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PLANNING FOR SUSTAINABLE SURF TOURISM: SOCIAL AND SPATIAL ASPECTS IN THE LISBON REGION

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SAMENVATTING

Het belang van toerisme in de mondiale economie is in snel tempo toegenomen. Portugal ontwikkelde zich de laatste jaren tot een van de voornaamste toeristische bestemmingen ter wereld. Surftoerisme is een van de grootste toeristische groeiniches van het land. Het is de belangrijkste economische motor geworden voor meerdere kustgebieden, met name in de regio rond Lissabon. De implicaties van de snelle ontwikkeling van het surftoerisme kregen recent steeds meer aandacht vanuit de samenleving, de media en de academische wereld. Uit onderzoek van de academische literatuur blijkt dat de ruimtelijke planning voor een duurzame ontwikkeling van het surftoerisme voor verbetering vatbaar is. Dit geldt ook voor de betrokkenheid van de *stakeholder*s, wiens perceptie beter geïntegreerd dient te worden in de besluitvormingsprocessen. Daarom werden voor dit onderzoek drie doelstellingen geformuleerd. Het eerste onderzoeksdoel is om de sociaalruimtelijke aspecten van het surftoerisme in verschillende kustgebieden in de regio rond Lissabon te begrijpen. De tweede doelstelling is om de bestaande beleidspraktijken rond surftoerisme in de regio rond Lissabon te analyseren. De derde doelstelling is om aanbevelingen te formuleren voor mogelijke beleidspraktijken die kunnen bijdragen tot de duurzame ontwikkeling van surftoerisme in de regio. Om deze doelstellingen te bereiken, werd een *multiple case study approach* toegepast. Een enquête bij 335 respondenten van zes *stakeholder* groepen in zeven gemeenten werd geanalyseerd volgens het *DPSIR-framework* (*Driving Forces-Pressures-State-Impacts-Responses*). De resultaten van de enquête werden aangevuld met inzichten uit 13 semi-gestructureerde interviews met vertegenwoordigers van overheidsdiensten verantwoordelijk voor de ruimtelijke ordening en het ruimtelijke planning, en van verenigingen werkend rond surftoerisme. Dit leidde tot een overzichtsanalyse van de beleidspraktijken rond surftoerisme. De belangrijkste actoren en *stakeholders* werden geïdentificeerd en de bestaande beleidspraktijken werden gestructureerd aan de hand van de beheersinstrumenten voor duurzaam toerisme, ontwikkeld door het UNEP en de WTO. Uit dit onderzoek blijkt dat in de ruimtelijke planning recent meer aandacht wordt besteed aan aspecten van het surftoerisme. Er zijn echter nog steeds passende maatregelen op het gebied van ruimtelijke ordening nodig. Aanbevolen wordt om meer nadruk te leggen op regionaal bestuur door middel van intergemeentelijke samenwerking en interactie tussen de verschillende bestuursniveaus. De *adaptive co-management approach*, die onlangs is toegepast in het Ericeira World Surf Reserve, kan een toonaangevend voorbeeld zijn van *governance* die een breed scala aan belanghebbenden betrekt bij besluitvormingsprocessen die concrete acties voor de ontwikkeling van duurzaam surftoerisme coördineren.

ABSTRACT

The significance of tourism in the global economy has witnessed an accelerated growth. Portugal has established itself as one of the prime tourism destinations in the world, and tourism has become the country's largest economic sector. Surf tourism is one of the major growth niches in the tourism industry of the country. It has become the primary economic driver in multiple coastal areas throughout the country, especially in the Lisbon region. However, the rapid development of surf tourism has also brought challenges for the local communities, which have gathered increasing attention in society, the media and the academic world. The conducted review of the academic literature performed in this study revealed a need to improve territorial management and planning practices related to surf tourism development. Additionally, the involvement of stakeholders needs to be enhanced and their perceptions have to be better integrated in the decision-making process. Thus, the following objectives were set out for this research. The first objective is to understand the social and spatial aspects of surf tourism in different coastal areas in the Lisbon region. The second objective is to analyse the existing management instruments for surf tourism on multiple scalar levels in the Lisbon region. The final objective is to formulate recommendations to sustainably develop surf tourism in the future. To reach these objectives, a multiple case study approach was adopted. A survey conducted with 335 respondents from six stakeholder groups in seven municipalities was analysed according to the Driving Forces-Pressures-State-Impacts-Responses (DPSIR) framework. These results were complemented by 13 semi-structured interviews with representatives of public administration bodies with authority for spatial planning and management, as well as associations related to surf tourism. Based on these data, a general analysis of the governance of surf tourism destinations was carried out. The main actors and stakeholders were identified and the existing governance actions were structured according to the management instruments for sustainable tourism, developed by UNEP and WTO. This research shows that more attention is recently given in spatial management instruments to aspects of surf tourism. However, appropriate spatial planning measures are still needed. It is recommended that more emphasis be put on regional governance based on inter-municipal cooperation and on interaction between the different scales of governance. The adaptive co-management approach, recently adopted in the Ericeira World Surfing Reserve, could be a leading example of governance by involving a wide range of stakeholders in decision-making processes to coordinate concrete actions for the development of sustainable surf tourism.

RESUMO

A influência do turismo na atividade económica global tem vindo a aumentar a um ritmo acelerado. Nos últimos anos, Portugal tem-se afirmado como um dos principais destinos turísticos do mundo e o turismo tornou-se o maior sector económico do país. O turismo de surf é um dos maiores nichos de crescimento do país. Em várias zonas costeiras do país, especialmente na região de Lisboa, é hoje a principal motor económico. As implicações do desenvolvimento rápido do turismo de surf têm recebido recentemente uma atenção crescente na sociedade, nos meios de comunicação social e na comunidade científica. A revisão da literatura científica mostra que há espaço para um desenvolvimento mais sustentável do turismo de surf através o planeamento territorial mais adequado. Além disso, o envolvimento dos *stakeholders* cuja percepção carece de uma melhor integração nos processos de decisão. Face a este contexto, foram formulados três objectivos principais: o primeiro é proporcionar uma visão geral dos aspectos sociais e territoriais do turismo de surf nas diferentes zonas costeiras da região de Lisboa, conforme assente na perspectiva dos *stakeholders*-chave; o segundo é analisar os instrumentos de gestão existentes em matéria de turismo de surf a múltiplas escalas na região de Lisboa; e o terceiro é equacionar um conjunto recomendações em relação aos que possam contribuir para o desenvolvimento de um turismo de surf mais sustentável na região. Para alcançar estes objectivos, foi aplicada uma *multiple case study approach.* Foram realizados 335 inquéritos a seis grupos de *stakeholders* em sete municípios, o qual foi analisado de acordo com o *DPSIR-framework* (*Driving Forces-Pressures-State-Impacts-Responses*). Os resultados foram complementados por 13 entrevistas semiestruturadas a representantes de organismos da administração pública com responsabilidade no planeamento e gestão territorial, assim como com associações relacionadas com o turismo de surf. Com base nestes dados foi efectuada uma análise geral da governança dos destinos de turismo de surf. Foram identificados os principais *actors* e *stakeholders* e as ações de governança existentes foram confrontadas com os instrumentos de gestão do turismo sustentável desenvolvidos pelo UNEP e pela WTO. Esta investigação mostra que recentemente é dada mais atenção, nos instrumentos de gestão territorial, aos aspectos do turismo de surf. No entanto, continuam a ser necessárias medidas adequadas de ordenamento do território. Recomenda-se que seja dada mais destaque à governação regional assente em cooperação intermunicipal e à interação entre as diferentes escalas de governação. A *adaptive co-management approach*, recentemente aplicada na Reserva Mundial de Surf da Ericeira, constitui um exemplo demonstrativo de governança por envolver um conjunto alargado de *stakeholders* nos processos de tomada de decisão no sentido de coordenar ações concretas para o desenvolvimento de um turismo de surf sustentável.

POPULARIZING CONTENT

Surf tourism has rapidly become a primary economic driver in various coastal areas of Portugal, especially in the Lisbon region. The fast and uncontrolled development of surf tourism has raised concerns about its sustainability in the future. There appears to be a need to improve spatial management and planning practices related to surf tourism development. Additionally, public participation in decision-making processes needs to be enhanced. To contribute to a sustainable development of surf tourism, a survey was conducted with 335 respondents from six stakeholder groups of seven surf tourism destinations in the Lisbon region and 13 interviews were carried out with representatives of involved institutions and associations. The social and spatial aspects of surf tourism were investigated and the existing management practices were analysed. This study recommends that greater emphasis should be put on regional governance of surf tourism and on the integration of different spatial planning instruments and strategies. The management approach of the Ericeira World Surfing Reserve could be a leading example in giving voice to the concerns of various stakeholders to coordinate concrete actions for sustainable surf tourism development.

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LIST OF ABBREVIATIONS

AESDP: *Associação De Escolas De Surf De Portugal* (Portuguese Association of Surf Schools)

ANS: *Associação Nacional de Surfistas* (National Association of Surfers)

APA: *Agência Portuguesa do Ambiente* (Portuguese Environment Agency)

CCDRC: *Comissão de Coordenação e Desenvolvimento Regional do Centro* (Regional Coordination and Development Commission of the Center)

CCDR-LVT: *Comissão de Coordenação e Desenvolvimento Regional de Lisboa e Vale do Tejo* (Regional Coordination and Development Commission of Lisbon and Tagus Valley)

DGT: *Direção-Geral do Território* (Directorate-General for the Territory)

DR: *Diário da República* (Diary of the Republic)

ETIS: European Tourism System of Indicators for Sustainable Management at Destination Level

FPCP: *Federação Portuguesa de Concessionários de Praia* (Portuguese Federation of Beach Concessionaires)

IBC: International Bodyboarding Corporation

ICNF: *Instituto da Conservação da Natureza e das Florestas* (Institute for Nature Conservation and Forests)

IGT: *Instrumentos de Gestão Territorial* (Spatial Management Instruments)

INE: *Instituto Nacional de Estatística* (National Institute of Statistics)

ISA: International Surfing Association

LTA: *Associação Turismo de Lisboa* (Lisbon Tourism Association)

NUTS: Nomenclature of Territorial Units for Statistics

PDM: *Plano Director Municipal* (Municipal Master Plan)

PEDU: *Plano Estratégico de Desenvolvimento Urbano* (Strategic Urban Development Plan)

PENT: *Plano Estratégico Nacional do Turismo* (National Strategic Plan for Tourism)

PNPOT: *Programa Nacional da Política de Ordenamento do Território* (National Programme for Territorial Management Policies)

POC: *Programa da Orla Costeira* (Coastal Zone Programme)

POC-ACE: *Programa da Orla Costeira Alcobaça-Cabo Espichel* (Alcobaça-Cabo Espichel Coastal Zone Programme)

POEM: *Plano de Ordenamento do Espaço Marítimo* (Maritime Spatial Management Plan)

POOC: *Plano de Ordenamento da Orla Costeira* (Coastal Zone Plan)

POPNSC: *Plano de Ordenamento do Parque Natural Sintra Cascais* (Spatial Plan of Sintra-Cascais Natural Park)

POR: *Programa Operacional Regional* (Regional Operational Programme)

PP: *Plano de Pormenor* (Detail Plan)

PROT: *Plano Regional do Ordenamento do Território* (Regional Territorial Plan)

PROT-AML: *Plano Regional de Ordenamento do Território da Área Metropolitana de Lisboa* (Regional Territorial Plan for the Spatial Planning of the Metropolitan Area of Lisbon)

PROT-OVT: *Plano Regional de Ordenamento do Território do Oeste e Vale do Tejo* (Regional Territorial Plan for the Spatial Planning of the Western Territory and the Tagus Valley)

PU: *Plano de Urbanização* (Urbanization Plan)

QS: Qualifying Series

REOT: *Relatório de estado do ordenamento do território* (Spatial Planning Status Report)

RIS3: Research and Innovation strategy for Smart Specialisation

RJIGT: *Regime Jurídico dos Instrumentos de Gestão Territorial* (Legal Framework for Territorial Management Instruments)

RNAAT: *Registo Nacional dos Agentes de Animação Turística* (National Register of Tourist Entertainment Operators)

STOKE: Sustainable Tourism Operator's Kit for Evaluation

STDG: Surf tourism destination governance

TALC: Tourism area life cycle

TCP: *Turismo do Centro de Portugal* (Tourism of Central Portugal)

UNEP: United Nations Environment Programme

WTO: World Tourism Organization

WCED: World Commission on Environment and Development

WSL: World Surf League

1. INTRODUCTION

1.1 Context of the research

Surfing, the act of riding waves, has witnessed an exponential growth in the last decades. Worldwide the number of surfers is estimated to be around 35 million (Ponting & O'Brien, 2014), while the sport itself is practiced in at least 147 countries, or every country with a coastline (Surf-Forecast, 2020). The global surfing industry has followed this growth trend to become a multi-billion-dollar industry, providing estimated revenues between US $70 and US $130 billion on a yearly basis (Ponting & O'Brien, 2014). The three main contributions to the industry are the surf-branded clothing, the hardware (surfboards, wetsuits, etc.) and the surf tourism (Buckley, 2002a). Surf tourism can be considered a substantial niche of nature-based adventure tourism.

Mainland Portugal possesses 832 km of Atlantic coast and more than 130 surf spots. The weather conditions and the variety along the coastline make it possible to surf 365 days a year (Turismo de Portugal, 2020d). Portugal is estimated to have around 200 000 active surfers (SurferToday, 2018). Surfing in Portugal started in the 1960s and grew exponentially over the following decades. By the end of the 1970s, the first international surfing contest was held and the first surf school was inaugurated. The commercialization of surfing gained momentum during the 1980s. In the 1990s, the first surf camps owned by Portuguese people were opened, and the surfing participation kept growing. During the 21st Century, the annual growing rate of regular surfers lies between 25 to 30% (Bicudo & Horta, 2009). In the last decade, three developments pushed the promotion of Portugal as an international surf destination, namely the settlement of a stage of the World Surf League (WSL) Championship Tour in Peniche in 2009, the recognition of Ericeira as a World Surfing Reserve by the Save The Waves Coalition in 2011, and the revelation of the big wave spot of Nazaré in 2011 (Teixeira, 2017). Following those developments, the national tourism board of Portugal now regards surfing as a key product for the promotion of tourism in Portugal (Turismo de Portugal, 2020d).

Worldwide, surf tourism has become an activity with significant economic, social and environmental impacts, which justifies the academic attention it increasingly receives (Buckley, 2002a). Since the late 1990s, a new interdisciplinary body of literature has emerged, with contributions from varied social science disciplines, ranging from human geography, anthropology and economics to sociology, psychology and political sciences, beside the self-evident prominence of the tourism field. Martin and Assenov (2012) conducted a systematic review of the surf tourism research from 1997 up until 2011. They distinguished three periods in the formation

of the literature in the field until 2011: the early period (1997-2000), the formative period (2001-2006) and the progressive period (2007-2011).

In the early period (1997-2000) the first studies around surf tourism were published. Augustin (1998) arguably published the first international journal article dedicated to surf tourism, describing the development of coastal resorts near surfing areas in France. Other articles highlighted the global reach of surf tourism and already mentioned capacity management issues (Poizat-Newcomb, 1999; Reed, 1999).

During the formative period (2001-2006), formal definitions of surf tourism were developed. (Fluker, 2003). Martin and Assenov (2012) recognized two main aspects in the literature during this period. Firstly, a focus on surfer's demographic and economic characteristics, travel patterns and behaviour (Buckley, 2002a, 2002b; Dolnicar & Fluker, 2003). Secondly, the commodification of 'surfing space' and the impacts that surf tourism has on host communities in foreign countries (Tantamjarik, 2004). In addition, graduate students focused on sustainability issues (Hageman, 2004; Hugues-Dit-Ciles et al., 2004; Ponting, 2001), which would remain a primary research topic.

In the progressive period (2007-2011), research was focused around three central themes, namely the assessment, management and sustainability of surf tourism and associated coastal zones (Bicudo & Horta, 2009; Cabeleira, 2011; Lazarow, 2007). Graduate students remained of high importance for the development of the research field (Eberline, 2011; Hugues Dit Ciles, 2009; Lazarow, 2010; Mach, 2009; Martin, 2010a; Ponting, 2008). Throughout their works the interdisciplinary nature and the diversity of research problems were highlighted. This period also marked the emergence of commissioned research about surf tourism, showing that governments and the private sector were concerned about the social, economic, environmental and institutional implications of surf tourism and the relationships between surf tourists and coastal communities (Calais Consultants & Dhatom Tourism Consultants, 2007; Tourism New South Wales, 2009). In addition, studies from the not-for-profit-sector were published, which emphasized the importance of surfers and the wider surf community in surf site advocacy, custodianship and protection (Coffman & Burnett, 2009; Surfers Against Sewage, 2009). Research further stressed the value of conservation to provide a strategic and institutional framework to address current and future user and management needs and issues (Farmer & Short, 2007; Fitzgerald Frisby Landscape Architecture, 2010). Lastly, socioeconomic studies highlighted the significance of surfing to society and coastal communities in particular (Martin & Assenov, 2012).

In 2010, the Center for Surf Research at San Diego State University was opened. It offers opportunities for graduate research, insights and sponsorship from private and corporate institutions and organizes symposia on ongoing research (https://csr.sdsu.edu). Surf research thus became a recognized and interdisciplinary research field and continued to investigate various aspects of surf tourism. Firstly, the impacts of surf tourism activities on surf destinations in the developing world have been studied (Martin & Assenov, 2015; O'Brien & Ponting, 2013; Ponting & O'Brien, 2014; Porter et al. 2015; Towner & Milne, 2017). Secondly, surf sites situated in developed countries and in mainly urban settings with high-use, high-impact exposure were analysed, showing the threats and impacts of urbanization in coastal areas (Doering, 2018; Usher et al. 2016). Further, surf tourism research has continued to investigate the characteristics of surf tourists and their travelling behaviour (Anderson, 2014; Barbieri & Sotomayor, 2013; Hritz & Franzidis, 2018; Reis & Jorge, 2012; Rivera Mateos, 2016). Lastly, management issues for sustainable surf tourism are most prominent in recent studies (Borne & Ponting, 2015; Borne & Ponting, 2017; Lopes & Bicudo, 2017; Mach & Ponting, 2018; Martin & Assenov, 2014; Ponting & O'Brien, 2015; Reineman & Ardoin, 2018).

In Portugal, academic research about the subject only started in the last decade, with the first publication in a journal article dating from 2009 (Bicudo & Horta, 2009). This article focused on the integration of surfing in the environmental evaluation of coastal projects. The first book about the history of surfing in Portugal was published in 2008 (Rocha, 2008). Ever since then, research has been conducted about diverse aspects of surfing in Portugal, often done by students in their Master's thesis (Baeta, 2016; Cabeleira, 2011; Campos, 2016; Carapinha, 2018; Teixeira, 2017; Vieira, 2015). Those graduate students were mostly part of tourism and (spatial) management faculties. Their studies focused on the sustainable development of surf tourism as a key source for coastal regions in the country. The scale used in the dissertations was either nationwide (Baeta, 2016; Campos, 2016) or focused on the most famous surf sites, being Ericeira (Carapinha, 2018), Peniche (Cabeleira, 2011; Teixeira, 2017) and Nazaré (Vieira, 2015).

Apart from those valuable graduate studies, other articles referencing to surf tourism in Portugal were published in academic journals. The themes they addressed were diverse, but fitted in the wider academic interest in the field. Some studies investigated the choice behaviour and characteristics of surf tourists in Portugal (Frank et al., 2015; Portugal et al., 2017; Rebelo & Carvalhinho, 2012), some looked at the economic value of surf events (Nunes & Brito, 2019), while others analysed coastal management issues concerning surf tourism (Fernandes et al., 2016; Machado et al., 2018; Oliveira et al., 2019; Silva & Ferreira, 2016). The scale in these studies was either nationwide (Portugal et al., 2017) or centred around popular surf sites such as Peniche

(Nunes & Brito, 2019; Oliveira et al., 2019; Rebelo & Carvalhinho, 2012), Costa da Caparica (Silva & Ferreira, 2016), the Algarve (Frank et al., 2015; Machado et al., 2018) and Nazaré (Fernandes et al., 2016). Research about different aspects of surf tourism in Portugal clearly has been gathering attention over the last years. The common thread behind all the articles is a wish to contribute to the sustainable development of surf tourism in Portugal.

It is worth mentioning that publications in academic journals are not the only source of information about surf tourism. The so-called grey literature, ranging from news articles, online articles, podcasts, governmental publications to videos, documentaries, interviews, surf contests broadcasts etc. also contributed to the knowledge about surfing and surf tourism.

The study of the surf tourism literature shows that more research about spatial management practices is needed to contribute to the sustainable development of surf tourism and to avoid that the current rapid, uncontrolled growth would result in negative consequences for the coastal areas and their inhabitants. This issue was expressed in the conclusion of the Master's thesis of Teixeira (2017) for the city of Peniche:

> It is recommended that Peniche pursues sustainability-oriented management practices. Decision-making should be done with deeper involvement of determinant local stakeholders, such as tourism operators and local surfers, whose perceptions should be regularly monitored. The direct economic and environmental impacts caused by surf tourism should also be assessed. (Teixeira, 2017, p. 91)

This issue is not only relevant for Peniche, but for all surf destinations in Portugal and beyond. It is also expressed in the Alcobaça-Cabo Espichel Coastal Zone Programme (POC-ACE), which was approved by the Portuguese government in April 2019:

> The coastline between Alcobaça and Cabo Espichel has, on the whole, very favourable conditions for the practice of surfing, because of the excellent beaches, the good weather conditions and the existence of places with unique physical characteristics that allow the occurrence of waves of great quality, consistency and uniqueness at a world level. The suitability of this coastline for the practice of surfing is evidenced by the accomplishment of several sports events of world-wide scope, namely in the beaches of the municipalities of Nazaré, Peniche, Torres Vedras, Mafra, Sintra, Cascais and Almada, reaffirming the importance of surfing as a strategic bet of national tourism. The existence of highly recognized and attractive resources requires an integrated management that both ensures their protection, as well as the preservation of the environmental context in which they are inserted, while enhancing the opportunities for local and regional development. (POC-ACE, p. 32, own translation)

1.2 Research questions, objectives and methodology

It can be concluded that adequate management of surf tourism has to find a delicate balance between environmental, economic and social facets. As these are inherently interconnected, it seems necessary to get a better understanding of the dynamics and relations between these components and their expression in spatial patterns (Antrop & Van Eetvelde, 2017). The involvement of stakeholders in the decision-making process should also be increased to give voice to their concerns. To pursue a sustainable development of surf tourism, an analysis of the existing management practices should first be made to determine what could be improved. These considerations have led to the formulation of the research questions of this Master's thesis, namely:

1) What are the social and spatial aspects of surf tourism, according to relevant stakeholders?
2) How are surf tourism destinations governed?
3) What are the existing management instruments for surf tourism?
4) Which management practices can contribute to sustainable surf tourism development?

To answer these research questions, within the Portuguese context of surf tourism, a multiple case study approach is adopted. The chosen case studies are seven municipalities with the most popular surf spots of the Lisbon region. Comparing results from different municipalities facilitates new insights about varying management practices and outcomes for surf tourism.

Further, a mixed method approach is used in terms of data collection, combining quantitative and qualitative approaches to get a more complete understanding of the subject. First, surveys are conducted with the main stakeholder groups in the different municipalities to analyse their perceptions about surf tourism. Afterwards, semi-structured interviews are held with representatives of relevant governance institutions to get to know the existing management instruments. This is combined with secondary methods of data collection, namely a study of policies, strategies, plans, programmes and institutions, combined with field notes and participant observation.

The social and spatial aspects are analysed using the *Driving Forces – Pressures – State – Impacts – Responses* (DPSIR) Framework, which "is a systems-thinking framework that assumes cause-effect relationships between interacting components of social, economic, and environmental systems" (Environmental Protection Agency, 2015, p. 3). The analysis of the management instruments is structured by the instruments for sustainable tourism, which were developed by the United Nations Environment Programme and the United Nations World Tourism Organization (UNEP & WTO, 2005).

Thus, the scope of this Master's thesis is to achieve the three following objectives:

1) To understand the social and spatial aspects of surf tourism in different coastal areas in the Lisbon region, using the DPSIR framework;
2) To analyse the existing management instruments for surf tourism in the Lisbon region;
3) To formulate specific and general recommendations that can contribute to sustainable surf tourism development in the Lisbon region and in other surf tourism destinations.

1.3 Thesis outline

Chapter 2 'Study areas' describes the selected case study areas in terms of their location, general characteristics, tourism characteristics and surf tourism characteristics.

Chapter 3 'Methodology' outlines the adopted methodology of this thesis. First, definitions are formulated for the main concepts in this study. Secondly, the mixed method approach is explained, as well as the paradigms of pragmatism and social constructivism. Further, the adaptation of the DPSIR framework to the subject of surf tourism is described. Lastly, the methods of data acquisition and data processing are explained.

Chapter 4 'Results survey respondents' describes the results of the surveys in terms of distribution of respondents, the circumstances during the conduct of the survey as well as the personal characteristics of the respondents.

Chapter 5 'Results DPSIR framework' structures the results of the survey, combined with findings from the semi-structured interviews and the analysis of secondary resources, according to the DPSIR framework. At the end, a synthesis is formulated based on the tourism area life cycle model, developed by Butler (1980, 2006).

Chapter 6 'Results surf tourism destination governance' gives an overview of how the surf tourism destinations in this study are governed. First, an overview of the main actors and stakeholders on multiple scale levels is given. Next, the existing governance actions are presented, structured in subsections by the management instruments for sustainable tourism, developed by UNEP and WTO (2005). At the end of each subsection, recommendations for improvements are formulated.

Chapter 7 'Discussion' provides the main insights of this study and the contributions to the surf tourism literature, accompanied with recommendations for future research.

Chapter 8 'Conclusion' consists of a summary of the conducted research, where answers are formulated to the research questions and objectives of this study.

Chapter 9 contains the list of references and chapter 10 comprises the appendices.

2. STUDY AREAS

2.1 Motivation

Some of the most popular surf tourism destinations in Portugal are situated in the Lisbon region (Leal & Cipriano, 2017), for example in the municipalities of Nazaré, Peniche, Torres Vedras, Mafra, Sintra, Cascais and Almada (see also POC-ACE). These municipalities are good cases to answer the above described research questions. Firstly, it is an area attracting surf tourists from all over the world, as it is considered to be (one of) the best surf areas of Europe. Secondly, research about some aspects of surf tourism in this area has already been conducted, which could be used as a starting point for this thesis. However, up until now Portuguese residents have conducted most of the research about the subject in this region. To study it from an outsider perspective could provide different insights. Thirdly, an Erasmus exchange semester in Lisbon and the participation in surfing in the region have fostered some preliminary knowledge of the region, which facilitates the research.

2.2 General characteristics

The selected municipalities are all situated in the urban system of Lisbon (Fundação Calouste Gulbenkian, 2016). The distance between Nazaré and Almada is around 140 km and takes about 90 minutes by car (Figure 1). The municipalities are part of the POC-ACE which means they are all liable to the same governance as far as coastal management is concerned. They further fall under the jurisdiction of the Commission for Regional Coordination and Development of Lisbon and the Tagus Valley Region (CCDR-LVT, 2020). At the same time, the municipalities are divided over two NUTS II regions, the Lisbon Metropolitan Area (LMA) and the Centro Region, and two NUTS III regions, namely the LMA and the Intermunicipal Community of the West (*Oeste*).
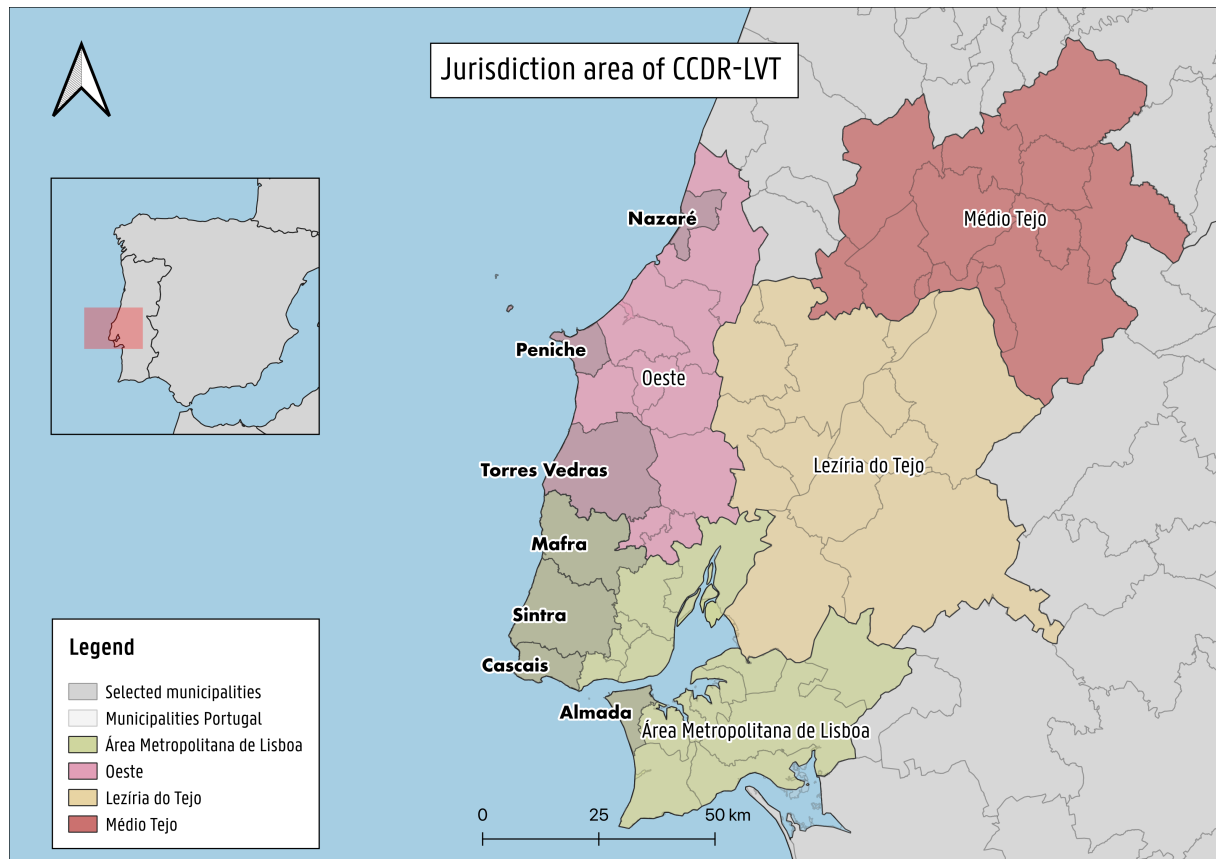
Figure 1: Jurisdiction area of CCDR-LVT (Agência para a Modernização Administrativa, 2020a; CCDR-LVT, 2020; Eurostat, 2020, own adaptation)

Figure 2 illustrates the urban system of the territorial model of the National Programme for Territorial Management Policies (Direção-Geral do Território, 2019). The dependency on the LMA is clear. Mafra is typified as a regional urban centre, and Torres Vedras, Peniche and Nazaré as other urban centres. Cascais, Sintra and Almada are hidden behind the LMA, which illustrates their close relationship with it. Fishing is still one of the main economic activities in some of the selected municipalities (Nazaré, Peniche, Torres Vedras), but all municipalities have generally shifted to the tertiary sector, focusing on commerce and collective and business services (Direção-Geral do Território, 2019; Fundação Calouste Gulbenkian, 2016).
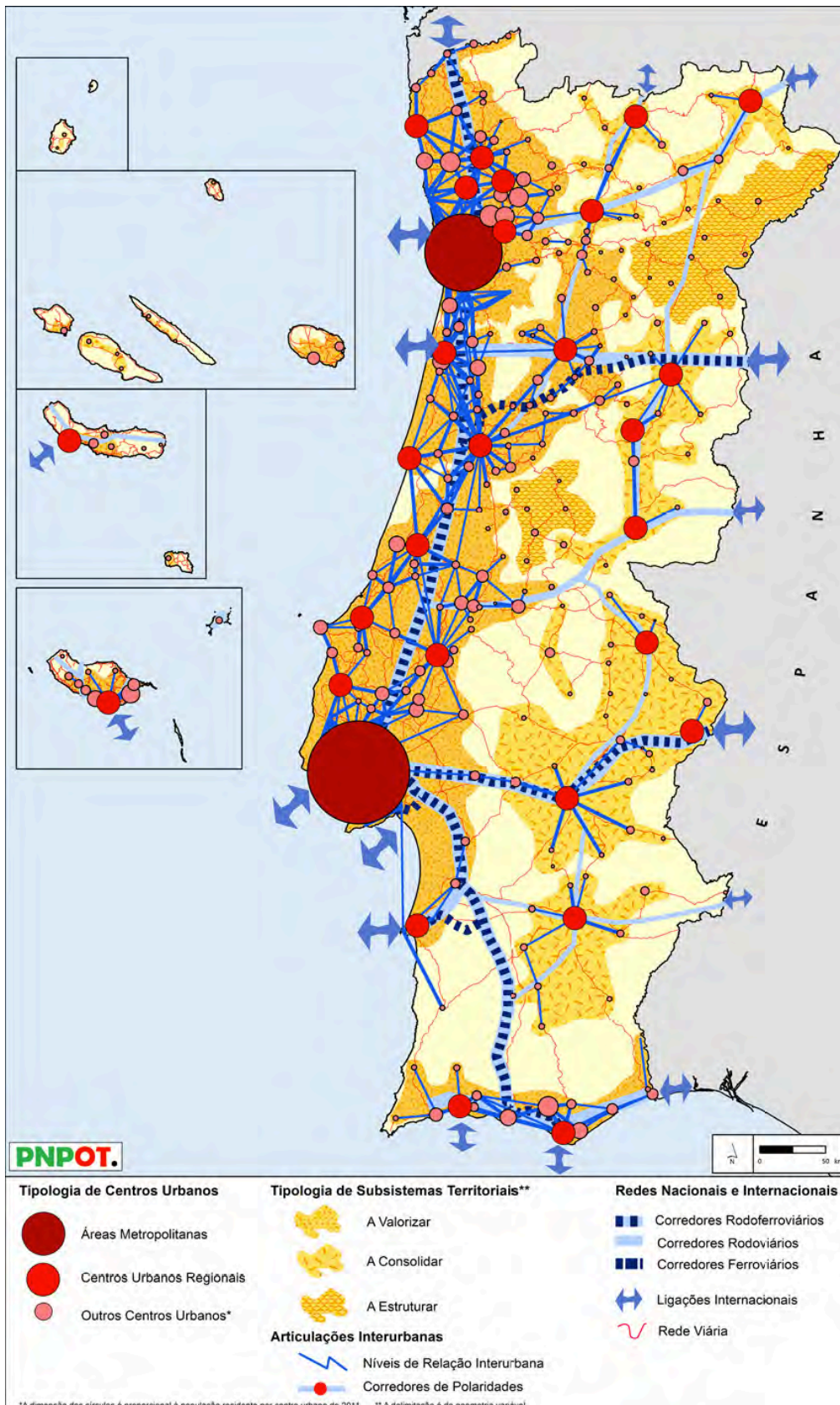
Figure 2: Urban system of the territorial model (Direção-Geral do Território, 2019)

In each municipality, the surf spot with the highest rating according to the *Portugal Surf Guide* (Leal & Cipriano, 2017) was selected for the conduct of the surveys. When multiple surf spots in one municipality had the same high ranking, the one that was most suitable for all levels of surf experience during the summer was chosen. The importance of these surf spots was confirmed by other surf spot sources, such as Magicseaweed (https://magicseaweed.com). The relevance of surf tourism in the civil parishes situated farther away from the coastline might not be that important. Hence, this study will focus more on the civil parishes where the studied surf spots are located (Figure 3). Nevertheless, the municipal level will also be used to analyse data that are not available on the level of the civil parishes.
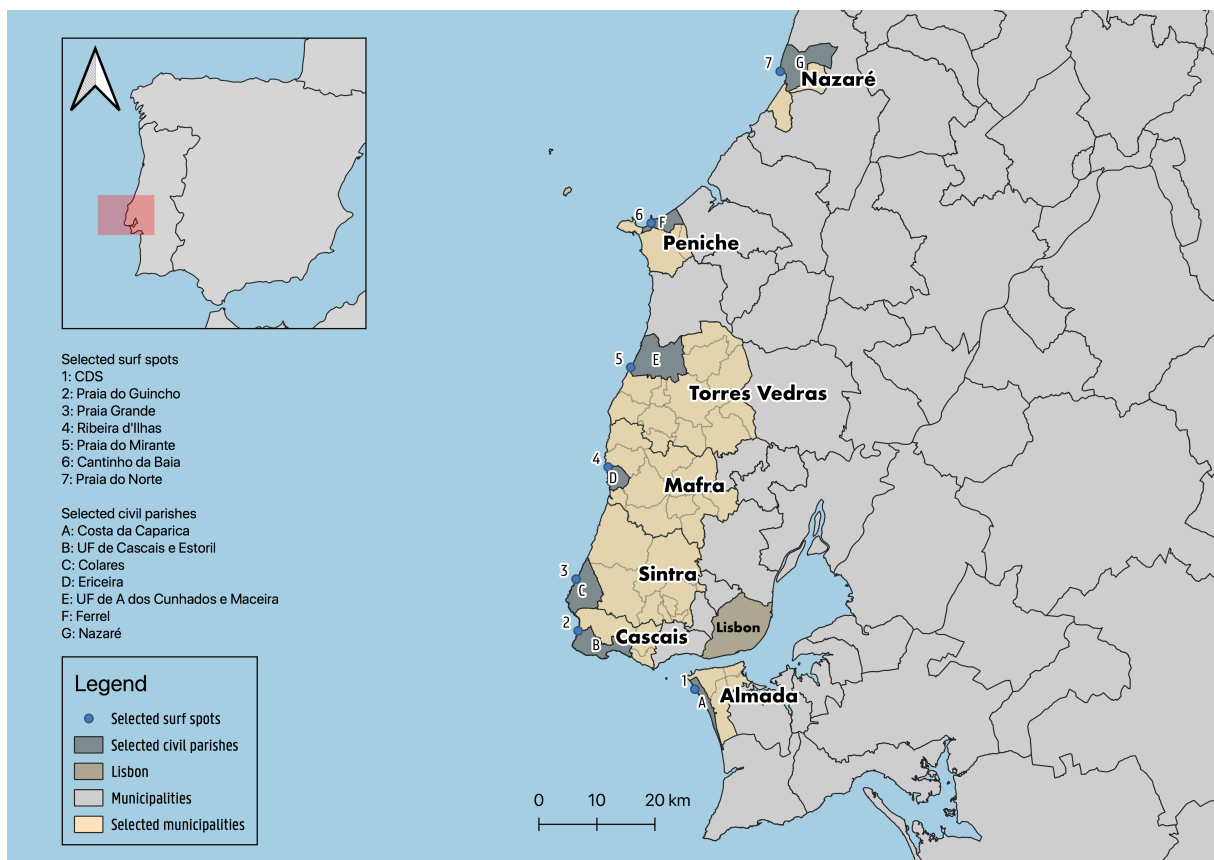
Figure 3: Selected surf spots, parishes and municipalities (Agência para a Modernização Administrativa, 2020a; Eurostat, 2020; Leal & Cipriano, 2017, own adaptation)

The selected surf spots are briefly described in Table 1, based on surf spot information from the *Portugal Surf Guide* (Leal & Cipriano, 2017) and Magicseaweed. A representative picture of each surf spot can be found in Appendix 3, as well as the location of all the other surf spots in the region. The overview in Table 1 underlines the specific characteristics of the surf spots, which makes them interesting for an investigation on how surf tourism can affect coastal areas in different ways.

Table 1: Description of selected surf spots (Leal & Cipriano, 2017; Magicseaweed)

Municipality	Civil parish	Surf spot	Description of surf spot
Nazaré	Nazaré	Praia do Norte	Has attracted international attention for its giant waves, since the biggest wave ever surfed has been ridden there. Because surfing in Praia do Norte is only suitable for very experienced surfers, surf tourism in Nazaré consists mainly of people watching the impressive waves.
Peniche	Ferrel	Cantinho da Baia	A very popular summer surf spot, where beginners and more advanced surfers share the waves. Supertubos is the most famous surf spot in Peniche, located south of the city, but it attracts less beginner surfers since there is no infrastructure available and the waves are only suited for very experienced surfers. That's why Cantinho Da Baia was preferred for this study.
Torres Vedras	União de Freguesias de A dos Cunhados e Maceira[1]	Praia do Mirante	Perhaps less known than other popular surf spots, it's gaining more attention recently due to surf events like the Pro Santa Cruz presented by Noah Surf House, a QS 3 000 event of the WSL.
Mafra	Ericeira	Ribeira d'Ilhas	Located about 2,5 km to the north of the centre of Ericeira, it attracts the most surf tourists in the municipality because the waves are very consistent year round and beach infrastructure (parking, restaurants, surf schools, showers, toilets etc.) is available.
Sintra	Colares	Praia Grande	A surf spot with high quality waves, attracting a large crowd in the summer, even though it seems to be less visited by foreign surf tourists than other spots in the Lisbon area.
Cascais	União das Freguesias de Cascais e Estoril[2]	Praia do Guincho	One of the main surf spots in the Lisbon area, due to its pristine environment and the quality of the waves. It is especially popular in the summer since the waves in most other beaches in Cascais then tend to be flat.
Almada	Costa da Caparica	CDS	The surf spots in Costa da Caparica are spread between the jetties. CDS is a highly visited surf spot during the summer, not only for surfing but also for recreational purposes from the inhabitants of the LMA.

Basic sociodemographic characteristics are useful to provide context to this study. The municipalities of Nazaré, Torres Vedras, Mafra and Peniche are least populous, while Sintra, Cascais and Almada are more densely populated, related to their proximity to Lisbon (Table 2). In total area, Torres Vedras, Mafra and Sintra are much larger than the other municipalities.

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[1] The most common topological name for the area is Santa Cruz, the name of the coastal city that is located near the beach.

[2] Praia do Guincho is divided over the civil parishes Alcabideche and União das Freguesias de Cascais e Estoril.

Table 2: Inhabitants, density and area of municipalities (INE, 2019a, 2019b)

Municipality	Inhabitants (2018 estimate)	Density (hab/km²) (2018 estimate)	Area (km²)
Nazaré	14 180	172	82,43
Peniche	26 487	341,5	77,55
Torres Vedras	78 220	192,1	407,15
Mafra	84 008	288	291,66
Sintra	388 434	1 216,8	319,23
Cascais	212 474	2 181,5	97,4
Almada	168 987	2 413,8	70,21

Looking into the civil parishes, União das Freguesias de Cascais e Estoril and Costa da Caparica are most dense, followed by Ericeira (Table 3). In size, the civil parish of União de Freguesias de A dos Cunhados e Maceira is the largest, but the differences in between the civil parishes are not as big as the differences in between the municipalities.

