguously evaluated as being very important to important, the following aspects are all evaluated to be less important with mean scores over 3.

The importance of being as close as possible to the animals was evaluated to be less important by almost half of the sample, with one third being unsure about it. Once more, this was similarly found by Weisenberger (2005, p. 80). It was found, that it is more important for tourists to get very close. This might be, because residents of the Canary Islands have more possibilities to see whales and dolphins, as their habitat is right in front of their homes. This is the only aspect which was evaluated differently by residents and tourists.

On-board food and beverages were also evaluated to be less important. It was found that drinks and meals/snacks were evaluated to be more important by Spanish participants.

Stops to go swimming and snorkeling are not important for most potential whale watchers. They are in turn more important to Spanish participants than to Germans. These were evaluated least important by guests of *OCEANO*, which goes in line with them rarely offering stops to go swimming.

It was evaluated to be the least important aspect of whale watching to have an entertainment program on-board. The results showed that entertainment was more important to Spanish participants than it was to Germans. The importance for on-board entertainment increased with age, which indicates a higher desire for entertainment of older participants.

As all additional aspects of whale watching (swimming, snorkeling, drinks, snacks and entertainment) were rated higher by Spanish participants, it can be assumed that Germans focus more on the animals and the trip itself. Still, it must be reconsidered that all commercial aspects have been rated to be "unsure" about or less important and that differences between Spanish and Germans are only less "less important". A very similar result was found for the different age groups. The older the participants, the higher the importance for commercial whale watching aspects is. This again shows that younger participants appear to focus more on the animals during the trip.

The initial research question can be answered in three parts. Firstly, it can be stated that the importance for respectful whale watching is generally recognized by the public in Valle Gran Rey. All aspects of respectful/sustainable whale watching were evaluated to be more important than aspects of concerning convenience during whale watching trips. This might be because

all tour operators in Valle Gran Rey use respectful and sustainable features as marketing tools. It goes also in line with the high level of knowledge about the marine environment, and especially whale watching which was found earlier in this study. Secondly, differences between nationalities and residency were found for few aspects. Germans were found to agree less on commercial whale watching aspects, which can be ascribed to their overall interest in whale watching being higher. Lastly, the comparison with the tour operators partly reflects the characteristic of the trip. However, differences were not significant, and data is very serried.

Concludingly, it can be said that the overall attitude towards the environment in general and towards whales and dolphins in the area is very positive. This was shown by a high endorsement for the NEP and the high importance ascribed to aspects of sustainable whale watching. It can be said, that those who engage with marine-related activities in Valle Gran Rey have a more environmental-positive attitude. This implicates that these activities should be supported strongly. Furthermore, the willingness to act is high. An overwhelming majority is willing to accept slower travel between the Canary Islands, which in turn would help to avoid collisions between ships and cetaceans. This is an additional indicator for the high environmental attitude. It is shown that this problem could potentially be solved from a demand-side and that it would need the ferry operators to act more demand-oriented.

6.3. Perception of environmental concerns

How educated is the public of Valle Gran Rey about environmental concerns?

As it was presented in chapter 2.4 the marine environment is facing a series of threats nowadays. To be able to make statements about the perception of these threats' information was retrieved from three different sides. Firstly, the perception of global concerns for the marine environment was analyzed. This was followed by stating the three most severe threats La Gomera is facing today. Lastly, the evaluation of the impact of high-speed ferries on the environment was tested. Discussion concentrates on the presented threats in chapter 2.4.

All the following aspects were rated to be "very threatening" or "threatening" when looking at the mean scores. This gives a first indication for environmental concerns being taken seriously by all participants. Still, a deeper look at each is necessary to precisely detect differences between the comparison groups.

Pollution of the oceans with plastics is rated to the most severe threat. This was also found in other studies analyzing the awareness of different threats (Luksenburg and Parsons, 2014, p. 141; Howard and Parsons, 2006, p. 4340). Marine plastic pollution was also rated to be the most severe threat to La Gomera. This can be explained with a high media coverage of plastic

pollution and because of its high visual impact, which might lead to annoyance and frustration (Scott and Parsons, 2001, p. 68).

The imminent extinction of many species and decreasing biodiversity was rated to be the second most threatening issue. Even though decreasing biodiversity was rated among the top three on a global level, it was not among the top three most severe threats to La Gomera (except for German tourists). However, it was evaluated to be a serious threat to the environment by all comparison groups.

Overfishing was rated to be the third most serious threat by the whole sample. Analyzing the perception of threats towards cetaceans of the public in Argyll, it was found to be the most serious threat by Scott and Parsons (2001, p. 68). No remarkable differences between any comparison groups were found. This shows that overall agreement and awareness for the issue of overfishing exists.

As the fourth most severe threat on a global level (complete sample) chose climate change. It was also found to be a moderate/serious threat to the public of Argyll in Scotland (Scott and Parsons, 2001, p. 37). A small difference between the German and the Spanish public was found. This goes in line with Spanish persons evaluating climate change as a more severe threat to La Gomera than German participants did.

The next most severe threat is the extraction of marine resources. Oil exploration was found to be a moderate threat by Scott and Parsons (2001, p. 37) as well. Differences were found between nationalities, with German participants being more unsure about the seriousness of the extraction of marine resources. Furthermore, it was shown that residents were more concerned than tourists on this issue. None of the visitors of the exhibition thought that extracting marine resources was a major threat to the marine environment around La Gomera. While sewage pollution is seen as the sixth most threatening concern (globally) by the public in Valle Gran Rey, it was found to be the second most quoted threat to the Argyll marine environment (Scott and Parsons, 2001, p. 68). In a study based in Aruba, sewage ranked as the most serious threat (Luksenburg and Parsons, 2014, p. 141). A comparison between the target groups revealed that residents evaluated sewage as more threatening than tourists. In line with Scott and Parsons, sewage was assessed to be the second most severe threat to the marine environment of La Gomera. This finding however, contradicts the statement of Schultz *et al.* (2014, p. 268) who found that normally individuals perceive environmental concerns to be more likely to happen on a global level than in the local area. But as it was presented in chapter 2.4, sewage is one major problem of the Canary Islands, which might explain this finding.

By-catch is the third least threatening environmental concern on a global level in the opinion of the whole sample. It is seen to be more threatening by Germans, while Spanish participants were more unsure about it. This indicates a higher need of education about by-catch for

Spanish people. By-catch was found to be evaluated more threatening by whale watching participants. As by-catch especially concerns dolphins among other species, it can be assumed that those engaging with marine whale watching tours have a higher compassion towards these animals and therefore may perceive by-catch as more threatening.

The whole sample evaluated the underwater noise to be the second least serious threat. In the study of Howard and Parsons (2006, p. 4340) concern for ocean noise was relatively low as well, it was even seen to be a minor or no threat to cetaceans. In the study of Luksenburg and Parsons (2014, p. 141) ocean noise was also ranked lowest. Ocean noise was chosen to be one of the most severe threats to La Gomera more often by participants of marine-related activities. Ocean noise has a major impact on cetaceans. Those who engaged in marine-related activities with whales and dolphins seem to refer threats to cetaceans and in the following rank these higher. Also, as the issue is highlighted in the exhibition with a dedicated banner and additional information, this probably has led to visitors being more vigilant about this threat.

Ship strikes were perceived as the least threatening environmental concern to the marine environment by the whole sample. When comparing the results of residents and tourists, it can be seen that residents consider ship strikes as more serious. While ship strikes are not seen as "very threatening" by most of the comparison groups, visitors of the exhibition showed the highest concern about ship strikes as a threat to La Gomera's marine environment. Collisions between cetaceans and ships is another subject of the exhibition, which again shows that the information imparted in the exhibition affects the perception of environmental concerns.

The analysis of the perceived impact of high-speed ferries on the marine environment revealed that the majority evaluated it to have a strong/very strong impact. The Spanish public tends to be unsure about the impact, while Germans evaluate it to be stronger. Local marine-related activities make participants less unsure about it. Interestingly, there is a difference in the perception of ship strikes between residents and tourists, which cannot be seen for the perception of the impact of high-speed ferries on the environment (as those are supposedly the major factor for ship strikes).

On a global level, it can be said that residents evaluated most issues to be more threatening than others. Interestingly, no relationship with the participation in local marine-related activities could be found.

On a local level it was found to be the other way around, with residency not impacting the perception remarkably, but with marine-related activities having an impact. It was shown that participants of whale watching trips more often chose issues that are relevant to cetaceans like ocean noise. It can be assumed, that threats directly affecting cetaceans are perceived to be more threatening by those who engaged with the animals before.

Potential for education is shown on issues like by-catch, ocean noise and ship strikes, which were rated the least threatening. Concludingly, it can be said that the public in Valle Gran Rey is well educated about marine environmental concerns. This can be linked to the fact, that all presented environmental issues threatening the marine environment are perceived to be serious and threatening.

6.4. Willingness to learn

Is there a willingness to learn and what are the issues the public of Valle Gran Rey would like and need to learn about?

As the answers to the previous research questions indicated differences and gaps in environmental knowledge and awareness for threats between the comparison groups, it becomes clear that there is need for further education measures. The analysis of environmental knowledge revealed a lack of knowledge about some marine-related aspects by half of the participants. This includes for example the knowledge about collisions between ships and whales and dolphins in the Canary Islands. It was found that tourists failed to know about certain aspects, which indicates a higher potential to educate them.

Furthermore, it was seen that by-catch, ocean noise and ship strikes were rated to be the least threatening to the marine environment globally. Due to the fact that especially Spanish participants and tourists were found to be partly "unsure" about certain topics, it can be argued that more information would help them to understand the danger of these issues. On the other side, one has to bear in mind that all mean scores of all threats are below 3, and therefore all threats are perceived as at least threatening.

Disagreement on some of the items of the NEP scale indicates that aspects like humans being superior to nature and having the right to modify it for their needs shows further need of education. Educating about these aspects being old-fashioned is eminent.

These results show the necessity of the public to be educated. Additionally, the willingness to be educated was assessed. It resulted in an overall high interest in further information. This interest in information can be interpreted as an impact on the receptiveness to conservation messages (Ballantyne *et al.*, 2007, p. 378).

It was shown that residents, who had higher levels of knowledge, also were more interested in further possibilities to inform themselves. The difference between these groups however was not significant. It was found that those engaging in marine-related activities had more interest in further information than those who did not. In the literature it was argued, that tourists nowadays are more open-minded to environmental education and show interest in learning during vacations (Lück, 2003a, p. 948). A demand for education about the marine environment

was found in previous studies for whale watching tourists (Andersen and Miller, 2006b, p. 116; Lück, 2003a, p. 953).

Interest in learning more especially concerned in marine and terrestrial conservation, the marine and terrestrial environment and sustainability. Interest in the marine environment and sustainability goes in line with the need for education mentioned above. Education about sustainability can be used to highlight aspects of the NEP worldview which in turn might lead to better understanding of the human-nature relationship. Remarkable differences between the comparison groups are highlighted and interpreted as follows:

The Spanish participants showed very high interest in sustainability and sustainable tourism. This indicates a willingness to become more environmentally aware. The interest in sustainable tourism might derive from tourism not being very sustainable on some other Canary Islands. It is interesting that the German participants showed less interest to be educated about sustainability. The assumption is, that especially German residents who proved to have a more ecologically oriented worldview on the NEP scale, already were familiar with aspects of sustainability. They are in turn more interested about conservation, which can be seen as part of the sustainability theme. German tourists expressed very high interest in more information about whales and dolphins, which can be linked to their general interest in whale watching.

It was found that people engaging in marine-related activities had different preferences as well. People who went on a whale watching trip showed more interest in marine conservation, which once again confirms the connection between whale watching and the interest in the preservation of the marine environment. It is interesting to note that visitors of the exhibition showed very high interest in further possibilities to learn about environmental concerns, although the exhibition covers several environmental issues. Again, it can be suspected that learning about environmental and conservation issue triggers an increased interest in such issues.

Younger people are more interested in whales and dolphins, which goes in line with their disagreement on commercial whale watching aspects (see chapter 5.5.2). Remarkable differences are shown for sustainability in general, which was found to be most important to people aged 60 and older. The interest decreases with age.

All in all, data analysis shows the need for education about a more ecological worldview, the marine environment and environmental concerns. This should especially focus on tourists and the Spanish people. The self-stated interest for more information in Valle Gran Rey is high and the topics people are interested in show a desire to learn more about sustainability, nature and conservation.

6.5. Nationality and residency

Where are differences between residents, tourists and nationalities?

For analysis each dependent variable was compared to the comparison groups. The results were compared to the current domicile, to differentiate between residents and tourists. They were also compared to nationality, to differentiate between the German and the Spanish public. Additionally, they were compared to both variables together, to also test the combinations of nationality and the current domicile. In this way, statements can be made to whether and where there is a difference between Spanish resident, German residents, Spanish tourists and German tourists in Valle Gran Rey.

Generally, it can be said that there are differences between the comparison groups. Firstly, residents were found to have more local environmental knowledge about marine issues. This was indicated by the results regarding question 9, for example, where residents were found to be more knowledgeable about the protected area South of La Gomera. The highest knowledge was found for German residents and the lowest for German tourists.

Secondly, and even though the mean scores on the NEP Scale were similar, again German residents showed the highest endorsement to a pro-ecological worldview. The lowest score was found in Spanish residents. The higher disagreement on commercial whale watching aspects by German groups indicates a higher commitment to trips focused on the animals. As moreover higher agreement on respectful whale watching aspects was shown by the Spanish groups, it results in an overall awareness for respectful and sustainable interactions with cetaceans.

Thirdly, environmental issues on a global level were mostly rated to be more threatening by residents than tourists. Remarkable differences between the four groups could not be found, neither on a global nor on a local level, except for distinct issues. These are for example by-catch, where Spanish tourists were more unsure or the extraction of marine resources, where German tourists were more unsure. The impact of high-speed ferries on the marine environment is perceived to be strong by Germans, while the Spanish seem to be a little more unsure about it.

Lastly, residents were found be more interested in further possibilities to inform themselves. A high difference between the groups however was not evident.

Concludingly it can be stated that even though differences are generally not very large, they show that the target groups have different levels of environmental awareness. The assumption can be made that German residents have the highest level of environmental awareness. A careful assumption can also be made, that tourists are less environmentally aware than residents, which might be explained with the fact that residents on La Gomera live in an area with lots of untouched nature.

6.6. Marine-related activities

Is the establishment of respectful whale watching contributing to a better understanding of the marine environment?

To answer this question, the dependent variables were compared to two additional comparison groups: The first one consists of persons who have participated in a whale watching trip on La Gomera. These are compared to the second group which consists of persons who have not participated in a whale watching trip yet. It was found that the participation in whale watching has a positive influence on the environmental knowledge and attitude. This indicates that engaging with nature and wildlife can have a strong impact on the environmental awareness in general and therefore supports a better understanding of the marine environment (Andersen and Miller, 2006a, p. 112, 2006a, p. 112; Duffus and Dearden, 1993, p. 155; Orams, 1997, p. 304; Lopez and Pearson, 2017, p. 103).

Is the work of *M.E.E.R. e.V.* contributing to a better understanding of the marine environment?

The exhibition about whales and dolphins by the organization *M.E.E.R. e.V.* was established for education purposes. The establishment of the interpretation center is supposed to inform guests about whales, dolphins and their habitat (see chapter 2.3). To evaluate the effectiveness of the exhibition, answers from visitors were compared to answers from non-visitors. Similar to the group of whale watchers, it was found that visitors of the exhibition had more environmental knowledge and also showed a more pro-environmental attitude. The voluntary decision to go into an exhibition to seek for information about cetaceans is a further indicator for the environmental awareness of this group. It can be said, that the exhibition contributes to better understanding of the marine environment.

6.7. Environmental awareness

How aware is the public in Valle Gran Rey about the marine environment?

The results of the earlier subchapter are going to be summed up to get a whole picture of the environmental awareness of the public in Valle Gran Rey. It was learned that the level of environmental knowledge was high, that an environmental attitude was paramount and that awareness for environmental concerns exists. These aspects together indicate a high environmental awareness with focus on the marine environment.

The majority of the public in Valle Gran Rey appears to be very knowledgeable about the marine environment. However, potential was identified for aspects like collisions between ships and cetaceans. Scores on the NEP-scale are expressing a very high endorsement towards a

pro-ecological worldview compared to the results of other studies. Space for improvement was shown in disagreement on some items of scale. These expressed that the fundamental basic idea of anthropocentrism is still somehow attached in human minds. The attitude towards the interaction with whales and dolphins showed that the public is more in favour of respectful whale watching and does not put a lot of value onto commercial whale watching with entertainment, food and drinks. As already emphasized in chapter 3.1.3, the general environmental attitude can be seen as a predictor of general environmental behaviour and that the specific attitude can predict specific behaviour (Gifford and Sussman, 2012, p. 66). Referring this to the attitude of the public in Valle Gran Rey, it can be assumed that both, general environmental behaviour and the respectful behaviour towards cetaceans, can be expected. Over 90% were willing to accept slower travel between Tenerife and La Gomera to avoid ship strikes. This is a small indicator for the willingness to act environmentally friendly. A further indicator of the environmental awareness in this study is the awareness about certain environmental concerns. All threats were rated to be very threatening to threatening. The perception of threats to La Gomera reflected good knowledge about the area. Sewage for example which is urgent around the Canary Islands, was rated to be one of the most severe concerns there.

Furthermore, it was found that over 90% stated it was very important to conserve the habitat of cetaceans and overall interest was shown in terrestrial and marine conservation. It can therefore be assumed, that the public understood the importance of the protection of the environment.

All in all it can be said that the public of corresponds to the definition of environmental awareness of Jharotia (2018, p. 2) which includes the basic understanding of the fragility of nature and the awareness that it is very important to protect.

7. Final review

This final chapter reflects the process of the present study critically. Difficulties that occurred as well as positive aspects are explained. Additional factors that limited the research are highlighted. Results and findings of the study as well as further recommendations are concluded. Some suggestions for further research are given.

7.1. Conclusion

The present research aimed at finding gaps and differences in the marine environmental education of tourists and residents in Valle Gran Rey by examining their environmental awareness.

It was pointed out that generally there is high level of knowledge about the marine environment. Nevertheless, the results showed that there is potential to disseminate more in-depth information. Knowledge about whale watching in general was high, still the more general aspects like La Gomera having a protected area and frequent collisions between ferries and cetaceans need to be communicated more efficiently. Comparison between the target groups revealed that residents, and especially German residents, were the most knowledgeable. This reflects the connection of residents to their environment and that they face up to what happens around them. Furthermore, the influence of marine-related activities on someone's knowledge can be approved. Those engaging actively with the marine environment around La Gomera know more about it than those who do not. It demonstrates that they deal with the topic thoroughly and that both, watching local wildlife and the exhibition, support a better understanding.

It was further found that the public of Valle Gran Rey has very pro-environmental beliefs. The general attitude towards nature, which was retrieved using the NEP-Scale, is positive and indicates a good human-nature relationship. However, small deficits indicated by disagreement on some items of the NEP-Scale were also found. This reflects that even though high endorsement to a pro-ecological worldview resulted, some anthropocentric ideas are still anchored. Even though German residents show the highest endorsement in terms of the overall mean-score, the results were serried, and no definite statement can be made whether one group has more or less positive environmental attitudes than another. Whale watching trips and the exhibition in turn were found to impact the environmental attitude, with those participating in marine-related activities having a more positive attitude towards the environment. Again, this is explained with the active engagement with the environment which supports a better understanding and attitude.

The attitude towards marine-life watching and the interaction with whales and dolphins during a trip is pro-environmental as well. Aspects of respectful whale watching were rated to be significantly more important than commercial aspects. While no remarkable differences were found between residents and tourists, Germans are less concerned with commercial aspects, but also less concerned about some respectful whale watching aspects. Nevertheless, the overall interest in whale watching is higher than that of the Spanish public and it can be argued that the Germans prefer a focus on the animals during a trip. This in turn indicates a higher commitment towards the marine environment. An additional indicator for a pro-environmental attitude is the high willingness to act, indicated by a very high acceptance of a slower ferry between the Canary Islands to avoid collisions.

The awareness for environmental concerns is high as well. All presented threats to the marine environment were evaluated to be very threatening/threatening. Once more, residents were found to perceive the issues to be more serious than tourists. In this case, Spanish residents

were found to evaluate most issues to be the most severe and therefore showing the highest awareness for environmental concerns. Yet again, the results are very close, and assumptions must be considered carefully. The least threatening issues according to the public are by-catch, ocean noise and ship strikes. This might indicate potential for education on these issues, even though it can be argued that the public is well educated about environmental threats.

The need and potential for environmental education has been highlighted above. The willingness and demand for education was found to be high. Residents are more interested in further information than tourists, which goes in line with their already higher level of knowledge. Topics of interest are sustainability, nature and conservation, which yet again indicates a high level of interest in getting more environmental aware.

Summing up these findings it becomes clear that the public of Valle Gran Rey has a high level of environmental awareness. The environmental knowledge and the attitude found here give evidence that a pro-ecological consciousness exists. Carefully, it can be assumed that German residents are the most environmental aware. The establishment of respectful whale watching in the area and the exhibition on whales, dolphins and their habitat were found to contribute to a better understanding of the marine environment and to support environmental awareness.

7.2. Critical reflexion of the methodology

The research process was characterized by some positive as well as challenging aspects. Despite careful planning and preparation, the implementation of the research work has been influenced at various points, which may affect the quality and significance of the results.

The conduction of the survey revealed a surprisingly high rate of participation. Almost everyone agreed to participate in the survey and showed high interest in the research topic. This led to relatively quick gathering of completed questionnaires.

The social desirability bias which was already mentioned in the limitations (see chapter 1.4) cannot be proven, but still could explain the positive results of environmental awareness. Respondents might have chosen answers that are rather favorable for others when sensitive topics like the interest or attitude towards the environment have been asked. This might be especially for the different scales (NEP, evaluation of respectful whale watching and threats) where higher scores were achieved than they actually are important/interesting for them to portray themselves more positively.

A further aspect is the focus on the marine environment and cetaceans. It must be taken into consideration that not everyone might be interested in whales and dolphins. Therefore, one cannot assume that someone has less environmental knowledge, in other words, is not environmental aware, when he does show a low level of interest in this topic. This is especially applicable for the knowledge about the number of species occurring in this area, which might be seen as an inappropriate measurement for environmental knowledge. This also indicates,

that questions examining the environmental knowledge should have focused more on the environment and less on whale watching. In this way, more adequate statements could have been made.

Further questions could have been formulated more precisely. Question 12, which asked to choose the three most severe threats La Gomera is facing, was found to be difficult to analyse. If question 11 (about the perception of threats on a global level) and 12 would have been asked in the same way, a better comparison would have been possible. Furthermore, ranking the issues according to their danger might have been a better option. Answers to question 17 might have been biased due to preformulated answers. An open-question design is considered to be more suitable.

Another limiting factor was the difficulty to give a clear statement of the representativeness of the study due to a limited sample.

7.3. Recommendations for further research

Examining the environmental awareness in this study, it was focused on environmental knowledge and attitude to detect gaps and potential for future education. Therefore, the actual environmental behaviour was not included in this study. However, according to several studies, environmental consciousness additionally includes behaviour (Urban, 1986, p. 365; Haan and Kuckartz, 1996, p. 37). Environmental attitude might be a predictor of environmental behaviour, but further research could focus on the actual behaviour of Valle Gran Rey's public.

It was shown that persons participating in a whale watching trip were more environmentally aware than non-whale watchers. Future research could focus on whale watchers in La Gomera, distinguish between the operators to learn more about the individual influence of them on the environmental knowledge and attitude. With more resources as time, it would be interesting to see how the trip itself influences the environmental awareness, if it is changing because of the experience and also focus on the long-term change in attitude and behaviour. At the same time the difference between the tour operators could be investigated. This would help to adjust education programmes on board of whale watching vessels more adequately.

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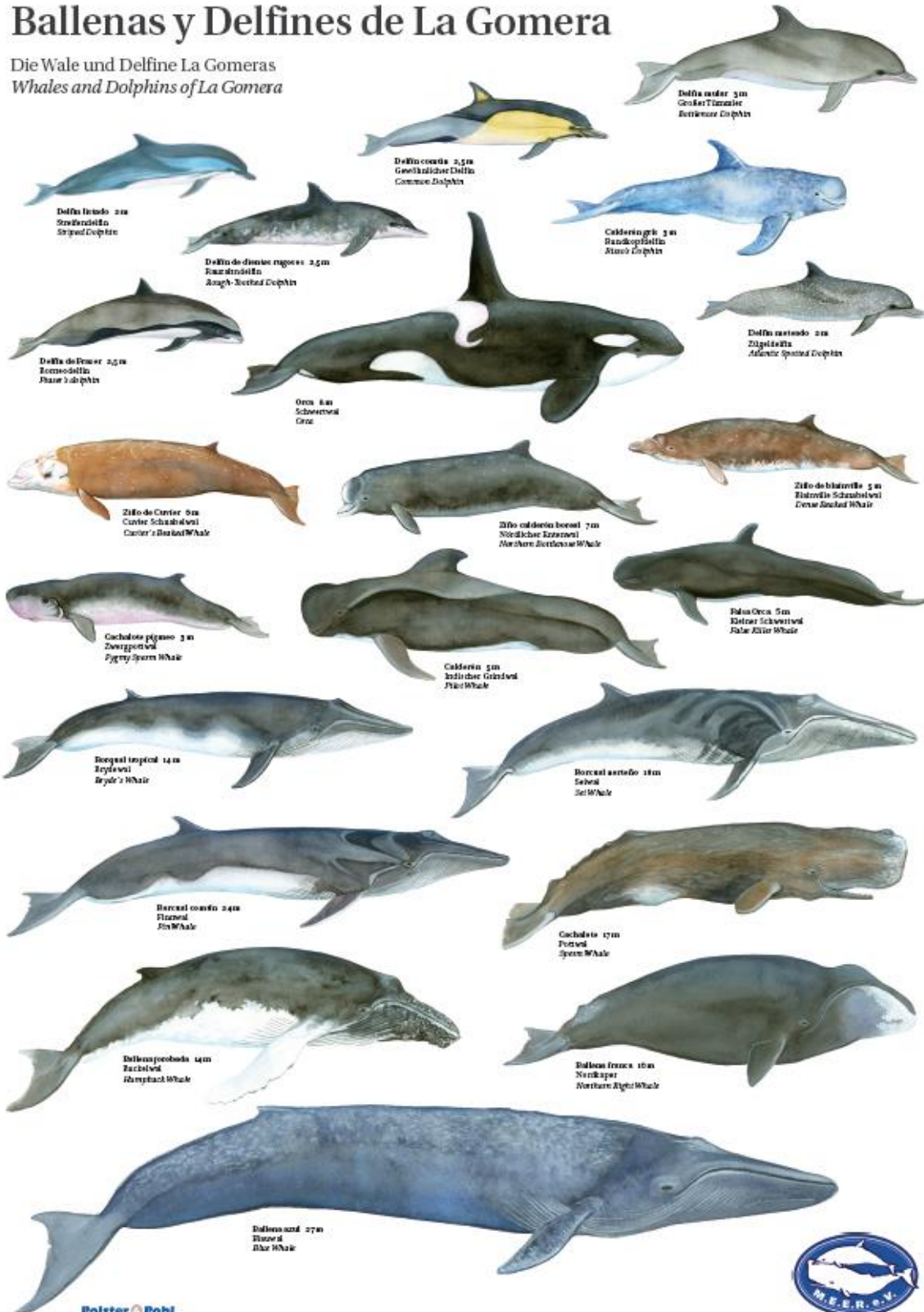
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Appendix

Whales and dolphins of La Gomera

Ballenas y Delfines de La Gomera
Die Wale und Delfine La Gomeras
Whales and Dolphins of La Gomera

2249 DECREE 320/1995 OF THE 10TH OF NOVEMBER, BY WHICH CETACEAN OBSERVATION ACTIVITIES ARE REGULATED.

Preamble

The observation of cetaceans constitutes an important economic, recreational and educational activity for many people. For the great majority of people this experience is their first contact with marine mammals and their habitat. The observation of cetaceans in their environment is not a negative activity in and of itself, as it can play an important part in conservation work and for environmental education. Nevertheless, problems begin to arise when there is a large growth in the number of vessels involved in these activities. The question is not the activity in itself, but rather in how it is undertaken. The cetaceans referred to are included in Annex IV of Directive 92/43/CEE of the Council of 21 May, relating to the conservation and natural habitats and of wildlife (The Habitats Directive of the EU) as a strictly protected taxon. Said animals are threatened by degradation of habitat, contamination by heavy metals, organochlorides, etc., acoustic pollution, incidental takes in various fishing methods, overexploitation of fisheries resources, and, significantly in this case, by badly managed observation of the same. All of this provokes stress in the animals, as they are approached by numerous vessels that disperse their social groups or even box them in, not to mention the fact that bold approaches by the boats can even hit the animals or injure them.