Table 3: Inhabitants, density and area of civil parishes (INE, 2019a, 2019b)

Municipality	Civil parish	Inhabitants (Census 2011)	Density (hab/km²) (Census 2011)	Area (km²)
Nazaré	Nazaré	10 309	253,4	40,68
Peniche	Ferrel	2 649	192,1	13,79
Torres Vedras	União de Freguesias de A dos Cunhados e Maceira	10 391	200,0	52,72
Mafra	Ericeira	10 260	841,7	12,19
Sintra	Colares	7 628	230,7	33,07
Cascais	União das Freguesias de Cascais e Estoril	61 808	2 119,6	29,16
Almada	Costa da Caparica	13 418	1 318,1	10,18

2.3 Tourism characteristics

Data from the National Institute of Statistics (INE) is used to describe the characteristics of the general tourism characteristics in every municipality (INE, 2019). These data cover both the totality of tourism accommodation activity (hotels, apartment hotels, hostels, apartments, holiday villages) as well as the local accommodation (with ten or more bedrooms), the rural tourism and the housing tourism. However, they do not

include important data about local accommodation (AL) with less than ten bedrooms. An analysis of this type of accommodation will be provided further on.

In Cascais, Torres Vedras and Mafra the longest average stay of foreign guests is noticed (Table 4). In Nazaré, Peniche and Cascais the capacity on offer per 1000 inhabitants is larger than the average in mainland Portugal, which hints at the importance of tourism in these municipalities. The same trend is reflected in the guests per inhabitant in these municipalities, as well as in the number of nights in tourism accommodation establishments per 100 inhabitants. The proportion of guests from foreign countries is the highest in Cascais, followed by Almada and Mafra. Torres Vedras shows the lowest percentage. A more detailed table about the distribution of guests from foreign countries can be found in the Appendix. The proportion of nights between July-September, which can be used as an indicator of seasonality, is the highest in Peniche, Mafra and Nazaré. The lowest seasonality level is found in Almada. The revenue from accommodation per capacity on offer is highest in Cascais and Sintra, and lowest in Peniche and Mafra.

Table 4: Tourism characteristics (INE, 2019a, 2019b)

	Average stay of foreign guests	Capacity on offer per 1000 inhabitants	Guests per inhabitant	Proportion of guests from foreign countries	Proportion of nights between July-September	Nights in tourism accommodation establishments per 100 inhabitants	Revenue from accommodation per capacity on offer
	No. of nights		No.		%	No.	Thousand euros
Mainland Portugal	**2,9**	**37,4**	**2,3**	**59,5**	**37,3**	**584,4**	**7,2**
LMA	**2,5**	**29,6**	**2,7**	**72,7**	**31,3**	**616,8**	**11,9**
Almada	2,2	13,5	1,3	66,2	34,6	259,7	6,6
Cascais	3,1	40,2	2,6	70,9	35,9	737,5	11,6
Mafra	2,9	20,1	1,0	59,8	43,9	249,5	4,8
Nazaré	1,8	102,3	9,3	56,1	42,1	1 585,0	5,9
Peniche	2,5	75,0	3,5	40,6	49,8	724,5	4,5
Sintra	2,0	9,0	1,0	53,9	34,8	164,1	9,4
Torres Vedras	3,0	21,3	1,4	30,1	38,6	291,7	6,0

The bed occupancy net rate (Table 5) is the highest in Almada, Sintra and Cascais, while it is the lowest in Peniche, Mafra and Torres Vedras. Further data on tourism characteristics in the municipalities, adapted from INE (2019a, 2019b) can be found in Appendices 2.1, 2.2, 2.3 and 2.4.

Table 5: Bed occupancy net rate (INE, 2019a, 2019b)

	Bed occupancy net rate
	Total (%)
Mainland Portugal	**46,8**
LMA	**58,6**
Almada	54,7
Cascais	51,8
Mafra	38,7
Nazaré	48,0
Peniche	30,2
Sintra	53,7
Torres Vedras	39,4

It is essential to complement the picture drawn above with data about local accommodation establishments, or *alojamento local* (AL). AL are those establishments that provide temporary accommodation services for remuneration, in particular to tourists, but are not meeting the requirements to be considered tourist resorts (Agência para a Modernização Administrativa, 2020b). In the Lisbon region, AL nowadays represents more than 60% of the total rooms for accommodation available in the region (Turismo de Lisboa, 2019). When the evolution of the number of AL is analysed, it appears that the rapid increase started around 2014. It could be that surf tourists in particular have a tendency to make use of these kinds of accommodations. This might explain some of the unexpected numbers in Ericeira, Mafra and Nazaré, such as the high seasonality rate, the low bed occupancy rate and the low number of guests.

Table 6 provides some data about AL in the selected civil parishes. In absolute numbers, the most AL are found in União das Freguesias de Cascais e Estoril, Nazaré and Ericeira. The ratio of AL per 1000 inhabitants in the civil parishes shows that it is the highest in Ferrel, followed by Nazaré and Ericeira, and the least in União das Freguesias de Cascais e Estoril and União de Freguesias de A dos Cunhados e Maceira. In all municipalities, with the exception of Sintra, where Colares comes in second place, the civil parishes selected contain the most AL from all civil parishes in their respective municipality. When the listings on Airbnb are compared to the numbers of AL, one could assume that the amount of AL in most municipalities will be similar to the amount of Airbnb listings. These data clearly add important and complementary insights to the data on the tourism accommodation establishments.

Table 6: Number of local accommodation establishments and listings on Airbnb per civil parish on April 24, 2020 (Turismo de Portugal, 2020a; Inside Airbnb, 2020)

Parish (in municipality)	AL	Beds in AL	AL per 1000 inhabitants	Listings on Airbnb
Nazaré (in Nazaré)	972	2857	94,3	*No data*
Ferrel (in Peniche)	388	2155	146,5	*No data*
União de Freguesias de A dos Cunhados e Maceira (in Torres Vedras)	122	829	11,7	101
Ericeira (in Mafra)	690	3149	67,3	769
Colares (in Sintra)	351	1785	46,0	362
União das Freguesias de Cascais e Estoril (in Cascais)	1439	5991	23,3	1430
Costa da Caparica (in Almada)	492	1898	36,7	*No data*

2.4 Surf tourism characteristics

Data on the quantity of surf tourists and the size of the surf tourism industry in the selected municipalities are very limited. Further, it is hard to make deductions upon information such as overnight stays. Surf tourists have numerous accommodation options, many of which are situated outside of the formal tourism lodging facilities, such as Airbnb, camper vans, camping etc. Data on surf schools might therefore be most useful as a proxy to compare the level of surf tourism development in the municipalities.

51,1% on a total of 309 surf schools registered in 2019 by the Portuguese Surf Federation (FPS) were located in the seven municipalities chosen for this study, although there are 50 municipalities in mainland Portugal that possess a coastline (Table 7). This illustrates the importance of these municipalities for surf tourism. The seven municipalities possess around 140 km of coastline, which is only around 15% of the total coastline of mainland Portugal, which further highlights the importance of surf tourism in these municipalities. Most surf schools are located in Mafra, Peniche, Almada and Cascais, while the numbers in Nazaré, Torres Vedras and Sintra are much lower. This hints at an earlier stage of development of surf tourism in these municipalities.

Table 7: Number of surf schools registered by FPS in 2019 for each municipality (FPS, personal communication, April 3 2020)

Number of surf schools registered by FPS in 2019 for each municipality	
Almada	32
Cascais	26
Mafra	38
Nazaré	5
Peniche	33
Sintra	17
Torres Vedras	7
Total in the selected municipalities	**158**
Total in mainland Portugal	**309**
Percentage of total	**51,1%**

Nevertheless, the surf industry comprises much more than only surf schools. There are also many surf schools that are not registered by the FPS and/or work clandestinely. In 2017, 218 surf schools were registered by FPS, but the real number for mainland Portugal was estimated to be around 600 (Porto, 2017).

3. METHODOLOGY

3.1 Definitions

The decree-Law 191/2009, published on 17 August 2009 in the Portuguese Republic Diary (DR), lays the foundations for public tourism policies and defines the instruments for their implementation. Some definitions established in this law will be used in this study. In the law, tourism is defined as the temporary movement of persons to destinations other than their habitual residence, for leisure, business or other reasons, as well as the generated economic activities and the created facilities to meet their needs. In the same law, a tourist is defined as a person who spends at least one night in a place other than his usual place of residence and whose travel is not motivated by paid employment in the visited place.

The broad definition of surf tourism from Tourism New South Wales (2009) has been adopted:

> 'Surf tourism' describes activity which takes place 40 km or more from the person's place of residence, where surfing or attending a surfing event are the primary purpose for travel. Surf tourists stay at their destinations for at least one night or can undertake their visit as a day trip. (p. 3)

To define a surf tourist in this study, an operational definition was adopted as "someone who travelled more than 40 km from their place of residence for the primary purpose of surfing." Throughout this study, several references are made to the practice of surfing, a simplified term which, in this context, refers to the activity of riding waves in a general way, and not to any specific modality.

For sustainable development, the most commonly used definition of the World Commission on Environment and Development (WCED, 1987) is adopted, namely "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The definition for sustainable tourism developed by the United Nations Environment Programme (UNEP) and the World Tourism Organization (WTO) is used in this study. Sustainable tourism is "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." (UNEP & WTO, 2005, p. 12)

3.2 A mixed method approach

The definition of mixed methods research used in this study is "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson & Onwuegbuzie, 2004, p. 17). This approach was chosen because it is thought to be the most apt method for answering the research questions. The benefits of a mixed method approach for this study are manifold. Firstly, it can provide stronger evidence for a conclusion through convergence and verification of findings. Secondly, it can add insights and understandings that would not be available when only a single method is applied. Thirdly, it can increase the generalizability of results (Johnson & Onwuegbuzie, 2004). In this study, a quantitative analysis of surveys with relevant stakeholder groups is followed by a qualitative analysis of semi-structured interviews carried out with representatives from institutions dealing with governance issues on a local, regional or national level. The underlying research paradigms in this study are covered in the next section.

3.3 Pragmatism and social constructivism

The use of a mixed method approach implies the paradigm of pragmatism. This philosophical view, with its origins in classical pragmatists like Charles Sanders Peirce, William James and John Dewey, rejects traditional dualisms and in general prefers more moderate versions of philosophical dualisms based on how well they function to solve issues. Thus, pragmatism stands open to pluralistic or compatibilist approaches to research. Knowledge is hereby seen as both constructed and based on the reality of the world we experience and live in (Johnson & Onwuegbuzie, 2004). Current truth, meaning and knowledge are viewed as provisional and subject to change in time. It furthermore takes an explicitly value-oriented stance to research that is derived from shared cultural values like freedom, equality and progress (Johnson & Onwuegbuzie, 2004). This study endorses these values and additionally wants to contribute to sustainable development of surf tourism.

Next to pragmatism, some ideas of social constructivism are taken into consideration in this study. Essentially, from a social constructivist viewing point, a researcher participates in the social reality under analysis, and his or her interaction with participants and the broader environment will influence the knowledge construction (Denzin & Lincoln, 2017; Given, 2008; Leavy, 2014). This construction of knowledge is affected by the interactive data collection between the researcher and the participants (Denzin & Lincoln, 2017), the participant observation and by the researcher's analysis of the results (Leavy, 2014).

3.4 DPSIR framework

The results are analysed based on the *Driving Forces – Pressures – State – Impacts – Responses* (DPSIR) Framework, developed by the European Environmental Agency. This "is a systems-thinking framework that assumes cause-effect relationships between interacting components of social, economic, and environmental systems" (Environmental Protection Agency, 2015, p. 3).

This framework is useful to develop a conceptual understanding of the interactions that surf tourism has triggered in coastal areas. The framework is a communication tool to simplify complex topics into five steps, namely Driving forces (D), Pressures (P), State (S), Impacts (I) and Responses. By using the DPSIR framework this study will be able to give a profound overview of the current situation of surf tourism in the region.

To adapt the DPSIR framework to the context of surf tourism in coastal areas, practical definitions were developed for the scope of this thesis, adapted from Arroyo et al. (2019) (Figure 4).

DRIVING FORCES:
the social and economic developments that generate surf tourism

PRESSURES:
developments in the use of resources and the use of land by surf tourism related activities

STATE:
the state of the natural and built environment and the state of surf tourism in the coastal areas

IMPACTS:
environmental, economic and social effects of surf tourism related activities in the coastal areas

RESPONSES:
efforts to solve issues related to surf tourism in the coastal areas

Figure 4: DPSIR framework (Adapted from Arroyo et al., 2019)

The questions in the survey were linked to the DPSIR framework (Table 8).

Table 8: Relation of questions to DPSIR framework

Type of question	Number of questions
Personal information	7-12, 51-54, 56, 67-69, 71, 79-81, 85-87, 92, 96-98
Circumstances	1-6
Driving forces	17
Pressures	22, 23, 61, 62, 76, 77, 89, 90, 93, 94, 99
States	13-15, 55, 57-60, 63, 64, 70, 72-75, 82
Impacts	16-21, 24-48, 88, 100
Responses	49, 50, 65, 66, 78, 83, 84, 91, 95

3.5 Data acquisition and data processing

To get insight in the stakeholders' perspectives about surf tourism in coastal areas (Diedrich & García-Buades, 2009; Sharpley, 2014), surveys were conducted with six different stakeholder groups in each of the seven municipalities (Table 9).

Table 9: Definitions of stakeholder groups

Stakeholder group	Definition used
Local surfer	I am a local surfer. My place of residence is less than 40 km away from this surf spot.
Surf tourist	I travelled more than 40 km from my place of residence for the primary purpose of surfing.
Local business directly related to surf tourism	I own or work in a local surfing related business.
Local business not directly related to surf tourism	I own or work in a local business, not directly related to surfing (for example a restaurant).
Local inhabitant	I permanently live in this municipality and do not surf regularly.
Visitor	I am visiting this place for other reasons than surf related activities. I do not live in this municipality.

These stakeholder groups were selected based on the surf tourism literature and own considerations of the main stakeholder groups. To realize a reasonable sample, ten respondents for each stakeholder group in each municipality were targeted. The survey was conducted in person and filled in either by the respondents themselves or by the surveyor if the respondents preferred to do it this way. The survey was digital, but paper

surveys could also be used if this was more convenient for the respondent. A general part with questions addressing all stakeholder groups was followed by a specific part with additional questions targeting the different stakeholder groups. The survey was made using the software of Google Forms and was based on the concept of the DPSIR framework. The relation of the questions to the DPSIR framework can be found in the Appendix. The survey was available both in English and Portuguese.

The design of the survey combined multiple question types, based on a rational decision of the most appropriate type to use. This resulted in a combination of (multiple answer) multiple choice questions, 5-point Likert scale questions, rating scales and open-ended questions. A full outline of the survey can be found in Appendix 1.1 and Appendix 1.2.

To investigate the specific impacts of surf tourism, the Surf Resource Sustainability Index (SRSI), developed by Martin and Assenov (2014), was useful as an inspiration and guiding principle. It consists out of 27 indicators, divided in four categories: social, economic, environmental and governance indicators. Also, surveys from previous research served as an inspiration, such as the ones developed by Carapinha (2018) and Teixeira (2017).

The resulting data were analysed using the statistical software RStudio, SPSS Statistics 26 and Microsoft Excel. Since the objectives of this study are meant to give an understanding of the study subject, rather than to prove or deny hypotheses, the quantitative data analysis is restricted to descriptive statistics, showing the distribution of respondents for every question using bar plots. These are either visualized for all the respondents, or divided into the stakeholder groups or the municipalities, depending on what is most relevant for each question.

It was also necessary to consult diverse sources dealing with the governance of surf tourism in the chosen areas, such as policies, strategies, plans and programs. Because most sources were written in Portuguese, an understanding of the language was necessary. 120 hours of Portuguese language courses were followed before the start of the research, reaching a certified level of A2.1. With additional help of digital translation technology, it was possible to investigate these sources.

After the conduct of the survey, these sources were used to analyse which management instruments for surf tourism exist. This could range from protected coastal environments, to land use plans, to planned infrastructure, etc. The analysis comprises government and governance on multiple scale levels, ranging from

local (informal) governance practices to municipal, national and international governance. To get a deeper understanding of the management instruments, semi-structured interviews were carried out with representatives from relevant institutions. The interviewed persons fit in three groups, namely representatives of the local and regional government, representatives of surfing organizations and representatives of coastal and environmental institutions. Table 10 gives an overview of the persons that were contacted and interviewed between March and May 2020. Others institutions, such as the tourism promotion agencies and the port authorities of Cascais, Peniche and Nazaré were also contacted, but did not answer the request for an interview. Due to the COVID-19 outbreak, it was not possible to conduct all interviews in person. Some of the interviews were carried out via a Skype call or an E-mail interview. The structure of the interviews can be consulted in Appendix 1.3. The interviews were manually transcribed and the analysis was made using the Software Nvivo 12. Nodes were created to structure the content of the interviews. The discussed topics during the interviews were visualized in a Wordcloud (Appendix 2.5).

Table 10: Interviewed persons

Institution	Description	Type of interview	Date
Municipality of Mafra	Landscape architect	Interview in person	February 26, 2020
Municipality of Peniche	Former mayor	Skype interview	April 6, 2020
Municipality of Nazaré	Nazaré Qualifica	Interview in person	March 4, 2020
Municipality of Sintra	Coordinator of the Municipal Master Plan Office	Interview in person	March 6, 2020
Municipality of Cascais	Head of Spatial Planning Division	Interview in person	March 9, 2020
Municipality of Torres Vedras	Tourism and sports department Environment and Sustainability Division Local action group ECOMAR	E-mail interview	March 23, 2020
Civil parish of Costa da Caparica	President	Interview in person	March 3, 3030
Institute for Nature and Forest Conservation (ICNF)	Regional department for Nature Conservation and Biodiversity in Lisbon and the Tagus Valley	Interview in person	March 12, 2020
Portuguese Environment Agency (APA)	Coastal Department and Coastal Protection	E-mail interview	March 11, 2020
Regional Coordination and Development Commission of Lisbon and Tagus Valley (CCDR-LVT)	Directorate of Spatial Planning Services Innovation, Competitiveness and Cooperation Division	E-mail interview	April 8, 2020
Port authority of Lisbon	Spokesperson	E-mail interview	May 4, 2020
Portuguese Surf Federation (FPS)	Spokesperson	E-mail interview	April 3, 2020
Portuguese Association of Surf Schools (AESDP)	Executive director	Skype interview	April 9, 2020

4. RESULTS SURVEY RESPONDENTS

335 valid responses were gathered from the six stakeholder groups in the seven municipalities and this between the 1st of August and the 17th of September 2019. 103 respondents used the English version of the survey and 232 respondents the Portuguese version. Some responses were deemed invalid either because the respondents ended the survey midway, or because not all the questions were answered. However, there were only a few invalid responses, because the surveyor was present to control and stimulate the completion of the survey. The invalid responses are excluded from the 335 valid responses. The following sections describe the distribution of the respondents across stakeholder groups and across municipalities, the circumstances of the conduct of the surveys and the aggregated personal characteristics of the respondents. Only the most essential tables and figures are shown here. All other tables and figures can be found in Appendix 2.

4.1 Distribution of respondents

The respondents were asked to indicate the stakeholder group that corresponded best with their current position at the moment of completing the survey. The desired goal was to reach 10 respondents from every stakeholder group in every municipality, with a total of 60 respondents per municipality, but this goal was not fully reached (Table 11). The fullest result was reached in Cascais. The least respondents came from Mafra and Nazaré. It proved to be most difficult to find local inhabitants who did not already fit into another local stakeholder group. For some other stakeholder groups there were more than ten respondents. In the rest of this study, it is opted to work with percentages instead of absolute numbers. To know the number of respondents that are behind a percentage, the reader can always return to Table 11.

Table 11: Distribution of respondents

		What group do you belong to?						
		Local inhabitant	Local non-surf business	Local surf business	Local surfer	Surf tourist	Visitor	Total
Municipality	Almada	6	6	10	6	9	10	47
	Cascais	11	9	10	10	10	10	60
	Mafra	6	4	9	5	8	7	39
	Nazaré	4	3	7	3	8	13	38
	Peniche	6	12	12	8	10	8	56
	Sintra	4	8	8	9	11	8	48
	Torres Vedras	8	8	8	11	11	1	47
Total		45	50	64	52	67	57	335

4.2 Circumstances

Figures of the circumstances during the conduct of the survey can be found in the Appendices 2.6, 2.7, 2.8 and 2.9. The survey was either conducted in the direct vicinity of the chosen surf spots in every municipality, or in the centre of the city neighbouring the surf spots. For every surf spot, the neighbouring cities that were also visited to conduct surveys are named in Table 12.

Table 12: Neighbouring cities of surf spots

Surf spot	Neighbouring City
Praia do CDS	Costa da Caparica
Praia do Guincho	Cascais
Praia Grande	Colares (*no surveys conducted*)
Ribeira d'Ilhas	Ericeira
Praia do Mirante	Santa Cruz
Cantinho da Baia	Baleal, Ferrel and Peniche
Praia do Norte	Nazaré

There was a high variability in the number of conducted surveys between days, with a maximum of 19 on a day. This was often due to circumstances beyond control such as bad (surfing) weather conditions, which resulted in low activity around the beaches, or difficulty to find respondents willing to complete the survey. Most surveys were conducted between 11 AM and 4 PM, since this was the time of the day with most activity on and around the beaches.

4.3 Personal characteristics of respondents

Figure 5 shows that the 18-24 and 25-34 age groups were highly represented in the surveys, while the age groups of 55-64 and 65+ years were not that present. This has multiple colliding explanations. The younger age groups were often more interested in the subject and more willing to fill in the survey. It is also believed that the younger age groups are in reality also most present in most stakeholder groups, thus partly validating this high representation. In any case older persons were harder to find and were sometimes less willing to take the time to fill in the survey. Nevertheless, for the stakeholder groups of the visitors and the local inhabitants, this underrepresentation of older age groups can be seen as a shortcoming of the study.

As far as surf tourists are concerned, the most represented age group was the 25-34 age group (37,3%), followed by the 18-24 age group (26,90%). This corresponds to the findings of a survey with 210 respondents in Peniche by Reis and Jorge (2012), where 43,6% of the respondents were between 25 and 34 years old and 38,1% between 18 and 24 years old. Remarkably, there are more surf tourists from older age groups in this study than in the study of Reis and Jorge (2012).
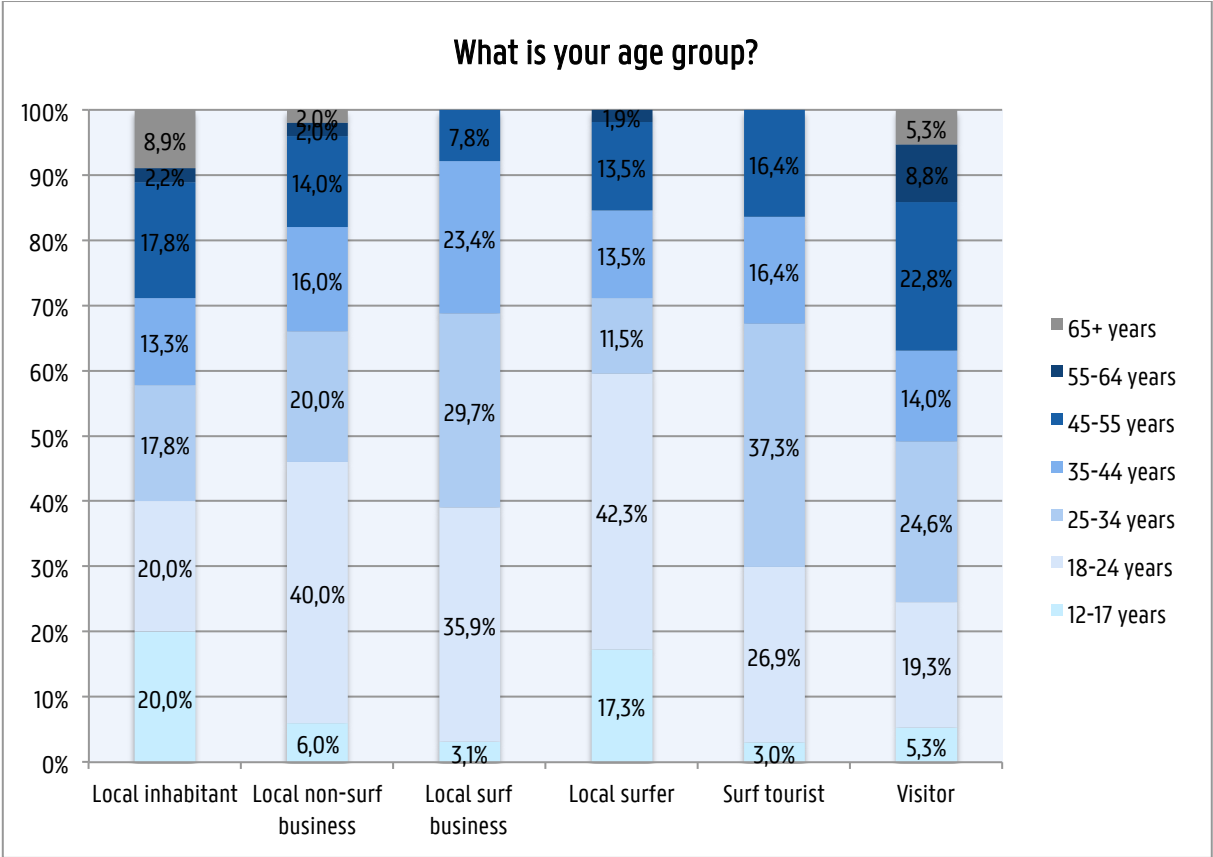
Figure 5: Age group distributions of stakeholder groups

Figure 6 shows that there was a majority of male respondents in the three stakeholder groups directly related to surfing, namely the local surf businesses, the local surfers, and the surf tourists. One could argue that this is a mere representation of the actual situation in these stakeholder groups, since it is commonly believed that the majority of these stakeholder groups consists out of male individuals, not only in the chosen municipalities, but in general across the world. As an illustration, in 2017 only 20% of the registered surfers by the Portuguese Surf Federation (FPS) were female (Pereira, 2019), while in 2012 the world population of surfers existed out of 81% males and 19% females, according to the International Surfing Association (ISA) (Surfer Today, 2020). In a study from Nunes (2015), 27,3% of 363 surf tourists that took part in a survey in Peniche were female. The slightly higher number of 34,3% in this survey might hint at a growing participation

of women in surfing. In the group of the local inhabitants and the local non-surf businesses there were more female than male respondents. The visitor group was the most balanced.
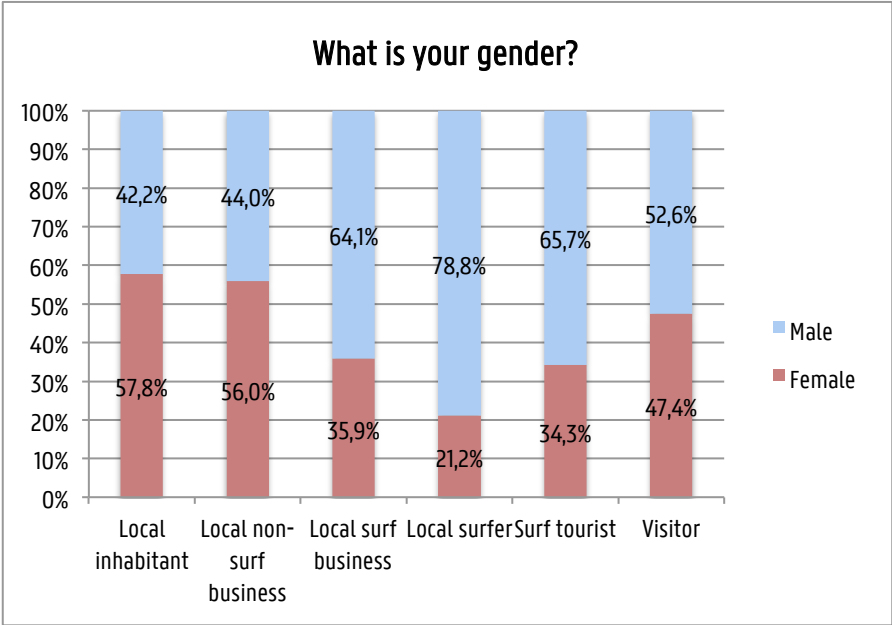
Figure 6: Gender distributions of stakeholder groups

The stakeholder group of the surf tourists had the highest level of education (Figure 7). 32,8% of the participating surf tourists were in possession of a Bachelor's degree and 38,8% of a Master's degree. This corresponds to the findings of Reis and Jorge (2012), who noticed that 59,6% of the surf tourists who participated in their survey had a higher education level. The lowest education levels were found amongst the local inhabitants and the local non-surf businesses.
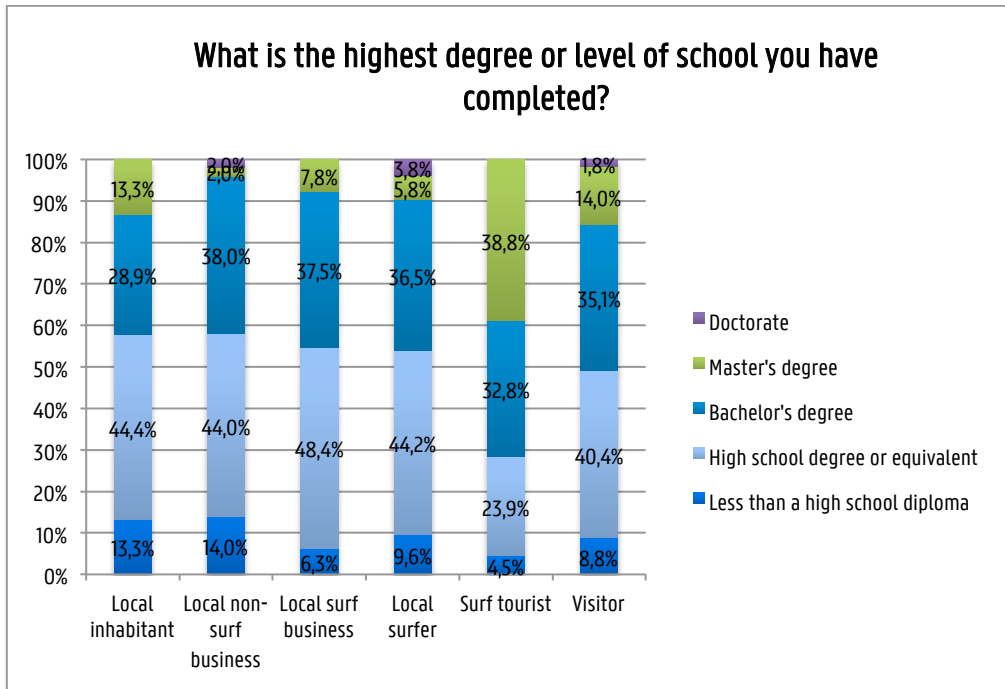
Figure 7: Level of education of stakeholder groups

Most respondents work full time (Figure 8). A significant part of the respondents from the stakeholder groups of the local inhabitants and local surfers were students.
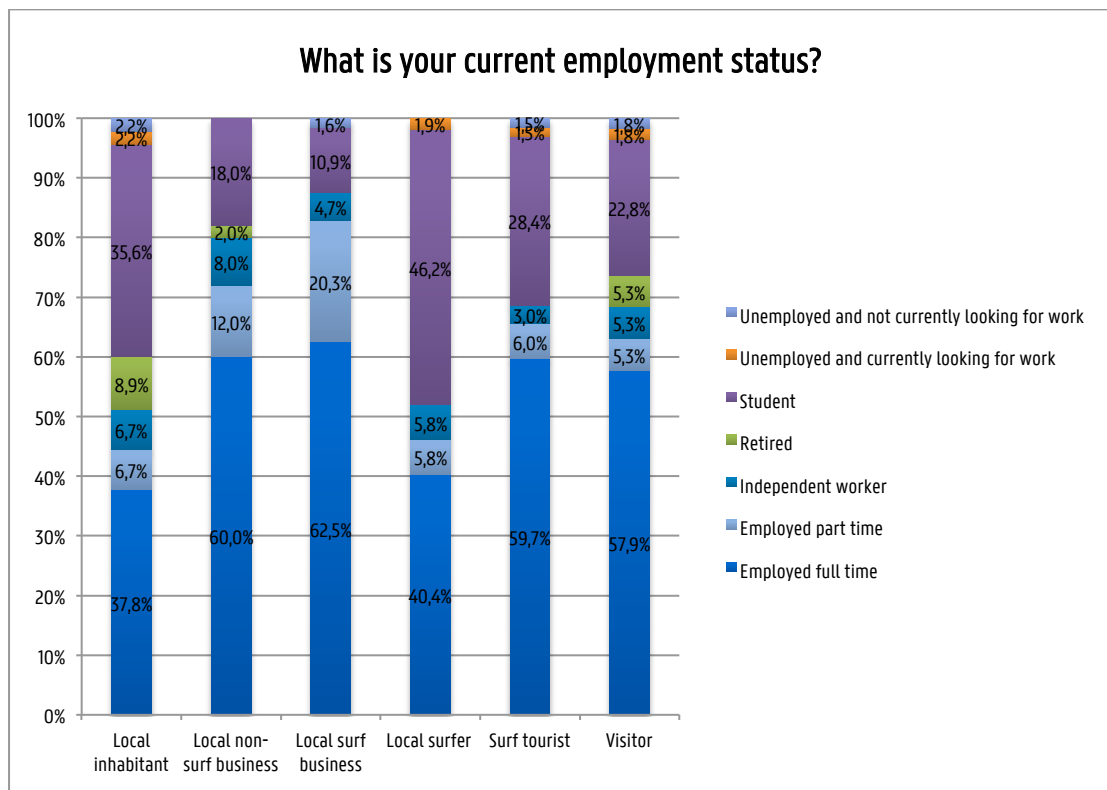
Figure 8: Employment status of stakeholder groups

From all respondents, 62,4% were Portuguese, 7,8% were German, 5,7% were Brazilian, 3,6% were French and 3,3% were Spanish. Other nationalities accounted for 17,2%. In total, persons from 28 nationalities responded to the survey. This illustrates the international character of surf tourism. From the surf tourists, 25,4% were German, 13,4% were French, 11,9% were Portuguese, 7,5% were Spanish and 7,5% were Dutch. Other nationalities accounted for 34,3%. From the visitors, 38,6% were Portuguese. The full table of nationalities can be found in Appendix 2.10.

Local surfers participating in the survey have mostly been surfing for many years at their local surf spot (Appendix 2.11) and have an intermediate or advanced surfing level (Appendix 2.12). Stand-up surfing modalities were clearly the most practiced by local surfers in most municipalities, except in Praia do Norte in Nazaré, where bodyboarding was the main surfing modality used by the local surfers respondents (Appendix 2.13). The main reasons for local surfers to surf in a specific surf spot were the quality of the waves and the proximity (Appendix 2.14). The environmental quality was another significant factor in Cascais and Sintra. The available infrastructure (showers, restaurants, toilets, etc.) only played a minor role in Cascais, Mafra and Sintra, and no role in the other municipalities. The main reasons for local surfers to surf at that specific time was the consistency of the waves, followed by the good weather. It must be noted that many local surfers reported to surf throughout the whole year (Appendix 2.15).

Most surf tourists started visiting the chosen surf spots in the course of the last 5 years, whereas in Almada, Cascais and Sintra a majority of the surf tourists were visiting the area for the first time (Figure 9). The majority of the surf tourists had either a beginner or an intermediate surfing level. Some differences between the municipalities can be seen. Nazaré and Mafra attracted the most advanced surf tourists, while Sintra and Almada had the most beginner surf tourists (Appendix 2.16). Most surf tourists visited the surf spots for the stand-up surfing modalities. Only in Nazaré half of the surf tourists practiced bodyboarding (Appendix 2.17). The main reason to surf at the chosen surf spot was the quality of the waves (Appendix 2.18). The main reason to surf during that specific time of the year (summer) were holidays, followed by the consistency of the waves and the good weather (Appendix 2.19).

When did you start visiting this place?
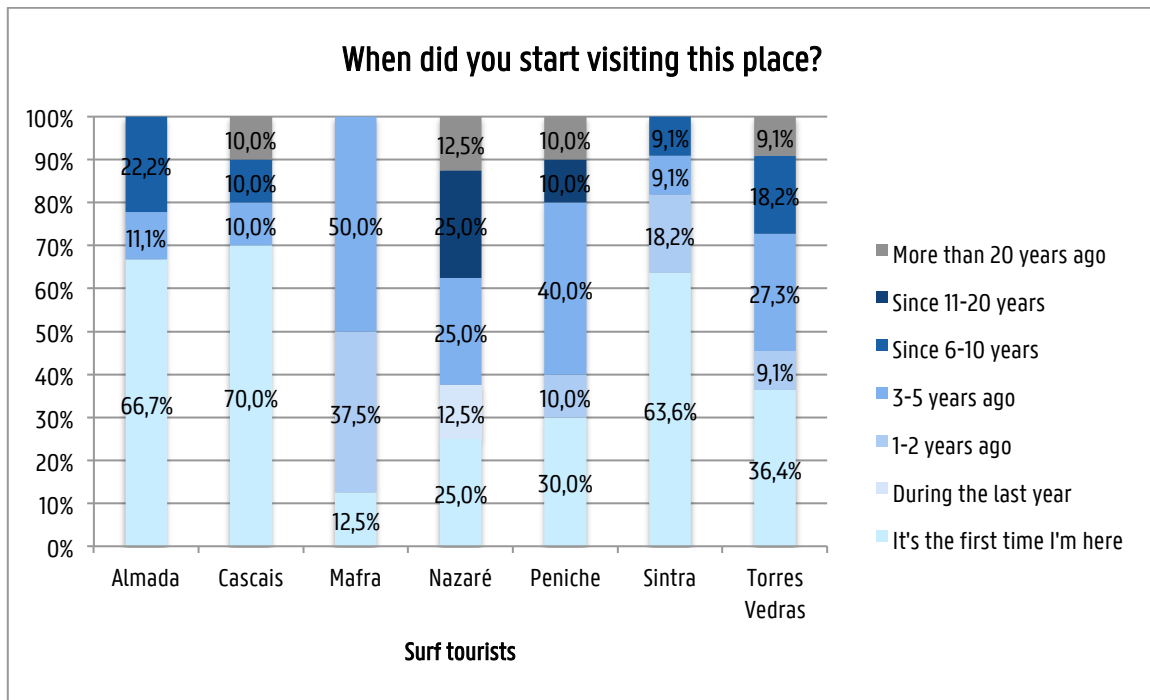
Figure 9: Years of surfing in surf spot by surf tourists

The majority of the respondents from the surf businesses worked in surf schools, surf camps or in surf shops. Other activities included surf associations, nautical activities, surf museums and a High Performance Surf Centre as well as lifeguards. 26,6% of the respondents were business owners, 35,9% were permanent employees and 37,5% were temporary employees. 87,4% of the respondents from the stakeholder group of the surf businesses started working in the business less than 10 years ago, while 68,8% started working in the business in the last 5 years (Figure 10).

For how many years are you doing this job?
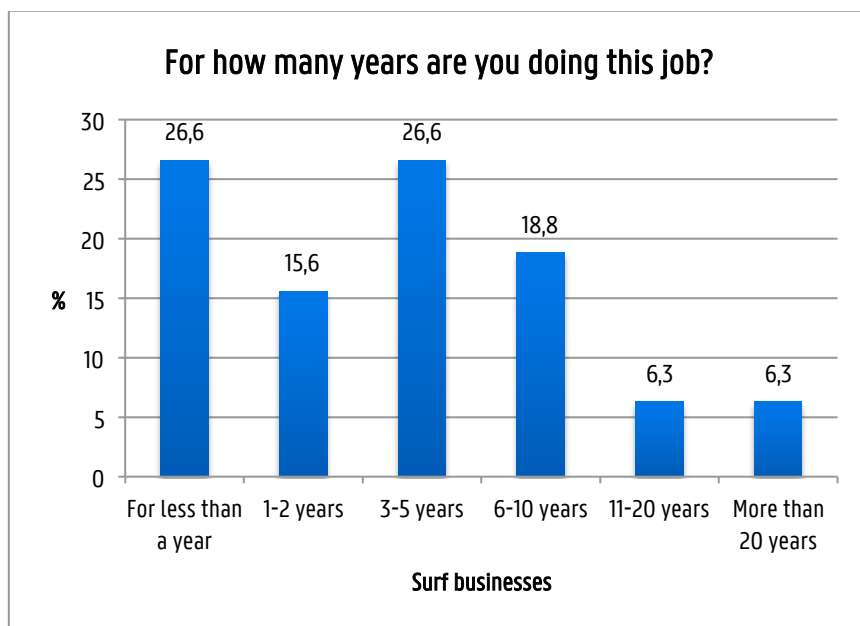
Figure 10: Years of working in the surf business

The respondents from the businesses not directly related to surf tourism worked in a variety of businesses. Almost half of them worked in a bar or a restaurant. Other businesses included clothing stores, hotels and hostels, *pastelarias*, tourism offices, beach services, kiosks, etc (Appendix 2.20). 22% were business owners, 34% were permanent employees and 44% were temporary employees. 70% of the respondents were doing their job for less than 5 years, while 28% were doing their job for more than 10 years (Figure 11).

For how many years are you doing this job?

Local non-surf businesses
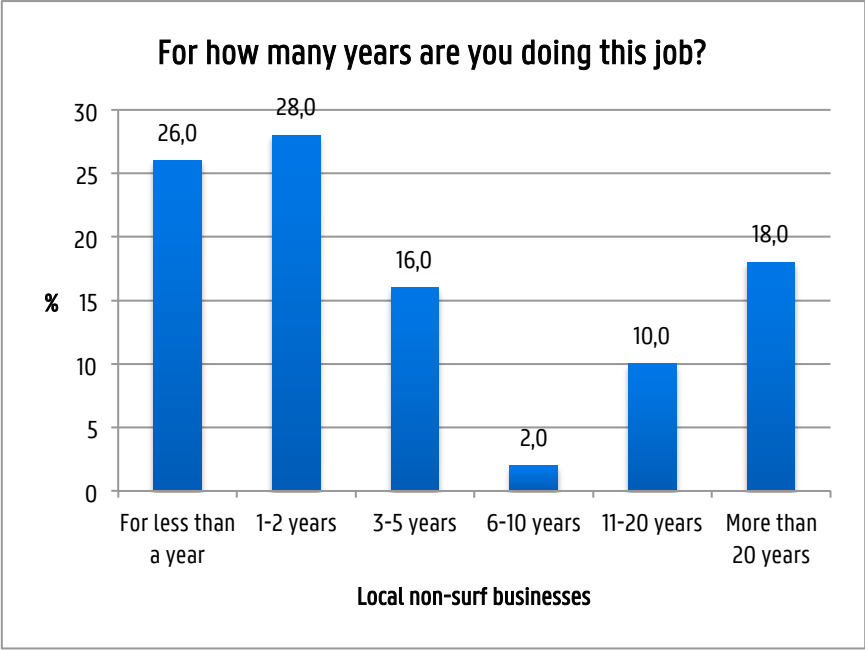
Figure 11: Years of working in local non-surf business

48,9% of the respondents belonging to the stakeholder group of the local inhabitants were living in their municipality for more than 20 years, while 37,8% are living in their municipalities between 11-20 years. This means that most of the local inhabitants have witnessed the development of surf tourism in their municipality (Appendix 2.21).