The tourism development that certain areas of the islands have suffered in recent years has produced an increase in demand for recreational activities. This has led to the growth of numerous companies offering maritime excursions, which include the observation of whales (in particular pilot whales) and dolphins. From the economic point of view, this new market has run into two important problems in just a few years: on one hand, the companies that have legally constituted themselves as a business entity suffer competition from several boats that realize whale watching activities furtively, and on the other hand, the environmental impact question that arises as a result of harassing cetaceans.

For this reason, the adoption of measures of prevention and protection regulating the uses of these animals to which we have referred was mentioned in article 26 of Law 7/1995, of the 6th of April, under the Jurisdiction of the Tourism Department of the Canaries, which made reference to the placing of tourism activities under the laws on environment and conservation of nature, in particular to those affecting protection of flora and fauna, under Law 4/1989 of the 27 of March, which basically refers to, among other things, measures necessary to guarantee the conservation of species.

With this present Decree, rules of behaviour are established in order to resolve the questions put forth

above, making them applicable not only to tourist activities but also to any other type of activities, whether scientific, recreational, educational, etc. which has as its objective the observation of cetaceans within the jurisdiction of the Autonomous Community of the Canaries. In its virtue, by proposal of the Counselor of the Political Territory, and with previous deliberation of the

Government in session, celebrated this day, the 10th of November 1995,

I DECREE

Article 1: Objectives

It is the objective of the present Decree to regulate activities that are realized by people or entities in theobservation of cetaceans, with a goal of establishing the conservation means necessary to protect the same.

Article 2: The present Decree will be applied equally to all those who organise excursions for touristic reasons, recreational reasons, educational reasons, scientific reasons etc. in order to observe cetaceans in the jurisdiction of the Autonomous Community of the Canaries.

Article 3: Legal guidelines of observation activities.

1. Persons cited in the above article must solicit in advance the pertinent authorizations and to carry on board the vessels used a monitor-guide who specializes in cetaceans, whose characteristics and means of accreditation will be determined by law.

2. During the observation of cetaceans, and in order to not injure, harass or distress the same, the Code of Conduct in Annex 1 of the present decree must be observed.
Failure to comply with the Code of Conduct will be considered as an
administrative offense, and as such will be punished by application of the sanctions contained in Title VI of Law 4/1989 of the 27th of March on the Conservation of Natural Spaces and of Wild Flora and Fauna. In any case, failure to comply with the Code of Conduct will lead to immediate loss of license, without prejudice to the sanction that might correspond to the infraction.
3. In those cases where the observation of cetaceans is for scientific or research purposes, certain elements of the obligations listed above may be waived as long as such an exemption has been asked for and is fully justifiable. 4. The authorization cited in part 1 of the present article will be issued by the Vice Counsel of Environment within 15 days of receipt of such a request, which will be understood to be denied if the time limit is passed with no express resolution of the authorization. The requests for permits shall be presented to the same Vice Counsel of Environment following the model in Annex 2, and to be referred to as a) request for a set trip b) request for a set period of time 5. As a requirement of permission, the Counselor of the Political Territory may ask for the deposit of a bond in order to guarantee compliance with the responsibilities that must be followed.

Additional Dispositions
The permit referred to in article 3.1 is understood to be without prejudice to any other administrative measures that arise out of current laws.

Temporary Dispositions
Until such time as the characteristics and means of accreditation have been determined by law for the monitor-guide referred to in Article 3.1 of this Decree, vessels must take on board a monitor responsible for the excursion.

Final Dispositions
First: The present Decree will enter into force on the day following its publication in the Official Bulletin of the Canaries. Second: The Counselor of the Political Territory is empowered to determine the precise dispositions that will be necessary for the development and application of the present Decree. As given in Las Palmas of Grand Canary Island, this 10th of November 1995 The President of the Government, Manuel Hermoso Rojas The Counselor of the Political Territory, Antonio Fernandez Gonzalez Vieitez

ANNEX I:
Code of Conduct
A) Basic obligations:
- do not intercept the trajectory of the animals.
- do not separate or disperse the groups of animals being observed, especially when a mother and calf are involved
- avoid the simultaneous presence of more than 3 vessels at a distance less than 200 meters from a cetacean or group of cetaceans
- Maintain a distance of at least 60 me ers from the animals except in situations of emergency or under express authorization
- Do not swim or dive deliberately in the proximity of the animals, without express permission
- Do not throw food or waste in the proximity of the animals

B) Methods of approach:
- When a vessel is within 300 meters of cetaceans it must move at a slow speed, not more rapidly that the slowest moving animal of the group.
- Approaches to cetaceans must be made gently, converging in the direction that the animals themselves are following.
- Approaches must never be made head on, always allowing for the movement of the cetaceans in any direction.

- During the observation a parallel trajectory to the animal, must always be attempted to be maintained.
- Avoid in all cases abrupt changes in direction or velocity.
- Put the motor on idle, at least one minute before turning it off if the vessels stops in order to observe cetaceans. The same is to be done if an animal approaches the vessel.
- Do not start the motor, or increase speed, if an animal is found within 60 meters of the boat.

C) Behaviour with Ceatceans:
Abandon the zone if any sign of alarm, change or stress such as abrupt changes in direction or speed, successive dives or exhaling air under water is shown by the animals. Avoid noises that could bother the animals, as well as emitting sounds to attract them. Advise authorities of your location in the case of an accidental injury to a cetacean. Do the same in the event of observing a dead floating cetacean. If two or more vessels approach the same individual or groups, they must communicate amongst themselves in order to coordinate the approaches and maneuvers in a way to minimise repercussions to the animals.

Annex II: Permit Request Model
Asks such things as the accreditation as a tourism company (if applicable), certify that a monitor-guide will be on board, attach the accreditations of the monitor-guide, attach the navigation permits, identify species of cetaceans expected to encounter, description of the vessels(s), name and title of crew and professional experience, location proposed for the activity, duration, frequency and dates of excursions, and, in the case of educational tours, asks that copies of material provided to passengers be attached.
(Carlson, 2004 in Kieswetter, 2007: p.I)

HNE Eberswalde
Hochschule für nachhaltige Entwicklung

Hello, my name is Maita Bengsch and I am studying Sustainable Tourism Management at the University Eberswalde, Germany. Together with MEER e.V. I am working on my master thesis, dealing with the marine environmental awareness of residents and tourists in Valle Gran Rey.

Therefore, I would kindly ask you to answer the following questions! It will take 10-15 minutes. Please tick only one answer, unless stated otherwise.

All data will be treated anonymously and confidentially. If you are interested in reading the results of this study, you can contact me here: maita.bengsch@hnee.de
Thank you very much!

MEER e.V.

1. Have you heard about the organization MEER e.V.?
   O Yes   O No   (i*f no, please continue with question 2*)

   If yes:

1a) What represents MEER most? (Tick the **2 correct** answers)
   O Arts about whales and dolphins   O Public education
   O Research   O Political activism/engagement
   O Fight plastic pollution   O Beach Clean-Ups

2. Did you know about MEER's exhibition on dolphins and whales in Valle Gran Rey?
   O Yes   O No   (i*f no, please continue with question 3*)

   If yes:

2a) Did you visit the exhibition?
   O Yes   O No   (i*f no, please continue with question 3*)
   O No, but still planning to do so

2b) With how many stars would you rate the following aspects of the exhibition?
   - Information   ☆ ☆ ☆ ☆ ☆
   - Overall concept ☆ ☆ ☆ ☆ ☆

2c) What did you like best? What did you dislike? Do you have any suggestions?

   _____
   _____
   _____
   _____
   _____

Environmental attitude

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):

	1	2	3	4	5
We are approaching the limit of the number of people the Earth can support.					
Humans have the right to modify the natural environment to suit their needs.					
When humans interfere with nature it often produces disastrous consequences.					
Human ingenuity will ensure that we do not make the earth unlivable.					
Humans are seriously abusing the environment.					
The earth has plenty of natural resources if we just learn how to develop them.					
Plants and animals have as much right as humans to exist.					
The balance of nature is strong enough to cope with the impacts of modern industrial nations.					
Despite our special abilities, humans are still subject to the laws of nature.					
The so-called "ecological crisis" facing humankind has been greatly exaggerated.					
The earth is like a spaceship with very limited room and resources.					
Humans were meant to rule over the rest of nature.					
The balance of nature is very delicate and easily upset.					
Humans will eventually learn enough about how nature works to be able to control it.					
If things continue on their present course, we will soon experience a major ecological catastrophe.					

Ocean, Whales and Dolphins

4. Did you know that La Gomera is a prime location for Whale Watching?
   - O Yes   O No

5. Did you ever participate in a whale watching trip on La Gomera?
   - O Yes   O No   (if no, continue with question 6)
   - O No, but elsewhere   O No, but still planning to do so

If yes:

5a) How did you inform yourself about the trip? (Multiple choice)	5b) What kind of information did you look for while planning your trip? (Multiple choice)
O Guide book	O General information about the trip
O Exhibition of MEER e.V.	O Information about the animals
O Information event at Oceano Gomera	O Information about the ocean
O Friends/Family	O Other: _____
O Travel Agency	
O Whale Watching company	
O Tourist Information	
O Brochures	
O Internet (please specify which website):	
_____	
O Other: _____	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?
   - O Amazonia   O Speedy
   - O Oceano Gomera   O Yani
   - O Tina   O Pura Vida

O Don´t know

7. Guess, how many whale and dolphin species have been recorded in the waters off La Gomera?

O 0-5   O 16-20
O 6-10   O 21-30
O 11-15   O More than 30

8. Did you know that there are special legal regulations for Whale Watching on the Canary Islands?

O Yes   O No

9. Did you know that the waters in the South and Southwest off La Gomera are a protected area?

O Yes   O No

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all):

	1	2	3	4	5
Being as close as possible to the animals					
Skilled guides, skipper and crew					
On-board entertainment					
On-board food & beverages					
Stops to go swimming/snorkelling					
To not disturb the animals					
On-board research					
Background information about the animals during the trip					
Possibilities to further inform yourself (e.g. information centre)					
Conservation of the animals' habitat					

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

	1	2	3	4	5
Climate change					
Decreasing marine biodiversity					
Overfishing					
Bycatch					
Sewage					
Marine resources extraction (oil/gas)					
Ocean noise					
Plastic Pollution					
Ship strikes					

12. Please select the **3 most severe threats** (in your opinion) La Gomera's marine environment is facing today:

O Climate change   O Marine resources extraction (oil/gas)
O Decreasing marine biodiversity   O Ocean noise
O Overfishing   O Plastic pollution
O Bycatch   O Ship strikes
O Sewage

13. How would you rate the impact of high-speed ferries on the environment?

     O very strong   O strong   O little influence   O no influence   O I am unsure

14. Have you ever heard about ship strikes/collisions between the ferries and whales and dolphins on the Canary Islands?

     O Yes   O No

15. To avoid ship strikes the ferry from Tenerife to La Gomera would travel for about 30 minutes longer. Would you be willing to accept a slower ferry travel, if that would mean less harm for marine mammals?

     O Yes   O No

16. Do you wish to have more possibilities on the island to receive information about environmental topics?

     O Yes   O No

17. Which topics would you be interested in? (Multiple choice)

- O La Gomera – geography
- O Terrestrial environment
- O Marine environment
- O Threats marine life has to face
- O Sustainable tourism
- O Sustainability in general
- O Whales and dolphins
- O Terrestrial conservation
- O Marine Conservation
- O Other: _____

Personal details:

18. Age group:

- O Under 20 O 40-49
- O 20-24 O 50-59
- O 25-29 O 60-69
- O 20-29 O 70 or older
- O 30-39

19. Gender:

- O Female
- O Male
- O Other

20. Education (highest degree):

- O Secondary School/High School
- O Bachelor degree or similar
- O Master degree or similar
- O PhD or similar
- O No degree
- O Other: _____

21. Are you supporting an environmental organization?

- O Yes, I am member
- O Sometimes, but not regularly
- O Yes, I am donating regularly
- O No

22. Nationality: _____

    Current domicile (region/city): _____

If you are a on La Gomera on vacation:

22a) Length of Stay: _____ days

22b) How many times have you been visiting La Gomera? _____

Thank you very much for participating in this survey! As our special „Thank You" you will have the possibility to win a whale watching trip with OCEANO Gomera. To participate please fill in the attached paper.

Hola, mi nombre es Maita Bengsch y estudio Gestión en Turismo Sostenible en la universidad HNE Eberswalde, Alemania. Estoy trabajando junto con MEER e.V en la tesis de la maestría sobre la conciencia que tienen sobre el medio ambiente marino los ciudadanos y los turistas en Valle Gran Rey.

Por lo tanto, me gustaría pedirte que contestes las siguientes preguntas. Tardará unos 10-15 minutos. Marca solo una respuesta, a menos que se indique lo contrario.

Todos los datos serán tratados de forma anónima y confidencial. Si está interesado en los resultados, por favor envíeme un breve correo electrónico: maita.bengsch@hnee.de
¡Muchas gracias!

MEER e.V.

1. ¿Conoces la organización MEER e.V.?
   - ○ Sí   ○ No   *(Si tu respuesta es no, continua con pregunta 2)*

1a) *Si tu respuesta es si:* ¿Qué representa más MEER? (Elegir las **2 respuestas** correctas)
   - ○ Arte sobre ballenas y delfines   ○ Educación pública
   - ○ Investigación   ○ Activismo/compromiso político
   - ○ Lucha contra la polución por plástico   ○ Limpieza de la playa

2. ¿Sabías sobre la exposición que organiza MEER e.V. sobre delfines y ballenas en Valle Gran Rey?
   - ○ Sí   ○ No   *(Si tu respuesta es no, continua con pregunta 3)*

Si tu respuesta es sí:
2a) ¿Visitaste la exposición?
   - ○ Sí   ○ No   *(Si tu respuesta es no, continua con pregunta 3)*
   - ○ No, pero planeo hacerlo

2b) ¿Con cuantas estrellas calificarías los siguientes aspectos de la exposición?
   - Información   ☆ ☆ ☆ ☆ ☆
   - Concepto general   ☆ ☆ ☆ ☆ ☆

2c) ¿Qué te gustó más? ¿Qué no te gustó? ¿Tienes alguna sugerencia?

_____

_____

_____

_____

_____

Conciencia ambiental

3. Por favor califique las siguientes afirmaciones (1 = estoy muy de acuerdo, 5 = estoy absolutamente en desacuerdo):

	1	2	3	4	5
Nos estamos aproximando al número límite de personas que la tierra puede albergar.					
Los seres humanos tienen derecho a modificar el medio ambiente para adaptarlo a sus necesidades.					
Cuando los seres humanos interfieren en la naturaleza, a menudo las consecuencias son desastrosas.					
El ingenio humano asegurará que no hagamos de la tierra un lugar inhabitable.					
Los seres humanos están abusando seriamente del medio ambiente.					
La tierra tiene recursos naturales en abundancia, tan sólo tenemos que aprender a explotarlos.					
Las plantas y los animales tienen tanto derecho como los seres humanos a existir.					
El equilibrio de la naturaleza es lo suficiente fuerte para hacer frente al impacto que causan los países industrializados.					
A pesar de nuestras habilidades especiales, los seres humanos todavía estamos sujetos a las leyes de la naturaleza.					
La idea de que la humanidad va a enfrentarse a una crisis ecológica global se ha exagerado enormemente.					
La tierra es como una nave espacial, con recursos y espacio limitados.					
Los seres humanos fueron creados para dominar al resto de la naturaleza.					
El equilibrio de la naturaleza es muy delicado y fácilmente alterable.					
Con el tiempo, los seres humanos podrán aprender lo suficiente sobre funcionamiento de la naturaleza para ser capaces de controlarla.					
Si las cosas continúan como hasta ahora, pronto experimentaremos una gran catástrofe ecológica.					

El océano, las ballenas y los delfines

4. ¿Sabías que La Gomera es un lugar privilegiado para el avistamiento de ballenas?

   O Sí   O No

5. ¿Alguna vez participaste de un viaje a La Gomera para el avistamiento de ballenas?

   O Sí   O No
   O No, pero sí en otro lugar   O No, pero planeo hacerlo

Si tu respuesta es "Sí":   *(Si tu respuesta es no, continua con pregunta 3)*

5a) ¿en qué canales buscaste información sobre el viaje? (Opción múltiple)

   O Guía turística
   O Exposición de MEER e.V.
   O Evento informativo en Oceano Gomera
   O Amigos y familiares
   O Agencia de viajes
   O Compañía de avistamiento de ballenas
   O Revista
   O Información turística
   O Folletos
   O Internet (especifique el sitio web):

   _____
   O Otros: _____

5b) ¿Qué tipo de información buscaste mientras planificabas tu viaje? (Opción múltiple)

   O Información general sobre el viaje
   O Información sobre los animales
   O Información sobre el océano
   O Otros: _____

6. ¿Con qué empresa reservaste o planeas reservar el viaje de avistamiento de ballenas?

   O Amazonia   O Speedy
   O Oceano Gomera   O Yani
   O Tina   O Pura Vida
   O No sé

7. Adivina, ¿cuántas especies de ballenas y de delfines se han registrado en las aguas de La Gomera?

    O 0-5   O 16-20
    O 6-10   O 21-30
    O 11-15   O más de 30

8. ¿Sabías que existen normas legales para el avistamiento de ballenas en las Islas Canarias?

    O Sí   O No

9. ¿Sabías que las aguas en el sur y suroeste de La Gomera pertenecen a un área protegida?

    O Sí   O No

10. Califique los diferentes aspectos del avistamiento de ballenas según su importancia (1 = muy importante, 5 = para nada importante):

	1	2	3	4	5
Estar tan cerca de los animales como sea posible					
Tripulación, capitán y guías calificados					
Entretenimiento a bordo					
Alimentos y bebidas a bordo					
Paradas para hacer esnórquel/natación					
No molestar a los animales					
Investigación a bordo					
Información sobre los animales durante el viaje					
Posibilidades de obtener más información (por ejemplo, un centro de información)					
Conservación del hábitat de los animales					

11. Califica las siguientes amenazas ambientales océano teniendo en cuenta su peligro a nivel mundial (1 = muy amenazante, 5 = nada amenazante):

	1	2	3	4	5
Cambio climático					
Disminución de la biodiversidad marina					
La sobrepesca					
Captura incidental					
Extracción de los recursos marinos (petróleo/gas)					
Aguas residuales					
Ruido en el mar					
Polución por plástico					
Colisiones con embarcaciones					

12. Selecciona **las 3 amenazas más graves** (en tu opinión) que el medio ambiente marino de La Gomera enfrenta hoy en día:

    O Cambio climático   O Aguas residuales
    O Disminución de la biodiversidad marina   O Ruido en el mar
    O Sobrepesca   O Polución por plástico
    O Captura incidental   O Colisiones con embarcaciones
    O Extracción de recursos marinos (petróleo/gas)

13. ¿Cómo calificaría el impacto que tienen los trasbordadores de alta velocidad sobre el medio ambiente?

       O muy fuerte   O fuerte   O poco   O no hay impacto   O no estoy seguro

14. ¿Escuchaste alguna vez sobre colisiones entre trasbordadores y ballenas o delfines en las Islas Canarias?

       O Sí   O No

15. Para evitar colisiones, el trasbordador de Tenerife a La Gomera demora unos 30 minutos más. ¿Estarías dispuesto a aceptar un viaje en trasbordador más lento si eso ayuda a disminuir el daño contra los mamíferos marinos?

       O Sí   O No

16. ¿Deseas tener más posibilidades de recibir información en la isla sobre temas ambientales?

       O Sí   O No

17. ¿Qué temas te interesarían? (Opción múltiple)

O La geografía de La Gomera   O Sostenibilidad en general
O Medio ambiente terrestre   O Ballenas y delfines
O Medio ambiente marino   O Conservación de la Tierra
O Amenazas que enfrenta la vida marina   O Conservación marina
O Turismo sostenible   O Otros: _____

Datos personales:

18. Grupo etario:

O menores de 20   O 40-49
O 20-24   O 50-59
O 25-29   O 60-69
O 20-29   O 70 o más
O 30-39

20. Género:

O Mujer
O Hombre
O Otro

23. Educación (nivel más alto alcanzado):

O Educación secundaria obligatoria   O Doctorado o nivel más alto
O Bachillerato   O Sin educación formal
O Licenciatura o similar   O Otros: _____
O Maestría o similar

24. ¿Apoya alguna organización ambiental?

O Sí, soy miembro   O Sí, aporto donaciones regularmente
O A veces, pero no con regularidad   O No

25. Nacionalidad: _____
      Domicilio actual (región/ciudad): _____

Si estás de vacaciones en La Gomera:

22a) Duración de la estadía: ____ días

22b) ¿Cuántas veces visitaste La Gomera? _____

¡Muchas gracias por participar en esta encuesta! Como agradecimiento, tienes la posibilidad de ganar uno de muchos premios. ¡El premio principal es un tour de avistamiento de ballenas con OCEANO Gomera! Para participar, por favor rellene el formulario adjunto.

Guten Tag, mein Name ist Maita Bengsch und ich studiere Nachhaltiges Tourismusmanagement an der Hochschule Eberswalde. Zusammen mit dem MEER e.V. arbeite ich zurzeit an meiner Masterarbeit, die sich mit dem Umweltbewusstsein, in Bezug auf das Meer, von Anwohnern und Touristen im Valle Gran Rey befasst.

Dazu bitte ich Sie die folgenden Fragen auszufüllen. Es wird circa 10-15 Minuten in Anspruch nehmen! Bitte kreuzen Sie nur eine Antwort an, wenn nicht anders angegeben.

Alle Daten werden selbstverständlich anonym und vertraulich behandelt! Sollten Sie Interesse an den Ergebnissen haben, schreiben Sie mir bitte eine kurze E-Mail an: maita.bengsch@hnee.de
Vielen Dank!

MEER e.V.

1. Haben Sie schon mal von der Organisation MEER e.V. gehört?

   O Ja   O Nein   *(Wenn nein, weiter bei Frage 2)*

   Wenn ja:

   1a) Was sind die beiden Hauptaufgaben des MEER e.V.? (Wählen Sie die **2 richtigen** Antworten)

   O Kunst über Wale & Delfine   O Aufklärungsarbeit
   O Forschung   O Politischer Aktivismus/Engagement
   O Kampf gegen Plastikverschmutzung   O Strandsäuberungsaktionen

2. Haben Sie von der Dauerausstellung des MEER e.V. über Wale und Delfine gehört?

   O Ja   O Nein   *(Wenn nein, weiter bei Frage 3)*

   Wenn ja:

   2a) Haben Sie die Ausstellung besucht?

   O Ja   O Nein   *(Wenn nein, weiter bei Frage 3)*
   O Nein, aber ich habe es noch vor

   2b) Mit wie vielen Sternen würden Sie folgende Aspekte der Ausstellung bewerten?

   - Informationen   ☆ ☆ ☆ ☆ ☆
   - Gesamtkonzept   ☆ ☆ ☆ ☆ ☆

   2c) Was hat Ihnen besonders gefallen? Was hat Ihnen nicht gefallen? Haben Sie Vorschläge?

   _____
   _____
   _____
   _____
   _____

Umweltbewusstsein

3. Bitte bewerten Sie die folgenden Aussagen (1= Ich stimme sehr zu, 5= Ich stimme gar nicht zu):

	1	2	3	4	5
Die Bevölkerungszahl der Erde nähert sich einer kritischen Grenze.					
Der Mensch hat das Recht, seine natürliche Umgebung seinen Bedürfnissen entsprechend zu verändern.					
Wenn Menschen in die Vorgänge der Natur eingreifen, hat dies nicht selten katastrophale Folgen.					
Menschliches Einfallsreichtum wird sicherstellen, dass die Erde nicht unbewohnbar wird.					
Die Menschheit missbraucht die Erde stark.					
Die Erde hat reichlich natürliche Ressourcen, wenn wir nur lernen, sie nutzbar zu machen.					
Pflanzen und Tiere haben dasselbe Recht zu existieren wie Menschen.					
Das Gleichgewicht der Natur ist stark genug, um die negativen Einwirkungen der modernen Industrienationen zu verkraften.					
Trotz seinen speziellen Fähigkeiten ist der Mensch immer noch den Gesetzen der Natur unterworfen.					
Die sogenannte „ökologische Krise", welcher die Menschheit gegenübersteht, ist massiv übertrieben.					
Die Erde ist wie ein Raumschiff mit sehr begrenztem Raum und wenig Ressourcen.					
Menschen wurden dazu gemacht, über den Rest der Natur zu herrschen.					
Das Gleichgewicht der Erde ist sehr empfindlich und kann leicht gestört werden.					
Die Menschen werden irgendwann einmal genug über die Funktionsweise der Natur lernen, sodass sie diese kontrollieren können.					
Wenn die Dinge auf ihrem aktuellen Kurs bleiben, werden wir bald eine große ökologische Katastrophe erleben.					

Meer, Wale & Delfine

4. Wussten Sie, dass man auf La Gomera besonders gut Wale und Delfine beobachten kann?

O Ja   O Nein

5. Haben Sie schon mal eine Whale Watching Tour auf La Gomera gemacht?

O Ja   O Nein   *(Wenn nein, weiter bei Frage 6)*

O Nein, aber woanders   O Nein, aber ich habe es noch vor

Wenn Ja:

5a) Auf welchen Kanälen haben Sie sich vorher über die Tour informiert? (Mehrfachnennung möglich)

O Reiseführer
O Ausstellung vom MEER e.V.
O Informationsabend von Oceano Gomera
O Freunde/Familie
O Reisebüro
O Whale Watching Anbieter
O Touristen Information
O Broschüren
O Internet (bitte geben Sie die Seite an):

_____

O Anderes: _____

5b) Nach was für Informationen haben Sie vorher gesucht? (Mehrfachnennung möglich)

O Allgemeine Informationen über die Tour
O Informationen über die Tiere
O Informationen über das Meer
O Andere: _____

6. Mit welchem Unternehmen haben Sie eine Whale Watching Tour gemacht/geplant?

O Amazonia   O Speedy
O Oceano Gomera   O Yani
O Tina   O Pura Vida
O Ich weiß es noch nicht

7. Schätzen Sie, wie viele Wal- und Delfinarten vor La Gomera bisher gesichtet wurden!

- ○ 0-5
- ○ 6-10
- ○ 11-15
- ○ 16-20
- ○ 21-30
- ○ Mehr als 30

8. Wussten Sie, dass es auf den Kanarischen Inseln gesetzliche Vorschriften für Whale Watching gibt?

- ○ Ja   ○ Nein

9. Wussten Sie, dass das Gewässer im Süden und Südwesten von La Gomera ein Schutzgebiet ist?

- ○ Ja   ○ Nein

10. Bitte bewerten Sie die folgenden Aspekte des Whale Watching in Bezug auf Ihre Wichtigkeit (1= sehr wichtig, 5= Gar nicht wichtig):

	1	2	3	4	5
Den Tieren so nah wie möglich zu kommen					
Geschulte Guides und Crew					
Entertainment auf dem Boot					
Essen und Getränke an Bord					
Stopps zum Schwimmen und Schnorcheln					
Die Tiere nicht zu stören					
Durchführung wissenschaftlicher Studien während der Tour					
Hintergrundinformationen zu den Tieren während der Tour					
Möglichkeiten sich weiter zu informieren (z.B. Informationszentrum)					
Den Lebensraum der Tiere zu erhalten					

11. Bitte bewerten sie die folgenden Umweltbedrohungen in Bezug auf Ihre Gefährdung für das Meer weltweit (1= sehr bedrohlich, 5= gar nicht bedrohlich):

	1	2	3	4	5
Klimawandel					
Abnehmende Artenvielfalt im Meer					
Überfischung					
Beifang					
Abwasser					
Abbau von Ressourcen aus dem Meer (Öl/Gas)					
Unterwasserlärm					
Plastikverschmutzung					
Schiffskollisionen					

12. Ihrer Meinung nach, welches sind **die 3 massivsten Bedrohungen** denen La Gomera heute gegenübersteht?

- ○ Klimawandel
- ○ Abnehmende biologische Vielfalt im Meer
- ○ Überfischung
- ○ Beifang
- ○ Abwasser
- ○ Abbau von Ressourcen aus dem Meer (Öl/Gas)
- ○ Unterwasserlärm
- ○ Plastikverschmutzung
- ○ Schiffskollisionen

13. Wie würden Sie den Einfluss von Schnellfähren auf die Umwelt bewerten?

O sehr stark   O stark   O wenig   O keinen Einfluss   O ich bin unsicher

14. Haben Sie je von Kollisionen von Schiffen mit Walen und Delfinen auf den Kanaren gehört?

O Ja   O Nein

15. Um Kollisionen zu vermeiden müsste die Fähre von Teneriffa nach La Gomera langsamer fahren. Die Überfahrt würde 30 Minuten länger dauern. Würde Sie eine längere Anfahrt in Kauf nehmen, um Kollisionen mit Walen und Delfinen zu vermeiden?