50,9% of the visitors responded it was their first visit to the place where the survey took place. However 22,8% of the respondents reported that they have been visiting the place since more than 20 years (Figure 12). These persons all had the Portuguese nationality and hence were domestic tourists. The main reasons stated to visit a specific place were the beach, a city trip, a holiday, tourism offerings, a road trip, resting, having a second house, the nature, to relax, to be with friends, *saudade*[3] and just randomly. The good weather and having a holiday were the main reasons to visit the place during that time of the year (August-September).

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[3] *Saudade* is a feeling of longing, melancholy, or nostalgia that is supposedly characteristic of the Portuguese temperament (Lexico dictionary).
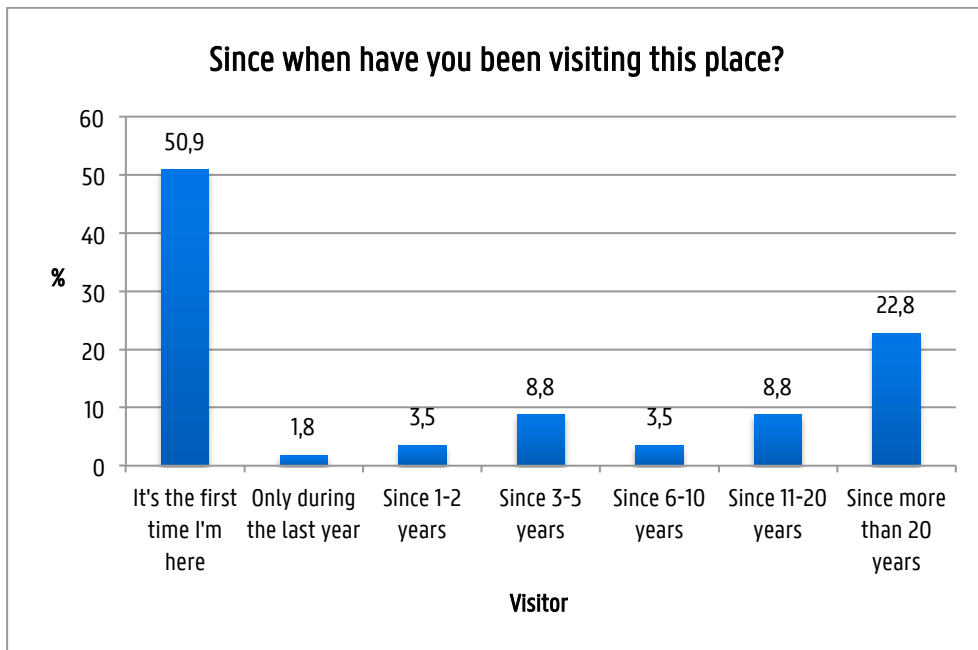
Figure 12: Years of visiting by visitors

5. RESULTS DPSIR FRAMEWORK

In this chapter, the results of the survey are structured according to the DPSIR framework. These results are complemented by findings of the semi-structured interviews and secondary methods of data collection, namely the study of policies, strategies, plans, programmes and institutions, combined with field notes and participant observation.

5.1 Driving forces

Driving forces are the social and economic developments that generate surf tourism.

More than 80% of the respondents across all stakeholder groups consider the natural features (quality of waves, pristine environment, etc.) as the main driving force behind the development of surf tourism in the municipality where the survey took place (Figure 13).
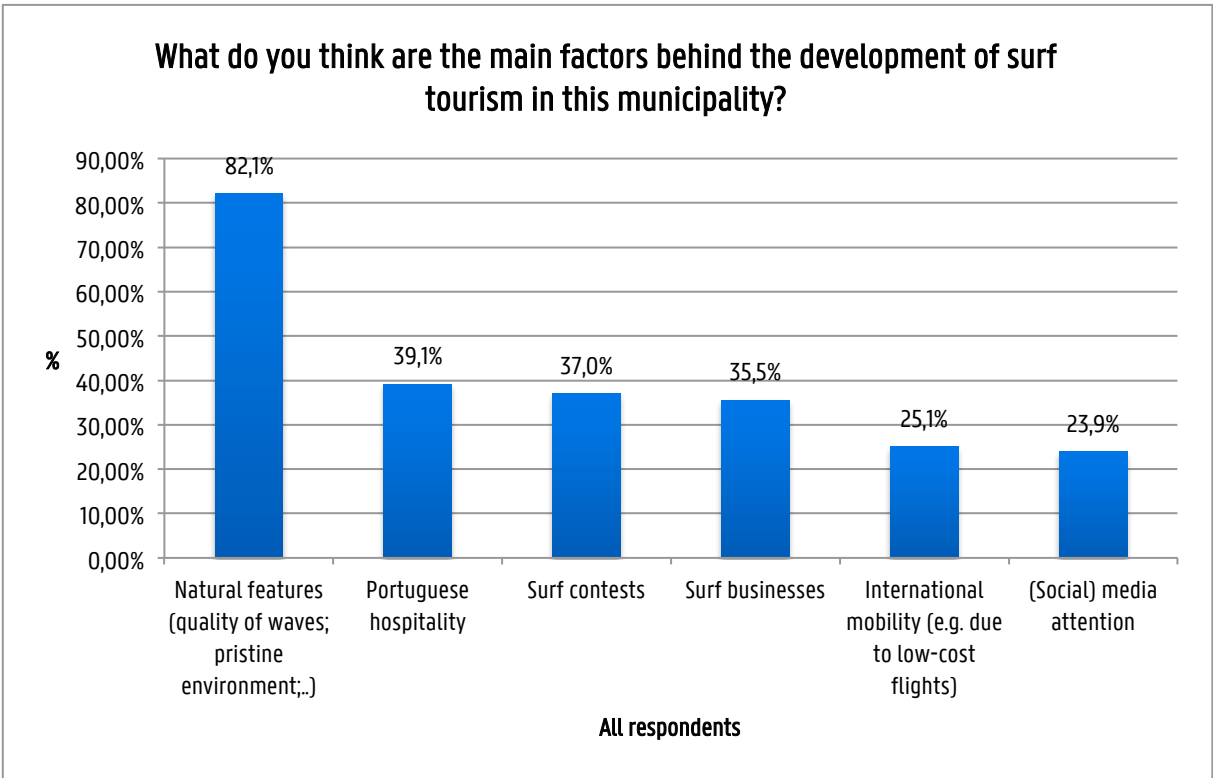
Figure 13: Driving forces behind the development of surf tourism, by all respondents

Depending on the municipality, the natural features were followed by the Portuguese hospitality, surf contests or surf businesses as the main driving forces of surf tourism. Interesting to note here is that in two municipalities, Peniche and Nazaré, where an influential international surf contest takes place, surf contests came in second.

What do you think are the main factors behind the development of surf tourism in this municipality?

Legend:
- Natural features (quality of waves; pristine environment;..)
- Surf businesses
- Portuguese hospitality
- International mobility (e.g. due to low-cost flights)
- Surf contests
- (Social) media attention
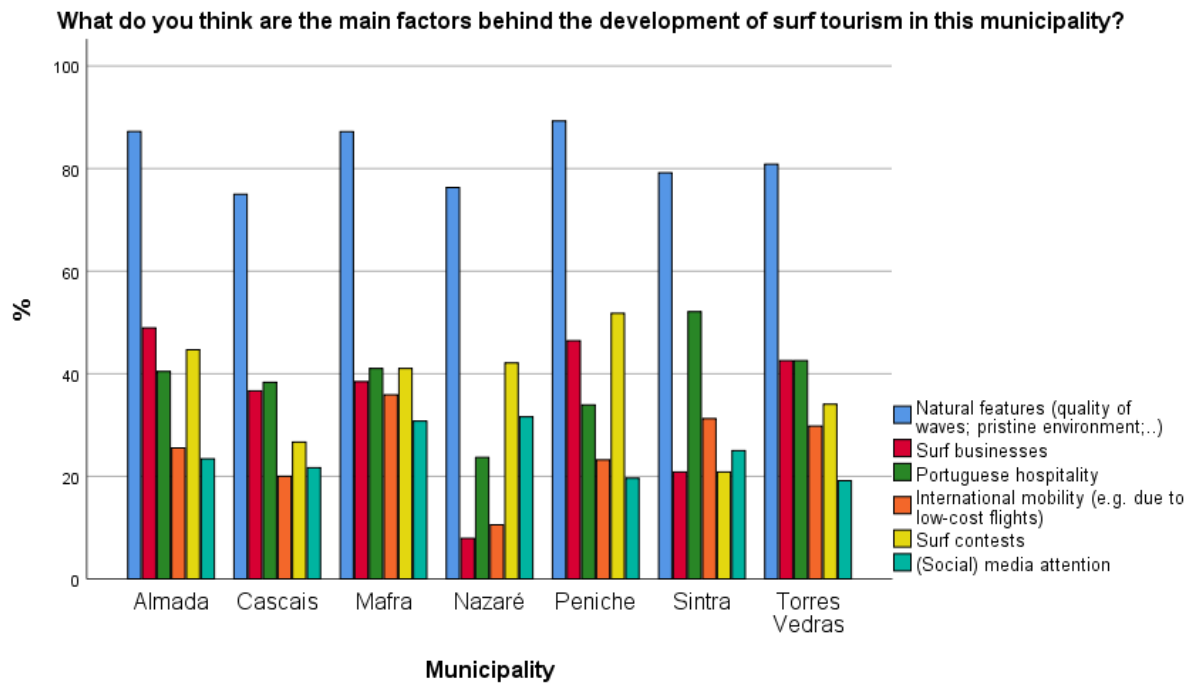
Figure 14: Driving forces behind the development of surf tourism in the municipality

Just like the respondents in the survey, the interviewees affirmed the natural features as the main driving force for the surf tourism in their area. The quality of the waves has proven to be the decisive pull factor attracting surf tourists. Moreover, since the characteristics of the waves vary throughout the year in relation to the ocean swells and wind conditions, the search for quality waves leads surf tourists to different destinations during different time periods.

As an example, the waves in the southward facing coastline of Cascais are sheltered for the large swells during the winter, thus attracting a lot of (domestic) surfers in these months. The Westward facing coastline of Portugal tends to be overpowered in most surf spots during a lot of days in the winter. Reversely, during the summer when Atlantic Ocean swells generally are smaller, the waves in the southward facing coastline of Cascais tend to be flat, while the surf spots that are most open to the Atlantic Ocean can have high quality waves. The specific microclimates in the surf spots can further reinforce the quality of the waves. This leads many surf tourists and surf schools from the wider area to converge in a specific surf spot at a specific time, when the right conditions align. The advanced surf forecasting technology, like the ones from Magicseaweed and Surfline (https://www.surfline.com), combined with freely available webcams of the beaches, for example on Beachcam (https://beachcam.meo.pt), have been crucial in this process of seasonal and intraregional mobility of surfers (Mach et al., 2020).

Nazaré might be the most obvious example of the importance of the natural features for the surf tourism development. The refraction of the waves, caused by the underwater canyon, creates exceptionally high waves. Since 2010, these waves have been surfed by surfers, assisted by jet skis, leading to multiple Guinness World Records for the biggest waves ever surfed. Furthermore, the waves break very close to the shore, with the cliffs functioning as a natural theatre to watch the spectacle. These unique natural features have attracted an increasing number of visitors. In 2012 the lighthouse at the cliff was turned into a surf museum. Since the opening, it was visited by more than one million persons from more than 100 different nationalities, making it one of the most visited museums in Portugal (Beachcam, 2020).

The Portuguese hospitality was cited as a contributing factor to the development of surf tourism in the region. During the last years, Portugal has received many favourable accreditations by diverse sources. It was named the friendliest country in the world by Internations (2020), the 3th most peaceful country in the world by the Institute of Economics and Peace (Vision of Humanity, 2020) and the World's Leading Destination of 2017, 2018 and 2019 by the World Travel Awards (2020), among other certifications. These have all fostered the international recognition of Portugal as a prime tourist destination.

In effect, tourism has become the country's largest economic sector, with the total contribution of travel and tourism to Portugal's GDP being around 20% (Reuters, 2018). After the 2011-2014 debt crisis in the country, the government and businesses focused on tourism as a growth market. The country also benefited from the deterring circumstances due to terrorism attacks and political unrest in rivalling destinations in the eastern Mediterranean and North Africa. Surf tourism has followed this wider trend. Most persons in the interviews referred to the last 5 to 10 years as the boom of surf tourism, caused by the same underlying reasons, combined with more specific surf-related events. In Ericeira for example, the establishment of a World Surfing Reserve by the Save the Waves Coalition in 2011, the first in Europe and the second in the World, contributed greatly to the recognition of Ericeira, and Portugal, as a prime surf destination.

An additional factor has been the establishment of surf contests. All municipalities have focused on attracting surf contests to stimulate surf tourism. In Peniche, the establishment of the Rip Curl Pro surf contest in 2009 has been decisive in the development of its surf tourism. It has triggered investments in the municipality, such as the flagship store of Rip Curl, a high-performance surf centre, an ecosurf resort and a camping site, among others. A study of the 2015 Rip Curl Pro event estimated the economic impact to be more than 10 million euros,

with around 100 000 persons visiting the event. It had an online number of views of 42,9 million (Nunes & Brito, 2019; Câmara Municipal de Peniche, 2016).

In Nazaré, the Nazaré Tow Surfing Challenge in 2020, which is a one-day event, had a similar economic return of 9,1 million euros, with 45 000 persons visiting the event (Figure 15). It had an astonishing online reach of more than one billion persons through news sites and blogs (Beachcam, 2020). It must be noted that this reach was partly due to an almost fatal accident that happened at the end of the contest.

Figure 15: Nazaré Tow Surfing Challenge 2020, February 11, 2020 (own picture)

Other municipalities organize similar international surf events to attract visitors and to increase their (online) visibility. In Almada there is the Caparica Surf Fest Pro, a Men's Qualifying Series (QS) 3 000 and a Women's QS 1 000 organized by the WSL, during the Easter school break (World Surf League, 2020a). The person interviewed from the civil parish of Costa da Caparica even told that they would like to upgrade to a QS 5 000 in the future, thus becoming a more important event (personal communication, April 3, 2020).

In Santa Cruz, in Torres Vedras, another QS 3 000 from the WSL is organized during the Easter school break, the Pro Santa Cruz (World Surf League, 2020b). In July, they also organize the Santa Cruz Ocean Spirit International Festival of Wave Sports (TCP/ARPT Centro de Portugal, 2020b).

In Ericeira in Mafra, the EDP Billabong Pro Ericeira, a QS Challenger Series, the highest level of surf contests on the QS of the WSL, takes place in September. This contest used to take place in Cascais, but moved to Ericeira in 2018 (World Surf League, 2020c).

In 2020, the Capitulo Perfeito surf contest was organized in Carcavelos, Cascais. It had an online reach of 33,4 million people across all continents, and was attended on the beach by 5 000 persons (Capitulo Perfeito, 2020).

In Sintra, the annual Sintra Portugal Pro from the International Bodyboarding Corporation (IBC) is organized in September (Turismo de Portugal, 2020c). It was stated by the contacted person from the municipality that Sintra would also like to have a contest of the WSL, but that the maximum number of contests that could be held on the Portuguese territory was already reached (personal communication, March 6, 2020).

Next to these international surf events, the surf spots in the municipalities under study also host numerous national events, for example from the Associação Nacional de Surfistas (ANS), which attract mainly a domestic spectator crowd. From this overview, it becomes clear that surf events have played, and will play, a vital role in the development of surf tourism in the region, attracting visitors and increasing the visibility that goes along with the international media attention. Additionally, It is important to note that many of these events take place outside the main high season of tourism, being July-September. This is not a coincidence, but is a strategy that is actively stimulated by Turismo de Portugal, the national tourist board, as can be read in their Tourism Strategy 2027 (Turismo de Portugal, 2017). To generate new demand and attractiveness throughout the year, the strategy states that the calendar of international surf contests should be extended throughout the whole year.

Lastly, surf businesses have also played an important role in the development of surf tourism. Surf businesses include surf schools, surf camps, surf shops and other related business activities. Since their first establishment in the 1980s, these surf businesses have steadily grown in number, with a rapid increase during the last decade, according to the interviewees. Nevertheless, the moment of the 'boom' has varied in the different municipalities, with Sintra and Torres Vedras experiencing a more recent development.

5.2 Pressures

Pressures are developments in the use of resources and the use of land by surf tourism related activities. To address the pressures in the survey, the perceived conflicts by the stakeholder groups were interrogated. The most conflicts were reported in the municipalities of Mafra and Peniche, while the majority of respondents in the other municipalities did not report conflicts (Figure 16).

Do you see any conflicts because of surf tourism?
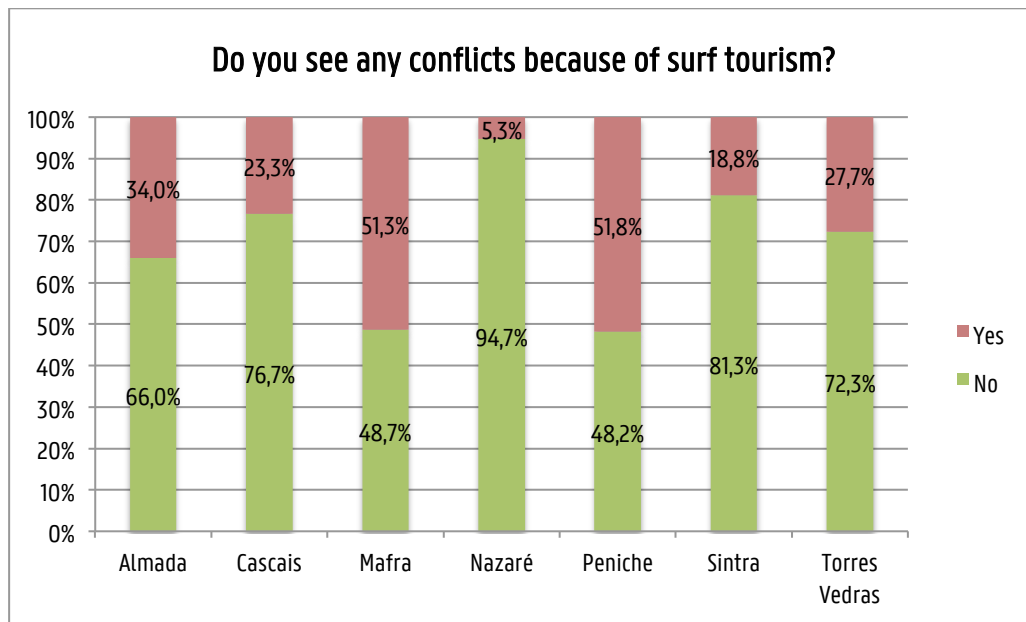
Figure 16: Percentage of conflicts because of surf tourism, by municipality

Amongst all stakeholder groups, the local surfers, the surf tourists and the local surf businesses reported the most conflicts (Figure 17). Only a small portion of the visitors, the local inhabitants and the local non-surf businesses reported conflicts. Thus, the stakeholder groups that are directly involved reported the most conflicts.
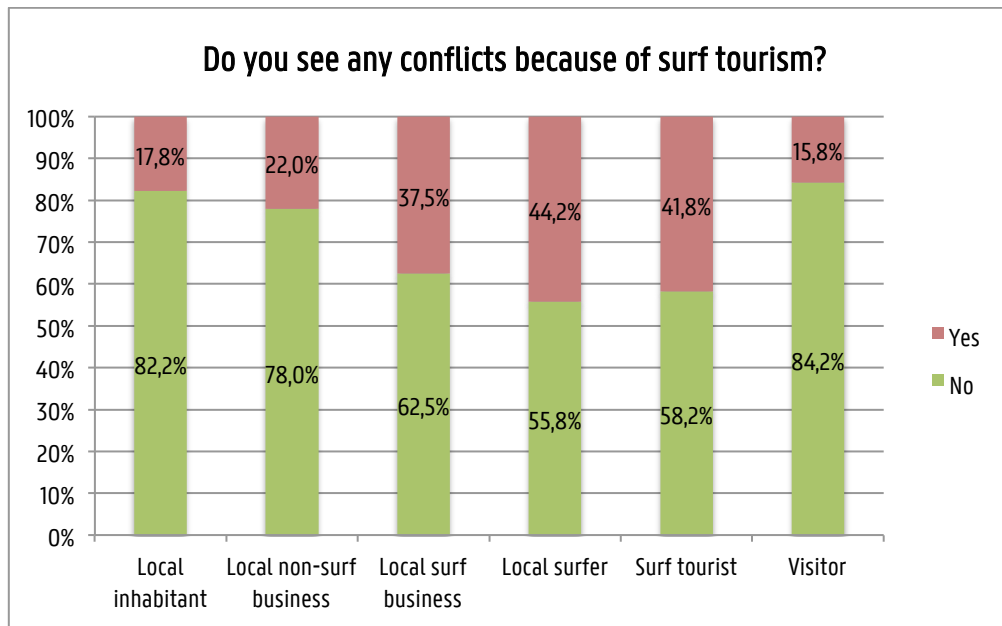
Figure 17: Percentage of conflicts because of surf tourism, by stakeholder groups

The main reported conflicts were contributed to localism and crowding of the surf areas. Localism refers to local surfers that verbally or physically threaten or abuse outsiders to deter them from surfing at a surf spot. This is a social phenomenon that has been witnessed in quality surf spots around the world. Other reported conflicts were the disruption of the local traditional lifestyle, the mix of recreational users, environmental impacts, a higher cost of living, seasonality of tourism, job competition, uncontrolled infrastructure growth, the behaviour of surf tourists, inadequate infrastructure and the loss of a positive surf vibe (Appendix 2.22).

Further, 34,6% of the local surfers across all municipalities reported conflicts with surf tourists, 28,8% with surf schools and 21,2% with bathers. Note that respondents could choose multiple groups when answering this question (Figure 18). However, in most municipalities a majority of the local surfers did not report conflicts with other recreational users, yet in Peniche all local surfers reported conflicts, especially with surf schools (Appendix 2.23).
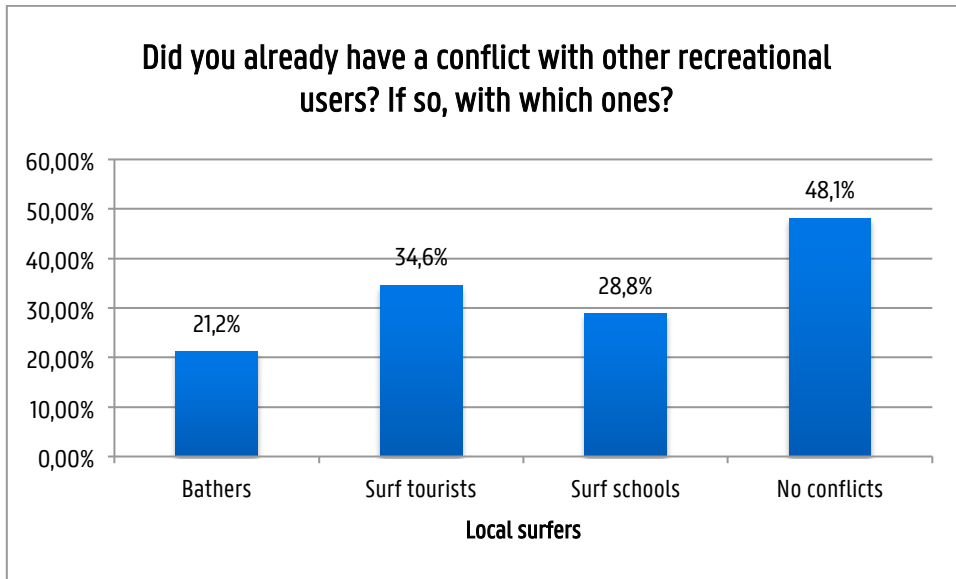
Figure 18: Conflicts of local surfers with other recreational users

It is remarkable to see the difference in reported conflicts when comparing these with the results of surf tourists. 79,1% of surf tourists across all municipalities did not report any conflicts (Figure 19). Only in Almada a majority of surf tourists reported conflicts, mostly with local surfers (Appendix 2.24).
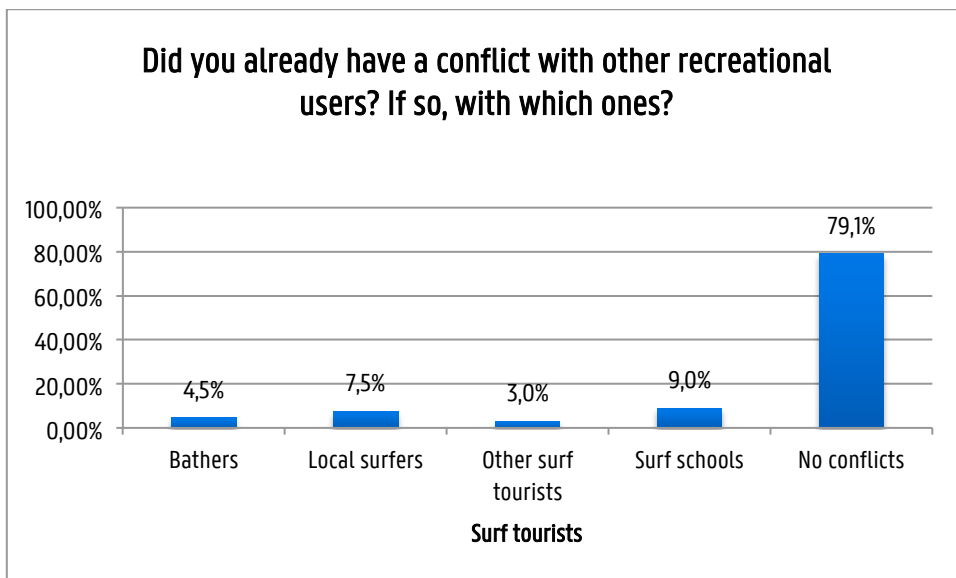
Figure 19: Reported conflicts by surf tourists

The reported conflicts across local surfers and surf tourists were about the crowd in the water, the lack of knowledge about the code of conduct in surfing, the lack of respect for the locals, a bad delimitation of the bathing and surfing zone and a general disorganization in the water. From the visitors, only 1,8% reported a conflict, which was with surf schools and the crowd in general on the beach.

The interviewees reported some conflicts, which are similar to the ones mentioned by the respondents in the surveys. The main conflicts mentioned were these between recreational users of the sea. The mix of recreational users without clear delineation, for example surfers and bathers, creates safety issues in the water, especially in overcrowded conditions during summer. It was also reported that the crowd of surfers and surf schools in the water sometimes leads to frustrations with the surfers, especially for the local surfers. There are also conflicts among surf schools about the lack of adaptation to the regulations, for example not complying with the maximum amount of students per teacher, which can lead to safety risks. The lack of clear and enforced regulation for surf schools in general leads to conflicts in the sector. The lack of adequate parking spaces for cars around the beaches was also reported to sometimes lead to conflicts.

Another pressure that was reported is the development pressure on the coastline. This was especially the case in Almada, Cascais, Mafra and Peniche. This might also be linked to the rising cost of living, which translates into higher housing prices. The general context of gentrification processes[4], especially in the area around Lisbon, was often referred to.

Further, in unrecorded conversations with respondents of the survey, some social conflicts were reported, mainly based on the party lifestyle of surf tourists, leading to noise nuisance and issues related to alcohol and drugs, and a lack of sensitivity to local customs. This behaviour puts pressure on the satisfaction from the local inhabitants with surf tourists.

5.3 State

State refers to the state of the natural and built environment and the state of surf tourism in the coastal areas.

When asked about the amount of surf tourists in the municipality (Figure 20), the respondents consider the crowdedness to be either high (Almada, Sintra, Torres Vedras) or very high (Cascais, Mafra, Nazaré, Peniche).

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[4] The process of repairing and rebuilding homes and businesses in a deteriorating area (such as an urban neighbourhood) accompanied by an influx of middle-class or affluent people and that often results in the displacement of earlier, usually poorer residents (Merriam-Webster Dictionary).
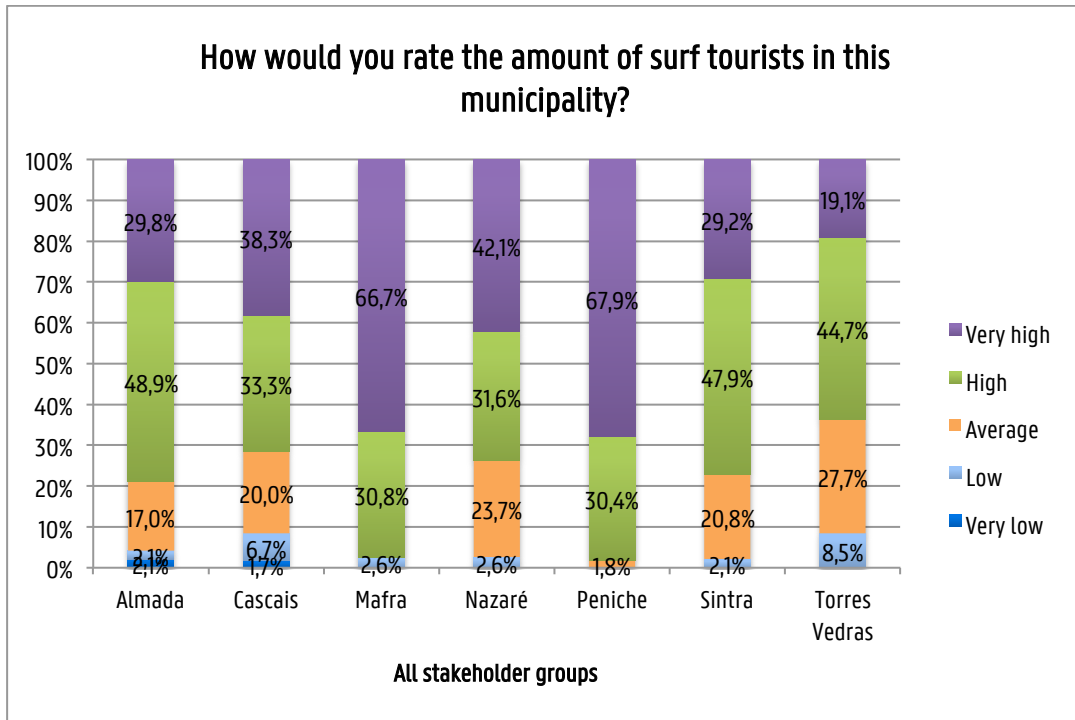
Figure 20: Rating of the amount of surf tourists in the municipality, by municipality

The stakeholder group of the local inhabitants had the highest perception of the number of surf tourists in their municipality (Figure 21). It is interesting to note that the insider groups had a higher perception of the number of surf tourists than the outsider groups (surf tourists, visitors).
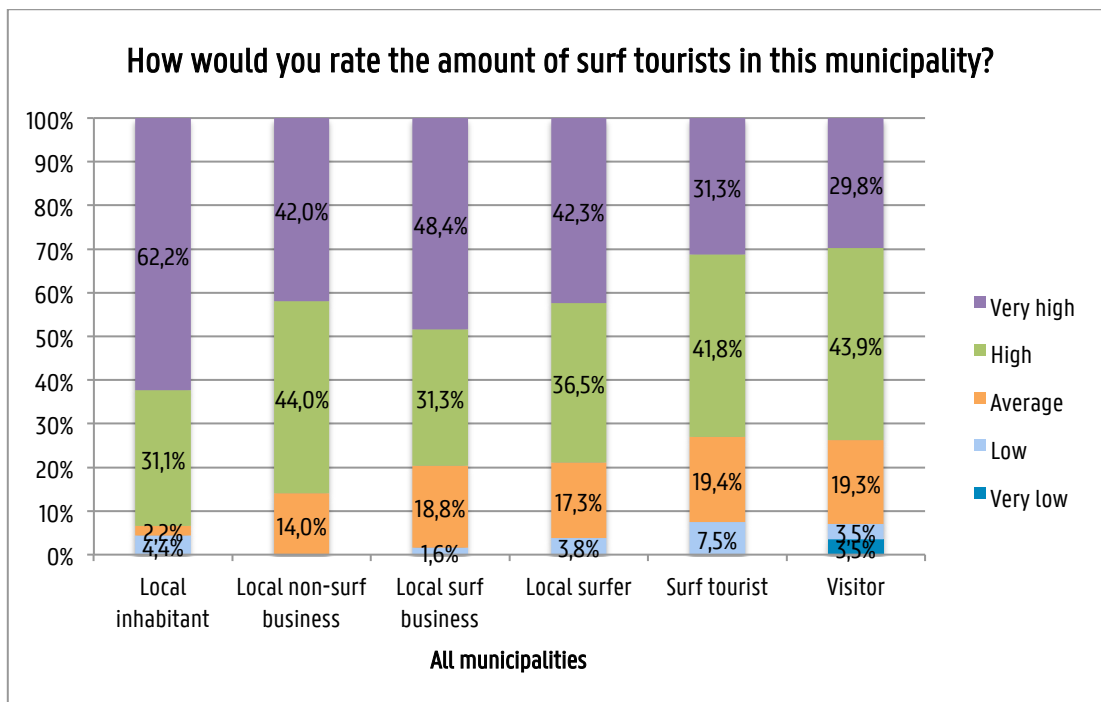
Figure 21: Rating of the amount of surf tourists in the municipality, by all respondents

The amount of surf businesses is mostly rated very high in Mafra and Peniche, and high in Almada, Cascais, Sintra and Torres Vedras. In Nazaré it is rated average by most respondents. This can be seen as an indicator of the relatively younger development of surf tourism in Nazaré (Figure 22).

How would you rate the amount of surf businesses in this place? (e.g. surf shops, surf schools, surf hostels,...)
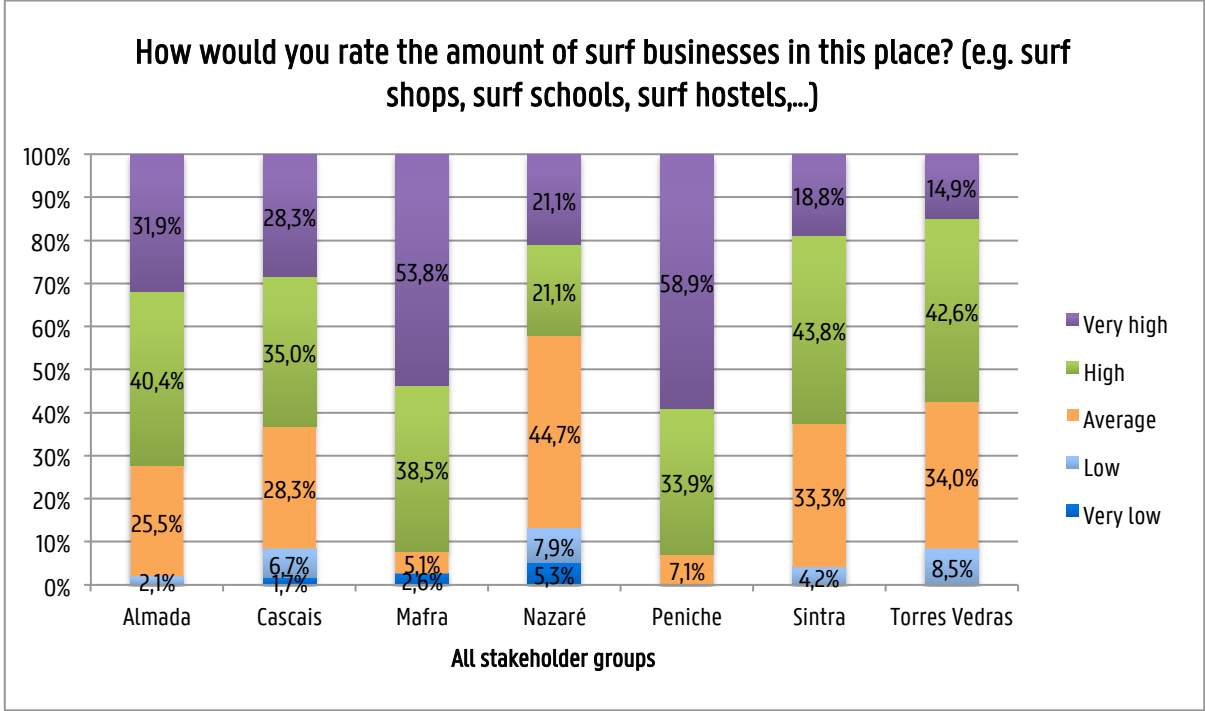
Figure 22: Rating of the amount of surf businesses, by municipality

The development of surf tourism in the municipality in the last years was generally described as fast to very fast by local surfers (Appendix 2.25). In all municipalities, a majority of the surf businesses reported a steady to very fast growth of surf-related businesses since they started working there (Appendix 2.26).

In the municipalities of Almada, Cascais, Mafra and Peniche the surf tourism industry is already developed to a high degree, which is affirmed by the interviewees. In Sintra, Torres Vedras and Nazaré, the surf tourism industry is also developed, but to a lesser extent than in the other municipalities. This is also reflected in the number of surf schools in the municipalities, as could be seen in Table 7. The degree of development is not necessarily directly related to the number of surf tourists in the municipalities. In Nazaré, the number of people that come to see the big waves has been increasing throughout the years, reaching a very high level during the last years. It must be noted that this is another form of surf tourism than the surf tourism in the other municipalities, where surf tourists are understood to be persons with the primary purpose of surfing themselves.

Surf tourism has also led to an increase in foreign direct investment in the municipalities. In the first place this is due to foreign investment in businesses and projects, and in the second place also by foreigners buying or renting houses to live in.

The quality of the beach infrastructure was rated the highest in Mafra, followed by Torres Vedras and Sintra (Figure 23). Less positive ratings were found in Peniche, Almada, Nazaré. An analysis of the results of local surfers (Appendix 2.27) and surf tourists (Appendix 2.28) showed similar results. This could be related to the absence of public showers and toilets in the visited beaches of these municipalities, as well as disorganized parking lots. The ratings in Cascais were mixed. It must be noted that the answers were based on the surf spots that were used to conduct the surveys. The beach infrastructure, like walking paths, beach showers and parking spaces, can vary between the different beaches in a municipality. A distinction must be made between the urban beaches in the municipalities, which are mostly fully developed in terms of beach infrastructure, like Praia do Nazaré in Nazaré and Praia de Carcavelos in Cascais, and the peri-urban beaches, that are also frequented for surfing, which is the case in Praia do Norte in Nazaré Praia do Guincho in Cascais. These beaches lack the beach infrastructure found in the other beaches in the municipalities.
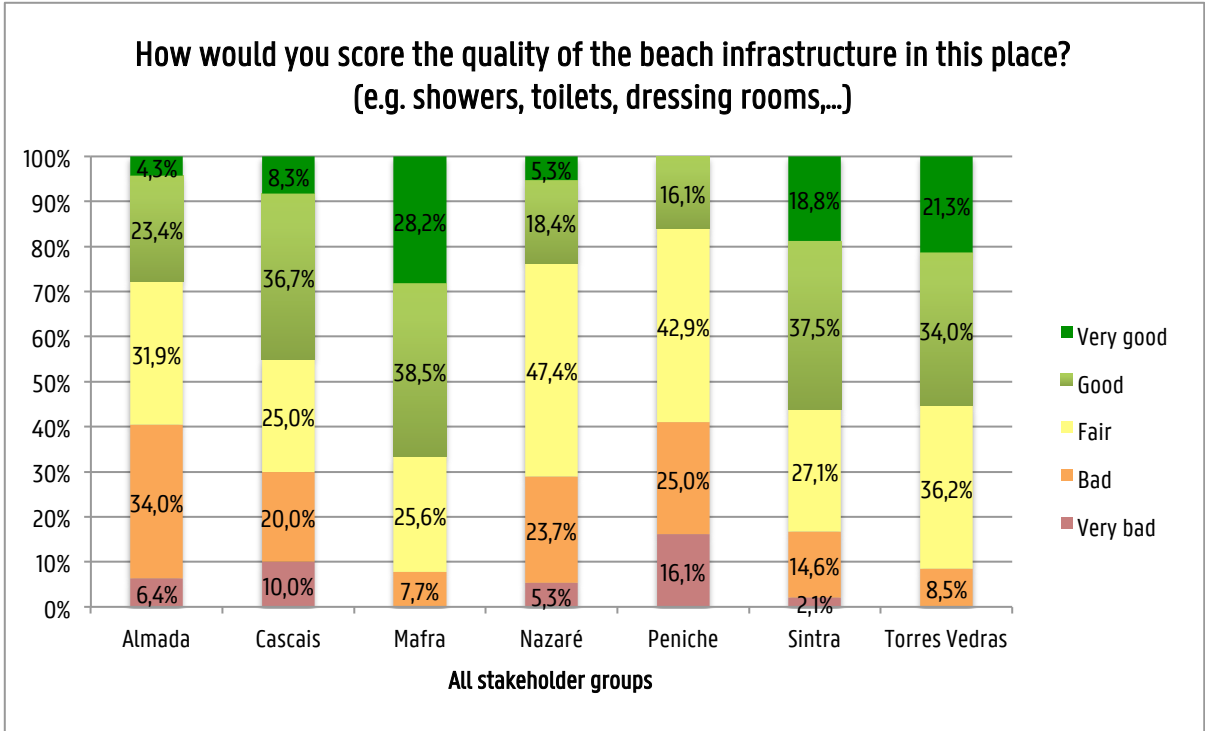
Figure 23: Rating of the quality of the beach infrastructure, by municipality

According to local surfers the accessibility of the surf spot scored the highest in Almada, Peniche and Mafra, while Sintra and Cascais received the lowest ratings (Appendix 2.29). The surf spots generally received a good

to very good accessibility rating by surf tourists. Only in Almada a majority of respondents rated the accessibility as average (Appendix 2.30), where they lamented the overcrowding in the summer of the public busses that ride between Lisbon and Caparica.