O Ja   O Nein

16. Wünschen Sie sich mehr Möglichkeiten auf der Insel, um sich über Umweltthemen zu informieren?

O Ja   O Nein

17. Welche Themen würden Sie interessieren? (Mehrfachnennung möglich)

O La Gomera – Geographie   O Nachhaltigkeit allgemein
O Umwelt an Land   O Wale und Delfine
O Meeresumwelt   O Naturschutz
O Bedrohungen für das Meer   O Meeresschutz
O Nachhaltiger Tourismus   O Andere: _____

Angaben zur Person:

18. Altersgruppe:

O Unter 20   O 40-49
O 20-24   O 50-59
O 25-29   O 60-69
O 20-29   O 70 oder älter
O 30-39

21. Geschlecht:

O Weiblich
O Männlich
O Anderes

20. Ausbildung (höchster Abschluss):

O Hauptschule   O Master oder ähnliches
O Realschule   O Doktor oder ähnliches
O Abitur   O kein Abschluss
O Bachelor oder ähnliches O Anderes: _____

21. Unterstützen Sie eine Naturschutzorganisation?

O Ja, ich bin Mitglied   O Ja, ich spende regelmäßig
O Manchmal, aber nicht regelmäßig   O Nein

22. Nationalität: _____
    Aktueller Wohnort (Region/Stadt): _____

Wenn Sie als Tourist auf La Gomera sind:

22a) Aufenthaltsdauer: _____ Tage

22b) Ihr wievielter Aufenthalt ist es hier? _____

Als Dankeschön bekommen Sie die Möglichkeit bei einer Verlosung teilzunehmen. Der Gewinn ist eine Whale Watching Tour mit OCEANO Gomera! Um teilzunehmen, füllen Sie bitte den angehefteten Zettel aus!

Descriptive Analysis

1. Have you heard about the organization MEER e.V.?			
answer	quote	percent	
yes	61	29,9%	30%
no	142	69,6%	70%
no answer	1	0,5%	0%
total	204	100,0%	

1a) What represents MEER most? (Tick the 2 correct answers)			
question	count of markers	percent	
Arts about whales and dolphins	5	8,2%	8%
Research	48	78,7%	79%
Fight plastic pollution	10	16,4%	16%
Public education	45	73,8%	74%
Political activism/engagement	3	4,9%	5%
Beach Clean-Ups	1	1,6%	2%
total	61	100,0%	

2. Did you know about MEER's exhibition on dolphins and whales in Valle Gran Rey?			
answer	quote	percent	
yes	50	24,5%	25%
no	149	73,0%	73%
no answer	5	2,5%	2%
total	204	100,0%	

2a) Did you visit the exhibition?			
answer	quote	percent	
yes	18	8,8%	9%
no	49	24,0%	24%
no, but still planing todo so	12	5,9%	6%
no answer	125	61,3%	61%
total	204	100,0%	

2a) Did you visit the exhibition?			
Information			
note	quote	percent	
1	0	0,0%	0%
2	1	0,5%	0%
3	3	1,5%	1%
4	6	2,9%	3%
5	8	3,9%	4%
no answer	186	91,2%	91%
total	204	100,0%	

2a) Did you visit the exhibition?			
Overall Concept			
note	quote	percent	
1	0	0,0%	0%
2	3	1,5%	1%
3	5	2,5%	2%
4	2	1,0%	1%
5	7	3,4%	3%
no answer	187	91,7%	92%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):			
We are approaching the limit of the number of people the Earth can support.			
note	quote	percent	
1	66	32,4%	32%
2	51	25,0%	25%
3	56	27,5%	27%
4	15	7,4%	7%
5	13	6,4%	6%
no answer	3	1,5%	1%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):			
Humans have the right to modify the natural environment to suit their needs.			
note	quote	percent	
1	70	34,3%	34%
2	57	27,9%	28%
3	46	22,5%	23%
4	16	7,8%	8%
5	13	6,4%	6%
no answer	2	1,0%	1%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):			
When humans interfere with nature it often produces disastrous consequences.			
note	quote	percent	
1	119	58,3%	58%
2	39	19,1%	19%
3	18	8,8%	9%
4	10	4,9%	5%
5	15	7,4%	7%
no answer	3	1,5%	1%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):			
Human ingenuity will ensure that we do not make the earth unlivable.			
note	quote	percent	
1	29	14,2%	14%
2	46	22,5%	23%
3	66	32,4%	32%
4	29	14,2%	14%
5	30	14,7%	15%
no answer	4	2,0%	2%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):			
Humans are seriously abusing the environment.			
note	quote	percent	
1	148	72,5%	73%
2	29	14,2%	14%
3	7	3,4%	3%
4	5	2,5%	2%
5	10	4,9%	5%
no answer	5	2,5%	2%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree):			
The earth has plenty of natural resources if we just learn how to develop them.			
note	quote	percent	
1	20	9,8%	10%
2	19	9,3%	9%
3	27	13,2%	13%
4	39	19,1%	19%
5	96	47,1%	47%
no answer	3	1,5%	1%
total	204	100,0%	

| 3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): Plants and animals have as much right as humans to exist.			
note	quote	percent	
1	166	81,4%	81%
2	16	7,8%	8%
3	8	3,9%	4%
4	4	2,0%	2%
5	6	2,9%	3%
no answer	4	2,0%	2%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): The balance of nature is strong enough to cope with the impacts of modern industrial nations.			
note	quote	percent	
1	166	81,4%	81%
2	16	7,8%	8%
3	8	3,9%	4%
4	4	2,0%	2%
5	6	2,9%	3%
no answer	4	2,0%	2%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): Despite our special abilities, humans are still subject to the laws of nature.			
note	quote	percent	
1	122	59,8%	60%
2	41	20,1%	20%
3	22	10,8%	11%
4	8	3,9%	4%
5	7	3,4%	3%
no answer	4	2,0%	2%
total	204	100,0%	

| 3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): The so-called "ecological crisis" facing humankind has been greatly exaggerated.			
note	quote	percent	
1	109	53,4%	53%
2	50	24,5%	25%
3	15	7,4%	7%
4	17	8,3%	8%
5	11	5,4%	5%
no answer	2	1,0%	1%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): The earth is like a spaceship with very limited room and resources.			
note	quote	percent	
1	75	36,8%	37%
2	31	15,2%	15%
3	49	24,0%	24%
4	22	10,8%	11%
5	22	10,8%	11%
no answer	5	2,5%	2%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): Humans were meant to rule over the rest of nature.			
note	quote	percent	
1	157	77,0%	77%
2	16	7,8%	8%
3	9	4,4%	4%
4	9	4,4%	4%
5	9	4,4%	4%
no answer	4	2,0%	2%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): The balance of nature is very delicate and easily upset.			
note	quote	percent	
1	116	56,9%	57%
2	48	23,5%	24%
3	27	13,2%	13%
4	9	4,4%	4%
5	1	0,5%	0%
no answer	3	1,5%	1%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): Humans will eventually learn enough about how nature works to be able to control it.			
note	quote	percent	
1	55	27,0%	27%
2	49	24,0%	24%
3	52	25,5%	25%
4	24	11,8%	12%
5	21	10,3%	10%
no answer	3	1,5%	1%
total	204	100,0%	

3. Please rate the following statements (1= I strongly agree, 5= I strongly disagree): If things continue on their present course, we will soon experience a major ecological catastrophe.			
note	quote	percent	
1	134	65,7%	66%
2	35	17,2%	17%
3	20	9,8%	10%
4	8	3,9%	4%
5	6	2,9%	3%
no answer	1	0,5%	0%
total	204	100,0%	

4. Did you know that La Gomera is a prime location for Whale Watching?			
answer	quote	percent	
yes	188	92,2%	92%
no	15	7,4%	7%
no answer	1	0,5%	0%
total	204	100,0%	

5. Did you ever participate in a whale watching trip on La Gomera?			
answer	quote	percent	
yes	110	53,9%	54%
no	62	30,4%	30%
no, but still planing todo so	19	9,3%	9%
no, but elsewhere	11	5,4%	5%
no answer	2	1,0%	1%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Guide book			
note	quote	percent	
1	11	5,4%	5%
no answer	193	94,6%	95%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Exhibition of MEER e.V.			
note	quote	percent	
1	1	0,5%	0%
no answer	203	99,5%	100%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Information event at Oceano Gomera			
note	quote	percent	
1	7	3,4%	3%
no answer	197	96,6%	97%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Friends/Family			
note	quote	percent	
1	75	36,8%	37%
no answer	129	63,2%	63%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Travel Agency			
note	quote	percent	
1	1	0,5%	0%
no answer	203	99,5%	100%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Whale Watching company			
note	quote	percent	
1	39	19,1%	19%
no answer	165	80,9%	81%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Tourist Information			
note	quote	percent	
1	9	4,4%	4%
no answer	195	95,6%	96%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Brochures			
note	quote	percent	
1	11	5,4%	5%
no answer	193	94,6%	95%
total	204	100,0%	

5a) How did you inform yourself about the trip?			
Internet			
note	quote	percent	
1	14	6,9%	7%
no answer	190	93,1%	93%
total	204	100,0%	

5b) What kind of information did you look for while planning your trip?			
General information about the trip			
note	quote	percent	
1	54	26,5%	26%
no answer	150	73,5%	74%
total	204	100,0%	

5b) What kind of information did you look for while planning your trip?			
Information about the animals			
note	quote	percent	
1	33	16,2%	16%
no answer	171	83,8%	84%
total	204	100,0%	

5b) What kind of information did you look for while planning your trip?			
Information about the ocean			
note	quote	percent	
1	19	9,3%	9%
no answer	185	90,7%	91%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Amazonia			
note	quote	percent	
1	38	18,6%	19%
no answer	166	81,4%	81%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Oceano Gomera			
note	quote	percent	
1	55	27,0%	27%
no answer	149	73,0%	73%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Tina			
note	quote	percent	
1	39	19,1%	19%
no answer	165	80,9%	81%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Don´t know			
note	quote	percent	
1	51	25,0%	25%
no answer	153	75,0%	75%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Speedy			
note	quote	percent	
1	15	7,4%	7%
no answer	189	92,6%	93%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Yani			
note	quote	percent	
1	14	6,9%	7%
no answer	190	93,1%	93%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Pura Vida			
note	quote	percent	
1	8	3,9%	4%
no answer	196	96,1%	96%
total	204	100,0%	

6. Which company did you choose for your booking /are you planning to choose for your whale watching trip?			
Private			
note	quote	percent	
1	3	1,5%	1%
no answer	201	98,5%	99%
total	204	100,0%	

7. Guess, how many whale and dolphin species have been recorded in the waters off La Gomera?			
answer	quote	percent	
0-5	10	4,9%	5%
6-10	39	19,1%	19%
11-15	43	21,1%	21%
16-20	38	18,6%	19%
21-30	39	19,1%	19%
mehr als 30	30	14,7%	15%
no answer	5	2,5%	2%
total	204	100,0%	

8. Did you know that there are special legal regulations for Whale Watching on the Canary Islands?			
answer	quote	percent	
yes	146	71,6%	72%
no	57	27,9%	28%
no answer	1	0,5%	0%
total	204	100,0%	

9. Did you know that the waters in the South and Southwest off La Gomera are a protected area?			
answer	quote	percent	
yes	106	52,0%	52%
no	97	47,5%	48%
no answer	1	0,5%	0%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): Being as close as possible to the animals			
note	quote	percent	
1	14	6,9%	7%
2	25	12,3%	12%
3	67	32,8%	33%
4	30	14,7%	15%
5	64	31,4%	31%
no answer	4	2,0%	2%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): Skilled guides, skipper and crew			
note	quote	percent	
1	174	85,3%	85%
2	20	9,8%	10%
3	2	1,0%	1%
4	1	0,5%	0%
5	5	2,5%	2%
no answer	2	1,0%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): On-board entertainment			
note	quote	percent	
1	14	6,9%	7%
2	11	5,4%	5%
3	31	15,2%	15%
4	35	17,2%	17%
5	111	54,4%	54%
no answer	2	1,0%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): On-board food & beverages			
note	quote	percent	
1	15	7,4%	7%
2	17	8,3%	8%
3	49	24,0%	24%
4	46	22,5%	23%
5	74	36,3%	36%
no answer	3	1,5%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): Stops to go swimming/snorkelling			
note	quote	percent	
1	23	11,3%	11%
2	24	11,8%	12%
3	62	30,4%	30%
4	34	16,7%	17%
5	59	28,9%	29%
no answer	2	1,0%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): To not disturb the animals			
note	quote	percent	
1	179	87,7%	88%
2	10	4,9%	5%
3	2	1,0%	1%
4	2	1,0%	1%
5	8	3,9%	4%
no answer	3	1,5%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): On-board research			
note	quote	percent	
1	82	40,2%	40%
2	56	27,5%	27%
3	41	20,1%	20%
4	13	6,4%	6%
5	10	4,9%	5%
no answer	2	1,0%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): Background information about the animals during the trip			
note	quote	percent	
1	153	75,0%	75%
2	38	18,6%	19%
3	8	3,9%	4%
4	0	0,0%	0%
5	2	1,0%	1%
no answer	3	1,5%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): Possibilities to further inform yourself (e.g. information centre)			
note	quote	percent	
1	88	43,1%	43%
2	83	40,7%	41%
3	27	13,2%	13%
4	3	1,5%	1%
5	1	0,5%	0%
no answer	2	1,0%	1%
total	204	100,0%	