The growth of surf tourism has in some places led to periodical overcrowding of the surf spots. This overcrowding phenomenon is related to the physical and social carrying capacity of the beaches and the sea (Silva & Ferreira, 2016), which causes discomfort for the users and can lead to interpersonal conflicts. Local surfers had a negative perception of the crowd in Peniche (100% negative), Almada (83,3% negative), Mafra (80% negative), and Cascais (40% negative). The most positive attitudes were found in Nazaré (66,7% positive), Torres Vedras (54,6% positive) and Sintra (44,4% positive) (Appendix 2.31).

It is remarkable that the surf tourists had a more positive perception of the crowd in the surf spots. Most of the surf tourists were positive about the crowd in Cascais and Nazaré, while the crowd in Mafra, Peniche, Sintra and Torres Vedras received a good to average rating from the majority of the surf tourists. More than half of the surf tourists had a negative perception of the crowd in Almada (Appendix 2.32).

According to local surfers the environmental quality of the surf spots was generally good or very good. Only in Ribeira d'Ilhas in Mafra a part of the local surfers reported a bad environmental quality (Appendix 2.33). The surf tourists also rated the environmental quality of the surf spots good to very good in most municipalities. Only in Peniche a majority rated it as average, and a small percentage rated it bad in Mafra (Appendix 2.34).

The good environmental quality is confirmed by the environmental report of the POC-ACE. The majority of the beaches in the region have an excellent water quality. Three of the beaches under study posses a Blue Flag certification (CDS, Ribeira d'Ilhas, Praia do Mirante). The beaches generally present a low to very low pollution risk and no significant pollution hotspots are found. As to potential sources of microbiological pollution of bathing water, the risks of contamination are also low to very low. In Mafra however, submarine emissions of treated water discharges from the wastewater treatment plant of Ribeira d'Ilhas are reported in the management plan of the Ericeira World Surfing Reserve.

Local surfers had the most negative perception about the code of conduct adoption of surf tourists in Mafra, Peniche, Torres Vedras and Almada. The most positive perception was found in Nazaré, Sintra and Cascais (Appendix 2.35).

5.4 Impacts

Impacts are the environmental, economic and social effects of surf tourism related activities in the coastal areas.

The importance of the development of surf tourism for the people in the municipality was mostly rated high to very high, especially in Nazaré (Figure 24). The lowest rating was given in Cascais. This hints at a smaller relative importance of surf tourism in the overall economy of Cascais than in the other municipalities.
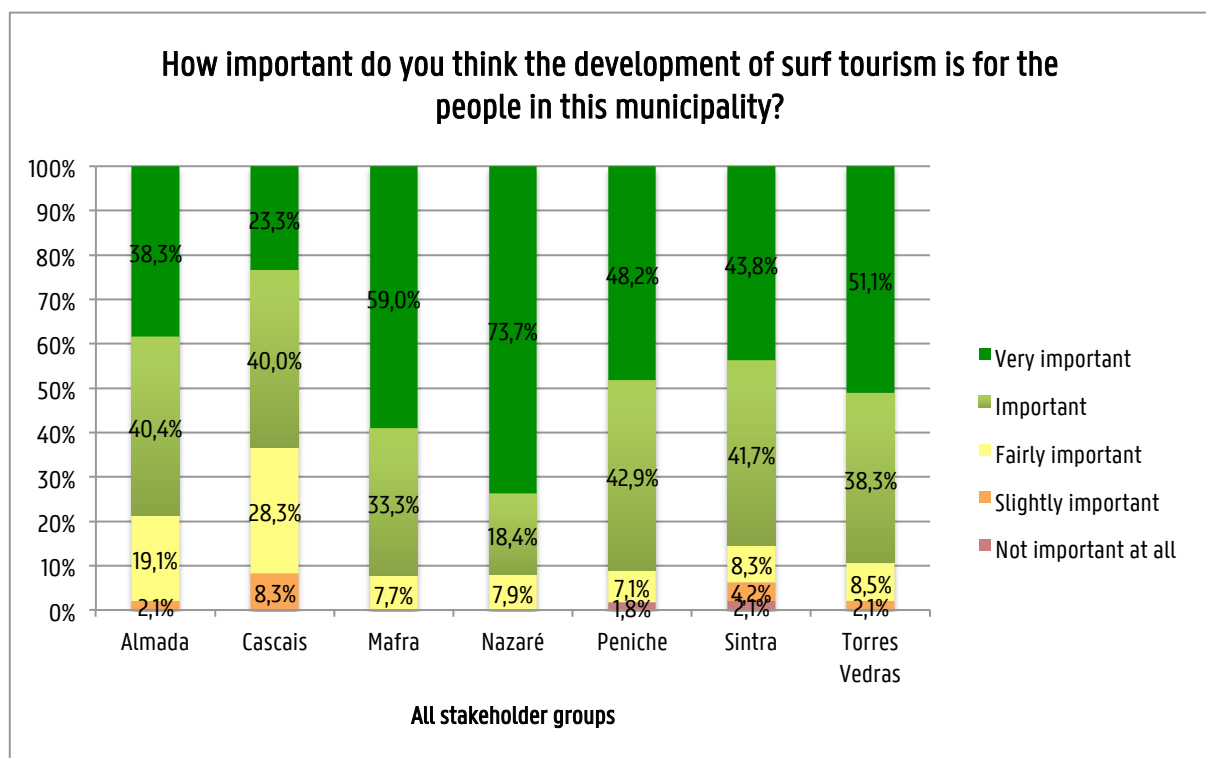
Figure 24: Importance of surf tourism to people in the municipality, by all stakeholder groups

Close to 80% of the local inhabitants responded to not personally benefit from surf tourism or to consider the question not relevant, whereas more than 80% of the stakeholder group of the local surf businesses responded to personally benefit form surf tourism (Appendix 2.36).

When all stakeholder groups were asked to explain their personal benefits in an open answer, the main topics were the economic benefits, such as providing work, new business opportunities and more customers. Social benefits were also reported, like the intercultural contact and the improvement of infrastructure (Appendix 2.37, Appendix 2.38). In all municipalities with the exception of Cascais, at least half of the non-surf businesses

agreed that their business benefits from surf tourism (Appendix 2.39). The majority of the visitors in all municipalities reported that surf tourism is a positive addition to their visit (Appendix 2.40).

The respondents were also questioned about specific, possible impacts that surf tourism could have, based on previous research about this topic (Carapinha, 2018; Martin & Assenov, 2014; Nunes & Brito, 2019; Teixeira, 2017). Those impacts were labelled across the environmental, economic and social fields of sustainability. The respondents were asked the following question: "In what degree do you think the following aspects are relevant to the surf tourism in this municipality?" They were asked to answer with *Strongly disagree (1) – Disagree (2) – Neutral (3) – Agree (4) – Totally agree (5)*. To provide a comparable overview of the responses across the municipalities on the multiple possible impacts, the means of the responses were calculated. A distinction was made between positive and negative impacts.

For the environmental impacts, the highest agreement was generally found for "Beach clean-ups and other environmental actions" and secondly "Environmental awareness of surf tourists". The lowest agreement was found for "causing loss of ocean water quality" (Table 13).

Table 13: Environmental impacts, by municipality

	Environmental impacts								
	Positive			**Negative**					
	Relatively more sustainable form of tourism than other forms of tourism	Environmental awareness of surf tourists	Beach clean-ups and other environmental actions	Causing biodiversity loss	Causing loss of beach quality	Causing loss of ocean water quality	Littering (garbage)	Infrastructure growth	Overcrowding
Almada	4,00	4,04	4,04	2,57	2,57	2,30	2,98	3,91	3,53
Cascais	4,00	3,78	4,13	2,82	2,58	2,40	2,83	3,58	3,42
Mafra	3,95	4,03	4,03	2,97	2,92	2,79	3,36	4,13	4,10
Nazaré	4,00	3,97	4,11	2,50	2,29	2,11	2,63	3,58	3,18
Peniche	3,57	3,77	3,80	2,70	2,86	2,55	3,09	3,77	3,63
Sintra	3,88	4,10	4,27	2,94	2,94	2,60	3,27	3,65	3,44
Torres Vedras	3,91	3,96	4,11	2,68	2,45	2,38	3,04	3,85	3,38
Average	**3,89**	**3,94**	**4,07**	**2,74**	**2,67**	**2,45**	**3,03**	**3,77**	**3,52**

Note. Green = Highest mean score on a statement across the municipalities, Yellow = Second highest mean score on a statement across the municipalities, Orange = Lowest mean score on a statement across the municipalities. A high mean score means high agreement with the statement. The average of the mean scores per statement across the municipalities is calculated to show the average agreement with the statements.

The most positive environmental impacts were perceived in Almada, Cascais and Sintra, while at the same time the most negative environmental impacts were perceived in Mafra and Sintra. The least positive environmental impacts were perceived in Peniche, while the least negative environmental impacts were reported in Nazaré. Interestingly, local inhabitants perceived the most positive environmental impacts, while local surfers perceived the most negative environmental impacts, while visitors reported the least positive and negative environmental impacts (Appendix 2.41).

The interviewees reported that the environmental awareness of surf tourists and surf schools played an important role in raising the environmental awareness of the broader public. Actions like beach clean-ups and educating about environmental issues related to the sea have helped in this process. Thus, the environmental impact of surf tourism is generally perceived as very positive. Nevertheless, the interviewees also reported some issues. Traffic congestions around the beaches and the city centre during the high season and the related air pollution were mentioned, as well as the accumulation of garbage. The pressure of spectators of surf events on the dune systems and habitats is also stated by ICNF.

The highest agreement for the economic impacts were "New business opportunities", followed by "Economic development", while the least agreement was found for "uneven distribution of economic benefits" (Table 14).

Table 14: Economic impacts, by municipality

	Economic impacts								
	Positive				Negative				
	Reducing seasonality of tourism	Diversification of the economy	Economic development	New business opportunities	Economy overly focused on surf tourism	Contributing to seasonality of tourism	Uneven distribution of economic benefits	Price competition between businesses leading to lower quality	Illegal businesses escaping taxes
Almada	3,51	3,98	4,11	4,21	3,02	3,17	2,72	3,28	3,28
Cascais	3,52	3,87	4,02	4,08	3,15	3,27	2,82	2,90	3,02
Mafra	3,54	3,77	4,18	4,05	3,67	3,38	3,26	3,33	3,05
Nazaré	3,66	3,84	4,16	4,18	3,32	3,00	2,71	3,24	2,89
Peniche	3,77	3,79	3,96	4,05	3,52	3,18	3,11	3,43	3,37
Sintra	3,27	3,77	3,94	3,94	3,08	3,44	2,90	3,08	2,81
Torres Vedras	3,34	3,87	4,17	4,17	3,11	3,11	3,02	3,04	2,89
Average	**3,52**	**3,84**	**4,07**	**4,10**	**3,26**	**3,22**	**2,93**	**3,18**	**3,06**

Note. Green = Highest mean score on a statement across the municipalities, Yellow = Second highest mean score on a statement across the municipalities, Orange = Lowest mean score on a statement across the municipalities. A high mean score means high agreement with the statement. The average of the mean scores per statement across the municipalities is calculated to show the average agreement with the statements.

The most positive economic impacts were reported in Almada, Nazaré and Torres Vedras, while the most negative economic impacts were reported in Mafra and Peniche. The least positive economic impacts were reported in Sintra and the least negative economic impacts were found in Nazaré. The most positive economic impacts were perceived by local surf businesses, while local surfers perceived the most negative economic impacts. Surf tourists reported the least positive economic impacts, while visitors stated the least negative impacts (Appendix 2.42).

Surf tourism is widely considered to reduce seasonality. The interviewees affirmed this statement. Nevertheless, surf tourism in the region is currently far from being spread evenly throughout the year. In general, it shows the same seasonality as other forms of tourism, with the peak during the summer months. However, the tactical scheduling of surf events, combined with good surf conditions in spring and autumn, have lengthened the main surf tourism season from April to November in most places. During the winter months, the Western oriented coast of Portugal receives powerful swells, which makes surfing in most areas unsafe for beginners. Also, the weather conditions are less inviting to tourists who mostly link a surf holiday with warm, sunny weather, and who mainly depend on public holidays to plan their vacation. This explains why the potential to reduce seasonality during the whole year should be put in perspective. A possible exception could be the spectator surf tourism in Nazaré, which mostly depends on the phenomenal big waves that occur between October and March. The low season could thus truly become the high season in Nazaré.

The positive economic impacts of surf tourism were most noted by the interviewees. Surf tourism has created jobs and new business opportunities. It has stimulated and diversified the local economic development and attracted broader investments. It was mentioned that the real economic impact of surf tourism is probably underrated, since it makes the surrounding areas very attractive for investments, also outside of the surf tourism industry. In Cascais, this was exemplified with the establishment of the Nova School of Business and Economics at the popular surf beach of Praia de Carcavelos. The adjacency to the beach is actively used to attract foreign students.

The highest agreement within the social impacts was for "Job creation", followed by "Improvement of local identity", while inversely the least agreement was found for "loss of local identity" (Table 15). The most positive social impacts were reported in Nazaré while the most negative social impacts were perceived in Mafra and Peniche. The least positive social impacts were reported in Peniche, while the least negative social impacts were reported in Nazaré.

Table 15: Social impacts, by municipality

	Positive				Negative		
	Job creation	Improvement in quality of life	Improvement of local identity	Improvement of local infrastructures and services (parking lots, sewage systems, walking paths,…)	Increased cost of living	Loss of local identity	Social conflicts (e.g. between surf tourists and local inhabitants)
Almada	4,19	3,87	3,89	3,87	3,21	2,62	3,02
Cascais	4,18	3,93	4,03	3,83	3,22	2,52	2,90
Mafra	4,23	3,69	3,51	4,03	3,77	3,23	3,23
Nazaré	4,00	3,82	4,16	4,03	3,45	2,29	2,50
Peniche	4,25	3,71	3,64	3,52	3,68	2,93	3,30
Sintra	4,23	4,02	3,96	3,96	3,10	2,56	2,58
Torres Vedras	4,26	3,89	3,89	3,91	3,34	2,79	3,04
Average	**4,20**	**3,85**	**3,87**	**3,86**	**3,39**	**2,70**	**2,95**

Note. Green = Highest mean score on a statement across the municipalities, Yellow = Second highest mean score on a statement across the municipalities, Orange = Lowest mean score on a statement across the municipalities. A high mean score means high agreement with the statement. The average of the mean scores per statement across the municipalities is calculated to show the average agreement with the statements.

The most positive social impacts were reported by the local surf businesses, while local surfers reported the most negative social impacts. Surf tourists reported the least positive social impacts, while local inhabitants, visitors and local non-surf businesses reported the least negative social impacts (Appendix 2.43).

The social impacts of surf tourism are ambiguous and should be analysed with care. A positive social impact is that surf tourism has provided job opportunities for the local community. Many local surfers have been able to create a living in the surf tourism industry. Further, surf tourism has often caused an improvement in infrastructures, which consequently also increased the living standard of the local inhabitants in general. However, the increased flow of tourists also puts pressure on the local community. In many places, socio-cultural projects have been put in place to give persons from lower socio-economic backgrounds and school children a chance to participate in surfing, in partnerships with local surf schools. This has given many social benefits, like empowerment, physical exercise and improvement in mental wellbeing, competences related to understanding the different aspects of the sea and a heightened environmental awareness. Surf tourism has in some places also contributed to a reinforcement of the local identity of inhabitants, linked to the greater visibility of their locality and an exchange of cultural experiences. As stated by Van Eetvelde et al. (2016, p. 380) about Nazaré, "the (external) perception can influence the valuation of the existing landscape features

and enforce a new type of tourism that is well integrated to the identity of the local inhabitants." Nevertheless, surf tourism might at the same time also incur a loss of local identity when the landscape and the local way of life are drastically altered.

As an example, the study field 'surfonomics' attempts to calculate the economic contribution of surfing to local and regional communities. A surfonomics study held in Santa Cruz, California, USA, stated that the "proximity to surf breaks is a statistically significant contributor to overall home value. A home that is right next to a surf break is valued on average at approximately US$106 000 more than an equivalent home a mile away" (Scorse, et al., 2015, p. 409). Many respondents affirmed a rise in house prices in their coastal zones. This evolution makes it harder for the original residents to stay or find a new house in the area. This issue fits into wider trends of gentrification processes and rising living costs in Portugal. The shift from many rental houses in the private market to become short-term rentals on online platforms such as Airbnb aimed at (surf) tourists has highly contributed to this development and creates social issues in the municipalities.

Across the three domains, the most positive impacts were reported in Almada and Nazaré. The most negative impacts were stated in Mafra and Peniche. The least positive impacts were reported in Peniche, while the least negative impacts were recorded in Nazaré (Table 16).

Table 16: Overview impacts, by municipality

	Positive impacts	Negative impacts
Most	Almada, Nazaré	Mafra, Peniche
Least	Peniche	Nazaré

Overall, local surf businesses reported the most positive impacts, while local surfers perceived the most negative impacts. Interestingly, surf tourists were the least outspoken about positive impacts, while visitors recorded the least negative impacts related to surf tourism (Table 17).

Table 17: Overview impacts, by stakeholder group

	Positive impacts	Negative impacts
Most	Local surf business	Local surfer
Least	Surf tourist	Visitor

5.5 Responses

When asked what action the respondents thought could improve the surf tourism in the municipality, the most answered action was "Infrastructure development (e.g. beach showers, walking paths, parking lots,…)" with 64,8% of respondents, closely followed by "Beach use planning (e.g. designating swim and surf zones)" with 62% of respondents, "Support for local surfers (e.g. professional training centres)" with 60,8% and "Code of conduct signs (e.g. about the 'surf rules')" with 56,6% of all respondents (Appendix 2.44). Interesting to note is that only 13,6% of all respondents in the survey favoured a tourist tax, making it the least favoured action.

However, it is useful to look at the answers in each municipality, to see what action was thought to be the most needed in every destination (Figure 25).
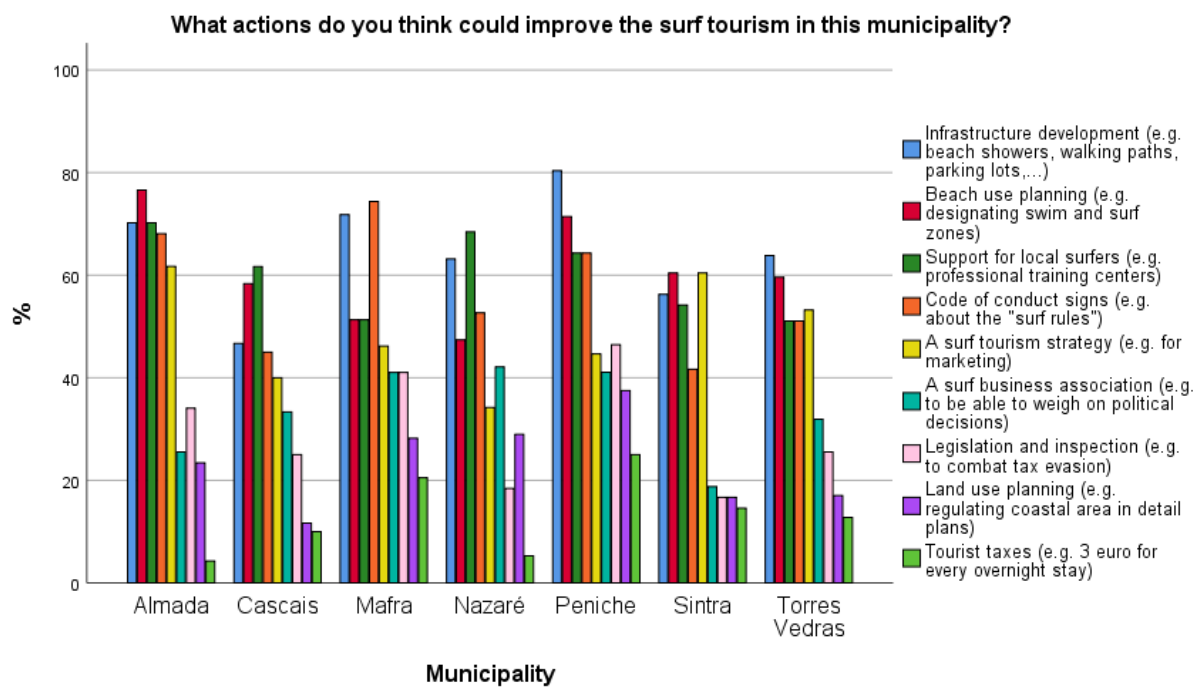
Figure 25: Actions that could improve surf tourism, by municipality

This way, it becomes clear that every municipality has other actions that are prioritized by the respondents (Table 18).

Table 18: Most answered action in each municipality

Municipality	Most answered action
Almada	Beach use planning
Cascais	Support for local surfers
Mafra	Code of conduct signs
Nazaré	Support for local surfers
Peniche	Infrastructure development
Sintra	Beach use planning & Surf tourism strategy
Torres Vedras	Infrastructure development

Other proposed actions in the open answers were to build a wave garden, to provide better public transport, to reduce the amount of surf school licenses, to limit access to the beach, to have more jobs for local residents, and to monitor the environmental quality at the beaches on a national level.

In all municipalities, the respondents mostly believe that surf tourism will develop in a sustainable way during the next decade. The most positive attitudes were found in Sintra, Torres Vedras, Almada and Nazaré, while Cascais, Mafra and Peniche showed a smaller proportion of respondents that were outright positive about the sustainability in the future (Appendix 2.45).

When local surfers were asked to evaluate the current actions from the local government relating to surf tourism, only in Nazaré and Sintra a majority was positive about it. A majority of local surfers in Almada, Cascais and Mafra answered neutrally, while in Peniche 37,5% of the local surfers had a negative perception about the current actions. Local surfers in Torres Vedras were mostly divided over a neutral to good evaluation (Figure 26).

How do you evaluate the current actions from the local government relating to surf tourism?

Legend:
- Very good
- Good
- Neutral
- Bad
- Very bad
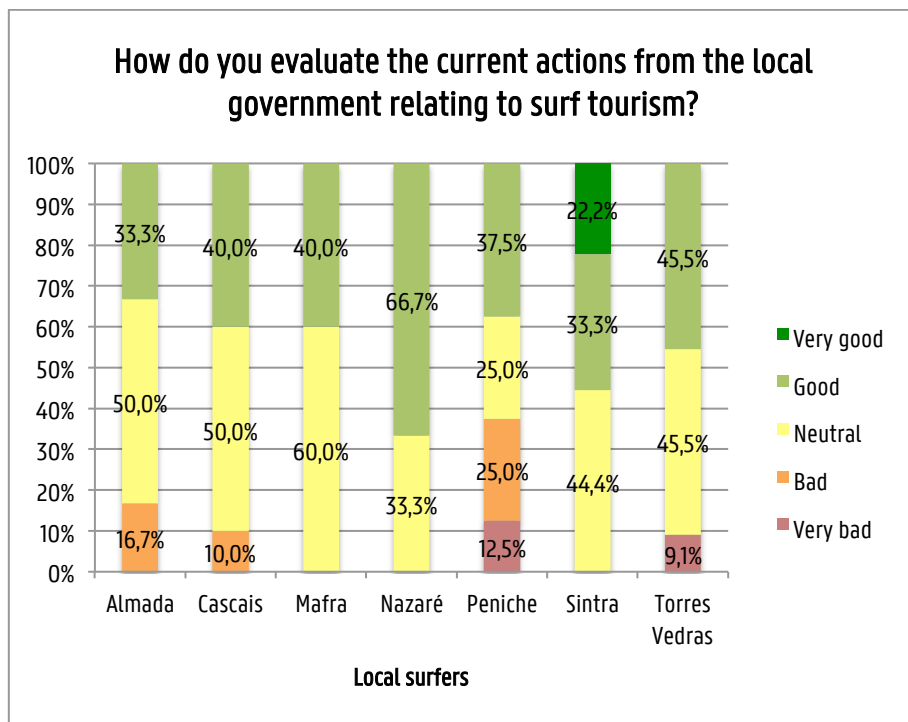
Local surfers

Figure 26: Evaluation of current actions from local government relating to surf tourism, by local surfers

The most positive evaluation of the regulation of surf tourism developments by local surf businesses was found in Nazaré and Torres Vedras. In Almada, Cascais, Mafra and Sintra, the surf businesses were divided about the regulation, while in Peniche most of the respondents evaluated the regulation as bad (Figure 27).

How do you evaluate the regulation of the surf tourism development in this municipality?

Legend:
- Very good
- Good
- Neutral
- Bad
- Very bad

Local surf businesses
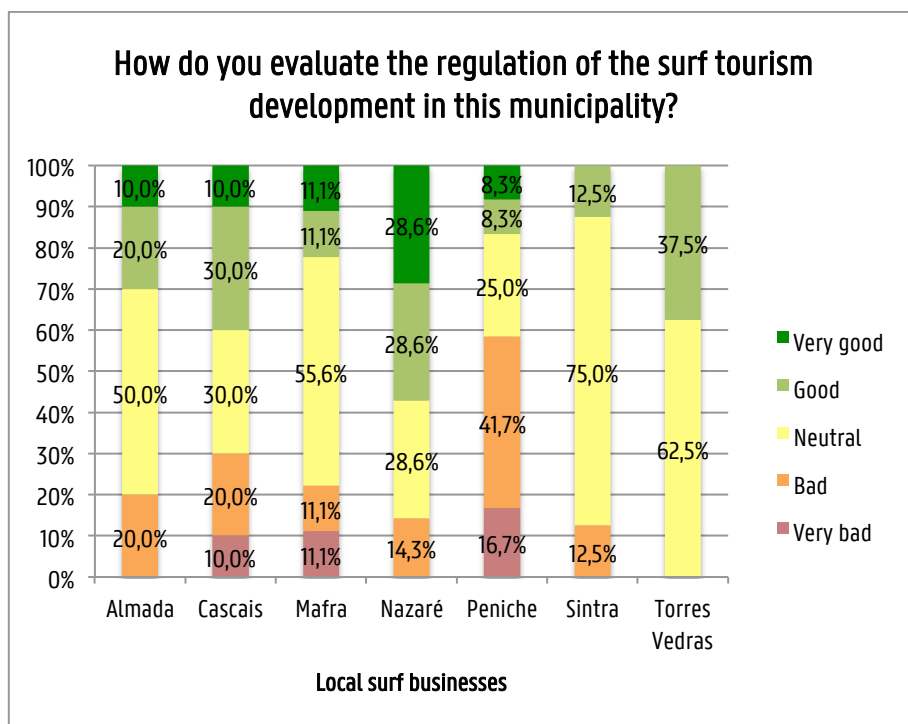
Figure 27: Evaluation of regulations for surf tourism development in the municipality, by local surf businesses

Similar to the previous question, the current actions from the local government relating to surf tourism were evaluated most positively in Nazaré and Torres Vedras, followed by Mafra (Figure 29). Meanwhile, a more negative evaluation was given in Cascais, Peniche and Sintra. In Almada the responses were divided.
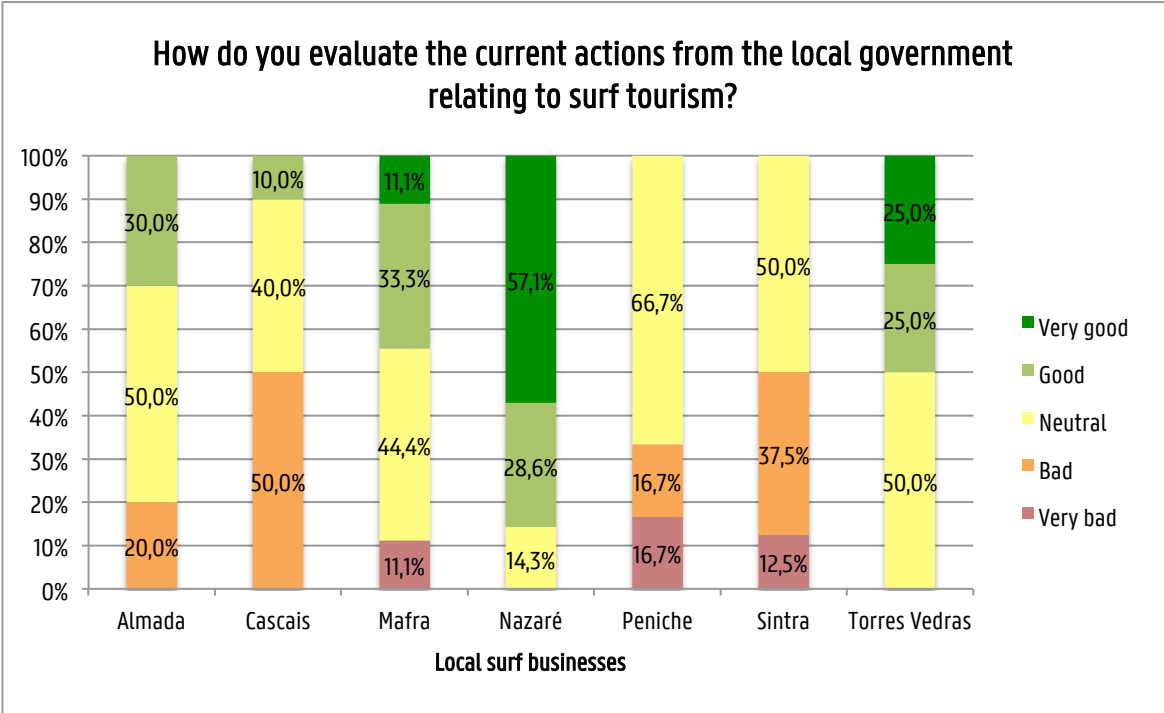
Figure 28: Evaluation of current actions from local government relating to surf tourism, by local surf businesses

When the same question was asked to non-surf businesses, the current actions in Mafra, Nazaré and Torres Vedras were evaluated most positively (Figure 29). The respondents in Almada and Sintra mostly evaluated the current actions neutrally, while in Peniche the opinions were divided.
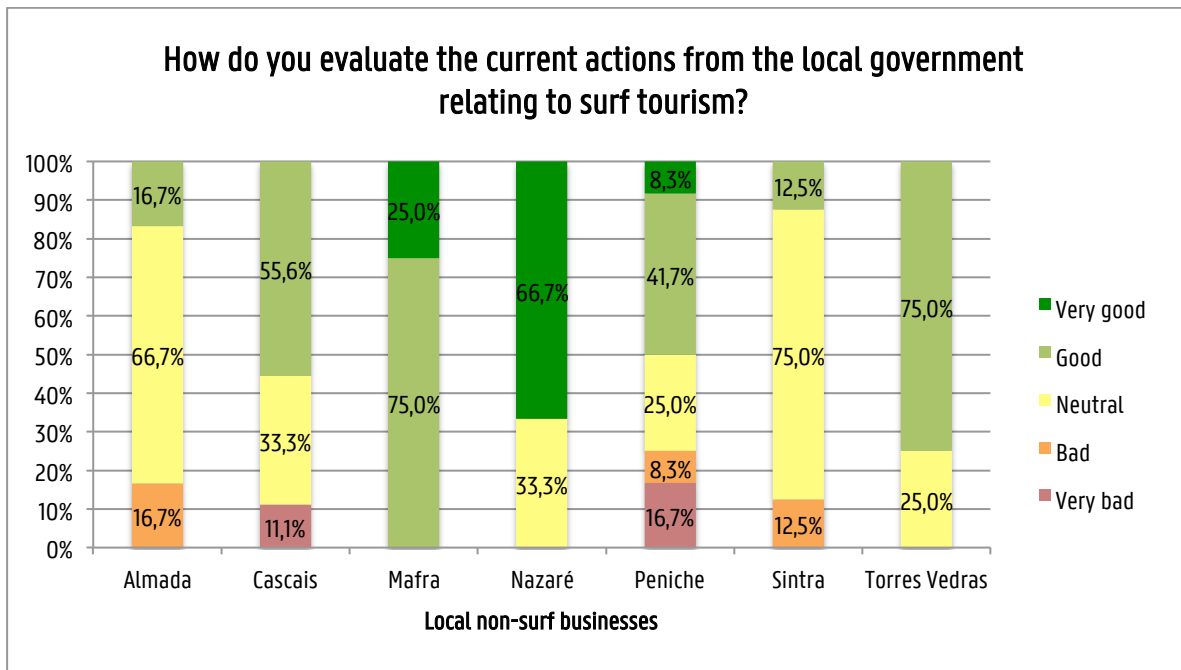
Figure 29: Evaluation of current actions from local government relating to surf tourism, by local non-surf businesses

When asked to the local inhabitants, the most positive evaluations were found in Almada, Mafra and Sintra, while a majority in Cascais, Nazaré, Peniche and Torres Vedras evaluated the current actions neutrally (Figure 30).
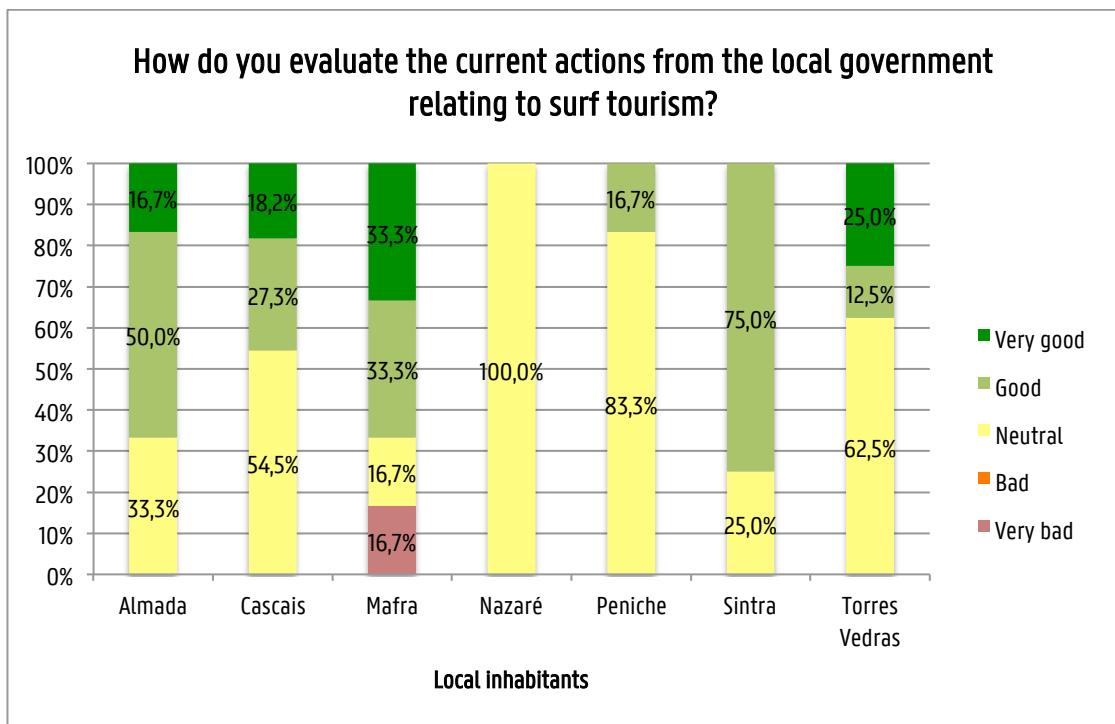
Figure 30: Evaluation of current actions from local government relating to surf tourism, by local inhabitants

Overall, it can be concluded that the current actions from the local government relating to surf tourism were most positively evaluated in Nazaré, followed by Torres Vedras. Mafra also had a rather positive rating, despite the high level of surf tourism development in the municipality. The least positive evaluation was found in Peniche.

5.6 Synthesis

The different results in the municipalities can arguably be related to the stages in the tourism area life cycle (TALC) model, developed by Butler (1980, 2006). Despite the existing critique on the TALC model in the literature, it remains useful as a model to simplify and structure what is happening in tourism destinations, based on local perceptions (Diedrich & García-Buades, 2009). It can be argued that, based on the perceptions of the stakeholder groups, Nazaré, Torres Vedras and Sintra are in an early development phase, Almada and Cascais are in a late development phase and Mafra and Peniche might already be in the consolidation phase of surf tourism (Figure 31). For all the destinations, but especially for Mafra and Peniche, it remains an open question what the future will bring, in terms of rejuvenation, reduced growth, stabilization, (immediate) decline or yet another development outside the TALC model. The governance of the surf tourism destinations will be decisive to taking hold of their future.
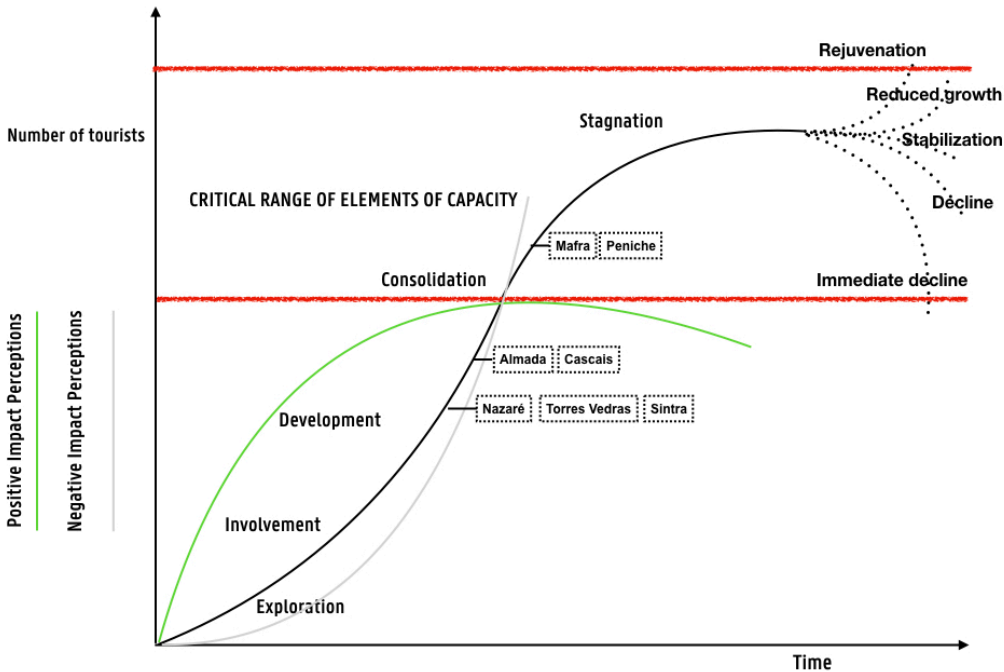
Figure 31: Tourism area lifecycle model (Adapted from Butler, 1980; Diedrich & García-Buades, 2009)

6. RESULTS SURF TOURISM DESTINATION GOVERNANCE

In this chapter, the current surf tourism destination governance (STDG) structure of the Lisbon region is given, consisting out of policies, strategies, plans, programmes and institutions. The gathered information is analysed considering the relevance to surf tourism in the study area, namely in the hierarchy (international, national, regional and local), degree of influence, sector of activity, associated institutions, competences and time frame. The goal is to codify complex, multi-actor and multi-scalar governing processes. This provides insights in the qualitative differences in materializations of the development of surf tourism in the different municipalities (Mach & Ponting, 2018) and leads to possible recommendations for sustainable surf tourism development. The management instruments for sustainable tourism, defined by UNEP and WTO (2005), are used to structure the surf tourism destination governance. They consist of a combination of measurement, command and control, economic, voluntary and supporting instruments (Figure 32).

Management instruments for sustainable tourism (UNEP & UNWTO, 2005)
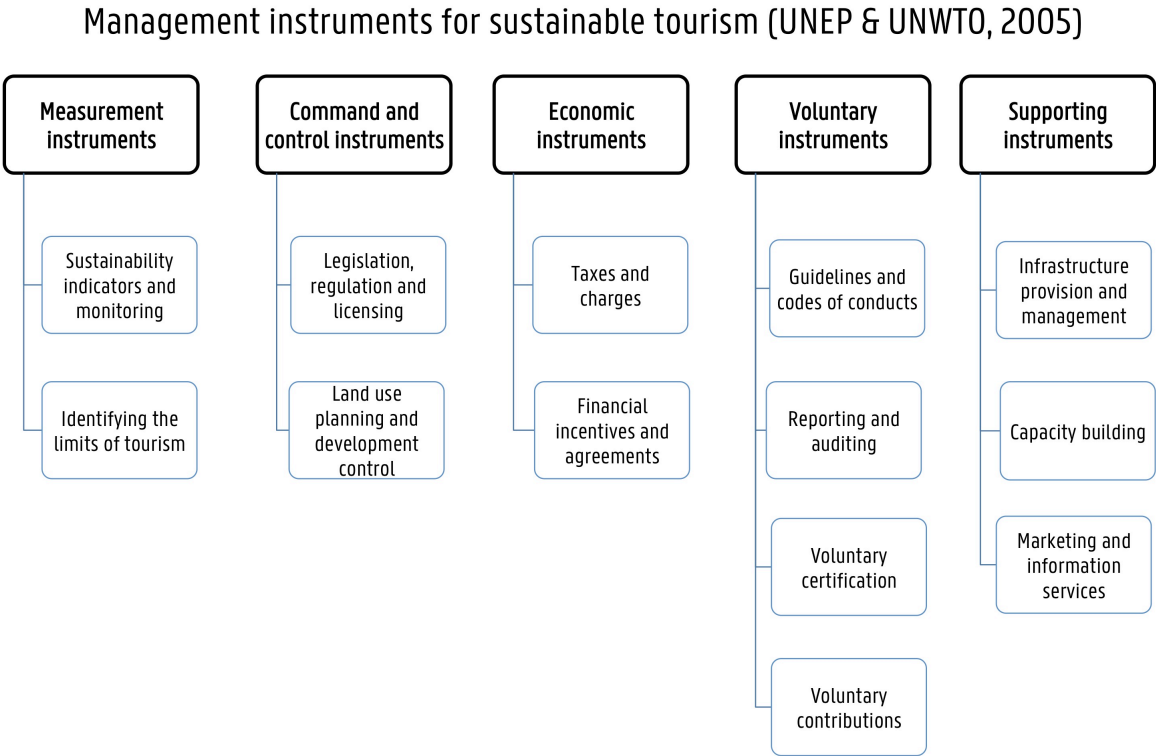
Figure 32: Management instruments for sustainable tourism (adapted from UNEP &WTO, 2005)

In this study, the emphasis is put on the command and control instruments, namely legislation, regulation and licensing, and land use planning and development control, since these are considered the primary tools for influencing tourism development. First, the main actors and stakeholders that operate on different scale levels in this governance system are pointed out. Then, an overview of the existing management instruments is given. This is immediately followed in each subdivision by recommendations for improvement of these instruments, which would contribute to a sustainable development of surf tourism.

6.1 Actors and stakeholders

6.1.1 International level

On the international level, the European Union provides different funding mechanisms for projects related to surf tourism. Further, "the surf media, international NGOs, and global surf governing bodies impact surf-breaks, destinations, regional and state levels of governance by conditioning rules and norms and influencing travel patterns and tourist behaviour" (Mach & Ponting, 2018, p. 13). An influential international NGO is the Save The Waves Coalition, established in 2001. They developed the World Surfing Reserves program, which seeks to protect world-class surf spots and coastlines, by working on long-term conservation through outreach, planning and community capacity building (Save The Waves Coalition, 2020). In 2011, they established the Ericeira World Surfing Reserve, encompassing approximately 4 km of coastline, in collaboration with local stakeholders. The Surfrider Foundation, established in 1990, has a similar mission to protect and preserve the world's oceans, waves and beaches. They have a European division that has been active in Portugal (Surfrider Foundation Europe, 2019).