10. Please rate different aspects of Whale Watching according to their importance (1= very importantant, 5= Not important at all): Conservation of the animals' habitat			
note	quote	percent	
1	193	94,6%	95%
2	4	2,0%	2%
3	2	1,0%	1%
4	0	0,0%	0%
5	2	1,0%	1%
no answer	3	1,5%	1%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Climate change

note	quote	percent	
1	161	78,9%	79%
2	23	11,3%	11%
3	14	6,9%	7%
4	2	1,0%	1%
5	1	0,5%	0%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Decreasing marine biodiversity

note	quote	percent	
1	165	80,9%	81%
2	28	13,7%	14%
3	7	3,4%	3%
4	1	0,5%	0%
5	0	0,0%	0%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Overfishing

note	quote	percent	
1	165	80,9%	81%
2	30	14,7%	15%
3	3	1,5%	1%
4	1	0,5%	0%
5	3	1,5%	1%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Bycatch

note	quote	percent	
1	125	61,3%	61%
2	44	21,6%	22%
3	20	9,8%	10%
4	4	2,0%	2%
5	4	2,0%	2%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Sewage

note	quote	percent	
1	143	70,1%	70%
2	40	19,6%	20%
3	10	4,9%	5%
4	4	2,0%	2%
5	2	1,0%	1%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Marine resources extraction (oil/gas)

note	quote	percent	
1	156	76,5%	76%
2	32	15,7%	16%
3	9	4,4%	4%
4	3	1,5%	1%
5	2	1,0%	1%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Ocean noise

note	quote	percent	
1	123	60,3%	60%
2	48	23,5%	24%
3	21	10,3%	10%
4	7	3,4%	3%
5	2	1,0%	1%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Plastic Pollution

note	quote	percent	
1	186	91,2%	91%
2	10	4,9%	5%
3	3	1,5%	1%
4	0	0,0%	0%
5	3	1,5%	1%
no answer	0	0,0%	0%
total	204	100,0%	

11. Please rate the following environmental threats to the ocean regarding their danger globally (1= very threatening, 5= Not threatening at all):

Ship strikes

note	quote	percent	
1	94	46,1%	46%
2	46	22,5%	23%
3	39	19,1%	19%
4	12	5,9%	6%
5	9	4,4%	4%
no answer	0	0,0%	0%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Climate change

note	quote	percent	
1	91	44,6%	45%
no answer	113	55,4%	55%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Decreasing marine biodiversity

note	quote	percent	
1	82	40,2%	40%
no answer	122	59,8%	60%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Overfishing

Note	quote	percent	
1	72	35,3%	35%
no answer	132	64,7%	65%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Bycatch

note	quote	percent	
1	9	4,4%	4%
no answer	195	95,6%	96%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Sewage

note	quote	percent	
1	117	57,4%	57%
no answer	87	42,6%	43%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Marine resources extraction (oil/gas)

note	quote	percent	
1	35	17,2%	17%
no answer	169	82,8%	83%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Ocean noise

note	quote	percent	
1	44	21,6%	22%
no answer	160	78,4%	78%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Plastic Pollution

note	quote	percent	
1	139	68,1%	68%
no answer	65	31,9%	32%
total	204	100,0%	

12. Please select the 3 most severe threats (in your opinion) La Gomera's marine environment is
Ship strikes

note	quote	percent	
1	24	11,8%	12%
no answer	180	88,2%	88%
total	204	100,0%	

13. How would you rate the impact of high-speed ferries on the environment?

answer	quote	percent	
i am unsure	28	13,7%	14%
no influence	1	0,5%	0%
very strong	55	27,0%	27%
strong	105	51,5%	51%
little influence	14	6,9%	7%
no answer	1	0,5%	0%
total	204	100,0%	

14. Have you ever heard about ship strikes/collisions between the ferries and whales and dolphins on the Canary Islands?

answer	quote	percent	
yes	111	54,4%	54%
no	92	45,1%	45%
no answer	1	0,5%	0%
total		0,0%	

15. To avoid ship strikes the ferry from Tenerife to La Gomera would travel for about 30 minutes longer. Would you be willing to accept a slower ferry travel, if that would mean less harm for marine mammals?			
answer	quote	percent	
yes	196	96,1%	96%
no	7	3,4%	3%
no answer	1	0,5%	0%
total	204	100,0%	

16. Do you wish to have more possibilities on the island to receive information about environmental topics?			
answer	quote	percent	
yes	178	87,3%	87%
no	24	11,8%	12%
no answer	2	1,0%	1%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) La Gomera – geography			
note	quote	percent	
1	52	25,5%	25%
no answer	152	74,5%	75%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Terrestrial environment			
note	quote	percent	
1	91	44,6%	45%
no answer	113	55,4%	55%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Marine environment			
note	quote	percent	
1	104	51,0%	51%
no answer	100	49,0%	49%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Threats marine life has to face			
note	quote	percent	
1	75	36,8%	37%
no answer	129	63,2%	63%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Sustainable tourism			
note	quote	percent	
1	106	52,0%	52%
no answer	98	48,0%	48%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Sustainability in general			
note	quote	percent	
1	94	46,1%	46%
no answer	110	53,9%	54%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Whales and dolphins			
note	quote	percent	
1	82	40,2%	40%
no answer	122	59,8%	60%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Terrestrial conservation			
note	quote	percent	
1	108	52,9%	53%
no answer	96	47,1%	47%
total	204	100,0%	

17. Which topics would you be interested in? (Multiple choice) Marine Conservation			
note	quote	percent	
1	102	50,0%	50%
no answer	102	50,0%	50%
total	204	100,0%	

18. Age group:			
answer	quote	percent	
unter 20	9	4,4%	4%
20-29	27	13,2%	13%
30-39	50	24,5%	25%
40-49	46	22,5%	23%
50-59	53	26,0%	26%
60-69	15	7,4%	7%
70 oder älter	1	0,5%	0%
no answer	3	1,5%	1%
total	204	100,0%	

19. Gender:			
answer	quote	percent	
femal	113	55,4%	55%
male	82	40,2%	40%
no answer	9	4,4%	4%
total	204	100,0%	

20. Education (highest degree):			
answer	quote	percent	
Secondary school	8	3,9%	4%
Secondary school	38	18,6%	19%
High school	51	25,0%	25%
Bachelor degree or similar	53	26,0%	26%
Master degree or similar	39	19,1%	19%
PhD or similar	9	4,4%	4%
no degree	1	0,5%	0%
no answer	5	2,5%	2%
total	204	100,0%	

21. Are you supporting an environmental organization?			
answer	quote	percent	
Yes, I am member	19	9,3%	9%
Yes, I am donating regularly	12	5,9%	6%
Sometimes, but not regularly	53	26,0%	26%
no	115	56,4%	56%
no answer	5	2,5%	2%
total	204	100,0%	

22. Nationality			
answer	quote	percent	
German	102	50,0%	50%
Spain	102	50,0%	50%
no answer	0	0,0%	0%
total	204	100,0%	

22. Nationality / 22.2) Current domicile (region/city)	count
⊟ Deutsch	**101**
Argentinien	1
Bayern / Nürnberg	1
Bayern, Nürnberg	1
Bayern/Erlangen	1
Berlin	9
Brandenburg/Wriezen	1
Bremen	2
Dessau	2
Essen	1
Frankfurt	1
Frankfurt/Main	1
Gomera	1
Halle/ Saale	1
Hamburg	4
Kiel	1
La Gomera, Alajero	1
Melbourne	1
NRW	1
NRW, Langenfeld	1
NRW, Viersen	1
NRW/Dortmund	1
Oldenburg	1
Osnabrück	3
Peine/Niedersachsen	1
Rheinland-Pfalz / Gerolstein	1
Rhein-Main-Gebiet	1
Rocklitz	1
Sachsen / Dresden	2
Sachsen / Wachau	1
Sachsen, Rocklitz	1
Sachsen-Anhalt	1
Sachsen-Anhalt/ Halle	1
San Sebastian de La Gomera	1
Solingen, NRW	1
stuttgart	1
Valle Gran Rey	47
Valle Gran Rey / Hessen	1
Verden/Niedersachsen	1
Wuppertal	1
(Leer)	
⊟ Española	**101**
Arrecife/Lanzarote	1
Baden Württemberg	1
Guadá, La Gomera	1
Hermigua	1
La Cuesta	1
La Gomera / Valle Hermoso	1
la laguna, tenerife	1
La Laguna,Tenerife	1
Las Palmas de Gran Canaria	1
Madrid	3
San Cristobal de La Laguna	1
San Cristobal de La Laguna, Tenerife	1
San Sebastian de La Gomera	2
Santa Cruz de Tenerife	14
Tenerife	19
Tenerife / Puerto de la Cruz	1
Teneriffa	1
Teneriffa / Tacoronte	1
Valle Gran Rey	49
(Leer)	
Gesamtergebnis	**202**

22a) Length of stay	Count
2	3
3	8
4	3
5	8
6	5
7	7
8	3
9	3
10	6
13	1
14	20
15	1
16	1
17	4
19	3
20	5
21	3
22	2
23	1
25	1
28	1
30	5
33	1
40	1
42	1
150	1
14 (gerade kein Tourist)	1
7 Monate	1
(Leer)	
Gesamtergebnis	**100**

22b) How many times have you been visiting La Gomera?	count
0	1
1	27
2	10
3	12
4	2
5	6
6	1
7	2
9	3
10	4
15	3
20	3
25	1
30	2
+ de 60 veces	1
10+	4
1000+ (Familia)	1
2 veces cada año	1
2.	1
20+	1
4 años	1
8 veces año	1
A lot!!! My Family live here	1
casi todos los veranos (anualmente)	1
hier geboren	1
jeden Sommer	2
Muchas	1
Muchas, todos los anios varias veces	1
Muchisimas	1
regularmente	1
toda la vida	2
(Leer)	
Gesamtergebnis	**99**

Comparison question 11 with gender

Question 11 / Answer 19
"Climate change"

note	count male	%	count female	%	count no answer	%	total over all	%
1	57	69,5%	96	85,0%	8	88,9%	161	78,9%
2	16	19,5%	7	6,2%		0,0%	23	11,3%
3	8	9,8%	5	4,4%	1	11,1%	14	6,9%
4	1	1,2%	1	0,9%		0,0%	2	1,0%
5		0,0%	1	0,9%		0,0%	1	0,5%
no answer		0,0%	3	2,7%		0,0%	3	1,5%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Decreasing marine biodiversity"

note	count male	%	count female	%	count no answer	%	total over all	%
1	59	72,0%	97	85,8%	9	100,0%	165	80,9%
2	17	20,7%	11	9,7%		0,0%	28	13,7%
3	4	4,9%	3	2,7%		0,0%	7	3,4%
4	1	1,2%		0,0%		0,0%	1	0,5%
5		0,0%		0,0%		0,0%	0	0,0%
no answer	1	1,2%	2	1,8%		0,0%	3	1,5%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Overfishing"

note	count male	%	count female	%	count no answer	%	total over all	%
1	63	76,8%	94	83,2%	8	88,9%	165	80,9%
2	15	18,3%	14	12,4%	1	11,1%	30	14,7%
3	1	1,2%	2	1,8%		0,0%	3	1,5%
4	1	1,2%		0,0%		0,0%	1	0,5%
5	2	2,4%	1	0,9%		0,0%	3	1,5%
no answer		0,0%	2	1,8%		0,0%	2	1,0%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Bycatch"

note	count male	%	count female	%	count no answer	%	total over all	%
1	46	56,1%	74	65,5%	5	55,6%	125	61,3%
2	18	22,0%	24	21,2%	2	22,2%	44	21,6%
3	11	13,4%	8	7,1%	1	11,1%	20	9,8%
4	3	3,7%	1	0,9%		0,0%	4	2,0%
5	3	3,7%	1	0,9%		0,0%	4	2,0%
no answer	1	1,2%	5	4,4%	1	11,1%	7	3,4%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Sewage"

note	count male	%	count female	%	count no answer	%	total over all	%
1	52	63,4%	83	73,5%	8	88,9%	143	70,1%
2	21	25,6%	19	16,8%		0,0%	40	19,6%
3	5	6,1%	5	4,4%		0,0%	10	4,9%
4	2	2,4%	1	0,9%	1	11,1%	4	2,0%
5	1	1,2%	1	0,9%		0,0%	2	1,0%
no answer	1	1,2%	4	3,5%		0,0%	5	2,5%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Marine resources extraction (oil/gas)"

note	count male	%	count female	%	count no answer	%	total over all	%
1	57	69,5%	91	80,5%	8	88,9%	156	76,5%
2	17	20,7%	15	13,3%		0,0%	32	15,7%
3	5	6,1%	4	3,5%		0,0%	9	4,4%
4	2	2,4%		0,0%	1	11,1%	3	1,5%
5	1	1,2%	1	0,9%		0,0%	2	1,0%
no answer		0,0%	2	1,8%		0,0%	2	1,0%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Ocean noise"

note	count male	%	count female	%	count no answer	%	total over all	%
1	39	47,6%	78	69,0%	6	66,7%	123	60,3%
2	25	30,5%	20	17,7%	3	33,3%	48	23,5%
3	14	17,1%	7	6,2%		0,0%	21	10,3%
4	2	2,4%	5	4,4%		0,0%	7	3,4%
5	1	1,2%	1	0,9%		0,0%	2	1,0%
no answer	1	1,2%	2	1,8%		0,0%	3	1,5%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Plastic Pollution"

note	count male	%	count female	%	count no answer	%	total over all	%
1	74	90,2%	103	91,2%	9	100,0%	186	91,2%
2	5	6,1%	5	4,4%		0,0%	10	4,9%
3	1	1,2%	2	1,8%		0,0%	3	1,5%
4		0,0%		0,0%		0,0%		0,0%
5	2	2,4%	1	0,9%		0,0%	3	1,5%
no answer		0,0%	2	1,8%		0,0%	2	1,0%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Question 11 / Answer 19
"Ship strikes"

note	count male	%	count female	%	count no answer	%	total over all	%
1	29	35,4%	60	53,1%	5	55,6%	94	46,1%
2	15	18,3%	29	25,7%	2	22,2%	46	22,5%
3	24	29,3%	14	12,4%	1	11,1%	39	19,1%
4	8	9,8%	4	3,5%		0,0%	12	5,9%
5	5	6,1%	3	2,7%	1	11,1%	9	4,4%
no answer	1	1,2%	3	2,7%		0,0%	4	2,0%
total	82	100,0%	113	100,0%	9	100,0%	204	100,0%