Global surf governing bodies, like the WSL, the IBC and the ISA, who organize international surf contests, also influence the STDG. These global organizations are able to promote shifts in behaviour, for example in raising the environmental awareness of surf tourists and promoting the involvement of surfers in coastal policies (Mach & Ponting, 2018). They are proof of the increasing global advocacy movements in surf tourism (Mach, 2014).

Additionally, professional Portuguese surfers with international recognition are also influential stakeholders that can promote a destination, for example Frederico Morais and Teresa Bonvalot in Cascais, Nic Von Rupp in Sintra and Tiago Pires in Ericeira.

6.1.2 National level

On a national level, more institutions come into play for the STDG. First, there are different organisations, federations and associations representing stakeholder groups. The Portuguese Surfing Federation (FPS) is the institution that represents, nationally and internationally, the various modalities of surfing (Federação Portuguesa de Surf, 2020). The National Association of Surfers (ANS) is a non-profit association that defends the rights of surfers in the areas of competition, development, training, dissemination and environmental protection (Associação Nacional de Surfistas, 2020). The Portuguese Association of Surf Schools (AESDP) is a non-profit association founded and managed by surf school owners, which intends to be the voice of this commercial sector in Portugal (Associação de Escolas de Surf de Portugal, 2020). The Portuguese Federation of Beach Concessionaires (FPCP) represents the interests of its affiliated associations and their members (Federação Portuguesa de Concessionários de Praia, 2020). S.O.S - Salvem O Surf is an environmental non-governmental organisation in Portugal that aims to protect and preserve surf breaks and to enhance the sustainable development of surf sports (S.O.S - Salvem O Surf, 2020).

Further, there are national agencies that influence the STDG. The Portuguese Environment Agency (APA) is a public institute, within the scope of the Portuguese Ministry of the Environment and Energy Transition. It is responsible for the National Strategy for Integrated Coastal Zone Management (Agência Portuguesa do Ambiente, 2020). Within this responsibility, it is entitled to carry out the Coastal Zone Programmes (POC). The selected case studies fall under the Alcobaça-Cabo Espichel Coastal Zone Programme (POC-ACE).

The Institute for Nature Conservation and Forests (ICNF) is the responsible governmental body for nature and forest policies, including the management of Protected Areas of mainland Portugal. Its mission is to propose, monitor and ensure the implementation of policies in the fields of nature conservancy and forests, and to promote the conservation, sustainable use, appreciation, and enjoyment of the natural heritage (Instituto da Conservação da Natureza e das Florestas, 2020b). For the case study areas, it is involved because of the Sintra-Cascais Natural Park (Instituto da Conservação da Natureza e das Florestas, 2020a) and the Natura 2000 sites designated under Habitat[5] and Bird[6] Directives (Figure 33), including Habitats Directive Sites of Sintra/Cascais and Peniche/Santa Cruz and Birds Directive Sites of Cabo Raso, Ilhas Berlengas and Aveiro/Nazaré (European Environment Agency, 2020).

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[5] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

[6] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds
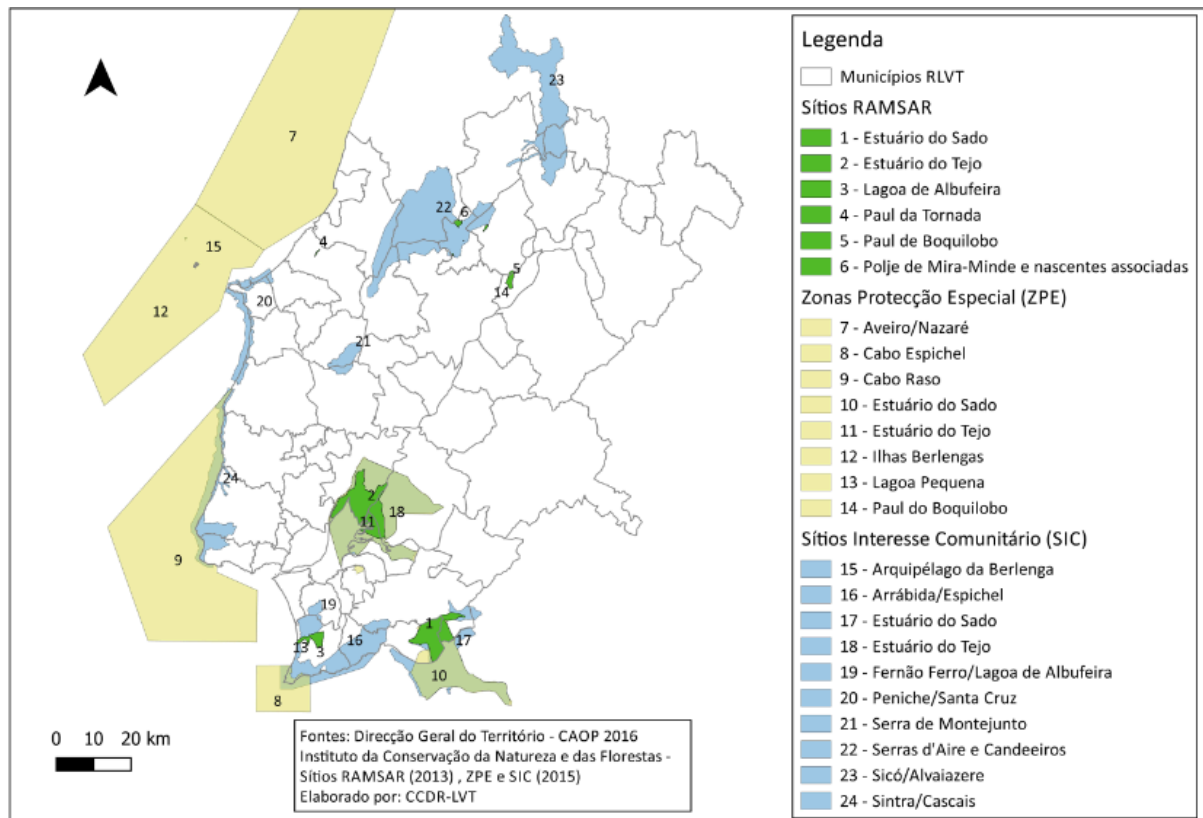
Figure 33: Natura 2000 network and RAMSAR sites in CCDR-LVT (CCDR-LVT, 2017)

The National Maritime Authority (AMN) establishes the rules and licenses the surf schools (Autoridade Marítima Nacional, 2020). This entitlement is decentralized to the different Port Authorities. For the case study areas in this research project, the Port Authorities of Nazaré, Peniche, Cascais and Lisbon are relevant. However, on November 27th of 2018, Decree-Law no. 97/2018 was published in the DR, which implements the framework for the transfer of powers to municipal bodies in the area of maritime, river and lake beaches. This transfer of power gradually takes place until January 1st, 2021, when all powers provided in the law should be transferred to the local authorities and intermunicipal entities.

Turismo de Portugal, integrated in the Ministry of Economy and Digital Transition, is the National Tourist Authority. It is responsible for the promotion, enhancement and sustainability of tourism activity (Turismo de Portugal, 2020b). In September 2017, it published the Tourism Strategy 2027 (PENT), which defines the vision for the Portuguese tourism industry up until 2027. In this strategy, surf tourism is mentioned multiple times.

The Directorate-General for the Territory (DGT) is the national public body responsible for pursuing public land use and urban planning policies (Direção-Geral do Território, 2020). It develops the National Programme of Territorial Planning Policy (PNPOT), which is a tool for the strategic territorial development that establishes

the major options with relevance to the organization of the national territory. The principles, objectives and guidelines enshrined in the PNPOT are developed in the various regional spatial planning plans (PROT), which in turn constitute a strategic reference framework for municipal master plans (PDM). The PNPOT underwent a first revision, which was published on September 5, 2019. The most relevant territorial management instruments (IGT) within the legal framework for territorial management instruments (RJIGT) that apply to the case study areas are outlined in Table 19, adapted from Carapinha (2018).

Table 19: General framework of the spatial management instruments (IGT) (Adapted from Carapinha, 2018)

Plans	Objectives of the plans	Level IGT	Type of instrument
National Programme of Territorial Planning Policy (**PNPOT**)	Key guidelines and directions translate into a model of spatial organisation that takes into account the urban system, networks, infrastructures and equipment of national interest, as well as areas of national interest in agricultural, environmental and heritage terms. It sets out the major options for the organisation of the national territory and is an instrument of cooperation with the other Member States for the organisation of the European territory.	National	Territorial Development
Regional Territorial Plans (**PROT**)	In the light of demographic change and the prospects for economic, social and cultural development, it lays down guidelines for regional spatial planning and defines regional infrastructure and transport networks, accompanied by a territorial model scheme.	Regional	Territorial Development
Coastal Zone Program (**POC**)	It determines the different uses and specific activities of the waterfront. It classifies beaches and regulates bathing use. It values and qualifies beaches considered strategic for environmental or tourist reasons. It orients the development of specific activities in the coastal zone. It safeguards natural values and resources based on standards and management principles.	National	Spatial Planning
Municipal Master Plans (**PDM**)	It covers the entire municipal territory and, based on the strategy for local development, establishes the spatial structure, the basic soil classification, as well as occupation parameters. It considers the implementation of social equipment and develops the qualification of urban and rural soils.	Municipal	Spatial Planning
Urbanization Plans (**PU**)	It defines the spatial organisation of a determined part of the municipal territory, included in urban perimeters, and may encompass complementary rural land that requires integrated planning intervention. It develops in particular the qualification of urban soil.	Municipal	Spatial Planning
Detail Plans (**PP**)	It develops and implements proposals for the spatial organization of any specific area in the municipal territory. It defines in detail the design of the form and occupation and serves as a basis for projects to implement infrastructure, the architecture of buildings and outdoor spaces, in accordance with the priorities set out in the implementation programmes contained in the PDM and PU.	Municipal	Spatial Planning

Regional governance is vital to understand how conflicting interests, wider strategies and investments are organized. Intraregional mobility and the "roving banditry" problem are typical for surf tourism governance at a regional level. Intraregional mobility is stimulated by advanced surf forecasting technology, which leads surfers to converge at the same surf spot at the same time, thus creating momentary overcrowding issues, which can lead to conflicts. The roving banditry problem is used to describe the phenomenon whereby surfers and surf businesses tend to move to other surf spots when their original surf spot becomes crowded or overdeveloped. These issues make regional governance a critical, yet underexplored route for STDG (Mach & Ponting, 2018).

In Portugal, the only existing administrative regions are two metropolitan areas[7] and 21 intermunicipal communities[8], which are roughly based on the NUTSIII regions. As has been mentioned before, the case studies are located in two NUTS II statistical regions, the LMA and the Centro Region. In terms of spatial planning, the case studies fall under the jurisdiction area of the CCDR-LVT (2020). This is a decentralized regional administration organism, with administrative and financial autonomy, which main activities are the definition of public policies on regional development, environmental and territorial planning, to implement those policies in the Lisbon and Tagus Valley Region by producing a strategic regional plan and to ensure that PDM's follow those regional plans, as well as to manage the Regional Operational Programme (CCDR-LVT, personal communication, April 25, 2020). This includes the development of the Regional Territorial Plan for the Spatial Planning of the Western Territory and the Tagus Valley (PROT-OVT) and the Regional Territorial Plan for the Spatial Planning of the Lisbon Metropolitan Area (PROT-AML). The Regional Coordination and Development Commission of the Center (CCDRC, 2019) is of importance in managing funding for the Centro region, including the municipalities of Torres Vedras, Peniche and Nazaré. This will be explained in more detail further on.

The Lisbon Tourism Association (LTA) is the Regional Tourism Promotion Agency for the LMA since 2004, maintaining international tourism promotion as its main activity. Its members include official (public) entities, businesses and professional associations and other entities that predominantly work in the tourism sector. LTA is the entity responsible for defining the regional strategy for tourism development in the region (Turismo de Lisboa, 2020). In December 2019 the agency published the Strategic Plan for Tourism 2020-2024, which

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[7] Lisbon metropolitan area, with the inclusion of the municipalities of Almada, Cascais, Sintra and Mafra, and Porto metropolitan area.

[8] The Municipalities of Torres Vedras, Peniche and Nazaré fall under the Intermunicipal Community of the West.

contains multiple references to surf tourism (Turismo de Lisboa, 2019). Tourism of Central Portugal (TCP) is the Regional Tourism Promotion Agency for the Centro Region (TCP/ARPT Centro de Portugal, 2020a).

6.1.4 Local level

On the local level, the STDG is carried out by a mixture of stakeholders, such as local businesses, local associations, political entities and competing resource users (Mach & Ponting, 2018). In the studied areas, local surf associations and surf clubs, when existing, appeared to play a crucial role. They organise contests and events, seek and attract investments and have an intermediary role between surfers and the local government. Further, tourism networks such as the *Estações Náuticas* function as a platform for cooperation between tourism supply actors within a territory (Fórum Oceano, 2020).

The municipal government plays an important role as it has the regulatory power over land-use planning and over public investments. The Municipal Master Plans (PDM) in Portugal are a compulsory instrument to be put in place by local governments. This is the main planning instrument used by local governments to regulate their territory. Complementary they can further create strategic plans to mobilize financial resources available in the Regional Operational Programme (POR) such as the Strategic Urban Development Plan (PEDU). The civil parishes, composed of the parish council and the parish assembly, are also influential in the STDG, since they administrate and represent the needs of the civil parishes in the municipal governments.

An overview of the relevant actors and stakeholders in the STDG for the case studies is given in Figure 34.

Surf tourism destination governance – Actors and stakeholders
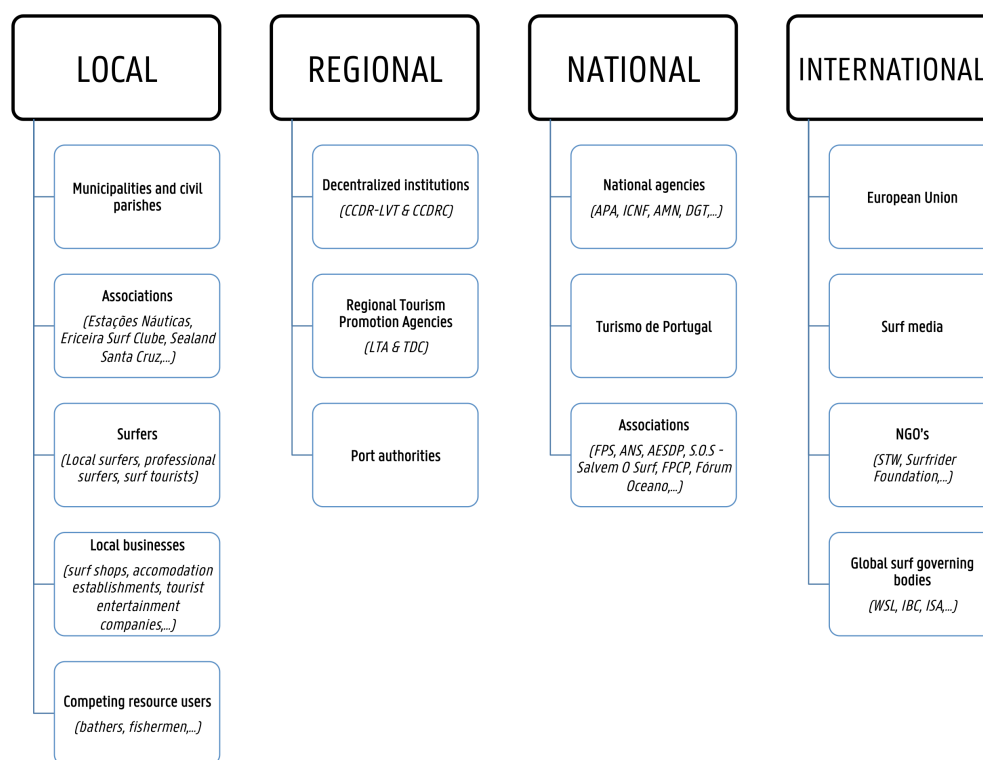
Figure 34: Surf tourism destination governance – actors and stakeholders

6.2 Measurement instruments

Measurement instruments are "used to determine levels of tourism and impact, and to keep abreast of existing or potential changes" (UNEP & WTO, 2005, p. 71). The measurement instruments consist of two domains, namely **sustainability indicators and monitoring** and **identifying the limits of tourism**.

The use of indicators for the evaluation and monitoring of programs and spatial plans is established in Decree-Law no. 80/2015, published on May 14, 2015. The Spatial Planning Status Report (REOT) of the municipalities and the CCDR-LVT (2017) contain some general tourism indicators. Other relevant institutions for monitoring of tourism in Portugal are INE and Turismo de Portugal. Sustainability is defined as a guiding principle of the public tourism policy in art. 4 of Decree-Law 191/2009, published in the DR on 17 August 2009. The Tourism Strategy 2027 of Turismo de Portugal has also adopted sustainability as a guiding principle. It further admits that tourism has limits that, when surpassed, can cause negative impacts. The strategy defines goals and targets to be reached in the three dimensions of sustainability. To attain these goals and targets, it developed a set of sustainability monitoring indicators, which are based on guidelines from international organizations

such as the European Tourism System of Indicators for Sustainable Management at Destination Level (ETIS), developed by the European Commission (2016).

The use of a framework to monitor the sustainability of tourism helps to provide an integrated information base, to facilitate dialogue between different sectors, to enable comparability and benchmarking between tourism destinations and to ease the correction of development strategies. The data from the set of sustainability monitoring indicators gathered by Turismo de Portugal can be consulted on their online tool TravelBI (https://travelbi.turismodeportugal.pt/). This data is aggregated on the NUTS II level, and the data is often gathered by INE.

When this tool is assessed, it becomes clear that the geographical disaggregation of the data hinders its use for the case studies, since no data is available on the level of the municipalities or the civil parishes. As has been mentioned before in this study, there was very few public data available on surf tourism. Further, the temporal coverage is often outdated or inconsistently updated. Monitoring and the use of indicators for surf tourism was mostly found in scattered academic publications on the topic, but not yet structurally applied in the region. In the future, existing measurement instruments, such as the Framework Analysis for Sustainable Surf tourism (FASST), the Surf Resource Sustainability Index (SRSI), and the Sustainable Tourism and Outdoors Kit for Evaluation (STOKE) certification program could be used as a starting point to measure the state of surf tourism in the surf tourism destinations. The indicators in these frameworks could be adapted to fit into the ETIS.

6.3 Command and control instruments

Command and control instruments enable "governments to exert strict control over certain aspects of development and operation, backed by legislation." (UNEP & WTO, 2005, p. 71)

6.3.1 Legislation, regulation and licensing

The regulatory norms for the surf schools are framed within the legislation that rules the entities that perform maritime-tourist activities. For surf schools, it is required to get permissions and registrations from the Public Administration for its exercise. It is defined by the Decreto-Lei n.º 108/2009, of May 15 (republished by the Decreto-Lei n.º 186/2015, of October 10), which sets the conditions for the access and commercialization of tourism operators, which among others requires the registration as a National Tourism Operator (RNAAT) and holding valid Personal Accidents and Civil Liability insurances.

The POCs establish how the regional use of the coast must be performed, through the coexistence of different uses and activities, with risk prevention and user safety as the main concerns. Importantly, until the end of 2018, it was up to the National Maritime Authority to establish the rules and license the surf schools, decentralized by its 20 Port Authorities in mainland Portugal (AESDP, 2020). As mentioned before, this authority is currently being transferred to the 50 municipalities in mainland Portugal in possession of a coastal zone. It must be mentioned that the new competences of the municipalities can only be exercised on its beaches designated as bathing waters. The remaining beaches will still fall under the authorization of the Port Authorities.

The municipality of Torres Vedras assumed their new competencies from the National Maritime Authority in the beginning of 2019. Since then, they have licensed seven surf schools to operate on all the beaches designated as bathing waters, which is only a fraction of the more than 100 surf schools licensed in Peniche. In Torres Vedras, the choice to limit the maximum amount of surf schools to seven was made to provide a quality experience to the surf tourists, together with guaranteeing the welfare and safety of other beach users, as well as respecting the carrying capacity of the beaches. Thus, in this way, the municipality of Torres Vedras wants to secure a sustainable development of surf tourism in its municipality.

The issue that was often mentioned in the surveys and the interviews, and thoroughly explained by the AESDP during the interview, is that there is no uniformity of rules in the regulation and legislation for surf schools on a national level. In the past, every one of the 20 port authorities in mainland Portugal had its own rules for licensing. When this authority will be transferred to the 50 municipalities with a coastline in mainland Portugal, it is expected that the lack of uniformity will further aggravate. This absence of uniformity causes negative consequences. For the surf schools, there is no clear, nationwide document that rules the application requirements to obtain a license. Many surf schools want to be able to operate in multiple municipalities. The future decentralization to the municipalities will arguably make this more complicated, when different requirements exist in different municipalities. At the other side, under the regulations established in *editais* by the port authorities, no quota on the amount of licensed surf schools in their jurisdiction was determined. This created situations where many surf schools were allowed to operate in certain surf spots, leading to occasional overcrowding. This was especially mentioned for the port authority of Peniche, with more than 100 licensed surf schools, but also in the municipalities of Almada, Cascais, Sintra and Mafra. The lack of policing and punishment of unlicensed surf schools further aggravates this situation.

In the future, a national, uniform licensing procedure to implement by the coastal municipalities could benefit the sustainable development of surf schools and could reduce the associated overcrowding issues. Existing licensing procedures in the port authorities and municipalities, as well as in other surf destinations in the world could be useful as an inspiration.

A better regulation could also improve the local tax revenues when illegally operating businesses are reduced. AESDP informed that it has come to a point where the legally operating businesses want to be more strictly regulated, because surf schools that do not apply to the regulations threaten their activities. A strict and uniform regulation will consequently have to be accompanied by regular inspection and enforcement.

6.3.2 Land use planning and development control

Between 1998 and 2005, 9 Coastal Zone Plans (POOCs) were approved in continental Portugal. As a result of the publication, in 2014, of the General Basic Law of Public Policy on Soils, Spatial Planning and Urbanism and, in 2015, of the new Legal Regime of Territorial Management Instruments (Decree-Law No. 80/2015 of 14 May), the process of revision of the POOC and publication of new Coastal Zone Programmes (POC) was initiated. The POC-ACE was published by RCM no. 66/2019, of 11 April 2019 (Figure 35). The POC-ACE merges three former POOC, namely POOC Alcobaça-Mafra, POOC Cidadela-Forte de São Julião da Barra and POOC Sintra-Sado. Amongst other changes, the reorganization of the coastal sectors, coinciding with the 5 Hydrographic Regions of the continent and the inclusion of the areas of jurisdiction of the port authority stand out.

Municipal spatial management instruments, such as the PDM, the PU and the PP, must include POC directives and the territorial model, according to the Legal Framework for Territorial Management Instruments, published by the Decreto-Lei n.º 80/2015, published in the DR on May 14. POC directives include management standards that define the rules for the beaches developed in the management regulation and beach plans. The POC-ACE territorial model presents a current picture of the territory in its intervention area. In this model, the fundamental components of POC-ACE spatialize the protection and safeguard regimes, which are concretized through Specific Norms that establish the interdicted, conditioned and permitted activities in the areas covered by the regimes. All projects must be developed in compliance with POC ACE directives. Interdicted uses or actions are not allowed. Several authorities supervise the coastline use and occupation, such as APA, Hydrographic Region Administration (ARH), CCDR's, municipal governments, the General Inspection of Agriculture, Sea, Environment and Spatial Planning (IGAMAOT), the National Republican Guard (GNR), the

Service for the Protection of Nature and the Environment (SEPNA) and the Maritime Police. It further contains a strategic model for its intervention area (Appendix 3.3).

Figure 35: POC-ACE intervention area (APA, 2019)

The intervention area of the POC-ACE is subdivided into two fundamental spaces (Figure 36):

a) Maritime Protection Zone - which comprises the maritime strip between the seabed boundary line and the 30 meter bathymetry referenced to hydrographic zero and for which occupation and use must be established according to the values to be protected and safeguarded, in particular those areas of special interest for the conservation of nature and biodiversity, as well as the sustainability of the exploitation of their resources;

(b) Terrestrial Protection Zone - which is composed of the seawater bank and a band, measured horizontally, with a width of 500 metres, counted from the line limiting the seawater edge, which may be adjusted to a maximum width of 1000 meters when it is justified to take care of the integration of fundamental biophysical systems in the territorial extent of the plan.

LMPAVE - Linha máxima preia-mar de águas vivas equinociais
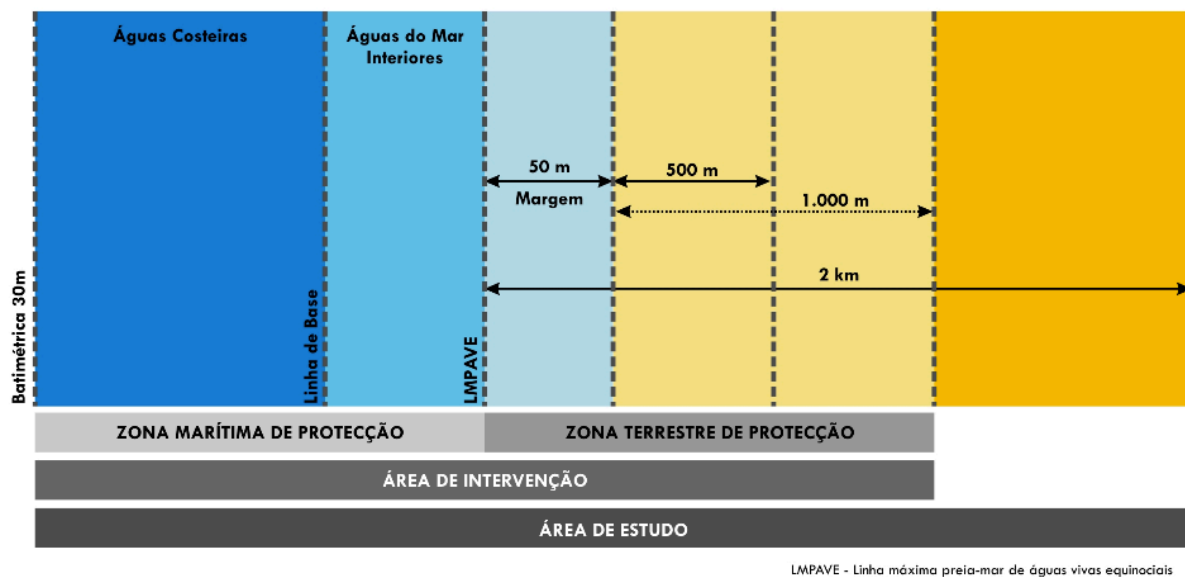
Figure 36: Area of influence of POC-ACE (APA, 2019)

The location and typological classification of the maritime beaches is included in the Territorial Model of the POC-ACE and the Beach Intervention Plans. In the process of revision of the POOC and transformation into coastal programs, the sports activities at sea, and especially surf sports, have a much more prominent presence, in the perspective of the valorisation of these activities. Most importantly, in the POC there now is a classification of "waves with special value for the practice of surf sports" with the purpose of safeguarding the submerged beach and the characteristics of the waves for the practice of sports.

A distinction is made between Waves with Special Value Level I and Level II (APA, 2019):

Level I - Places with international recognition and strategic tourist importance, such as the waves that make up the Ericeira World Surfing Reserve (Mafra), the beaches on the Supertubos-Baleal section (Peniche) and Pico da Mota Beach (Peniche) and Praia do Norte (Nazaré);

Level II - Other places recognized as relevant by the community of practitioners, where the waves have a reasonable quality and consistency and where there are significant levels of demand by practitioners.

Management's actions that concern these places have to comply with the following guidelines (APA, 2019):

a) Ensure the protection of the most valuable sites for the practice of surfing sports, promoting the assessment of potential negative impacts of coastal works disturbing the quality of the conditions of waves with special value for practice of surf sports and when possible the adoption of alternative solutions;

b) To promote the integrated management of waves with special value for the practice of surf sports - Level I;

c) To promote the valuation of waves with special value for the practice of surf sports, recognizing their value as a natural heritage and ensuring its protection, study and promotion;

d) Adopt management measures to ensure the mitigation of pressures on the coastal, marine and terrestrial environment arising from growth in sports practice, and the sustainable use of economic opportunities associated with surf sports;

e) Promoting the compatibility of conflicting interests between activities, modalities and uses of beaches and associated maritime zones, creating conditions for the safe use of these spaces;

f) To promote a greater knowledge of the coastal environment and the factors that contribute to the uniqueness of each wave, and of the implications that climate change will have on these tourist resources.

Further, the surf spots are identified in the POC-ACE. This implies that the best zones for surfing are reserved for its practice, that there are less restrictions for surfing, and when it is necessary, surfing is made compatible with the practice of bathing by identifying separate zones. The beach infrastructures dedicated to surfing are also identified. The economic sustainability of these beach infrastructures is reinforced, since they are allowed to perform commercial functions, such as selling and renting sports equipment and/or establishing restaurants and bars.

Another example that reflects the interest in ensuring the conditions that the sea offers for surf sports is the Specified Standard that establishes that in the Maritime Protection Zone the following is allowed: a) offshore aquaculture production, in accordance with the provisions of the maritime spatial planning instruments and

without interfering with waves with special value for the practice of surf sports; b) energy production from renewable sources, in accordance with the provisions of the maritime spatial planning instruments and without interfering with waves with special value for the practice of surf sports.

The classification of waves with special value for the practice of surf sports is innovative, both on the national as the European Level, and is essential for their protection and conservation. In the past, numerous high quality waves in the Portuguese territory were damaged or destroyed in Portugal by coastal infrastructure works despite protest of the surf community, such as Ponta Delgada and Jardim do Mar in Madeira (Bicudo & Horta, 2009). Nevertheless, since the POC-ACE is a strategic programme and it consequently has no direct enforcement linked to it, it remains to be seen if the concepts in the POC-ACE will be respected when a wave with special value for the practice of surf sports will be endangered by a coastal infrastructure project. At this moment, the famous waves of Matosinhos in Porto are threatened by an extension of the seawall of the port (Surfrider Foundation Europe, 2019).

The POC-ACE also deals with issues of coastal erosion, coastal drift and flooding, adaptation and mitigation to climate change and rising sea levels. A zone that is especially vulnerable is Costa da Caparica. In the past decades, there has been a need to artificially refill the sand on the beaches of Costa da Caparica, due to coastal erosion which led to coastal drift and flooding. The last time the sand was artificially refilled was in the summer of 2019, a project with a budget of more than 3,5 million euros, which was funded for 75% by the European Cohesion Fund. The actions that are taken, now and in the future, to counter these issues also affect the waves with special value for the practice of surf spots in the area.

On the other hand, in the PP of the Urban Restructuring Space of Carcavelos-Sul in Cascais, a technical study was made to measure the effects of the planned buildings on the quality of the waves in Carcavelos, after which the height of the buildings closest to the beach were lowered. This can be seen as an example of spatial planning where attention has already been paid to waves with special value for the practice of surf sports.

The urban agglomerations in the intervention zone are one of the main themes of the POC-ACE. It recognizes that deficient urban planning, in the face of strong construction dynamics, caused dysfunctionalities, such as the sectioning of ecological corridors, the fragmentation of urban space, the occurrence of housing clusters of illegal origin, the predominance of housing for seasonal use or the inability to respond to car flows during the summer period. It further states that the confinement of some of these urban spaces with beaches or cliffs

gives high vulnerability to coastal zones. To foster sustainable planning of coastal settlements in the future, the adaptation policy advocated in the POC-ACE consists of three areas of intervention in the territorial model, namely protection, accommodation and planned retreat or relocation.

Further, the POC-ACE aims to ensure that no expansion of the existing urban perimeters occurs within its area of influence. Instead, it promotes the urban rehabilitation of degraded built areas in the coastal zone, such as in Nazaré and the Baleal Island in Peniche. Additionally, it wants to keep buildings distant from the coastline, areas adjacent to the ridge of cliffs and areas subject to branching and flooding, and aims to promote the reduction of intensity of use and occupation in vulnerable areas by progressively moving existing buildings and structures outside these areas. This will for example lead to a relocation of the camping sites that are currently located in the dune system south of Costa da Caparica. Thus, the general norms of the POC-ACE in terms of urban agglomerations are aimed at providing a sustainable land-use development and should leave little room for detrimental land-use developments in the near future.

Nevertheless, this does not mean that conflicts around the implementation of the POC-ACE do not exist. Firstly, the relocation of existing infrastructure and illegal or informal settlements is generally met with resistance. In the past, there are examples to be found where existing (informal) infrastructure that became part of the local identity, was replaced by new infrastructure provided by the municipality, which rose tensions. Newly implemented limitations for (existing) infrastructure in the intervention zone might also frustrate the owners of these infrastructures. Moreover, it was noticed that sometimes confusion existed about the ownership of land that was sought to exploit, which resulted in unregulated use of the territory. Further, since the PDM has to incorporate the POC, some conflicts may occur when the POC conditions the strategic development defined by the municipality, for example in Almada, where the detail plan Programa Polis da Costa da Caparica will have to be revised.

The POC-ACE also seeks to promote a model of mobility between urban areas and the beaches that favours soft mobility and intermodality, which would reduce high seasonal individual transport and crowded parking lots in the areas adjacent to beaches, freeing these spaces for public use and rehabilitation of coastal systems and promoting outdoor physical activity, health and well-being. In Praia Grande in Sintra, the municipality plans to close the parking zone in front of the beach for personal cars during the bathing season, to turn the area into a pedestrian zone. The PP is already approved in DR n.º 118/2016, of June 22, 2016, but the implementation of the plan has been met with adversity by the local businesses. The municipality also wants better public transport

connection to its beaches. In the interviews it was mentioned that in the past municipalities were responsible for negotiation with public transport operators about paths and timetables. In the future this responsibility will shift to the LMA, in coordination with the municipalities. This shift is thought to be an improvement, since the LMA will be able to make decisions concerning the desired public transport policy itself and will be able to launch international competitions to find the best provider. Interesting to note is that some local businesses and inhabitants are against this development, because they fear crowding and safety issues when Praia Grande would become better connected to Lisbon.

Mobility issues related to surf tourism were also found in other municipalities. In Caparica, the civil parish wants to improve the access to all its beaches by upgrading the Transpraia[9], to let it function as a public transport and not only as a tourist attraction during the bathing season. It also wants an increase in capacity for the public transport connection with Lisbon, especially during the summer months. Innovative ideas exist, for example a new metro from Lisbon to Caparica, but these plans have yet to be concretized. In Nazaré, studies are underway to requalify the Lighthouse road and the implementation of accesses and walkways in Praia do Norte[10]. The aim is to improve the enjoyment and performance of leisure, sports, tourism and commercial activities. The municipality currently has to wait on the conformity inspection with legislation and existing planning documents of several entities, such as APA and the CCDR. In Ericeira, cars are restricted in some areas in the centre and there is a beach bus that crosses all beaches between Ribeira d'Ilhas and Foz de Lizandro. In Cascais, there will also be a Surf Bus during the summer months, which is part of the wider sustainable mobility plan Mobi Cascais. An illustration of the enormous shift in the public perception of surfing is that in the first decades of surfing in the municipality of Cascais, it was forbidden to bring surfboards on public transport (Rocha, 2008), while now the municipality provides public transport to surfers. Other mobility issues mainly have to deal with beach access, disorganized parking lots and insufficient parking capacity. These issues are addressed in the beach intervention plans of the POC-ACE, which are discussed in the supporting instruments.

Outside the POC-ACE, other territorial management instruments regulate the coastline such as the Portuguese Maritime Spatial Management Plan (POEM), as well as those related with nature and biodiversity conservation, for example the Spatial Plan of Sintra-Cascais Natural Park (POPNSC) and the Sectorial Plan of the Natura

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[9] The Transpraia is a mini train in Costa da Caparica that runs from the town to the more remote beaches 10 km down the coast.

[10] Requalificação do acesso ao Forte de S. Miguel Arcanjo (CM Nazaré, 2020).

2000 networks, including Habitats Directive Sites of Sintra/Cascais and Peniche/Santa Cruz and Birds Directive Sites of Cabo Raso, Ilhas Berlengas and Aveiro/Nazaré. Additionally, certifications like the World Surfing Reserve in Ericeira also have an influence on spatial management, even though the World Surfing Reserve itself does not imply binding policies.

The land-use planning in the municipalities have to abide the rules laid out in the PDM and accompanying plans like the PP and the PU. It is difficult to measure the influence of surf tourism on land-use planning. Still, some tendencies in general can be highlighted. In all municipalities, there has been an increase in (foreign direct) investments related to surf tourism, often resulting in the establishment of new buildings or the renovation of existing buildings. Also, a rise in house prices and in the cost of living has been a major concern for the municipalities, especially in Almada, Cascais, Mafra and Peniche. The rapid increase in the number of AL, in the municipalities during the last five years has highly contributed to this issue. It has created situations of denunciation and termination of rental contracts, as well as the unavailability of houses for rent and rent prices that are unreachable for the income of local inhabitants. In the civil parish of Ericeira for example, 20% of the buildings for housing use were AL in 2018 (Diário de Notícias, 2019). As has been said before, this is an issue linked to general tourism development in Portugal.

In 2018, new rules came into force that gave the municipalities powers to authorise local housing or create containment areas for these establishments, as well as powers to supervise and impose fines that were previously exclusive to the Food and Economic Safety Authority. Some municipalities already use this authorisation. The municipality of Mafra defined Ericeira as a containment area, limiting the number of local accommodation establishments in the area to 20% of the number of properties available for housing. Despite this rule, the municipality will authorise new local accommodation in properties that will carry out construction, reconstruction, extension, alteration or conservation works for the purpose of becoming an AL. This is because the municipality recognizes that the rush by landlords to create LA has allowed the requalification of buildings that were uninhabited or degraded (Diário de Notícias, 2019).

Thus, it can be concluded that command and control instruments have increasingly been used to address land-use issues related to surf tourism. However, there is still room for improvement. A national, uniform licensing procedure for surf schools, implemented by the coastal municipalities, is recommended. The management actions for waves with special value for the practice of surf sports from the POC-ACE should be put into practice. Attention should be paid to the arising conflicts caused by the implementation of the POC-ACE. A

support base should be found for the application and use of soft mobility modes in the coastal areas. The different territorial management instruments should become well-integrated. Measures should be taken to protect local residents against gentrification trends.

6.4 Economic instruments

Economic instruments influence "behaviour and impact through financial means and sending signals via the market." UNEP & WTO, 2005, p. 71)

First, this could be in the form of **taxes and charges**. Following the example of Lisbon and Porto, the municipalities of Cascais, Sintra and Mafra have introduced a tourist tax of one euro in the low season and two euros in the high season per person per day, up to seven days. The funds collected with this tax is destined to finance activities and investments related to the provision of tourism services.

Other economic instruments that governments can use are **financial incentives and agreements.** These can "influence the behaviour of enterprises by providing them with specific financial support or commercial opportunities provided that they act in a certain way" (UNEP & WTO, 2005, p. 93). Getting insight in the funding mechanisms for surf tourism related projects and infrastructures is essential to understand how surf tourism integrates into wider strategies on different scale levels. An analysis of all financial incentives and agreements related to surf tourism would be too exhaustive for the scope of this thesis. Instead, a short overview will be given of the main public funding procedures for surf tourism related projects and infrastructures that were identified during this study.

In general, the municipality plays a very important role in the funding for surf tourism related projects and infrastructures. For example, Porto (2017) noted that the municipalities of Mafra and Cascais each contributed 500 000 euros to fund international surf events in their municipality that year. Between 25 and 30% of the total budget for surf events of the WSL is contributed by Turismo de Portugal and local authorities, another 25 to 30% are provided by international sponsors of the WSL and local sponsors pay the other 40% (Porto, 2017).

On the regional level, the CCDRs and the regional tourism agencies, such as the LTA and LCP, are of importance in managing funds. They define strategic documents that guide the funding opportunities in their region. Under the 2014-2020 Programme, developing a Research and Innovation strategy for Smart Specialisation (RIS3) has been a prerequisite in order to receive funding from the European Regional Development Fund (ERDF).

In Portugal, the only funds managed by the CCDRs are the European Structural and Investment Funds (ESIF) under its own Regional Operational Programme (POR). Following the regional development strategy, the POR defines which specific funds are available to which specific activities. Public or private entities acting in sectors related to the priorities defined in the RIS3 will be able to have access to POR funding. LMA's RIS3 is being updated for the 2030 horizon, and one of its specialization domains is Tourism and Hospitality, which considers that Ericeira should strengthen its position as a surf destination.

The Strategic Plan for Tourism 2020-2024 of the LTA defines 12 hubs of tourist attractions in the region, focusing on the sustainability of the destination and the correction of asymmetries between territories, with the objective of strengthening the tourist region, taking advantage of the strengths of all the territories of the LMA. In this strategy, Ericeira, considered as a consolidated hub, should again reinforce its position as a sustainable surf destination. Costa da Caparica is seen as a hub to be enhanced, which should improve the quality of access to the beaches and the offer of accommodation.

The CCDR-LVT provides support to public and private entities by writing recommendation letters when they apply for funding. It was noted by the interviewees from the municipalities that the application for EU-funds is very crucial for projects and infrastructures. With a joint project between the municipality and national institutions, there was said to be a higher possibility to get EU funds. The role of associations and networks are also of importance, such as Fórum Oceano, the Estações Náuticas, the local action action group ecoMAR and Nazaré Qualifica.

Here, it is also needed to understand the area of jurisdiction of the CCDR-LVT. In what concerns Environment and Spatial Planning policies, and also for technically supporting municipalities, the area of jurisdiction of CCDR-LVT corresponds to the 52 municipalities, visible in Figure 1. Each colour is a NUTS III sub-region. The level of development of these four NUTS III regions however is very different, with LMA having a GDP value and development level much higher than the other three. For this reason, if the whole Lisbon and Tagus Valley would be a NUTS II region, all the 52 municipalities would be in the group of the most developed areas, resulting in a lower financing rate from European cohesion funds. Portugal decided in 2002 that, only in what concerns cohesion policy, the NUTS III Oeste, Médio Tejo and Lezíria do Tejo are not in the jurisdiction of CCDR-LVT. Thus, the Portuguese NUTS changed. LMA became a NUTS II region, the NUTS III Oeste and Médio Tejo were integrated in the NUTS II Region Centro, and the NUTS III Lezíria do Tejo was integrated in the NUTS II Region

Alentejo (Figure 37). This was done because both Centro and Alentejo are less developed regions, and so they receive a higher financing rate.[11]
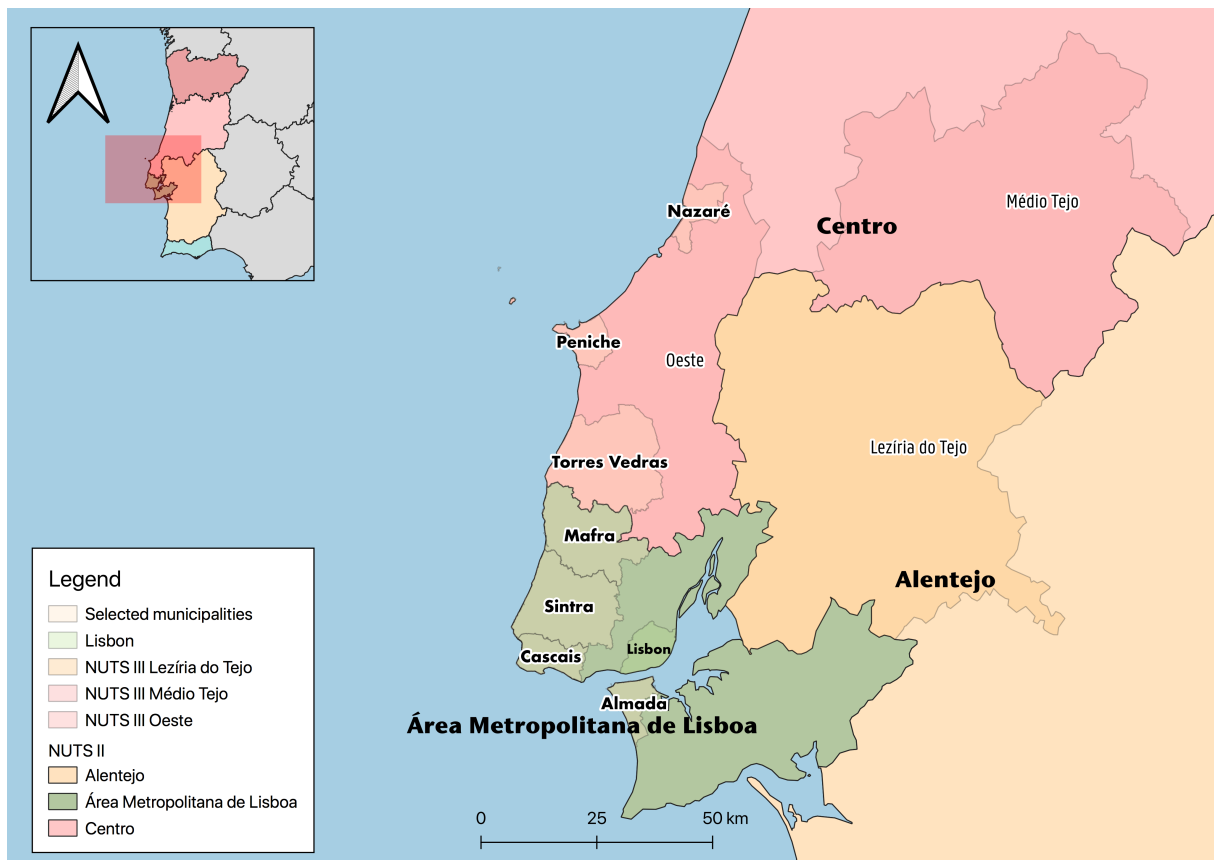
Figure 37: NUTS II and NUTS III regions in jurisdiction area of CCDR-LVT (Agência para a Modernização Administrativa, 2020a, Eurostat, 2020, own adaptation)

For this reason, the municipalities from the Centro Region (Torres Vedras, Peniche, Nazaré) can receive a higher financing rate from the EU than the ones belonging to the LMA (Almada, Cascais, Sintra, Mafra). So in what concerns strategic planning dealing with European funding, CCDR-LVT is responsible only for LMA, and the CCDRC is responsible for the Centro Region.

An example of these funding mechanisms is given here. The Local Action Group ecoMAR, active in Torres Vedras and Lourinhã, managed to provide funds for three projects related to surfing, one from a public entity and two from private entities, under the Operational Program MAR2020 in 2019. At the moment there are two more private entities applications at the proposal stage for a final decision, where surfing is also the object of the

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[11] The evolution of Structural Funds eligible areas from 1989-2020 is visualized in maps provided by the European Commission: https://ec.europa.eu/regional_policy/sources/graph/poster2014/sf_elig_1989_2020.pdf

project. These projects are part of the typology of operations that aim to strengthen the competitiveness of tourism related to aquatic activities. For private entities, these projects had a 50% non-reimbursable funding rate through the European Maritime Affairs and Fisheries Fund (EMFF) and the State Budget.

To conclude, economic instruments have been used to influence the surf tourism development. The collection of tourist taxes, albeit being an unpopular instrument, can be appropriate when tourism risks jeopardizing the quality of life of local residents. There should be clear communication about the way the revenues from these taxes are spent, in order to expand the support base for this measure. Likewise, the existing funding resources should be fully utilized to guide the sustainable development of surf tourism. Local action groups, municipalities and decentralized authorities are fundamental in linking the funds to valuable projects.

6.5 Voluntary instruments

Voluntary instruments provide "frameworks or processes that encourage voluntary adherence of stakeholders to sustainable approaches and practices." (UNEP & WTO, 2005, p. 71)

Possible voluntary instruments are **guidelines and codes of conduct.** The management of the sea uses in terms of designating areas for different activities is a recurring issue in the municipalities, mainly during the bathing season in summer. Conflicts sometimes exist between bathers, surfers and fishermen and in between different modalities of surf sports. It is a complex problem, since the existing designated areas are almost always defined statically, while the sea environment is inherently dynamic and surf sports depend on these dynamics. Moreover, the related issue of the carrying capacity of beaches is something that is notoriously hard to define, even though studies have tried to do this (Silva & Ferreira, 2016) and the concept is integrated into the beach intervention plans. To assist in promoting particular behaviours in the water, many surf destinations have used code of conduct signs. These can either be formally developed and placed, or written in an informal way by the local community, as was the case in Praia do Norte in Nazaré (Figure 38). In the survey, placing code of conduct signs was the most requested action in Ribeira d'Ilhas in Mafra, which hints at a need for more coordinated planning and behaviour in the sea. Recently, a code of conduct with a focus on the ecological component was developed by researchers in Portugal, which could be a basis for a uniform code of conduct in the country (Oliveira et al., 2019). Another possible solution would be to manage the sea uses flexibly based on a case-by-case and day-to-day evaluation on the beaches.
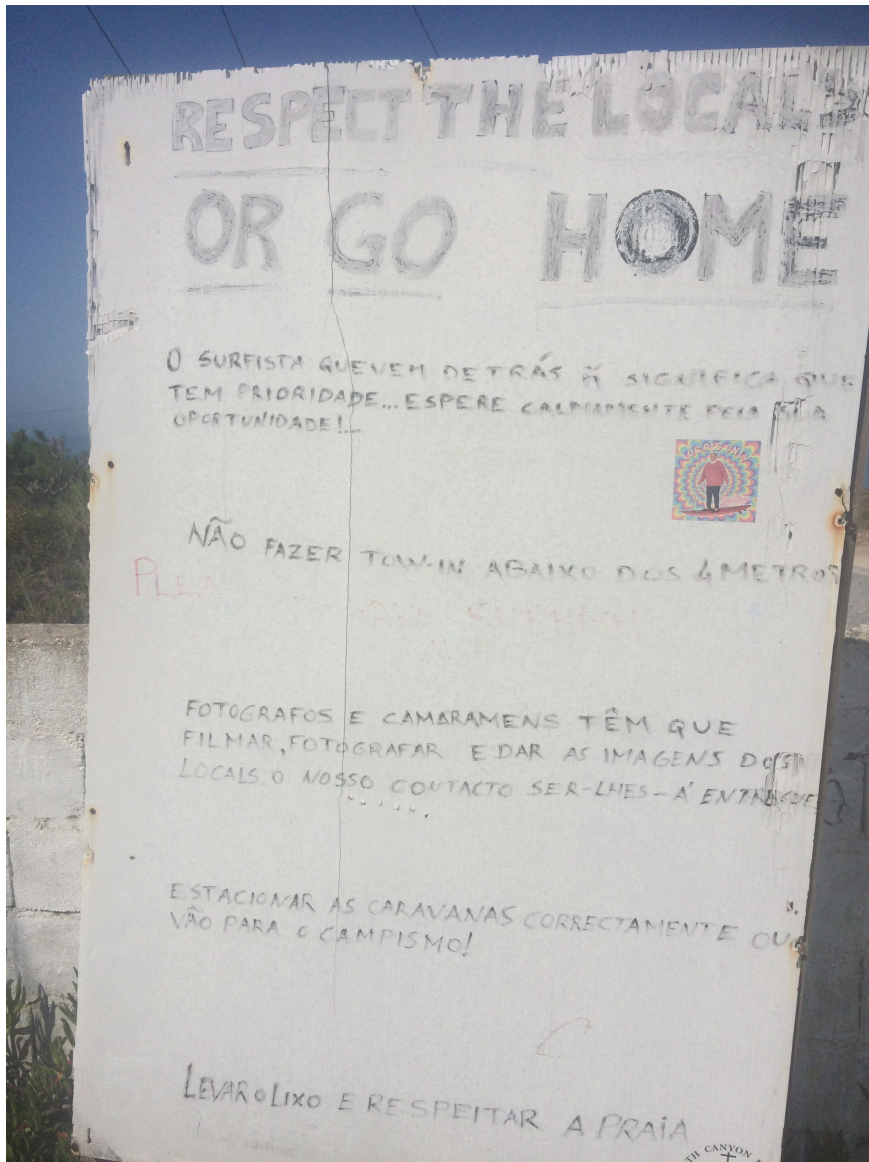
Figure 38: Code of conduct sign in Praia do Norte, Nazaré, August 22, 2019 (own picture)

Reporting and auditing are other possible tools in making surf tourism destinations more sustainable. It "allows an enterprise or organization to describe the outcome of its efforts to manage its sustainability impacts, and to share this information with stakeholders" (UNEP & WTO, 2005, p. 99). Its success depends on the use of an agreed set of indicators. However, reporting and auditing and the use of indicators seemed to be underappreciated management instruments in the studied region and it would thus be recommended to start the process of reporting and auditing. Ideally, reporting would be undertaken at different levels, namely at the level of individual enterprises, at local, regional and national level. Associations like AESDP and tourism networks like the *Estações Náuticas* could start reporting and auditing within their organisations and thus become leading examples.

A third voluntary instrument is **voluntary certification**. In 2011, the Save The Waves Coalition certified the coastline of Ericeira as a World Surfing Reserve, stimulated by the efforts of local surfing associations. This protection, even though it is largely symbolic in nature, led to a high international visibility and recognition of Ericeira as a surf tourism destination, triggered both public and private investments in the area, such as an Interpretation Center, beach infrastructures and large surf businesses, and encouraged the local community to protect the coastal and marine resources of the Reserve (Save The Waves Coalition, 2020). In June 2018, the Management Plan was adopted for the biennium 2018-19. This plan was conceived by the Ericeira World Surfing Reserve Management Council (CMGRMSE), established by law in DR n.º 2/2017, Série II of January 3 2017, which consists of a diverse group of stakeholders, including local surf associations. The management plan is accompanied by an action plan with concrete objectives, threats, strategies, measures and actions. Thus, voluntary certification can lead to an adaptive co-management approach that brings stakeholders together to work concretely and constructively on the sustainable development of coastal areas.

Further, Peniche became the first surf destination in the world that was benchmarked by the STOKE Surf Destinations certification in 2017. The process of this certification helps to improve sustainable destination management practices. Also, as can be seen in the action plan of the POC-ACE, surf events in Nazaré and Torres Vedras sought to become certified sustainable events by the ISO 20121 standard (Appendix 2.46).

Lastly, **voluntary contributions** can play a role as well. Many surf schools and surf camps have started to organize voluntary beach-clean ups and other environmental actions with their clients. In addition, most municipalities have established a voluntary environmental program, like the Cascais Jovens program, that helps to keep the beaches clean and to raise the environmental awareness of beach-goers. As was noticed in the surveys, these voluntary contributions are highly appreciated by all stakeholder groups.

Thus, voluntary instruments have a large potential for improving the sustainability of surf tourism. Improvements are possible in providing visible and clear guidelines and code of conducts, increasing reporting and auditing processes, seeking voluntary certification for destinations and projects and promoting voluntary contributions for environmental actions.

6.6 Supporting instruments

Through supporting instruments, "governments can, directly and indirectly, influence and support enterprises and tourists in making their operations and activities more sustainable." (UNEP & WTO, 2005, p. 71)

The first supporting instrument is **infrastructure provision and management.** In the execution plan of the POC-ACE, numerous actions related to surf activities, grouped in projects, are mentioned. One such project, with an estimated total budget of 6,509 million euros, is to improve the infrastructure to support bathing, water and surf sports. Concrete actions are the creation of support structures for surfing on beaches with special aptitude for surf sports in the municipality of Peniche, the creation of removable structures to support surfing on beaches with special aptitude for surf sports in the municipality of Torres Vedras, actions to promote and enhance the Ericeira World Surfing Reserve, the creation of the Cascais Surf Center by Quicksilver and the creation of the Costa da Caparica International Surf Center (Appendix 2.47).

A third project is to value and qualify the coastal fronts. Here, one action related to surf tourism is mentioned, namely the creation of a Green Park integrated in the Ericeira World Surfing Reserve (Table 20).

Table 20: Actions to value and qualify the coastal fronts (APA, 2019)

Actions	Summary of intervention / objective	Territorial extent	Involved entities (Leader/partner)		Temporal programming of investment		Priority
Creation of the Parque Litoral Norte	Creation of a Green Park integrated in the World Surfing Reserve, which includes the requalification/recovery of the Mil Regos Fort and the adjacent areas (installation of the Environmental Interpretation Centre of the World Surfing Reserve)	Mafra	CM Mafra	APA	2017-2024	€ 2 500 000	High

It can be noted that there is no action related to surfing in the municipality of Sintra. This might relate to the low rating in the survey from surf businesses for the actions of the municipality of Sintra related to surf tourism (Figure 28).

One of the transversal strategic objectives of the POC-ACE is the valorisation and qualification of maritime beaches as a natural, social and economic resource. Therefore, four strategic lines were defined that motivate several types of interventions (APA, 2019):

1. To ensure the preservation of beaches, dune systems and associated cliffs, as well as the associated natural spaces and the identity of the coastal landscape
2. Ensuring the safety and protection of users and beach support structures
3. Improving the quality of access and reception of users, namely the disabled population
4. Ensure the control of flows and the promotion of soft modes of transport in the access to beaches

The spatial planning of the beaches is regulated in the Intervention plans for maritime beaches of the POC-ACE. In these plans, some intervention proposals are formulated that are interesting to analyse when compared with the results from the surveys and in accordance to the strategic lines (Appendix 2.48). The intervention proposals mainly focus on requalifying parking lots (Praia do Norte, Cantinho da Baia, Ribeira d'Ilhas, Praia Grande, Praia do Guincho), creating raised pedestrian access (Praia do Norte, Cantinho da Baia, Praia do Guincho), recovery of the dunes (Praia do Norte, Cantinho da Baia) and environmental protection (Ribeira d'Ilhas, Praia do Guincho). In Praia do Norte, the construction of a new, full beach support structure with functions for sport activities is also mentioned. This can be related to the lack of infrastructure that was mentioned in the surveys (Figure 23) and the support for local surfers that was mentioned as the most requested action (Table 18).

The second supporting management instrument is **capacity building**, which is "about developing the potential and ability of stakeholders to make and implement decisions that will lead to more sustainable tourism, by increasing their understanding, knowledge, confidence and skills" (UNEP & WTO, 2005, p. 112). The advent of knowledge sharing clusters like the Estações Náuticas and stakeholder associations like the AESDP play a crucial role in this capacity building.

The third supporting management instrument contains the **marketing of the destinations and the provision of visitor information**. From talking to the municipalities and analysing their documents, it became clear that they have differing strategies related to surf tourism. In Mafra, Nazaré and Peniche, surfing is actively used as a promotional tool. For example, the municipality of Peniche decided in 2007 to prioritize surf tourism, coming up with a new municipal flag and slogan (Peniche: The Wave Capital) and attracting and

promoting investments in surf tourism, with the establishment of the Rip Curl Pro from the WSL being crucial in this process.

In other municipalities, a shift can be felt to aspiring sustainable development with quality services instead of the current high volume, low yield model. In Torres Vedras for example, the establishment of the luxury Noah Surf House in 2018 attracted a lot of attention, while in Nazaré there are plans to build the first five-star hotel in the municipality. At the same time, this shift to higher quality services could endanger tourists with lower budgets in the future. Meanwhile, the municipality in Sintra rather keeps a low profile about its surfing resources. Interesting to note is that the most requested action in Sintra from the respondents of the survey was to develop a surf tourism strategy, which hints at a desire from the stakeholder groups for more active involvement from the municipality.

Overall, the supporting instruments show that municipalities are trying to find the right balance between promoting surf tourism on the one hand and protecting the environment and the interests of the local inhabitants on the other hand. There appears to be a growing realisation of the need to promote the diversification and clustering of tourism and to focus on the offer of a quality experience throughout the year to the tourists. It is hoped that this will reduce the seasonality of tourism, increase the average expenditure per trip and lead to a higher tourist satisfaction and a higher number of repeat visitors. This strategy could alleviate the pressure on the environment and increase the quality of life of local residents. To attain this strategy, adequate provision and management of infrastructure is needed, and capacity building of stakeholders is crucial. The intervention proposals of the POC-ACE should be implemented and tourism networks and associations should lead the capacity building process.

To conclude, this chapter has identified the main actors and stakeholders in the STDG in the Lisbon region. It has given an overview of the existing management instruments related to surf tourism in the region according to the framework provided by UNEP and WTO (2005). Based on this overview, recommendations were formulated to assist in the sustainable development of surf tourism.

7. DISCUSSION

7.1 Main insights

Coming at the end of this research, the main insights and the contributions to the surf tourism literature can now be formulated. The adopted methodology, the diverging perceptions of stakeholders, the compliance with the TALC model, the duality of surf tourism, the dependency on natural resources, the interplay of different governance scale levels, the proliferation of non-concerted actions, the need for regional, sectorial governance and the importance of strategic thinking are discussed.

Overall, this study brought a new perspective by **adopting the DPSIR framework** to understand the social and spatial aspects of surf tourism. By using a multiple case study approach in seven municipalities in the Lisbon region, similarities and differences could be assessed between various surf tourism destinations in this region. Further, the inclusion of six different stakeholder groups in the survey, combined with semi-structured interviews with persons from relevant institutions, enabled a nuanced understanding of the dynamics of surf tourism and the varying perceptions by the stakeholder groups.

Different stakeholder groups confirmed to have **different perceptions** about the impacts of surf tourism in coastal areas (Carapinha, 2018; Diedrich & García-Buades, 2009; Lazarow, 2010; Martin & Assenov, 2014; Sharpley, 2014; Teixeira, 2017; Towner & Milne, 2017). Interestingly, the groups that are most involved, being the local surfers, surf tourists and surf businesses, are the most outspoken about the positive, but also the negative impacts of surf tourism. This contrasts with the common assumption in the literature that the perceptions of persons highly exposed to surf tourism are more positive than those that are less involved (Towner & Milne, 2017).

Similar to other kinds of tourism, it appears that surf tourism destinations largely follow the **TALC model** (Butler, 1980; Butler, 2006; Diedrich & García-Buades, 2009, United Nations Environment Programme, 2009), with some destinations currently being in an early or late development phase, while others being already in the consolidation phase. If a similar evolution as in other tourism destinations in the past is to be expected, the destinations in the development phase will evolve to become consolidated, while the destinations in the consolidation phase will enter a stagnation phase. As is illustrated by the TALC model, this evolution poses the risk of increasing negative impacts that will overshadow the benefits, resulting in the decline of the destinations (Diedrich & García-Buades, 2009).

Surf tourism can thus indeed be seen as a **double-edged sword**, similar to other forms of coastal tourism (United Nations Environment Programme, 2009). On the one hand, it has the potential to revitalize the local economy and increase the quality of life of residents in coastal areas dealing with downward socio-economic trends (Bicudo & Horta, 2009; Buckley, 2002a; Doering, 2018; Lazarow, 2007; Porter et al.; Van Eetvelde et al., 2016). On the other hand, it causes perverse side effects, such as a rise in the cost of living (O'Brien & Ponting, 2013; Scorse et al., 2015; UNEP & WTO, 2005) and an elevated flux of surf tourists leading to conflicts (Buckley et al., 2017; Teixeira, 2017; Towner & Milne, 2017).

Additionally, this study reconfirmed the high **dependency of surf tourism on natural resources** (Martin & Assenov, 2014; Orchard, 2020). In one way, surf tourism provides an opportunity to protect and conserve these resources and the affiliated landscape and ecosystem services (Frank et al., 2015; Scheske et al., 2019; Springwald, 2018; Surfers Against Sewage, 2009). In the other way, surf tourism itself contributes to the alteration of the natural dynamics of coastal ecosystems by stimulating infrastructure developments and increasing the demand for resources (O'Brien & Ponting, 2013; UNEP, 2009). Careful and sustainable planning is thus needed to keep this tight balance in a beneficial direction, as has been called for numerous times in the surf tourism literature, internationally (Arroyo et al.; Buckley, 2002a; O'Brien & Ponting, 2013; Reineman & Ardoin, 2018; Towner & Milne, 2017; Ware, 2017), as well as in the Portuguese context (Araújo et al., 2016; Carapinha, 2018; Lopes & Bicudo, 2017; Machado et al., 2018; Oliveira et al.; Springwald, 2018; Teixeira, 2017).

With the analysis of the DPSIR framework as a starting point, the mixed method approach extended the study further into an analysis of the existing surf tourism destination governance in the region. The overview of the actors and stakeholders confirmed it is a complex, multi-actor and multi-scalar governing process (Mach & Ponting, 2020). Many actors, both public and private, come into play at **different scale levels**. The local and regional actors and stakeholders, especially the municipalities and local associations, are most involved in the development of surf tourism, but largely depend on actors and stakeholders of higher scale levels, especially for funding mechanisms.

The use of the instruments for sustainable tourism developed by UNEP and WTO proved useful to structure the management instruments that govern surf tourism in the region. In terms of land-use planning and development control, it was revealed that most public authorities use their spatial competence to regulate, stimulate and forbid certain practices, but that the actual territorial competence is very scattered across landowners, or non-existent in case of the free use of the sea. Despite the efforts of the authorities, this has

led to **non-concerted actions** and a general feeling of uncontrolled development in many cases. Further, the spatial zoning of administrative units and different planning projects at different hierarchical levels do not correspond with the spatial surf tourism clustering in the Lisbon region. This hinders a harmonious and sustainable surf tourism development approach.

Thus, a firmer emphasis on **regional, sectorial governance** approaches would be beneficial. This finding arguably extends beyond the Lisbon region and might also apply to other regions with surf tourism destinations, as was also argued by Mach and Ponting (2020). Intermunicipal collaborations between the surf tourism destinations in the region could enable concerted actions. Uniform monitoring practices, legislation, regulation and inspection should be established.

A **common sustainable surf tourism strategy** that includes diverse and qualified tourism offerings is also recommended. Knowledge sharing clusters and stakeholder associations are essential in raising the dedication to sustainable tourism. The composition of the Ericeira World Surfing Reserve Management Council (CMGRMSE) brings actors and stakeholders with conflicting interests together (Carapinha, 2018), and its management plan has come up with practical actions for a sustainable development in an adaptive co-management approach. Even without the certification as a World Surfing Reserve, this approach could be adopted in other surf tourism destinations in the region. This would combine bottom-up and top-down approaches as it creates opportunities for collaborative resource management (Arroyo et al., 2019; Orchard, 2020). Lessons could also be learned from approaches in other surf tourism destinations, such as the Surf Management Plan in the Gold Coast, Australia (Ware, 2017) and the legal protection of New Zealand's surf breaks (Orchard, 2020).

7.2 Recommendations for future research

Since research on the sustainable management of surf tourism is still limited, some recommendations for future research are now formulated.

The incorporation of stakeholder perceptions in tourism studies has proven to be essential. This study tried to give voice to the main stakeholders in surf tourism. However, the amount of respondents per case study and per type of respondent does not allow advanced statistical analysis or broad generalisations. The limited amount of time spent in the case study areas also constrained in-depth knowledge of local issues. To overcome these limitations, monitoring of the perceptions from all involved stakeholder groups should be done regularly

and in a structured and comparable way across space and time, with the use of good indicators. Existing indicators, developed in the Framework Analysis for Sustainable Surf Tourism (FASST), the Surf Resource Sustainability Index (SRSI) and the STOKE certification program can be used as a starting point, but should be adapted to measure the perception of stakeholder groups, as well as made suitable for surf tourism destinations in the global North.

The recent publication of the POC-ACE, with the introduction of the concept of waves with special value for the practice of surf sports and other management instruments, has been an interesting development related to the legal protection of surf breaks in Portugal. In combination with the World Surfing Reserve in Ericeira, it would be useful to study the interaction and implications of these protection methods with other area-based conservation measures, like the Natura 2000 network and national parks. Also, it is recommended that an objective analysis is made of the accomplishments of the management plan of the Ericeira World Surfing Reserve and to see what could be learned from this innovative, adaptive co-management approach for other surf tourism destinations (Arroyo et al., 2019).

Further, there are opportunities to adopt a critical approach to the STDG. A study, based on Arroyo et al. (2019) and Mach and Ponting (2020), could assess the power dynamics that form this STDG in the Lisbon region, focusing on the actors and stakeholders. Additionally, an innovative approach to quantify the impact of surf tourism on land-use would be valuable (McGregor & Wills, 2017), as would be the development of a method to measure and analyse the connection between advanced surf forecasting technology and intra-seasonal and intra-regional travel patterns (Mach et al., 2020). Moreover, the lack of adequate planning in the water causes conflicts in surf breaks worldwide. A study could attempt to develop a novel management method to prevent these conflicts.

Lastly, future research could apply the adopted approach in this study to other surf tourism destinations to check the general validation of the results and to enable cross-comparison and benchmarking of surf tourism destinations.

8. CONCLUSION

This study aimed to provide an understanding of the social and spatial aspects of surf tourism and the way surf tourism destination governance is taking place. To that end, a mixed method approach was adopted and the Lisbon region was selected as a case study. First, an analysis of a survey conducted by 335 respondents from six different stakeholder groups in seven coastal municipalities was made using the DPSIR framework. This was complemented by a qualitative analysis of 13 semi-structured interviews with representatives from public administration bodies with authority for spatial planning and management, and from important associations related to surf tourism. Based on these data, an analysis of the surf tourism destination governance was made. The main stakeholders and actors were identified. The management instruments for sustainable tourism, developed by UNEP and WTO, were used to structure the actions that are being taken to govern surf tourism in the region. This analysis led to the formulations of management practices that could aid in the sustainable development of surf tourism.

The main driving force behind the development of surf tourism in the region confirmed to be the natural features. This result highlights the fact that surf tourism destinations highly depend on their natural features like the suitability and variety of the waves for surf sports, the water quality and the natural environment. Other driving forces were the Portuguese hospitality, surf contests, surf businesses, international mobility and (social) media attention. The main pressure to surf tourism destinations is considered to be uncontrolled, rapid development. This causes conflicts between stakeholder groups and creates negative social and environmental impacts, which could eventually lead to the decline of a surf tourism destination. The state of surf tourism differs in each municipality under study. Generally, surf tourism is considered to be the most developed in Mafra and Peniche. The assessment of characteristics of the surf spots also differs. The crowd level in many surf spots is considered to be a negative aspect by the involved stakeholders, as well as inadequate beach infrastructure.

In general, the survey respondents agreed the most about positive impacts, especially on the economic and social impacts. However, some specific negative impacts were also mentioned in some municipalities. The most positive impacts were reported in Nazaré, while the most negative impacts were perceived in Mafra and Peniche. Local surfers were the most outspoken about negative impacts in all domains, whereas local surf businesses stated the most positive social and economic impacts. Local inhabitants did not stress negative impacts. The respondents in general believe that surf tourism in the municipality will develop in a sustainable way during the next decade. The evaluation of the current actions from local governments relating to surf

tourism vary in between the local stakeholder groups and in between municipalities. The most requested actions in general were adequate infrastructure development, beach use planning and support for local surfers.

The analysis of the surf tourism destination governance confirmed that it is a complex, multi-actor and multi-scale governing process. On the local level, the municipalities and the different stakeholder groups, such as local surf associations, play an important role. On the regional level, the CCDRs, the port authorities and the tourism promotion agencies are crucial in managing funds, establishing regulations and promoting surf tourism. On the national level, many government agencies come into play, as well as nationwide associations. Internationally, the European Union is essential in providing funds for projects, while the surf media, NGO's and surf governing bodies influence and shape the perception of what surfing and surf tourism is and should be.

The analysis of the management instruments revealed a growing awareness of the issues and opportunities that surf tourism create on different governance scale levels. The measures included in the POC-ACE to protect surf breaks and the management plan of the Ericeira World Surfing Reserve have been found to be pioneers in the inclusion of the values of surf breaks in legal documents. Still, many issues related to spatial planning remain. Spatial planning instruments need to be better integrated and compatible to each other. Uniform monitoring, regulating and licensing procedures need to be established. Public participation in decision-making processes need to be improved and promoted. And ultimately, the political will has to be found to implement the developed strategies, plans and actions.

There is still a long way to go to reach a truly sustainable development of surf tourism. The dependency of surf tourism on natural resources provides both an opportunity and a threat to its future. It is an opportunity in the way that it can stimulate greater environmental awareness, which could lead to more environmentally conscious behaviours. At the same time, uncontrolled growth of surf tourism could lead to the destruction of its attractiveness, when the perpetuated image of unspoiled, uncrowded surf breaks will no longer correspond to the reality of mass surf tourism. Therefore, this study advocates for adequate regulation measures, with an emphasis on spatial planning that can be beneficial to all stakeholders in the long term, corresponding to the essence of sustainability. A greater emphasis on regional governance is recommended. The adaptive co-management approach, recently adopted in the World Surfing Reserves, could be a promising way forward to include various stakeholders in the decision-making progress and to establish concrete actions for sustainable surf tourism development.

Looking ahead to a new decade, unprecedented global challenges await. The COVID-19 crisis painfully revealed the fragility of the tourism sector. Climate change is expected to have a major impact on coastal areas, affecting surf tourism destinations worldwide. Temporary and removable structures might become essential when the existing ones have to be removed due to mitigation and adaption measures. Surf tourism destinations will have to find innovative ways to deal with these challenges that lie beyond local or regional control.

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10.1 Appendix 1: Outline survey and semi-structured interviews

Appendix 1.1: English version of survey

Surf tourism in coastal areas in Portugal

Municipality *
Mark only one oval.

- ◯ Nazaré
- ◯ Peniche
- ◯ Torres Vedras
- ◯ Mafra
- ◯ Sintra
- ◯ Cascais
- ◯ Almada

Place *
Mark only one oval.

- ◯ Praia do Norte
- ◯ Cantinho da Baia
- ◯ Praia do Mirante
- ◯ Ribeira d'Ilhas
- ◯ Praia Grande
- ◯ Praia do Guincho
- ◯ CDS - Costa da Caparica
- ◯ Other: _____

Date *

_____
Example: 15 December 2012

Time *

_____
Example: 8.30 a.m.

Weather *
Mark only one oval.

- ◯ Sunshine, good surfing conditions
- ◯ Sunshine, bad surfing conditions
- ◯ Cloudy, good surfing conditions
- ◯ Cloudy, bad surfing conditions
- ◯ Other: _____

Surf tourism in coastal areas in Portugal

My name is Jef Van den Driessche. I am a Master student in Geography at Ghent University in Belgium. At this moment, I'm working on my Master's thesis about surf tourism in coastal areas in Portugal, in partnership with the Instituto Superior Técnico in Lisbon. Your view on this subject is very valuable to me and I hope I can count on your collaboration to fill in some questions concerning the theme. The survey will not take more than 15 minutes of your time. All your answers are strictly confidential.

*Required

What is your age group? *
Mark only one oval.

( ) 12-17 years old

( ) 18-24 years old

( ) 25-34 years old

( ) 35-44 years old

( ) 45-55 years old

( ) 55-64 years old

( ) 65+ years old

What is your gender? *
Mark only one oval.

( ) Female

( ) Male

( ) Other: _____

What is the highest degree or level of school you have completed? *
Mark only one oval.

( ) Less than a high school diploma

( ) High school degree or equivalent

( ) Bachelor's degree

( ) Master's degree

( ) Doctorate

( ) Other: _____

What is your current employment status? *

Mark only one oval.

- ◯ Employed full time
- ◯ Employed part time
- ◯ Unemployed and currently looking for work
- ◯ Unemployed and not currently looking for work
- ◯ Student
- ◯ Retired
- ◯ Other: _____

What is your place of residence?
(municipality and country) *

_____

What is your nationality? *

_____

General questions about surf tourism

How would you rate the amount of surf tourists in this municipality? *
Mark only one oval.

	1	2	3	4	5	
Very few surf tourists	◯	◯	◯	◯	◯	A lot of surf tourists

How would you rate the amount of surf businesses in this place? (e.g. surf shops, surf schools, surf hostels,...) *
Mark only one oval.

	1	2	3	4	5	
Very low	◯	◯	◯	◯	◯	Very high

How would you score the quality of the beach infrastructure in this place? (e.g. showers, toilets, dressing rooms,...) *
Mark only one oval.

	1	2	3	4	5	
Very bad	◯	◯	◯	◯	◯	Very good

How important do you think the development of surf tourism is for the people in this municipality? *
Mark only one oval.

	1	2	3	4	5	
Not important at all	◯	◯	◯	◯	◯	Very important

What do you think are the main factors behind the development of surf tourism in this municipality? *
Tick all that apply.

- ☐ (Social) media attention
- ☐ Natural features (quality of waves, pristine environment,...)
- ☐ Surf businesses
- ☐ Surf contests
- ☐ Portuguese hospitality
- ☐ International mobility (e.g. due to low-cost flights)
- ☐ Other: _____

Do you think you personally benefit from surf tourism? *

Mark only one oval.

◯ Yes

◯ No

◯ Not relevant

If so, in what way do you benefit from surf tourism? (optional)

_____

Do you think the local businesses benefit from surf tourism? *

Mark only one oval.

◯ Yes

◯ No

◯ I don't know.

◯ Other: _____

If so, in what way do you think they benefit from surf tourism? (optional)

_____

Do you see any conflicts because of surf tourism? *

Mark only one oval.

◯ Yes

◯ No

If so, what was the conflict about? (optional)

_____

In what degree do you think the following cases are relevant to the surf tourism in this municipality? (Part 1/3) *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Totally agree
Relatively more sustainable form of tourism than other forms of tourism	◯	◯	◯	◯	◯
Environmental awareness of surf tourists	◯	◯	◯	◯	◯
Beach cleanups and other environmental actions	◯	◯	◯	◯	◯
Causing biodiversity loss	◯	◯	◯	◯	◯
Causing loss of beach quality	◯	◯	◯	◯	◯
Causing loss of ocean water quality	◯	◯	◯	◯	◯
Littering (garbage)	◯	◯	◯	◯	◯
Infrastructure growth	◯	◯	◯	◯	◯
Overcrowding	◯	◯	◯	◯	◯

In what degree do you think the following cases are relevant to the surf tourism in this municipality? (Part 2/3) *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Reducing seasonality of tourism	◯	◯	◯	◯	◯
Diversification of the economy	◯	◯	◯	◯	◯
Economic development	◯	◯	◯	◯	◯
New business opportunities	◯	◯	◯	◯	◯
Economy overly focused on surf tourism	◯	◯	◯	◯	◯
Contributing to seasonality of tourism	◯	◯	◯	◯	◯
Uneven distribution of economic benefits	◯	◯	◯	◯	◯
Price competition between businesses leading to lower quality	◯	◯	◯	◯	◯
Illegal businesses escaping taxes	◯	◯	◯	◯	◯

In what degree do you think the following cases are relevant to the surf tourism in this municipality? (Part 3/3) *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Job creation	◯	◯	◯	◯	◯
Improvement in quality of life	◯	◯	◯	◯	◯
Improvement of local identity	◯	◯	◯	◯	◯
Improvement of local infrastructures and services (parking lots, sewage systems, walking paths,...)	◯	◯	◯	◯	◯
Increased cost of living	◯	◯	◯	◯	◯
Loss of local identity	◯	◯	◯	◯	◯
Social conflicts (e.g. between surf tourists and local inhabitants)	◯	◯	◯	◯	◯

What actions do you think could improve the surf tourism in this municipality? *

Tick all that apply.

- ☐ Beach use planning (e.g. designating swim and surf zones)
- ☐ Land use planning (e.g. regulating coastal area in detail plans)
- ☐ Code of conduct signs (e.g. about the "surf rules")
- ☐ Tourist taxes (e.g. 3 euro for every overnight stay)
- ☐ Legislation and inspection (e.g. to combat tax evasion)
- ☐ A surf tourism strategy (e.g. for marketing)
- ☐ Infrastructure development (e.g. beach showers, walking paths, parking lots,...)
- ☐ A surf business association (e.g. to be able to weigh on political decisions)
- ☐ Support for local surfers (e.g. professional training centers)
- ☐ Other: _____

To what degree do you think the surf tourism in this municipality will develop in a sustainable way during the next decade? *

Mark only one oval.

	1	2	3	4	5	
Very unsustainable	◯	◯	◯	◯	◯	Very sustainable

What group do you belong to? *

( ) I am a local surfer. My place of residence is less than 40 km away from this surf spot.

( ) I travelled more than 40 kms from my place of residence for the primary purpose of surfing.

( ) I own or work in a local surfing related business

( ) I own or work in a local business, not related to surfing (for example a restaurant).

( ) I permanently live in this municipality and do not surf regularly. I don't work inside of the municipality.

( ) I am visiting this place for other reasons than surf related activities. I do not live in this municipality.

Local surfer

For how many years have you been surfing in this spot? *

Mark only one oval.

- ( ) Less than a year
- ( ) 1-2 years
- ( ) 3-5 years
- ( ) 6-10 years
- ( ) 10-20 years
- ( ) More than 20 years

What is your surfing level? *

Mark only one oval.

- ( ) Beginner
- ( ) Intermediate
- ( ) Advanced
- ( ) Professional

For what kind of surfing are you visiting this spot? *

Mark only one oval.

- ( ) Stand-up surfing (longboard, shortboard, SUP, foil,...)
- ( ) Bodyboarding
- ( ) Kitesurfing
- ( ) Windsurfing
- ( ) Other: _____

Why did you choose to surf this surf spot instead of another one? *

Tick all that apply.

- [ ] Quality of the waves
- [ ] Proximity
- [ ] Available infrastructure (showers, restaurants, toilets,...)
- [ ] Environmental quality
- [ ] Other: _____

Why did you choose to surf this spot during this time of the year? *

Tick all that apply.

- ☐ Good weather
- ☐ Consistency of the waves
- ☐ Price levels
- ☐ Holidays
- ☐ Other: _____

How would you rate the following characteristics of the surf spot you are at right now?
*

Mark only one oval per row.

	Very bad	Bad	Neutral	Good	Very good
Accessibility	○	○	○	○	○
Infrastructure (e.g. showers, toilets, parking lots,...)	○	○	○	○	○
Crowd	○	○	○	○	○
Environmental quality	○	○	○	○	○

Did you already have conflicts with other recreational users? If so, with which ones? *

Tick all that apply.

- ☐ Surf schools
- ☐ Surf tourists
- ☐ Bathers
- ☐ No conflicts
- ☐ Other: _____

If you already had a conflict, what was it about? (optional)

_____

Do you think surf tourists in general respect the "code of conduct" of surfing? *

Mark only one oval.

	1	2	3	4	5	
Not at all	○	○	○	○	○	Absolutely

How would you describe the development of surf tourism in this municipality in the last years?

Mark only one oval.

	1	2	3	4	5	
No development	◯	◯	◯	◯	◯	Very fast development

How do you evaluate the current actions from the local government relating to surf tourism? *

Mark only one oval.

	1	2	3	4	5	
Very bad	◯	◯	◯	◯	◯	Very good

What could most improve your surf experience in this surf spot? *

Mark only one oval.

◯ Better infrastructure

◯ Better safety

◯ Better accessibility

◯ Less crowd

◯ Better environmental quality

◯ Other: _____

End of the survey.
Thank you very much for your collaboration.

Do you want to get informed about the results of my Master's thesis when it is completed? If so, please write down your e- mail address.

_____

Surf tourist

When did you start visiting this place? *
Mark only one oval.

- ( ) It's the first time I'm here
- ( ) During the last year
- ( ) 1-2 years ago
- ( ) 3-5 years ago
- ( ) 6-10 years ago
- ( ) 11-20 years ago
- ( ) More than 20 years ago

What is your surfing level? *
Mark only one oval.

- ( ) Beginner
- ( ) Intermediate
- ( ) Advanced
- ( ) Professional

For what kind of surfing are you visiting this spot? *
Mark only one oval.

- ( ) Stand-up surfing (longboard, shortboard, SUP, foil,...)
- ( ) Bodyboarding
- ( ) Kitesurfing
- ( ) Windsurfing
- ( ) Other: _____

Why did you choose to surf this surf spot instead of another one? *
Tick all that apply.

- [ ] Quality of the waves
- [ ] Proximity
- [ ] Available infrastructure (showers, restaurants, toilets,...)
- [ ] Environmental quality
- [ ] Other: _____

Why did you choose to surf this spot during this time of the year? *

Tick all that apply.

- [ ] Good weather
- [ ] Consistency of the waves
- [ ] Price levels
- [ ] Holidays
- [ ] Other: _____

How would you rate the following characteristics of the surf spot you are at right now?
*

Mark only one oval per row.

	Very bad	Bad	Neutral	Good	Very good
Accessibility	◯	◯	◯	◯	◯
Infrastructure (e.g. showers, toilets, parking lots,...)	◯	◯	◯	◯	◯
Crowd	◯	◯	◯	◯	◯
Environmental quality	◯	◯	◯	◯	◯

Did you already have conflicts with other recreational users? If so, with which ones? *

Tick all that apply.

- [ ] Bathers
- [ ] Local surfers
- [ ] Other surf tourists
- [ ] Surf schools
- [ ] No conflicts
- [ ] Other: _____

If you already had a conflict, what was it about? (optional)

_____

What could most improve your surf experience in this surf spot? *

Mark only one oval.

◯ Better infrastructure

◯ Better safety

◯ Better accessibility

◯ Less crowd

◯ Better environmental quality

◯ Other: _____

End of the survey.