Comparison question 11 with age

	Question 11 / Answer 18a "Climate change"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	27	75,0%	12	75,0%	119	79,9%	3	100,0%	161	78,9%
2	5	13,9%	1	6,3%	17	11,4%		0,0%	23	11,3%
3	4	11,1%	2	12,5%	8	5,4%		0,0%	14	6,9%
4		0,0%		0,0%	2	1,3%		0,0%	2	1,0%
5		0,0%		0,0%	1	0,7%		0,0%	1	0,5%
no answer		0,0%	1	6,3%	2	1,3%		0,0%	3	1,5%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Decreasing marine biodiversity"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	30	83,3%	14	87,5%	118	79,2%	3	100,0%	165	80,9%
2	5	13,9%		0,0%	23	15,4%		0,0%	28	13,7%
3	1	2,8%	2	12,5%	4	2,7%		0,0%	7	3,4%
4		0,0%		0,0%	1	0,7%		0,0%	1	0,5%
5		0,0%		0,0%		0,0%		0,0%		0,0%
no answer		0,0%		0,0%	3	2,0%		0,0%	3	1,5%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Overfishing"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	29	80,6%	13	81,3%	120	80,5%	3	100,0%	165	80,9%
2	6	16,7%	1	6,3%	23	15,4%		0,0%	30	14,7%
3		0,0%	1	6,3%	2	1,3%		0,0%	3	1,5%
4		0,0%		0,0%	1	0,7%		0,0%	1	0,5%
5	1	2,8%	1	6,3%	1	0,7%		0,0%	3	1,5%
no answer		0,0%		0,0%	2	1,3%		0,0%	2	1,0%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Bycatch"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	24	66,7%	12	75,0%	87	58,4%	2	66,7%	125	61,3%
2	9	25,0%	1	6,3%	33	22,1%	1	33,3%	44	21,6%
3	2	5,6%	1	6,3%	17	11,4%		0,0%	20	9,8%
4		0,0%	1	6,3%	3	2,0%		0,0%	4	2,0%
5	1	2,8%	1	6,3%	2	1,3%		0,0%	4	2,0%
no answer		0,0%		0,0%	7	4,7%		0,0%	7	3,4%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Sewage"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	25	69,4%	14	87,5%	101	67,8%	3	100,0%	143	70,1%
2	5	13,9%	1	6,3%	34	22,8%		0,0%	40	19,6%
3	3	8,3%		0,0%	7	4,7%		0,0%	10	4,9%
4	1	2,8%		0,0%	3	2,0%		0,0%	4	2,0%
5	1	2,8%	1	6,3%		0,0%		0,0%	2	1,0%
no answer	1	2,8%		0,0%	4	2,7%		0,0%	5	2,5%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Marine resources extraction (oil/gas)"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	27	75,0%	14	87,5%	112	75,2%	3	100,0%	156	76,5%
2	4	11,1%	1	6,3%	27	18,1%		0,0%	32	15,7%
3	3	8,3%		0,0%	6	4,0%		0,0%	9	4,4%
4	1	2,8%		0,0%	2	1,3%		0,0%	3	1,5%
5	1	2,8%	1	6,3%		0,0%		0,0%	2	1,0%
no answer		0,0%		0,0%	2	1,3%		0,0%	2	1,0%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Ocean noise"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	21	58,3%	12	75,0%	88	59,1%	2	66,7%	123	60,3%
2	9	25,0%	2	12,5%	36	24,2%	1	33,3%	48	23,5%
3	2	5,6%	1	6,3%	18	12,1%		0,0%	21	10,3%
4	4	11,1%		0,0%	3	2,0%		0,0%	7	3,4%
5		0,0%	1	6,3%	1	0,7%		0,0%	2	1,0%
no answer		0,0%		0,0%	3	2,0%		0,0%	3	1,5%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Plastic Pollution"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	34	94,4%	15	93,8%	134	89,9%	3	100,0%	186	91,2%
2	1	2,8%		0,0%	9	6,0%		0,0%	10	4,9%
3		0,0%		0,0%	3	2,0%		0,0%	3	1,5%
4		0,0%		0,0%		0,0%		0,0%		0,0%
5	1	2,8%	1	6,3%	1	0,7%		0,0%	3	1,5%
no answer		0,0%		0,0%	2	1,3%		0,0%	2	1,0%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

	Question 11 / Answer 18a "Ship strikes"									
note	count age < 30	%	count age >= 60	%	count age 30 - 59	%	no answer	%	total over all	%
1	18	50,0%	9	56,3%	66	44,3%	1	33,3%	94	46,1%
2	10	27,8%	3	18,8%	31	20,8%	2	66,7%	46	22,5%
3	4	11,1%	1	6,3%	34	22,8%		0,0%	39	19,1%
4		0,0%	2	12,5%	10	6,7%		0,0%	12	5,9%
5	3	8,3%		0,0%	6	4,0%		0,0%	9	4,4%
no answer	1	2,8%	1	6,3%	2	1,3%		0,0%	4	2,0%
total	36	100,0%	16	100,0%	149	100,0%	3	100,0%	204	100,0%

Comparison question 11 with education level

Question 11 / Answer 20a — "Climate change"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	76	76,0%	79	81,4%	6	85,7%	161	78,9%
2	15	15,0%	8	8,2%		0,0%	23	11,3%
3	5	5,0%	9	9,3%		0,0%	14	6,9%
4	2	2,0%		0,0%		0,0%	2	1,0%
5	1	1,0%		0,0%		0,0%	1	0,5%
no answer	1	1,0%	1	1,0%	1	14,3%	3	1,5%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Decreasing marine biodiversity"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	76	76,0%	83	85,6%	6	85,7%	165	80,9%
2	17	17,0%	11	11,3%		0,0%	28	13,7%
3	4	4,0%	3	3,1%		0,0%	7	3,4%
4	1	1,0%		0,0%		0,0%	1	0,5%
5	0	0,0%		0,0%		0,0%	0	0,0%
no answer	2	2,0%		0,0%	1	14,3%	3	1,5%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Overfishing"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	77	77,0%	82	84,5%	6	85,7%	165	80,9%
2	17	17,0%	13	13,4%		0,0%	30	14,7%
3	3	3,0%		0,0%		0,0%	3	1,5%
4	1	1,0%		0,0%		0,0%	1	0,5%
5	1	1,0%	2	2,1%		0,0%	3	1,5%
no answer	1	1,0%		0,0%	1	14,3%	2	1,0%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Bycatch"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	50	50,0%	70	72,2%	5	71,4%	125	61,3%
2	29	29,0%	14	14,4%	1	14,3%	44	21,6%
3	13	13,0%	7	7,2%		0,0%	20	9,8%
4	2	2,0%	2	2,1%		0,0%	4	2,0%
5	2	2,0%	2	2,1%		0,0%	4	2,0%
no answer	4	4,0%	2	2,1%	1	14,3%	7	3,4%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Sewage"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	62	62,0%	75	77,3%	6	85,7%	143	70,1%
2	27	27,0%	13	13,4%		0,0%	40	19,6%
3	7	7,0%	3	3,1%		0,0%	10	4,9%
4	3	3,0%	1	1,0%		0,0%	4	2,0%
5		0,0%	2	2,1%		0,0%	2	1,0%
no answer	1	1,0%	3	3,1%	1	14,3%	5	2,5%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Marine resources extraction (oil/gas)"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	73	73,0%	77	79,4%	6	85,7%	156	76,5%
2	19	19,0%	13	13,4%		0,0%	32	15,7%
3	5	5,0%	4	4,1%		0,0%	9	4,4%
4	2	2,0%	1	1,0%		0,0%	3	1,5%
5		0,0%	2	2,1%		0,0%	2	1,0%
no answer	1	1,0%		0,0%	1	14,3%	2	1,0%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Ocean noise"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	51	51,0%	68	70,1%	4	57,1%	123	60,3%
2	28	28,0%	18	18,6%	2	28,6%	48	23,5%
3	13	13,0%	8	8,2%		0,0%	21	10,3%
4	4	4,0%	3	3,1%		0,0%	7	3,4%
5	2	2,0%		0,0%		0,0%	2	1,0%
no answer	2	2,0%		0,0%	1	14,3%	3	1,5%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Plastic Pollution"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	88	88,0%	92	94,8%	6	85,7%	186	91,2%
2	8	8,0%	2	2,1%		0,0%	10	4,9%
3	2	2,0%	1	1,0%		0,0%	3	1,5%
4		0,0%		0,0%		0,0%	0	0,0%
5	1	1,0%	2	2,1%		0,0%	3	1,5%
no answer	1	1,0%		0,0%	1	14,3%	2	1,0%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Question 11 / Answer 20a — "Ship strikes"

note	count Bachelor, Master, PhD or similar	%	count Secondary-/High-Shool, A_Level	%	no answer	%	total over all	%
1	34	34,0%	56	57,7%	4	57,1%	94	46,1%
2	26	26,0%	18	18,6%	2	28,6%	46	22,5%
3	24	24,0%	15	15,5%		0,0%	39	19,1%
4	9	9,0%	3	3,1%		0,0%	12	5,9%
5	4	4,0%	5	5,2%		0,0%	9	4,4%
no answer	3	3,0%		0,0%	1	14,3%	4	2,0%
total	100	100,0%	97	100,0%	7	100,0%	204	100,0%

Comparison question 11 with target group

Question 11 / Answer 22.1 — "Climate change"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1	1	100,0%	37	72,5%	49	90,7%	34	68,0%	40	83,3%	161	78,9%
2		0,0%	6	11,8%	2	3,7%	11	22,0%	4	8,3%	23	11,3%
3		0,0%	5	9,8%	2	3,7%	4	8,0%	3	6,3%	14	6,9%
4		0,0%		0,0%		0,0%	1	2,0%	1	2,1%	2	1,0%
5		0,0%	1	2,0%		0,0%		0,0%		0,0%	1	0,5%
no answer		0,0%	2	3,9%	1	1,9%		0,0%		0,0%	3	1,5%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Decreasing marine biodiversity"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1	1	100,0%	38	74,5%	48	88,9%	40	80,0%	38	79,2%	165	80,9%
2		0,0%	9	17,6%	5	9,3%	9	18,0%	5	10,4%	28	13,7%
3		0,0%	3	5,9%		0,0%	1	2,0%	3	6,3%	7	3,4%
4		0,0%		0,0%		0,0%		0,0%	1	2,1%	1	0,5%
5		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%
no answer		0,0%	1	2,0%	1	1,9%		0,0%	1	2,1%	3	1,5%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Overfishing"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1		0,0%	44	86,3%	46	85,2%	40	80,0%	35	72,9%	165	80,9%
2	1	100,0%	5	9,8%	6	11,1%	8	16,0%	10	20,8%	30	14,7%
3		0,0%		0,0%		0,0%	2	4,0%	1	2,1%	3	1,5%
4		0,0%		0,0%		0,0%		0,0%	1	2,1%	1	0,5%
5		0,0%	1	2,0%	1	1,9%		0,0%	1	2,1%	3	1,5%
no answer		0,0%	1	2,0%	1	1,9%		0,0%		0,0%	2	1,0%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Bycatch"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1		0,0%	38	74,5%	35	64,8%	32	64,0%	20	41,7%	125	61,3%
2	1	100,0%	8	15,7%	7	13,0%	14	28,0%	14	29,2%	44	21,6%
3		0,0%	2	3,9%	6	11,1%	4	8,0%	8	16,7%	20	9,8%
4		0,0%		0,0%	3	5,6%		0,0%	1	2,1%	4	2,0%
5		0,0%	1	2,0%		0,0%		0,0%	3	6,3%	4	2,0%
no answer		0,0%	2	3,9%	3	5,6%		0,0%	2	4,2%	7	3,4%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Sewage"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1		0,0%	37	72,5%	45	83,3%	31	62,0%	30	62,5%	143	70,1%
2	1	100,0%	11	21,6%	5	9,3%	13	26,0%	10	20,8%	40	19,6%
3		0,0%	1	2,0%	1	1,9%	3	6,0%	5	10,4%	10	4,9%
4		0,0%		0,0%	1	1,9%	2	4,0%	1	2,1%	4	2,0%
5		0,0%	1	2,0%		0,0%		0,0%	1	2,1%	2	1,0%
no answer		0,0%	1	2,0%	2	3,7%	1	2,0%	1	2,1%	5	2,5%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Marine resources extraction (oil/gas)"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1		0,0%	40	78,4%	47	87,0%	28	56,0%	41	85,4%	156	76,5%
2	1	100,0%	7	13,7%	5	9,3%	14	28,0%	5	10,4%	32	15,7%
3		0,0%	2	3,9%	1	1,9%	6	12,0%		0,0%	9	4,4%
4		0,0%		0,0%		0,0%	2	4,0%	1	2,1%	3	1,5%
5		0,0%	1	2,0%		0,0%		0,0%	1	2,1%	2	1,0%
no answer		0,0%	1	2,0%	1	1,9%		0,0%		0,0%	2	1,0%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Ocean noise"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1	1	100,0%	31	60,8%	36	66,7%	29	58,0%	26	54,2%	123	60,3%
2		0,0%	13	25,5%	10	18,5%	12	24,0%	13	27,1%	48	23,5%
3		0,0%	6	11,8%	4	7,4%	7	14,0%	4	8,3%	21	10,3%
4		0,0%		0,0%	2	3,7%	1	2,0%	4	8,3%	7	3,4%
5		0,0%		0,0%	1	1,9%	1	2,0%		0,0%	2	1,0%
no answer		0,0%	1	2,0%	1	1,9%		0,0%	1	2,1%	3	1,5%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Plastic Pollution"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1	1	100,0%	45	88,2%	52	96,3%	47	94,0%	41	85,4%	186	91,2%
2		0,0%	2	3,9%	1	1,9%	3	6,0%	4	8,3%	10	4,9%
3		0,0%	2	3,9%		0,0%		0,0%	1	2,1%	3	1,5%
4		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%
5		0,0%	1	2,0%		0,0%		0,0%	2	4,2%	3	1,5%
no answer		0,0%	1	2,0%	1	1,9%		0,0%		0,0%	2	1,0%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Question 11 / Answer 22.1 — "Ship strikes"

note	count no answer	%	count Resident German	%	count Resident Spain	%	count Tourist German	%	count Tourist Spain	%	total over all	%
1		0,0%	25	49,0%	33	61,1%	18	36,0%	18	37,5%	94	46,1%
2	1	100,0%	12	23,5%	7	13,0%	14	28,0%	12	25,0%	46	22,5%
3		0,0%	9	17,6%	9	16,7%	9	18,0%	12	25,0%	39	19,1%
4		0,0%	2	3,9%	2	3,7%	6	12,0%	2	4,2%	12	5,9%
5		0,0%	2	3,9%	2	3,7%	2	4,0%	3	6,3%	9	4,4%
no answer		0,0%	1	2,0%	1	1,9%	1	2,0%	1	2,1%	4	2,0%
total	1	100,0%	51	100,0%	54	100,0%	50	100,0%	48	100,0%	204	100,0%