Thank you very much for your collaboration.

Do you want to get informed about the results of my Master's thesis when it is completed? If so, please write down your e- mail address.

_____

Local surf business

What type of business do you own/work in? *

Mark only one oval.

- ( ) Surf school
- ( ) Surf ho(s)tel
- ( ) Surf (rental) shop
- ( ) Other: _____

What is your function in the business? *

Mark only one oval.

- ( ) Business owner
- ( ) Permanent employee
- ( ) Temporary employee
- ( ) Other: _____

For how many years are you doing this job? *

Mark only one oval.

- ( ) For less than a year
- ( ) 1-2 years
- ( ) 3-5 years
- ( ) 6-10 years
- ( ) 10-20 years
- ( ) More than 20 years

How would you describe the development of surf-related businesses in this municipality since you started working here? *

Mark only one oval.

	1	2	3	4	5	
No growth	( )	( )	( )	( )	( )	Very fast growth

Do you think this development is regulated in a good way? *

Mark only one oval.

	1	2	3	4	5	
Totally not	( )	( )	( )	( )	( )	Absolutely

How do you evaluate the current actions from the local government relating to surf tourism? *

Mark only one oval.

	1	2	3	4	5	
Very bad	◯	◯	◯	◯	◯	Very good

End of the survey.

Thank you very much for your collaboration.

Do you want to get informed about the results of my Master's thesis when it is completed? If so, please write down your e- mail address.

Local non-surf business

In what kind of business are you working? *
Mark only one oval.

- Restaurant
- Bar
- Pastelaria
- Ho(s)tel
- Clothing store
- Supermarket
- Camping
- Other: _____

What is your function in the business? *
Mark only one oval.

- Business owner
- Permanent employee
- Temporary employee
- Other: _____

For how many years are you doing this job? *
Mark only one oval.

- Less than a year
- 1-2 years
- 3-5 years
- 6-10 years
- 11-20 years
- More than 20 years

Does your business benefit from surf tourism? *
Mark only one oval.

	1	2	3	4	5	
Not at all	◯	◯	◯	◯	◯	Absolutely

For how many years are you doing this job? *

Mark only one oval.

- ( ) Less than a year
- ( ) 1-2 years
- ( ) 3-5 years
- ( ) 6-10 years
- ( ) 11-20 years
- ( ) More than 20 years

Does your business benefit from surf tourism? *

Mark only one oval.

	1	2	3	4	5	
Not at all	( )	( )	( )	( )	( )	Absolutely

Did you already have a conflict because of surf tourism? *

Mark only one oval.

- ( ) Yes
- ( ) No

If so, what was the conflict about?
(optional)

_____

How do you evaluate the current actions from the local government relating to surf tourism? *

Mark only one oval.

	1	2	3	4	5	
Very bad	( )	( )	( )	( )	( )	Very good

End of the survey.
Thank you very much for your collaboration.

Do you want to get informed about the
results of my Master's thesis when it is
completed? If so, please write down your
e- mail address.

_____

Local inhabitant

For how many years are you living in this municipality? *
Mark only one oval.

- ◯ Less than a year
- ◯ 1-2 years
- ◯ 3-5 years
- ◯ 6-10 years
- ◯ 11-20 years
- ◯ More than 20 years

Did you already have a conflict because of surf tourism? *
Mark only one oval.

- ◯ Yes
- ◯ No

If so, what was the conflict about?
(optional)

_____

How do you evaluate the current actions from the local government relating to surf tourism? *
Mark only one oval.

	1	2	3	4	5	
Very bad	◯	◯	◯	◯	◯	Very good

End of the survey.
Thank you very much for your collaboration.

Do you want to get informed about the results of my Master's thesis when it is completed? If so, please write down your e- mail address.

_____

Visitor

Since when have you been visiting this place? *

Mark only one oval.

- ◯ It's the first time I'm here
- ◯ Only during the last year
- ◯ Since 1-2 years
- ◯ Since 3-5 years
- ◯ Since 6-10 years
- ◯ Since 11-20 years
- ◯ Since more than 20 years

What is your main reason for visiting this place? *

_____

What is/are your main reason(s) to come visit during this time of the year? *

Tick all that apply.

- ☐ The good weather
- ☐ The price levels (e.g. flight tickets, hotel prices,...)
- ☐ Having a holiday
- ☐ The nightlife
- ☐ Other: _____

Did you already have conflicts with other recreational users? If so, with which ones? *

Tick all that apply.

- ☐ Bathers
- ☐ Surf schools
- ☐ Surfers
- ☐ No conflicts
- ☐ Other: _____

Is surf tourism in this place a positive addition to your visit? *

Mark only one oval.

	1	2	3	4	5	
Totally not	◯	◯	◯	◯	◯	Absolutely

End of the survey.
Thank you very much for your collaboration.

Do you want to get informed about the results of my Master's thesis when it is completed? If so, please write down your e- mail address.

Turismo de surf nas zonas costeiras em Portugal

Município *
Marcar apenas uma oval.

- ( ) Nazaré
- ( ) Peniche
- ( ) Torres Vedras
- ( ) Mafra
- ( ) Sintra
- ( ) Cascais
- ( ) Almada

Local *
Marcar apenas uma oval.

- ( ) Praia do Norte
- ( ) Cantinho da Baia
- ( ) Praia do Mirante
- ( ) Ribeira d'Ilhas
- ( ) Praia Grande
- ( ) Praia do Guincho
- ( ) CDS - Costa da Caparica
- ( ) Outra: _____

Data *

_____

Hora *

_____

Clima *

- ( ) Sol, boas condições de surf
- ( ) Sol, más condições de surf
- ( ) Nublado, boas condições de surf
- ( ) Nublado, más condições de surf
- ( ) Outra: _____

Turismo de surf nas zonas costeiras em Portugal

O meu nome é Jef Van den Driessche. Sou estudante de mestrado em Geografia na Universidade de Ghent, na Bélgica. Neste momento, estou a trabalhar na minha tese de mestrado sobre o turismo de surf nas zonas costeiras em Portugal, em parceria com o Instituto Superior Técnico em Lisboa. A sua opinião sobre este tema é muito valiosa para mim e espero poder contar com a sua colaboração para responder a algumas questões relacionadas com o tema. O inquérito não demorará mais do que 15 minutos do seu tempo. Todas as suas respostas são estritamente confidenciais.

Qual é a sua idade? *

Marcar apenas uma oval.

◯ 12-17 anos de idade

◯ 18-24 anos de idade

◯ 25-34 anos de idade

◯ 35-44 anos de idade

◯ 45-55 anos de idade

◯ 55-64 anos de idade

◯ 65+ anos de idade

Qual é o seu género? *

Marcar apenas uma oval.

◯ Feminino

◯ Masculino

◯ Prefiro não dizer

◯ Outra: _____

Qual é o grau ou nível de educação mais elevado que completou? *

Marcar apenas uma oval.

◯ Menos de um diploma do ensino secundário

◯ Grau de ensino secundário ou equivalente

◯ Licenciatura ou bacharelato

◯ Mestrado

◯ Doutorado

◯ Outra: _____

Qual é a sua situação profissional actual? *

Marcar apenas uma oval.

◯ Empregado a tempo inteiro

◯ Empregado a tempo parcial

◯ Desempregado e à procura de emprego

◯ Desempregado e presentemente não procura emprego

◯ Estudante

◯ Reformado

◯ Outra: _____

Qual é o seu local de residência?
(município e país) *

_____

Qual é a sua nacionalidade? *

_____

Perguntas gerais sobre turismo de surf

Como você avalia a quantidade de turistas de surf neste município? *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito poucos turistas de surf	◯	◯	◯	◯	◯	Muitos turistas de surf

Como classificaria a quantidade de negócios de surf neste lugar? (por exemplo lojas de surf, escolas de surf, albergues de surf,...) *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito baixo	◯	◯	◯	◯	◯	Muito alto

Como classificaria a qualidade da infraestrutura da praia neste lugar? (por exemplo, chuveiros, banheiros, vestiários,...) *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito mau	◯	◯	◯	◯	◯	Muito boa

Qual pensa que é a importância do desenvolvimento do turismo de surf para as pessoas deste município? *

Marcar apenas uma oval.

	1	2	3	4	5	
Não é nada importante	◯	◯	◯	◯	◯	Muito importante

Quais são, na sua opinião, os principais factores subjacentes ao desenvolvimento do turismo de surf neste concelho? *

Marcar tudo o que for aplicável.

- [ ] Atenção nas redes sociais
- [ ] Características naturais (qualidade das ondas, ambiente natural bem preservado,...)
- [ ] Empresas de surf
- [ ] Competições de Surf
- [ ] A hospitalidade portuguesa
- [ ] Mobilidade internacional (por exemplo, devido a voos de baixo custo)
- [ ] Outra: _____

Acha que beneficia pessoalmente do turismo de surf? *

Marcar apenas uma oval.

- ( ) Sim
- ( ) Não
- ( ) Não relevante

Em caso afirmativo, de que forma beneficia do turismo de surf? (opcional)

_____

Você acha que as empresas locais beneficiam do turismo de surf? *

Marcar apenas uma oval.

- ( ) Sim
- ( ) Não
- ( ) Não sei.
- ( ) Outra: _____

Em caso afirmativo, de que forma pensa que eles beneficiam do turismo de surf? (opcional)

_____

Você vê algum conflito por causa do turismo de surf? *

Marcar apenas uma oval.

◯ Sim

◯ Não

Em caso afirmativo, qual o motivo do conflito? (opcional)

_____

Em que medida acha que os seguintes aspetos são relevantes para o turismo de surf neste concelho? (Parte 1/3) *

Marcar apenas uma oval por linha.

	Discordo totalmente	Discordo	Neutro	Concordo	Concordo totalmente
Uma forma de turismo relativamente mais sustentável do que outras formas de turismo	◯	◯	◯	◯	◯
Sensibilização ambiental dos turistas surfistas	◯	◯	◯	◯	◯
Limpeza de praias e outras ações ambientais	◯	◯	◯	◯	◯
Perda de biodiversidade	◯	◯	◯	◯	◯
Perda de qualidade da praia	◯	◯	◯	◯	◯
Perda da qualidade da água do oceano	◯	◯	◯	◯	◯
Lixo	◯	◯	◯	◯	◯
Crescimento da infraestrutura	◯	◯	◯	◯	◯
Superlotação	◯	◯	◯	◯	◯

Em que medida acha que os seguintes aspetos são relevantes para o turismo de surf neste concelho? (Parte 2/3) *

Marcar apenas uma oval por linha.

	Discordo totalmente	Discordo	Neutro	Concordo	Concordo totalmente
Redução da sazonalidade do turismo	◯	◯	◯	◯	◯
Diversificação da economia	◯	◯	◯	◯	◯
Desenvolvimento económico	◯	◯	◯	◯	◯
Novas oportunidades de negócio	◯	◯	◯	◯	◯
Economia excessivamente focada no turismo de surf	◯	◯	◯	◯	◯
Contribuir para a sazonalidade do turismo	◯	◯	◯	◯	◯
Distribuição desigual dos benefícios económicos	◯	◯	◯	◯	◯
Concorrência de preços entre empresas conducente a uma qualidade inferior	◯	◯	◯	◯	◯
Empresas ilegais fogem aos impostos	◯	◯	◯	◯	◯

Em que medida acha que os seguintes aspetos são relevantes para o turismo de surf neste concelho? (Parte 3/3) *

Marcar apenas uma oval por linha.

	Discordo totalmente	Discordo	Neutro	Concordo	Concordo totalmente
Criação de emprego	◯	◯	◯	◯	◯
Melhoria da qualidade de vida	◯	◯	◯	◯	◯
Melhoria da identidade local	◯	◯	◯	◯	◯
Melhoria das infra-estruturas e serviços locais (parques de estacionamento, redes de esgotos, caminhos pedonais,...)	◯	◯	◯	◯	◯
Aumento do custo de vida	◯	◯	◯	◯	◯
Perda de identidade local	◯	◯	◯	◯	◯
Conflitos sociais (por exemplo, entre turistas surfistas e habitantes locais)	◯	◯	◯	◯	◯

Que ações você acha que poderiam melhorar o turismo de surf neste município? *

Marcar tudo o que for aplicável.

- [ ] Planeamento do uso da praia (por exemplo, designar zonas de natação e de surf)
- [ ] Planeamento do uso do solo (por exemplo, regulação da zona costeira em planos de pormenor)
- [ ] Sinais com código de conduta (por exemplo, sobre as "regras de surf")
- [ ] Taxas turísticas (por exemplo, 3 euros por cada dormida)
- [ ] Legislação e inspeção (por exemplo, para combater a evasão fiscal)
- [ ] Uma estratégia de turismo de surf (por exemplo, para promoção e comercialização)
- [ ] Desenvolvimento de infraestruturas (por exemplo, chuveiros de praia, caminhos pedonais, parques de estacionamento,...)
- [ ] Uma associação empresarial de surf (por exemplo, para poder pesar sobre as decisões políticas)
- [ ] Apoio aos surfistas locais (por exemplo, centros de formação profissional)
- [ ] Outra: _____

Até que ponto pensa que o turismo de surf neste concelho se irá desenvolver de forma sustentável ao longo da próxima década? *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito insustentável	( )	( )	( )	( )	( )	Muito sustentável

A que grupo pertence? *

Marcar apenas uma oval.

- ( ) Sou um surfista local. Meu local de residência fica a menos de 40 km de distância deste ponto de surf. *Passe para as perguntas 'surfista local'.*
- ( ) Eu viajei mais de 40 km do meu local de residência com o propósito principal de surfar. *Passe para as perguntas 'turista de surf'.*
- ( ) Possuo ou trabalho num negócio local relacionado com o surf. *Passe para as perguntas 'negócio local de surf'.*
- ( ) Possuo ou trabalho numa empresa local, não relacionada com o surf (por exemplo, um restaurante). *Passe para as perguntas 'negócio local não relacionado com o surf'.*
- ( ) Vivo permanentemente neste município e não surfo regularmente. Não trabalho dentro do município. *Passe para as perguntas 'habitante local'.*
- ( ) Eu estou visitando este lugar por outras razões que não sejam atividades relacionadas ao surf. Eu não moro neste município. *Passe para as perguntas 'vistante'.*

Surfista local

Há quantos anos pratica surf neste local? *

Marcar apenas uma oval.

- ( ) Menos de um ano
- ( ) 1-2 anos
- ( ) 3-5 anos
- ( ) 6-10 anos
- ( ) 11-20 anos
- ( ) Mais de 20 anos

Qual é o seu nível de surf? *

Marcar apenas uma oval.

- ( ) Iniciante
- ( ) Intermediário
- ( ) Avançado
- ( ) Profissional

Que tipo de surf veio praticar neste local? *

Marcar apenas uma oval.

- ( ) Stand-up surf (longboard, shortboard, SUP, foil,...)
- ( ) Bodyboard
- ( ) Kitesurf
- ( ) Windsurf
- ( ) Outra: _____

Porque escolheu surfar neste spot de surf em vez de outro? *

Marcar tudo o que for aplicável.

- [ ] Qualidade das ondas
- [ ] Proximidade
- [ ] Infra-estrutura disponível (chuveiros, restaurantes, banheiros,...)
- [ ] Qualidade ambiental
- [ ] Outra: _____

Porque escolheu surfar este spot durante esta época do ano? *

Marcar tudo o que for aplicável.

☐ Bom tempo

☐ Consistência das ondas

☐ Níveis de preços

☐ Feriados

☐ Outra: _____

Como classificaria as seguintes características deste spot de surf? *

Marcar apenas uma oval por linha.

	Muito mau	Mau	Neutro	Bom	Muito bom
Acessibilidade	◯	◯	◯	◯	◯
Infra-estrutura (por exemplo, chuveiros, banheiros, estacionamentos, etc.)	◯	◯	◯	◯	◯
Crowd	◯	◯	◯	◯	◯
Qualidade ambiental	◯	◯	◯	◯	◯

Já teve conflitos com outros usuários recreativos? Se sim, com quais? *

Marcar tudo o que for aplicável.

☐ Turistas de Surf

☐ Escolas de Surf

☐ Banhistas

☐ Sem conflitos

☐ Outra: _____

Se já teve um conflito, do que se tratou?
(opcional)

_____

Você acha que os turistas de surf em geral respeitam o "código de conduta" do surf? *

Marcar apenas uma oval.

	1	2	3	4	5	
Não, de todo.	◯	◯	◯	◯	◯	Absolutamente

Como descreveria o desenvolvimento do turismo de surf neste município nos últimos anos? *

Marcar apenas uma oval.

	1	2	3	4	5	
Nenhum desenvolvimento	◯	◯	◯	◯	◯	Desenvolvimento muito rápido

Como você avalia as ações atuais da autarquia local em relação ao turismo de surf? *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito mau	◯	◯	◯	◯	◯	Muito bom

O que mais poderia melhorar a sua experiência de surf neste spot? *

Marcar apenas uma oval.

◯ Melhor infra-estrutura

◯ Melhor segurança

◯ Melhor acessibilidade

◯ Menos crowd

◯ Melhor qualidade ambiental

◯ Outro: _____

Fim do questionário.
Muito obrigado pela sua colaboração.

Você quer se informar sobre os resultados da minha tese de mestrado quando ela for concluída? Em caso afirmativo, escreva o seu endereço de e-mail por favor.

_____

Turista de surf

Há quanto tempo visita este local? *
Marcar apenas uma oval.

- ( ) É a primeira vez que estou aqui
- ( ) Durante o último ano
- ( ) Há 1-2 anos
- ( ) Há 3-5 anos
- ( ) Há 6-10 anos
- ( ) Há 11-20 anos
- ( ) Há mais de 20 anos

Qual é o seu nível de surf? *
Marcar apenas uma oval.

- ( ) Iniciante
- ( ) Intermediário
- ( ) Avançado
- ( ) Profissional

Que tipo de surf veio praticar neste local? *
Marcar apenas uma oval.

- ( ) Stand-up surf (longboard, shortboard, SUP, foil,...)
- ( ) Bodyboard
- ( ) Kitesurf
- ( ) Windsurf
- ( ) Outra: _____

Porque escolheu surfar neste spot em vez de outro? *
Marcar tudo o que for aplicável.

- [ ] Qualidade das ondas
- [ ] Proximidade
- [ ] Infra-estrutura disponível (chuveiros, restaurantes, banheiros,...)
- [ ] Qualidade ambiental
- [ ] Outra: _____

Porque escolheu surfar este spot durante esta época do ano? *

Marcar tudo o que for aplicável.

- [ ] Bom tempo
- [ ] Consistência das ondas
- [ ] Níveis de preços
- [ ] Feriados
- [ ] Outra: _____

Como classificaria as seguintes características deste spot de surf? *

Marcar apenas uma oval por linha.

	Muito mau	Mau	Neutro	Bom	Muito bom
Acessibilidade	◯	◯	◯	◯	◯
Infra-estrutura (por exemplo, chuveiros, banheiros, estacionamentos, etc.)	◯	◯	◯	◯	◯
Crowd	◯	◯	◯	◯	◯
Qualidade ambiental	◯	◯	◯	◯	◯

Já teve conflitos com outros usuários recreativos? Se sim, com quais? *

Marcar tudo o que for aplicável.

- [ ] Banhistas
- [ ] Surfistas locais
- [ ] Outros turistas de surf
- [ ] Escolas de surf
- [ ] Sem conflitos
- [ ] Outra: _____

Se já teve um conflito, do que se tratou?
(opcional)

_____

O que mais poderia melhorar a sua experiência de surf neste spot? *

Marcar apenas uma oval.

◯ Melhor infraestrutura

◯ Melhor segurança

◯ Melhor acessibilidade

◯ Menos crowd

◯ Melhor qualidade ambiental

◯ Outra: _____

Fim do questionário.

Muito obrigado pela sua colaboração.

Você quer se informar sobre os resultados da minha tese de mestrado quando ela for concluída? Em caso afirmativo, escreva o seu endereço de e-mail por favor.

_____

Negócio local de surf

Em que tipo de negócio você é proprietário/trabalha? *

Marcar apenas uma oval.

◯ Escola de surf

◯ Surf ho(s)tel

◯ Loja de Surf

◯ Outra: _____

Qual é a sua função no negócio? *

Marcar apenas uma oval.

◯ Proprietário do negócio

◯ Empregado permanente

◯ Empregado temporário

◯ Outra: _____

Há quantos anos está nesta atividade? *

Marcar apenas uma oval.

◯ Menos de um ano

◯ 1-2 anos

◯ 3-5 anos

◯ 6-10 anos

◯ 11-20 anos

◯ Mais de 20 anos

Como descreveria o desenvolvimento de negócios relacionados com o surf neste município desde que começou a trabalhar aqui? *

Marcar apenas uma oval.

	1	2	3	4	5	
Sem crescimento	◯	◯	◯	◯	◯	Crescimento muito rápido

Acha que este desenvolvimento está bem regulado? *

Marcar apenas uma oval.

	1	2	3	4	5	
Totalmente não	◯	◯	◯	◯	◯	Absolutamente

Como você avalia as ações atuais da autarquia local em relação ao turismo de surf? *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito mau	◯	◯	◯	◯	◯	Muito bom

Fim do questionário.

Muito obrigado pela sua colaboração.

Você quer se informar sobre os resultados da minha tese de mestrado quando ela for concluída? Em caso afirmativo, escreva o seu endereço de e-mail por favor.

Negócio local não relacionado com o surf

Em que tipo de negócio você é proprietário/trabalha? *

Marcar apenas uma oval.

( ) Restaurante

( ) Bar

( ) Pastelaria

( ) Ho(s)tel

( ) Loja de roupa

( ) Supermercado

( ) Camping

( ) Outra: _____

Qual é a sua função no negócio? *

Marcar apenas uma oval.

( ) Proprietário do negócio

( ) Empregado permanente

( ) Empregado temporário

( ) Outra: _____

Há quantos anos está nesta atividade? *

Marcar apenas uma oval.

( ) Menos de um ano

( ) 1-2 anos

( ) 3-5 anos

( ) 6-10 anos

( ) 11-20 anos

( ) Mais de 20 anos

O seu negócio beneficia do turismo de surf? *

Marcar apenas uma oval.

	1	2	3	4	5	
Não, de todo.	◯	◯	◯	◯	◯	Absolutamente

Você já teve um conflito por causa do turismo de surf? *

Marcar apenas uma oval.

◯ Sim

◯ Não

Em caso afirmativo, qual foi o motivo do conflito? (opcional)

_____

Como você avalia as ações atuais da autarquia local em relação ao turismo de surf? *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito mau	◯	◯	◯	◯	◯	Muito bom

Fim do questionário.

Muito obrigado pela sua colaboração.

Você quer se informar sobre os resultados da minha tese de mestrado quando ela for concluída? Em caso afirmativo, escreva o seu endereço de e-mail por favor.

_____

Habitante local

Há quantos anos vive neste município? *

Marcar apenas uma oval.

◯ Menos de um ano

◯ 1-2 anos

◯ 3-5 anos

◯ 6-10 anos

◯ 11-20 anos

◯ Mais de 20 anos

Você já teve um conflito por causa do turismo de surf? *

Marcar apenas uma oval.

◯ Sim

◯ Não

Em caso afirmativo, qual foi o motivo do conflito? (opcional)

_____

Como você avalia as ações atuais da autarquia local em relação ao turismo de surf? *

Marcar apenas uma oval.

	1	2	3	4	5	
Muito mau	◯	◯	◯	◯	◯	Muito bom

Fim do questionário.
Muito obrigado pela sua colaboração.

Você quer se informar sobre os resultados da minha tese de mestrado quando ela for concluída? Em caso afirmativo, escreva o seu endereço de e-mail por favor.

_____

Visitante

Há quanto tempo visita este local? *

Marcar apenas uma oval.

- ⬭ É a primeira vez que estou aqui
- ⬭ Durante o último ano
- ⬭ Há 1-2 anos
- ⬭ Há 3-5 anos
- ⬭ Há 6-10 anos
- ⬭ Há 11-20 anos
- ⬭ Há 20 anos

Qual é a sua principal razão para visitar este lugar? *

_____

Qual é(são) a(s) sua(s) principal(is) razão(ões) para vir visitar durante esta época do ano? *

Marcar tudo o que for aplicável.

- ☐ O bom tempo
- ☐ Os níveis de preços (por exemplo, bilhetes de avião, preços de hotel,...)
- ☐ Ter um feriado
- ☐ A vida noturna
- ☐ Outra: _____

Você já teve conflitos com outros usuários recreativos? Se sim, com quais? *

Marcar tudo o que for aplicável.

- ☐ Escolas de Surf
- ☐ Banhistas
- ☐ Sem conflitos
- ☐ Surfistas
- ☐ Outra: _____

O turismo de surf neste lugar é uma adição positiva à sua visita? *

Marcar apenas uma oval.

	1	2	3	4	5	
Totalmente não	◯	◯	◯	◯	◯	Absolutamente

Fim do questionário.

Muito obrigado pela sua colaboração.

Você quer se informar sobre os resultados da minha tese de mestrado quando ela for concluída? Em caso afirmativo, escreva o seu endereço de e-mail por favor.

_____

Appendix 1.3: Outline semi-structured interviews

This interview will be recorded and the results from this questionnaire might be used for academic dissemination.

This questionnaire is part of a study to understand the spatial aspects of surf tourism in Portugal.

Esta entrevista será gravada e os resultados deste questionário poderão ser utilizados para divulgação académica.

Este questionário faz parte de uma pesquisa para compreender os aspectos territorial do turismo de surf em Portugal.

Questions

- How would you describe the **evolution** of surf tourism in your municipality?
- In what way does surf tourism **impact** the municipality? (economically, socially, environmentally)
- Are there any current **developments** related to surf tourism in the municipality? (for example infrastructure development, new surf contests, legislations,…)
- Are there any **threats** in the municipality because of surf tourism? If yes, which one? (for example, rising housing prices, overcrowding,…)
- What is the **strategy** of the municipality related to surf tourism?
- What are the spatial planning **documents** related to surf tourism in this municipality (governance and regulation)?
- What are the main **actors** related to surf tourism in the municipality?
- What are the main **funding** resources for developments related to surf tourism in this municipality?

Perguntas

- *Como descreveria a evolução do turismo de surf no seu município?*
- *De que forma o turismo de surf tem impacto no município? (económica, social, ambiental)*

- *Existe alguma evolução atual relacionada com o turismo de surf no município? (por exemplo, desenvolvimento de infraestruturas, novos concursos de surf, legislações,...)*
- *Há alguma ameaça no município por causa do turismo de surf? Se sim, qual delas? (por exemplo, o aumento do preço das casas, a superlotação,...)*
- *Qual é a estratégia do município em relação ao turismo de surf?*
- *Quais são os documentos de ordenamento do território relacionados com o turismo de surf neste município (governação e regulamentação)?*
- *Quais são os principais atores relacionados com o turismo de surf no concelho?*
- *Quais são os principais recursos financeiros para os desenvolvimentos relacionados com o turismo de surf neste município?*

10.2 Appendix 2: Results survey

	Total	Portugal	Europe (excluding Portugal)	Portugal (%)	Europe (excluding Portugal) (%)	Other than Europe (%)
Mainland Portugal	**22 926 413**	**9 276 122**	**9 778 686**	**40,5**	**42,7**	**16,9**
LMA	**7 542 389**	**2 058 748**	**3 435 638**	**27,3**	**45,6**	**27,2**
Almada	215 769	72 830	86 845	33,8	40,2	26,0
Cascais	553 723	161 303	292 357	29,1	52,8	18,1
Mafra	83 976	33 759	44 011	40,2	52,4	7,4
Nazaré	132 466	58 115	52 746	43,9	39,8	16,3
Peniche	94 026	55 808	32 894	59,4	35,0	5,7
Sintra	368 850	169 939	125 905	46,1	34,1	19,8
Torres Vedras	107 222	74 963	25 558	69,9	23,8	6,2

Appendix 2.1: Guests in tourism accommodation establishments by municipality and according to usual residence, 2018 (INE, 2019a, 2019b)

	Total	Portugal	Europe (excluding Portugal)	Portugal (%)	Europe (excluding Portugal) (%)	Other than Europe (%)
Mainland Portugal	**57 192 011**	**18 056 442**	**30 641 846**	**31,6**	**53,6**	**14,9**
LMA	**17 516 975**	**3 736 020**	**8 968 230**	**21,3**	**51,2**	**27,5**
Almada	439 068	127 320	225 638	29,0	51,4	19,6
Cascais	1 564 139	340 628	972 801	21,8	62,2	16,0
Mafra	208 725	63 061	131 679	30,2	63,1	6,7
Sintra	635 477	245 183	260 927	38,6	41,1	20,4
Nazaré	225 451	94 842	99 365	42,1	44,1	13,9
Peniche	192 608	97 555	84 565	50,6	43,9	5,4
Torres Vedras	228 579	132 437	81 694	57,9	35,7	6,3

Appendix 2.2: Nights spent in tourism accommodation establishments by municipality and according to usual residence, 2018 (INE, 2019a, 2019b)

	Guests	Nights	Revenue from accommodation	Average revenue	Average revenue per day
	Total	Total	Total		
	No.	No.	Thousand euros	Euros	Euros
Mainland Portugal	**22 926 413**	**57 192 011**	**2 633 225**	**114,9**	**46,0**
LMA	**7 542 389**	**17 516 975**	**1 005 011**	**133,2**	**57,4**
Almada	215 769	439 068	14 910	69,1	34,0
Cascais	553 723	1 564 139	98 708	178,3	63,1
Mafra	83 976	208 725	8 113	96,6	38,9
Nazaré	132 466	225 451	8 598	64,9	38,1
Peniche	94 026	192 608	8 884	94,5	46,1
Sintra	368 850	635 477	32 522	88,2	51,2
Torres Vedras	107 222	228 579	10 068	93,9	44,0

Appendix 2.3: Guests, nights spent and lodging income in tourism accommodation establishments by municipality, 2018 (INE, 2019a, 2019b)

	Establishments	Capacity on offer (beds)
	Total	Total
Almada	25	2 275
Cascais	82	8 516
Mafra	43	1 685
Nazaré	27	1 455
Peniche	51	1 995
Sintra	75	3 474
Torres Vedras	22	1 667

Appendix 2.4: Establishments and lodging capacity by municipality on July 31, 2018 (INE, 2019a, 2019b)

Appendix 2.5: Wordcloud visualising topics in semi-structured interviews
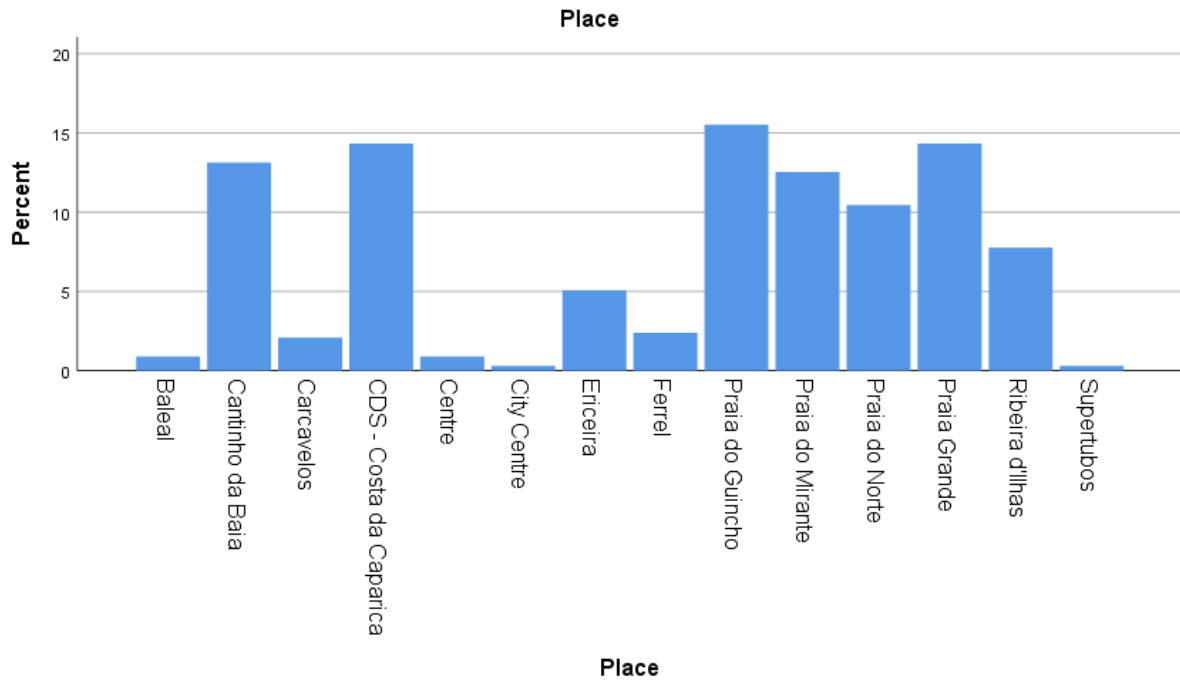
Appendix 2.6: Places of conduct of surveys
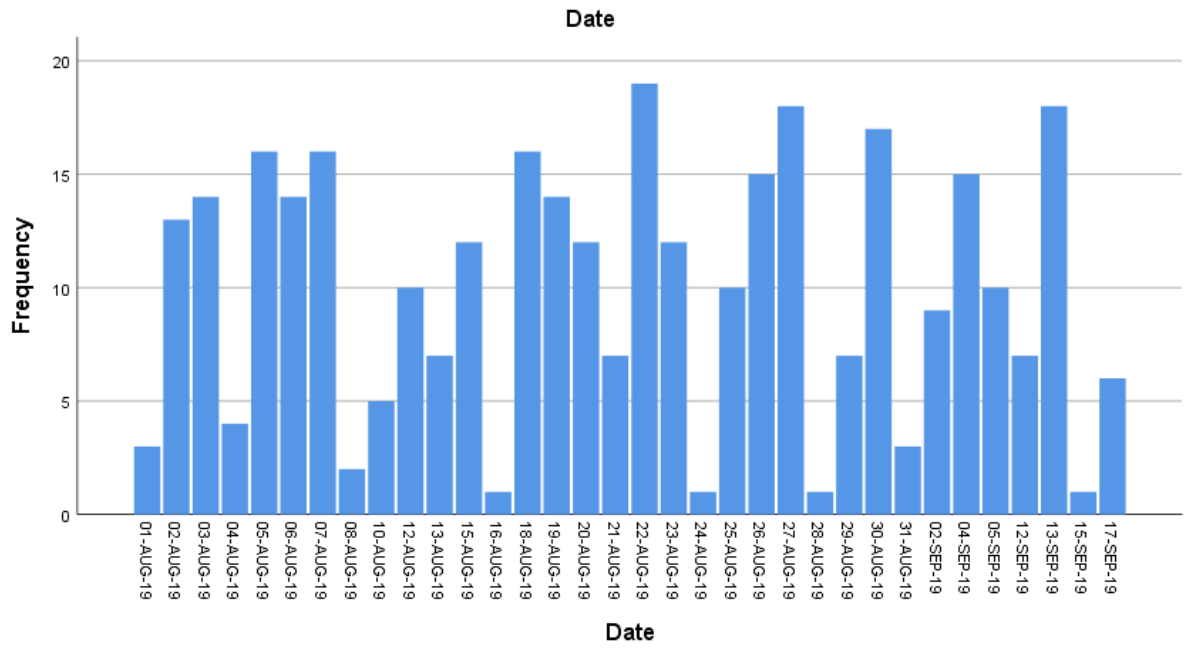
Appendix 2.7: Distribution of surveys across days
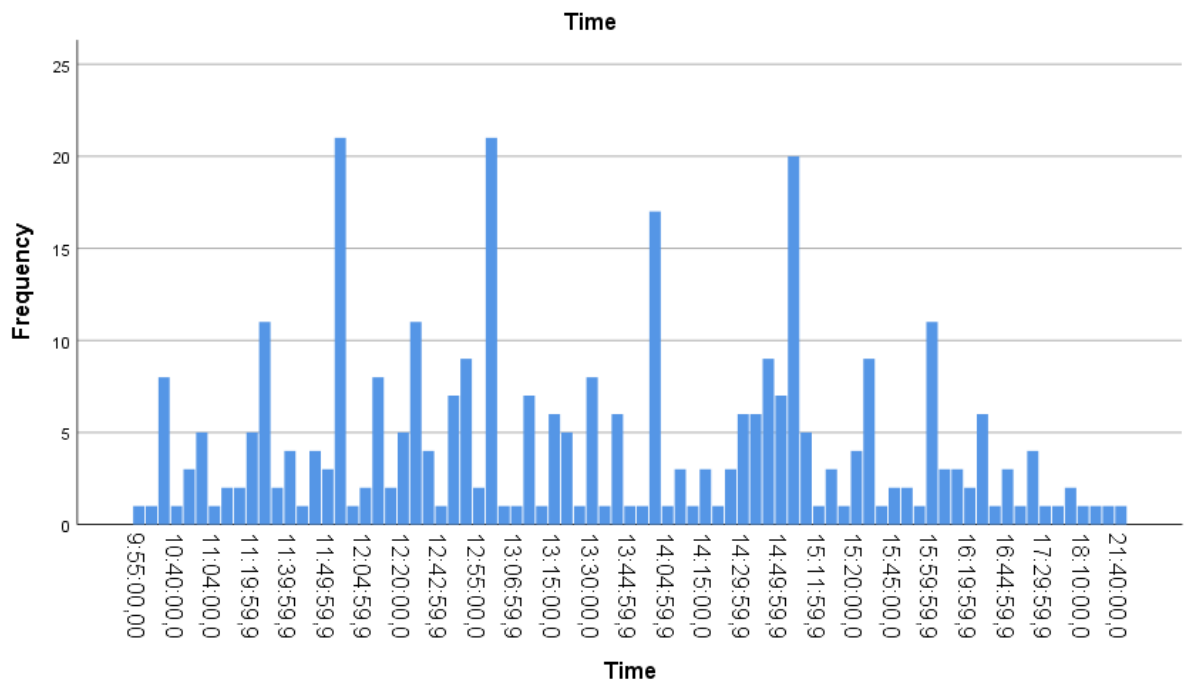
Appendix 2.8: Distribution of conduct of surveys throughout the day

Weather conditions during conduct of survey

Legend:
- Sunshine, good surfing conditions
- Sunshine, bad surfing conditions
- Cloudy, good surfing conditions
- Cloudy, bad surfing conditions

Categories: Almada, Cascais, Mafra, Nazaré, Peniche, Sintra, Torres Vedras
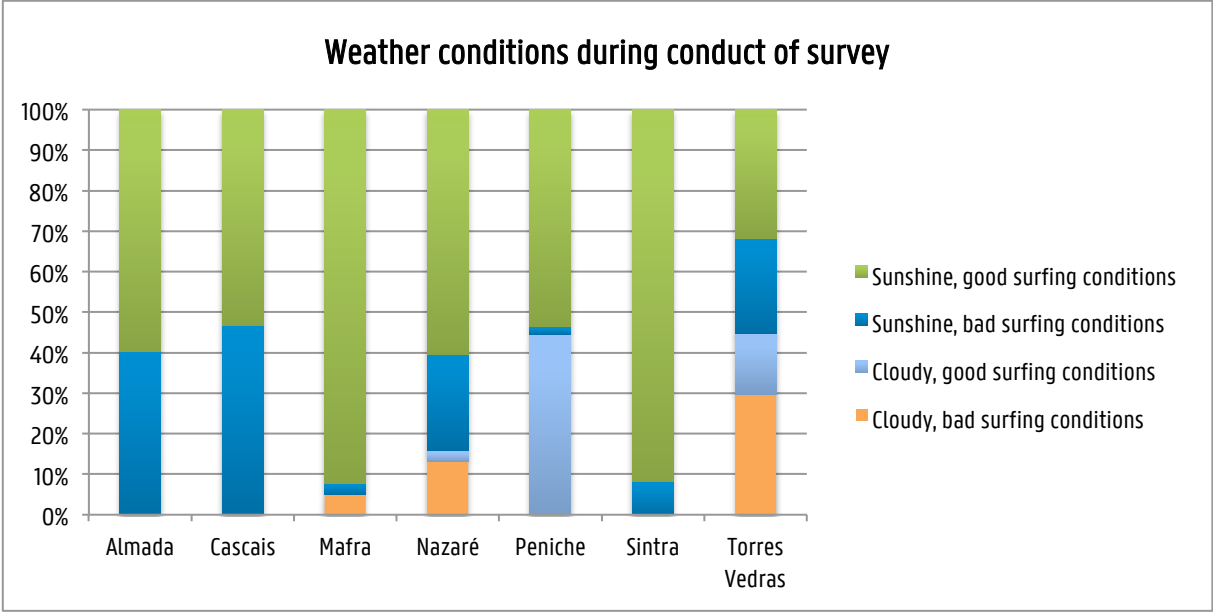
Appendix 2.9: Distribution of weather conditions during conduct of survey

	What is your nationality?						
	Local inhabitant	Local non-surf business	Local surf business	Local surfer	Surf tourist	Visitor	
American						1,8%	0,3%
Argentinian						1,8%	0,3%
Austrian			1,6%		4,5%		1,2%
Belgian					3,0%	8,8%	2,1%
Brazilian		10,0%	9,4%	3,8%	4,5%	5,3%	5,7%
British			3,1%	1,9%	4,5%	5,3%	2,7%
Danish						1,8%	0,3%
Dutch					7,5%	1,8%	1,8%
English					3,0%		0,6%
Finnish					1,5%		0,3%
French				1,9%	13,4%	3,5%	3,6%
German	2,2%		3,1%		25,4%	10,5%	7,8%
Israeli	2,2%					1,8%	0,6%
Italian		2,0%	1,6%		3,0%	7,0%	2,4%
Lithuanian			1,6%				0,3%
Luxembourgish					1,5%		0,3%
Peruvian					3,0%		0,6%
Polish			1,6%				0,3%
Portuguese	95,6%	86,0%	70,3%	92,3%	11,9%	38,6%	62,4%
Romanian						1,8%	0,3%
Russian					1,5%		0,3%
Slovakian			1,6%				0,3%
Spanish		2,0%			7,5%	8,8%	3,3%
Swedish			1,6%			1,8%	0,6%
Swiss					3,0%		0,6%
Ukrainian			1,6%				0,3%
Uruguayan					1,5%		0,3%
Venezuelan			3,1%				0,6%
Total	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Appendix 2.10: Nationalities of respondents

For how many years have you been surfing in this spot?
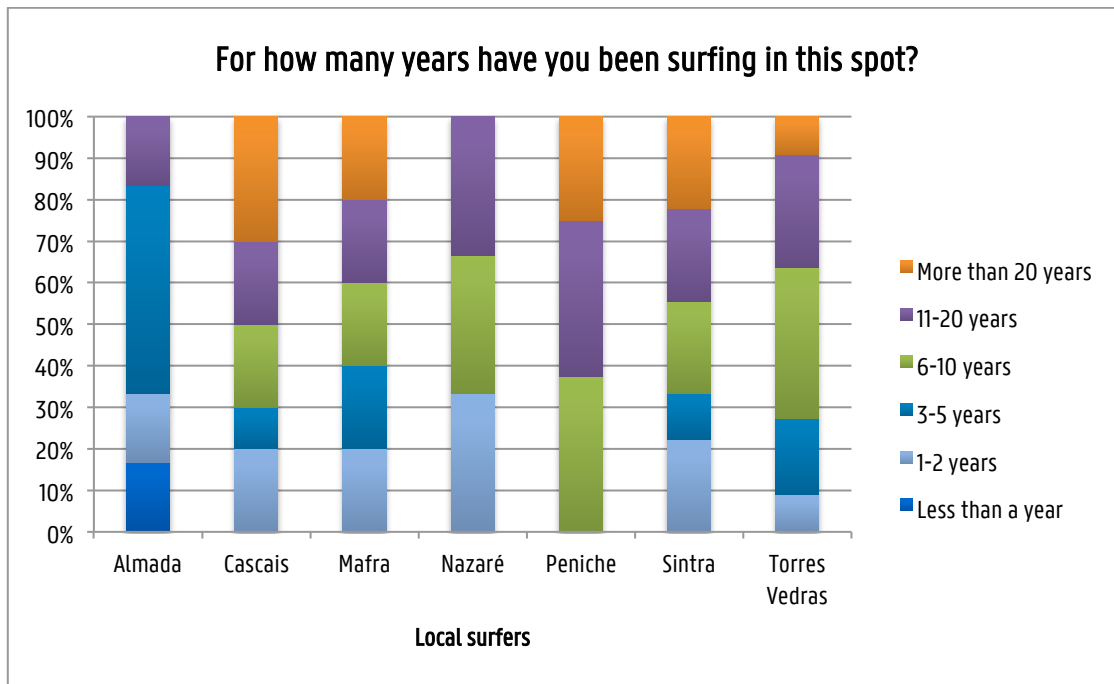
Appendix 2.11: Years of surfing in local surf spot of local surfers

What is your surfing level?
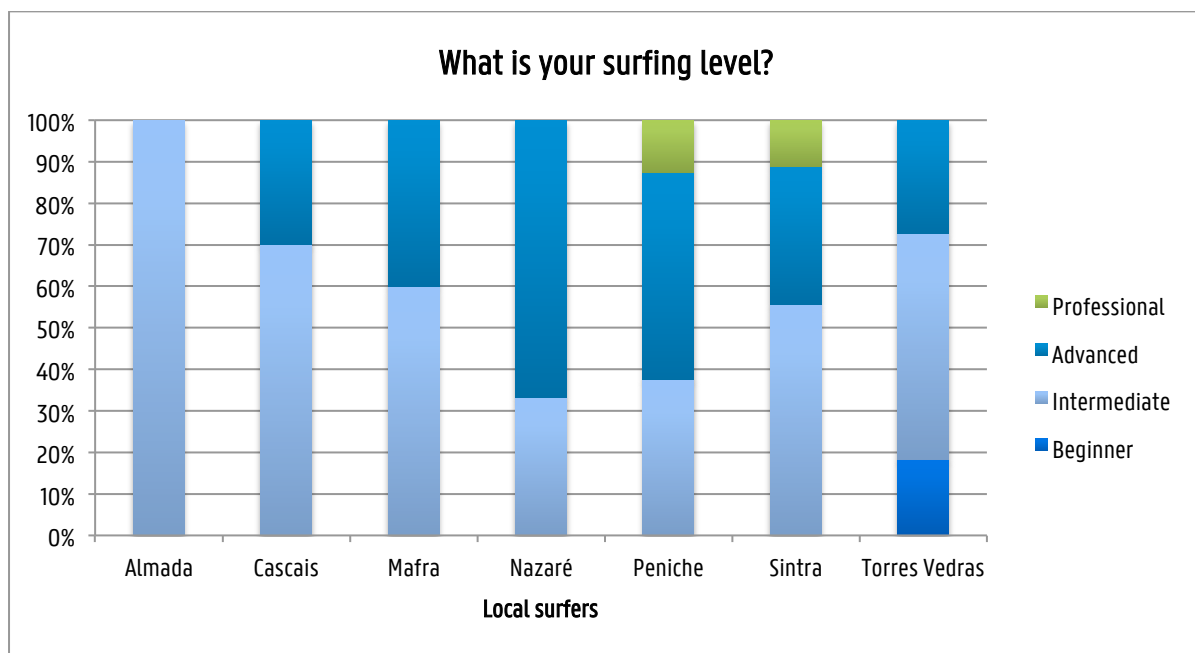
Appendix 2.12: Surfing level of local surfers

For what kind of surfing are you visiting this spot?