Comparison question 11 with Visit of the exhibition

Question 11 / Answer 2a "Climate change"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	15	83,3%	37	75,5%	9	75,0%	100	80,0%	161	78,9%
2	2	11,1%	5	10,2%	2	16,7%	14	11,2%	23	11,3%
3		0,0%	4	8,2%	1	8,3%	9	7,2%	14	6,9%
4		0,0%		0,0%		0,0%	2	1,6%	2	1,0%
5		0,0%	1	2,0%		0,0%		0,0%	1	0,5%
no answer	1	5,6%	2	4,1%		0,0%		0,0%	3	1,5%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Decreasing marine biodiversity"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	15	83,3%	38	77,6%	10	83,3%	102	81,6%	165	80,9%
2	2	11,1%	8	16,3%	2	16,7%	16	12,8%	28	13,7%
3		0,0%	2	4,1%		0,0%	5	4,0%	7	3,4%
4		0,0%		0,0%		0,0%	1	0,8%	1	0,5%
5		0,0%		0,0%		0,0%		0,0%		0,0%
no answer	1	5,6%	1	2,0%		0,0%	1	0,8%	3	1,5%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Overfishing"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	15	83,3%	39	79,6%	12	100,0%	99	79,2%	165	80,9%
2	2	11,1%	6	12,2%		0,0%	22	17,6%	30	14,7%
3		0,0%	1	2,0%		0,0%	2	1,6%	3	1,5%
4		0,0%		0,0%		0,0%	1	0,8%	1	0,5%
5		0,0%	2	4,1%		0,0%	1	0,8%	3	1,5%
no answer	1	5,6%	1	2,0%		0,0%		0,0%	2	1,0%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Bycatch"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	13	72,2%	33	67,3%	10	83,3%	69	55,2%	125	61,3%
2	4	22,2%	8	16,3%	1	8,3%	31	24,8%	44	21,6%
3		0,0%	5	10,2%		0,0%	15	12,0%	20	9,8%
4		0,0%	1	2,0%		0,0%	3	2,4%	4	2,0%
5		0,0%	1	2,0%		0,0%	3	2,4%	3	1,5%
no answer	1	5,6%	1	2,0%	1	8,3%	4	3,2%	7	3,4%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Sewage"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	13	72,2%	35	71,4%	11	91,7%	84	67,2%	143	70,1%
2	4	22,2%	9	18,4%	1	8,3%	26	20,8%	40	19,6%
3		0,0%	1	2,0%		0,0%	9	7,2%	10	4,9%
4		0,0%	1	2,0%		0,0%	3	2,4%	4	2,0%
5		0,0%	1	2,0%		0,0%	1	0,8%	2	1,0%
no answer	1	5,6%	2	4,1%		0,0%	2	1,6%	5	2,5%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Marine resources extraction (oil/gas)"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	12	66,7%	36	73,5%	11	91,7%	97	77,6%	156	76,5%
2	3	16,7%	8	16,3%	1	8,3%	20	16,0%	32	15,7%
3	2	11,1%	2	4,1%		0,0%	5	4,0%	9	4,4%
4		0,0%	1	2,0%		0,0%	2	1,6%	3	1,5%
5		0,0%	1	2,0%		0,0%	1	0,8%	2	1,0%
no answer	1	5,6%	1	2,0%		0,0%		0,0%	2	1,0%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Ocean noise"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	13	72,2%	27	55,1%	8	66,7%	75	60,0%	123	60,3%
2	2	11,1%	13	26,5%	3	25,0%	30	24,0%	48	23,5%
3	2	11,1%	8	16,3%		0,0%	11	8,8%	21	10,3%
4		0,0%		0,0%	1	8,3%	6	4,8%	7	3,4%
5		0,0%		0,0%		0,0%	2	1,6%	2	1,0%
no answer	1	5,6%	1	2,0%		0,0%	1	0,8%	3	1,5%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Plastic Pollution"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	17	94,4%	44	89,8%	11	91,7%	114	91,2%	186	91,2%
2		0,0%	2	4,1%	1	8,3%	7	5,6%	10	4,9%
3		0,0%	1	2,0%		0,0%	2	1,6%	3	1,5%
4		0,0%		0,0%		0,0%		0,0%		0,0%
5		0,0%	1	2,0%		0,0%	2	1,6%	3	1,5%
no answer	1	5,6%	1	2,0%		0,0%		0,0%	2	1,0%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Question 11 / Answer 2a "Ship strikes"

note	count yes	%	count no	%	count no, but still planing to do so	%	count no answer	%	total over all	%
1	9	50,0%	20	40,8%	6	50,0%	59	47,2%	94	46,1%
2	4	22,2%	12	24,5%	4	33,3%	26	20,8%	46	22,5%
3	3	16,7%	12	24,5%	1	8,3%	23	18,4%	39	19,1%
4		0,0%		0,0%		0,0%	12	9,6%	12	5,9%
5	1	5,6%	3	6,1%	1	8,3%	4	3,2%	9	4,4%
no answer	1	5,6%	2	4,1%		0,0%	1	0,8%	4	2,0%
total	18	100,0%	49	100,0%	12	100,0%	125	100,0%	204	100,0%

Comparison question 11 with participation in whale watching

Question 11 / Answer 5 — "Climate change"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	89	80,9%	48	77,4%	13	68,4%	9	81,8%	2	100,0%	161	78,9%
2	10	9,1%	8	12,9%	4	21,1%	1	9,1%		0,0%	23	11,3%
3	7	6,4%	5	8,1%	2	10,5%		0,0%		0,0%	14	6,9%
4	1	0,9%		0,0%		0,0%	1	9,1%		0,0%	2	1,0%
5	1	0,9%		0,0%		0,0%		0,0%		0,0%	1	0,5%
no answer	2	1,8%	1	1,6%		0,0%		0,0%		0,0%	3	1,5%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Decreasing marine biodiversity"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	91	82,7%	48	77,4%	15	78,9%	9	81,8%	2	100,0%	165	80,9%
2	15	13,6%	9	14,5%	3	15,8%	1	9,1%		0,0%	28	13,7%
3	3	2,7%	3	4,8%	1	5,3%		0,0%		0,0%	7	3,4%
4		0,0%		0,0%		0,0%	1	9,1%		0,0%	1	0,5%
5		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Overfishing"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	97	88,2%	46	74,2%	14	73,7%	6	54,5%	2	100,0%	165	80,9%
2	9	8,2%	13	21,0%	4	21,1%	4	36,4%		0,0%	30	14,7%
3	1	0,9%	1	1,6%	1	5,3%		0,0%		0,0%	3	1,5%
4		0,0%		0,0%		0,0%	1	9,1%		0,0%	1	0,5%
5	2	1,8%	1	1,6%		0,0%		0,0%		0,0%	3	1,5%
no answer	1	0,9%	1	1,6%		0,0%		0,0%		0,0%	2	1,0%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Bycatch"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	75	68,2%	36	58,1%	8	42,1%	5	45,5%	1	50,0%	125	61,3%
2	24	21,8%	12	19,4%	6	31,6%	2	18,2%		0,0%	44	21,6%
3	6	5,5%	6	9,7%	4	21,1%	3	27,3%	1	50,0%	20	9,8%
4	2	1,8%	1	1,6%	1	5,3%		0,0%		0,0%	4	2,0%
5	1	0,9%	2	3,2%		0,0%	1	9,1%		0,0%	4	2,0%
no answer	2	1,8%	5	8,1%		0,0%		0,0%		0,0%	7	3,4%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Sewage"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	81	73,6%	44	71,0%	10	52,6%	6	54,5%	2	100,0%	143	70,1%
2	20	18,2%	12	19,4%	5	26,3%	3	27,3%		0,0%	40	19,6%
3	4	3,6%	2	3,2%	3	15,8%	1	9,1%		0,0%	10	4,9%
4	2	1,8%	1	1,6%		0,0%	1	9,1%		0,0%	4	2,0%
5	1	0,9%	1	1,6%		0,0%		0,0%		0,0%	2	1,0%
no answer	2	1,8%	2	3,2%	1	5,3%		0,0%		0,0%	5	2,5%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Marine resources extraction (oil/gas)"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	84	76,4%	50	80,6%	12	63,2%	8	72,7%	2	100,0%	156	76,5%
2	17	15,5%	7	11,3%	6	31,6%	2	18,2%		0,0%	32	15,7%
3	5	4,5%	3	4,8%	1	5,3%		0,0%		0,0%	9	4,4%
4	2	1,8%		0,0%		0,0%	1	9,1%		0,0%	3	1,5%
5	1	0,9%	1	1,6%		0,0%		0,0%		0,0%	2	1,0%
no answer	1	0,9%	1	1,6%		0,0%		0,0%		0,0%	2	1,0%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5" — "Ocean noise

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	66	60,0%	40	64,5%	9	47,4%	7	63,6%	1	50,0%	123	60,3%
2	28	25,5%	13	21,0%	5	26,3%	2	18,2%		0,0%	48	23,5%
3	10	9,1%	6	9,7%	4	21,1%	1	9,1%		0,0%	21	10,3%
4	4	3,6%	1	1,6%	1	5,3%		0,0%	1	50,0%	7	3,4%
5	1	0,9%	1	1,6%		0,0%		0,0%		0,0%	2	1,0%
no answer	1	0,9%	1	1,6%		0,0%	1	9,1%		0,0%	3	1,5%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Plastic Pollution"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	101	91,8%	56	90,3%	18	94,7%	9	81,8%	2	100,0%	186	91,2%
2	5	4,5%	4	6,5%		0,0%	1	9,1%		0,0%	10	4,9%
3	2	1,8%		0,0%	1	5,3%		0,0%		0,0%	3	1,5%
4		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%
5	1	0,9%	1	1,6%		0,0%	1	9,1%		0,0%	3	1,5%
no answer	1	0,9%	1	1,6%		0,0%		0,0%		0,0%	2	1,0%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Question 11 / Answer 5 — "Ship strikes"

note	count yes	%	count no	%	count no, but still planning to do so	%	count no, but elsewhere	%	count no answer	%	total over all	%
1	51	46,4%	32	51,6%	6	31,6%	5	45,5%		0,0%	94	46,1%
2	25	22,7%	10	16,1%	8	42,1%	3	27,3%		0,0%	46	22,5%
3	18	16,4%	14	22,6%	3	15,8%	2	18,2%	2	100,0%	39	19,1%
4	8	7,3%	2	3,2%	2	10,5%		0,0%		0,0%	12	5,9%
5	7	6,4%	2	3,2%		0,0%		0,0%		0,0%	9	4,4%
no answer	1	0,9%	2	3,2%		0,0%	1	9,1%		0,0%	4	2,0%
total	110	100,0%	62	100,0%	19	100,0%	11	100,0%	2	100,0%	204	100,0%

Answers to "What did you like best about the exhibition? What did you dislike? Do you have any suggestions?" (2c)

What did they like best?	*What did they dislike?*
Presentation: - Information are arranged in a proper order - good: real-life/-size portrayal, vortex and rip of a whale, impressing pictures of dolphins and plastic bags - lively - Lively, pictures - great pictures - original sound - bones of sperm whale, baleen. photos and live sized models of dolphins on wall **Exhibition room:** - inspiring environment **Information:** - the information is close to the area, what I liked a lot - also informative for children - concrete facts - Information - Really good elaborated information material **Others:** - basic idea very good - always accessible during opening hours, for free - employees and interns!	**Presentation:** - difficult to read, a lot of text - Clarity of presentation, way too much information - The exhibition itself was not particularly turned out well, as some Information weren't easy to read. - way too much to read, on banners that are too big and confusing. - Presentation on banners not really welcoming **Exhibition room:** - Moreover, its design is pretty boring, it has much more potential. - it was very dark inside, did not look like an exhibition, because small and in a cellar etc. - not very welcoming (lightning conditions, cellar in general) - in the cellar **Information:** - Information are partly outdated - outdated information **Others:** - Insufficient advertising, respectively not noticeable in "Valle Bote"
Recommendations:	
- also, modern media & out on the streets, open to the public, for example in harbour.	

Ranked topics of interest (17)

All	German tourists	German residents	Spanish tourists	Spanish residents
1. Terrestrial conservation 2. Sustainable tourism 3. Marine environment 4. Marine conservation 5. Sustainability in general 6. Terrestrial environment 7. Whales and dolphins 8. Threats marine life has to face 9. Geography of La Gomera	1. Whales and Dolphins 2. Marine conservation 3. Terrestrial conservation 4. Marine environment 5. Sustainable tourism 6. Terrestrial environment 7. Threats marine life has to face 8. Geography of La Gomera 9. Sustainability in general	1. Terrestrial conservation 2. marine conservation 3. Sustainable tourism 4. Threats marine life has to face 5. Sustainability in general - Terrestrial environment 7.Marine environment 8. Whales and dolphins 9. Geography of La Gomera	1. Marine environment 2. Sustainable tourism 3. Sustainability in general 4. Terrestrial environment - Whales and dolphins - Terrestrial conservation 7. Threats marine life has to face 8. Marine Conservation 9. Geography of La Gomera	1. Marine environment - Sustainability in general 3. Sustainable tourism 4. Terrestrial environment 5. Marine Conservation 6. Terrestrial conservation 7. Whales and dolphins 8. Threats marine life has to face 9. Geography of La Gomera

Which topics would you be interested in?
- General information - Hiking - Air - Geology, Flora and Fauna - Water, Sewage, Electricity - Possibilities for sustainable power generation - Renewable energy (El Hierro) - Permaculture - Living and working conditions and possibilities for conscious people - Sustainability in everyday life