Legend:
- Windsurfing
- Stand-up surfing (longboard, shortboard, SUP, foil,...)
- Skimboarding
- Bodyboarding

X-axis: Local surfers (Almada, Cascais, Mafra, Nazaré, Peniche, Sintra, Torres Vedras)
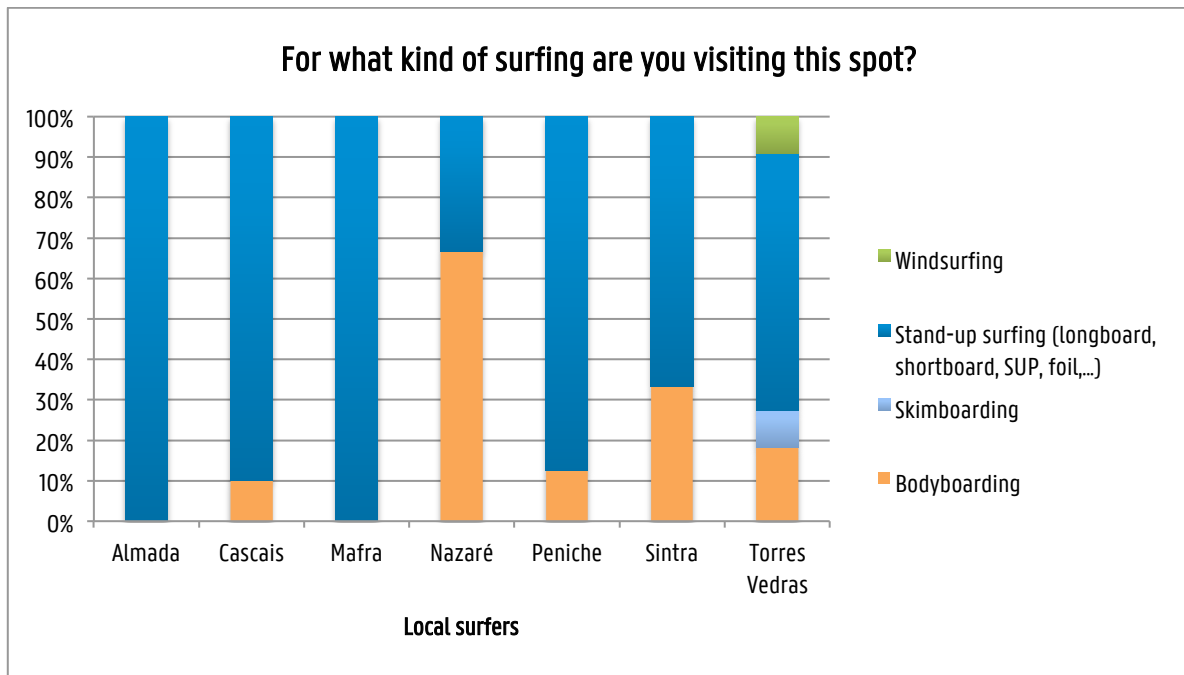
Appendix 2.13: Practiced surf modalities by local surfers

Why did you choose to surf this surf spot instead of another one?

Legend:
- Quality of the waves
- Proximity
- Available infrastructure (showers restaurants, toilets,...)
- Environmental quality

X-axis: Municipality (Almada, Cascais, Mafra, Nazaré, Peniche, Sintra, Torres Vedras)
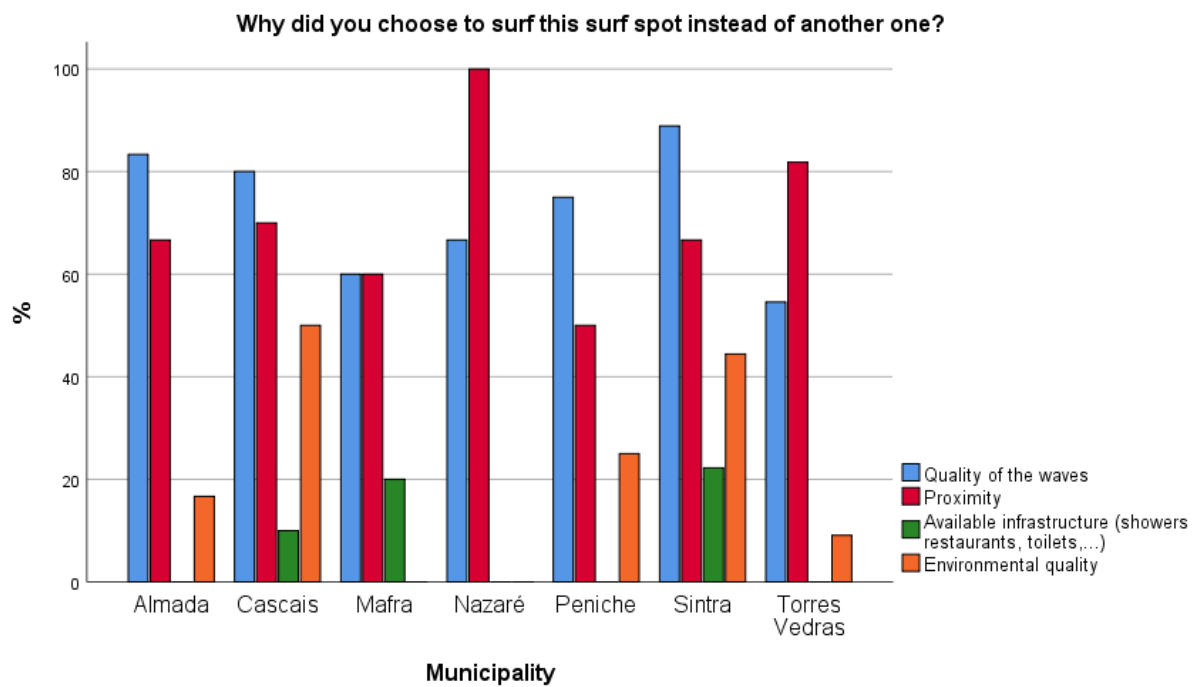
Appendix 2.14: Motivations to surf in chosen surf spot by local surfers
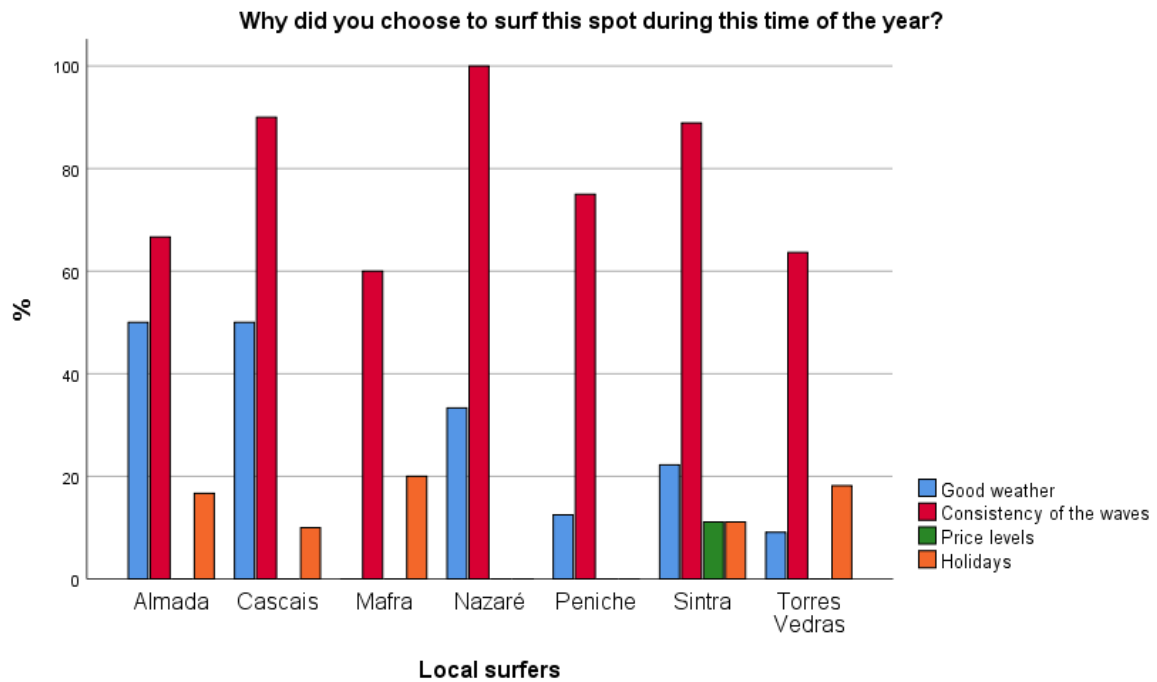
Appendix 2.15: Motivations to surf during that time of the year (summer)
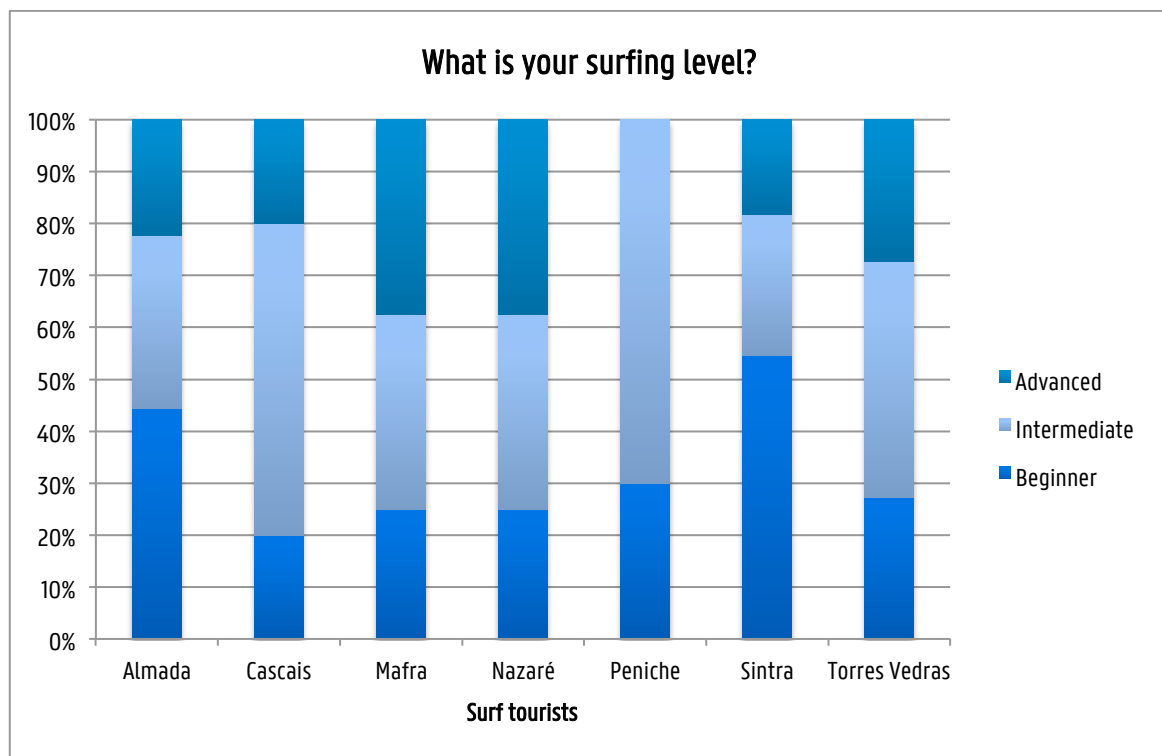
Appendix 2.16: Surfing level of surf tourists

For what kind of surfing are you visiting this spot?

Surf tourists

Legend:
- Stand-up surfing (longboard, shortboard, SUP, foil,...)
- Kitesurfing
- Bodyboarding
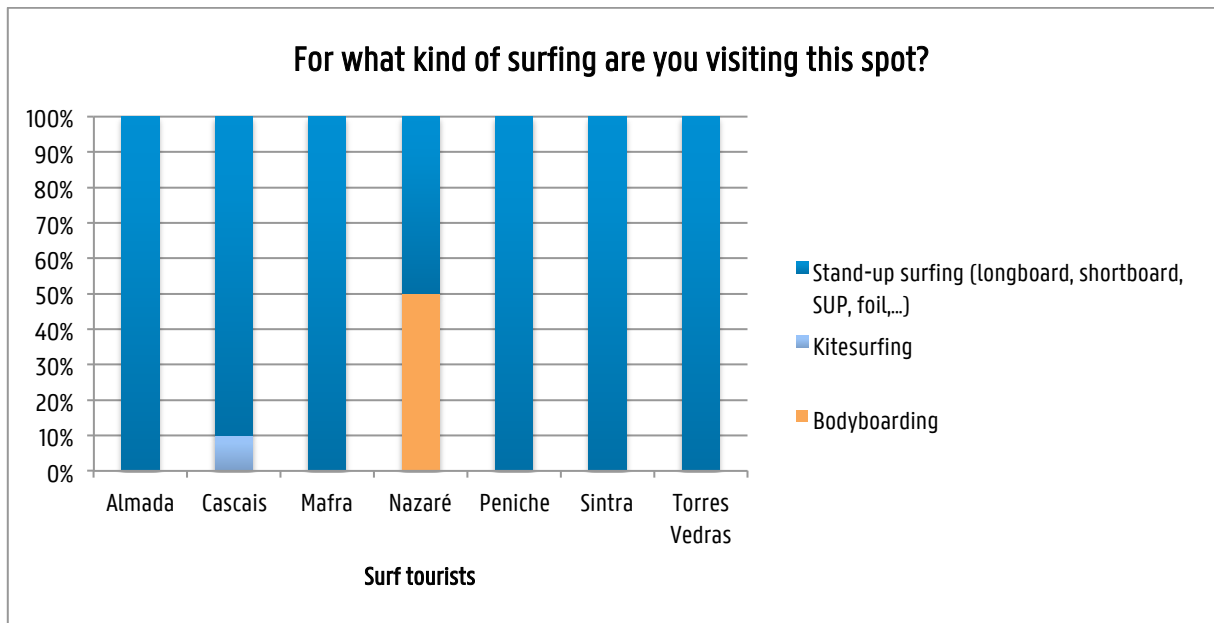
Appendix 2.17: Practiced surf modalities by surf tourists

Why did you choose to surf this surf spot instead of another one?

Surf tourists

Legend:
- Quality of the waves
- Proximity
- Available infrastructure (showers restaurants, toilets,...)
- Environmental quality
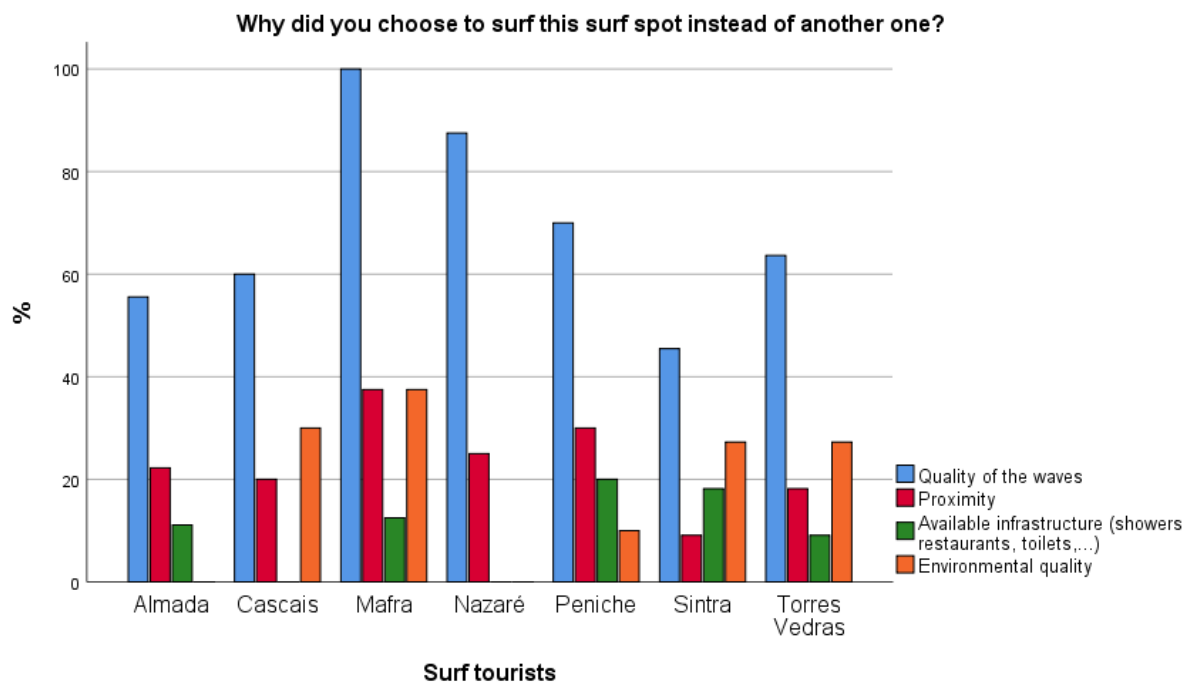
Appendix 2.18: Motivations to surf in surf spot by surf tourists

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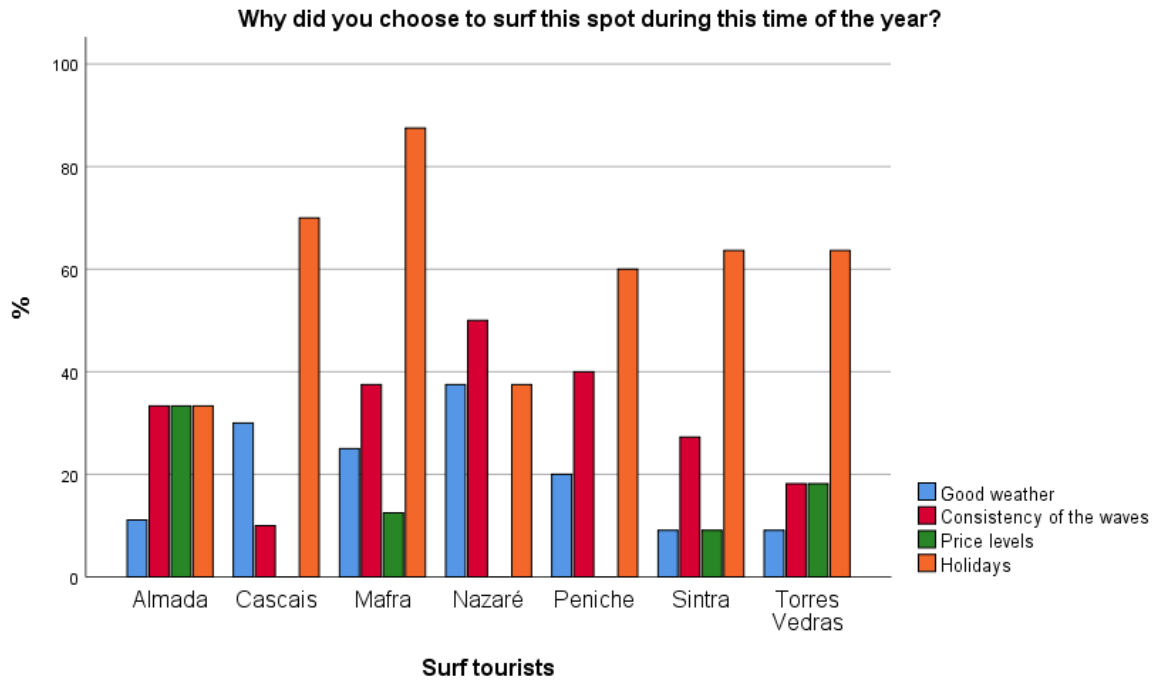
Appendix 2.19: Motivations to surf during that time of the year (summer)
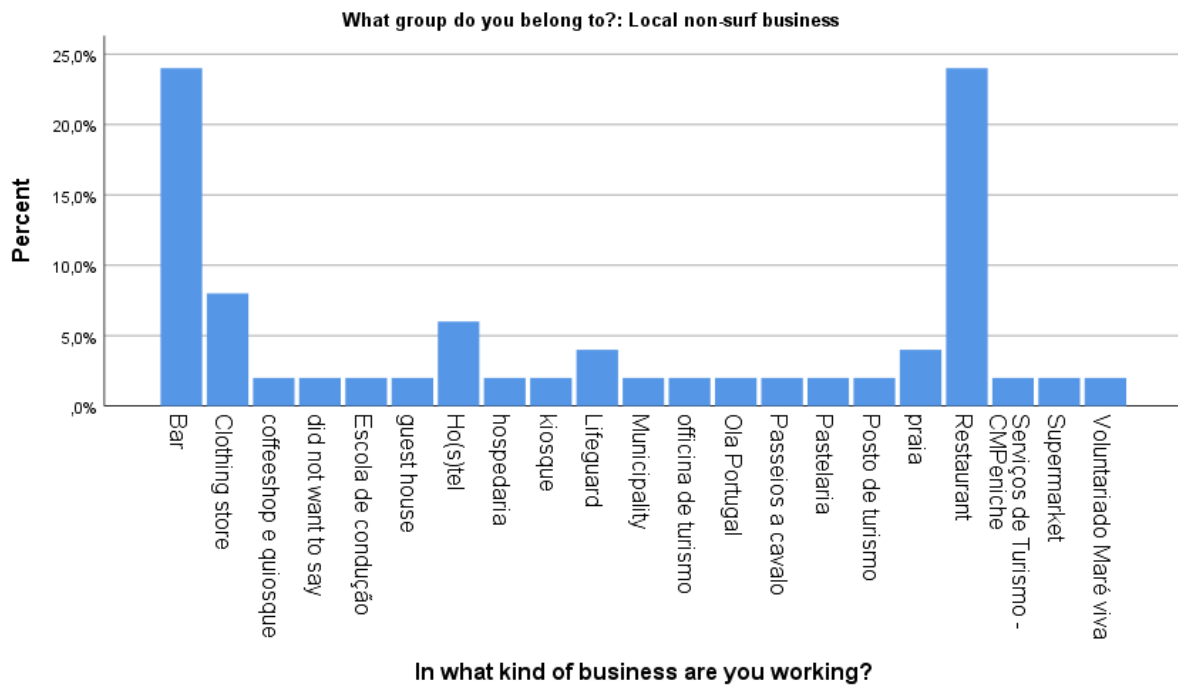
Appendix 2.20: Kinds of businesses not directly related to surf tourism
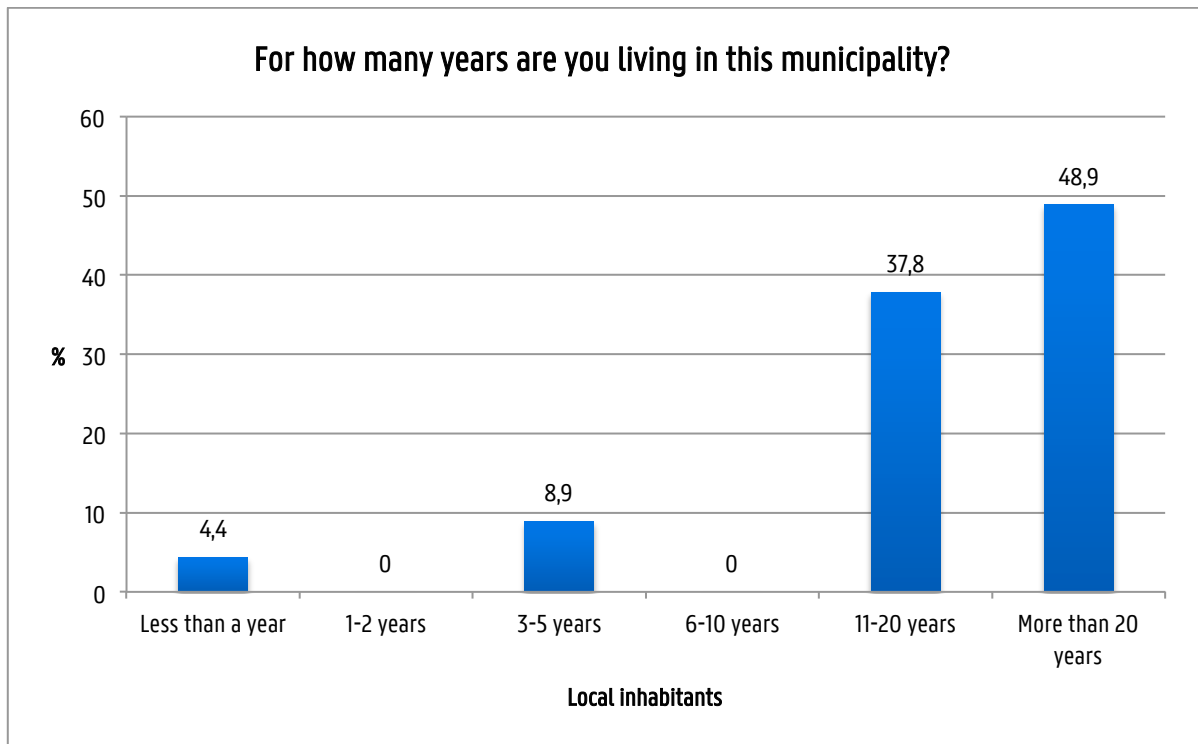
Appendix 2.21: Years of living in municipality by local inhabitants

Appendix 2.22: Wordcloud visualisation of reported conflicts
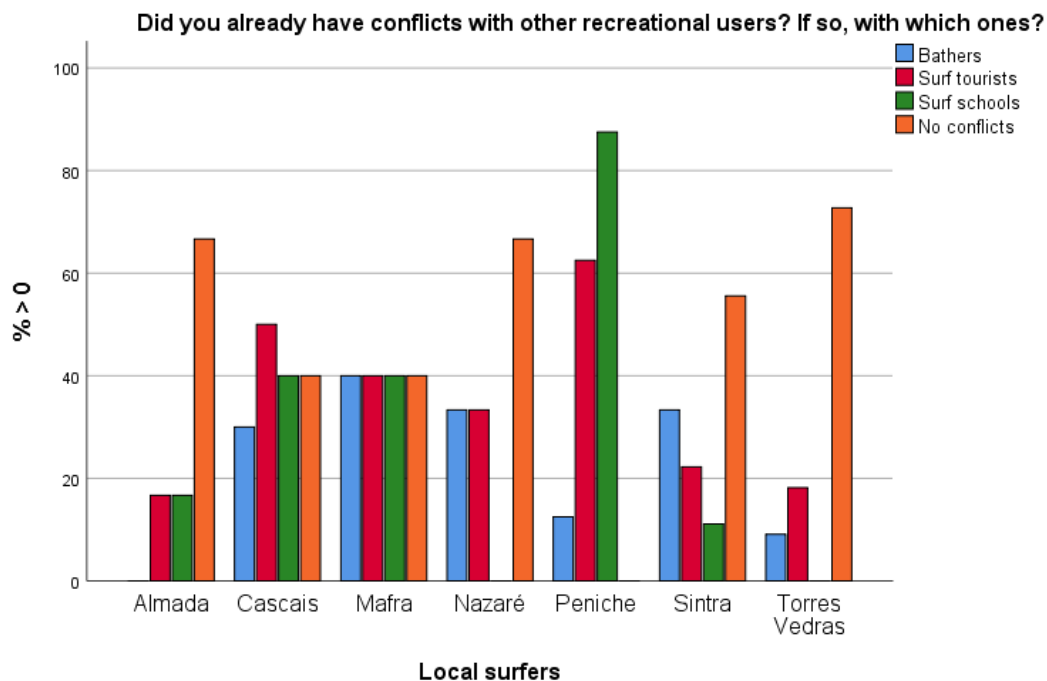
Appendix 2.23: Conflicts of local surfers with other recreational users, by municipality
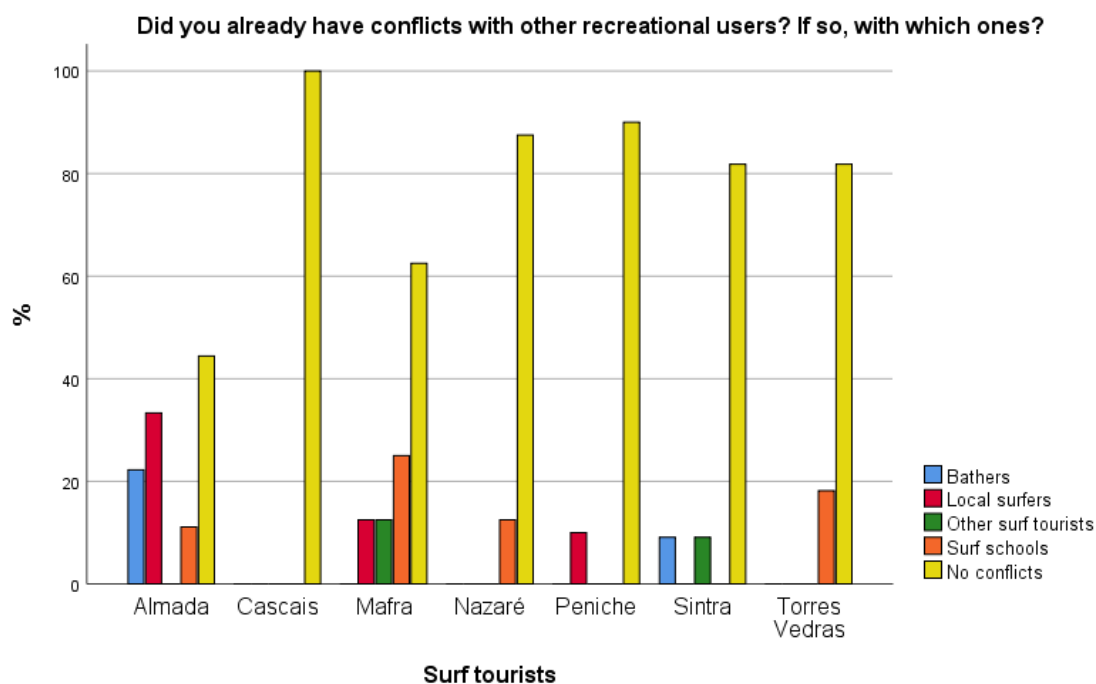
Appendix 2.24: Reported conflicts by surf tourists, by municipality
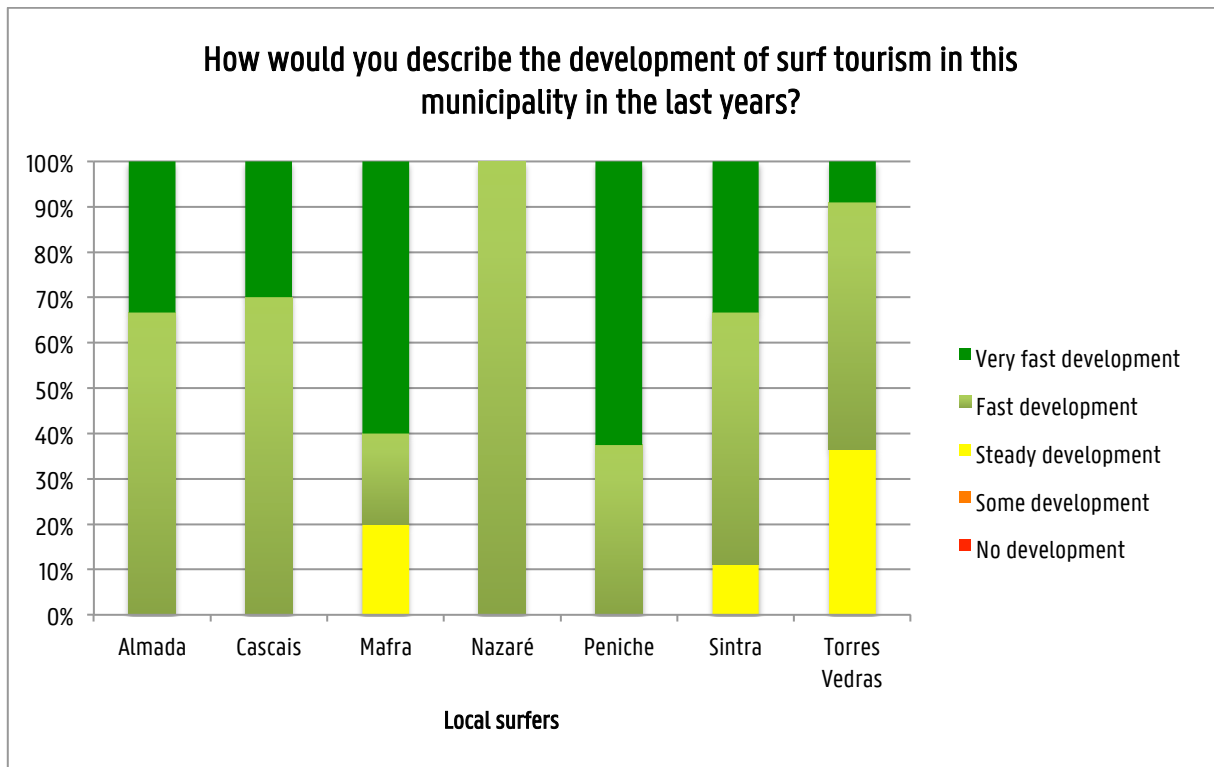
Appendix 2.25: Development of surf tourism rating, by local surfers
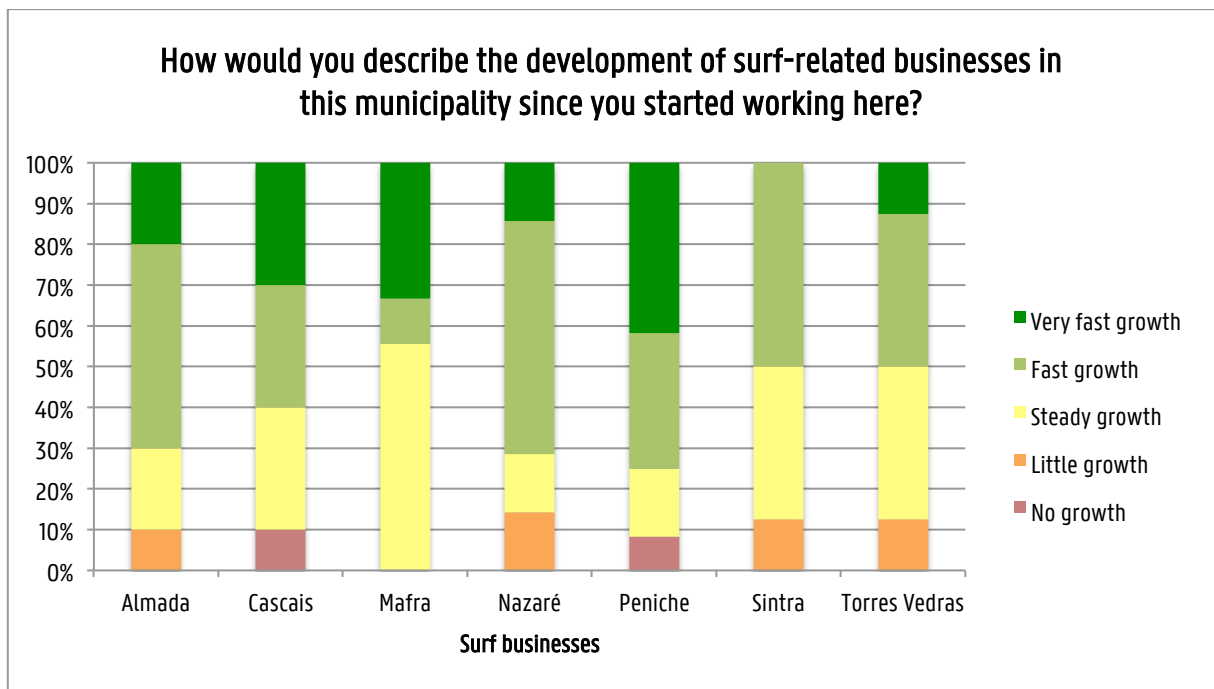
Appendix 2.26: Development of surf tourism rating, by surf businesses
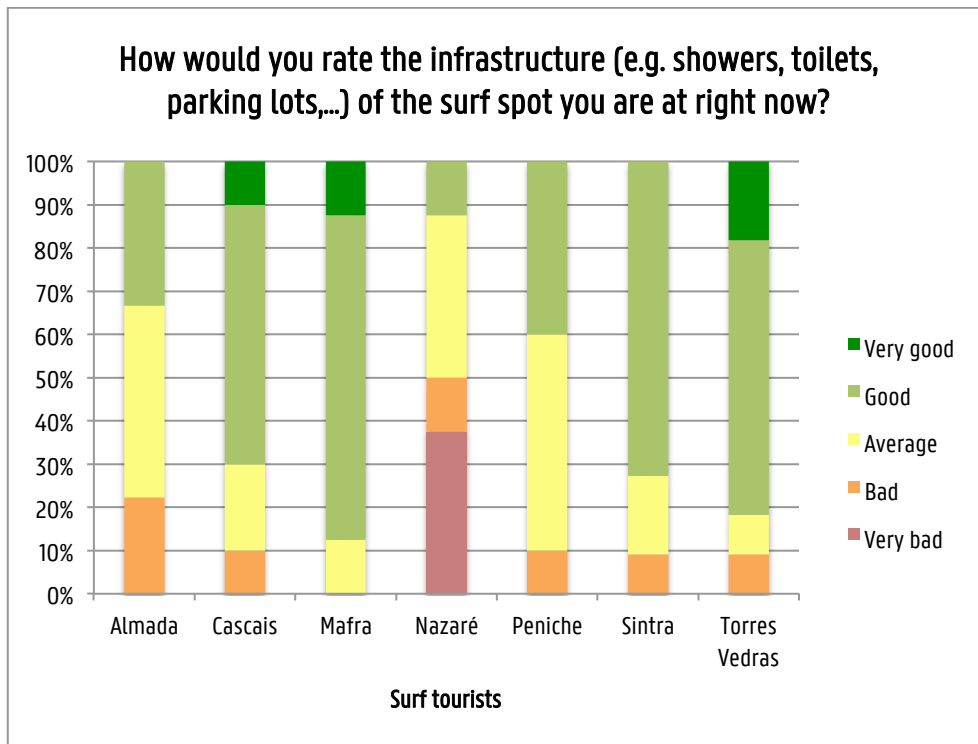
Appendix 2.27: Rating of beach infrastructure by surf tourists
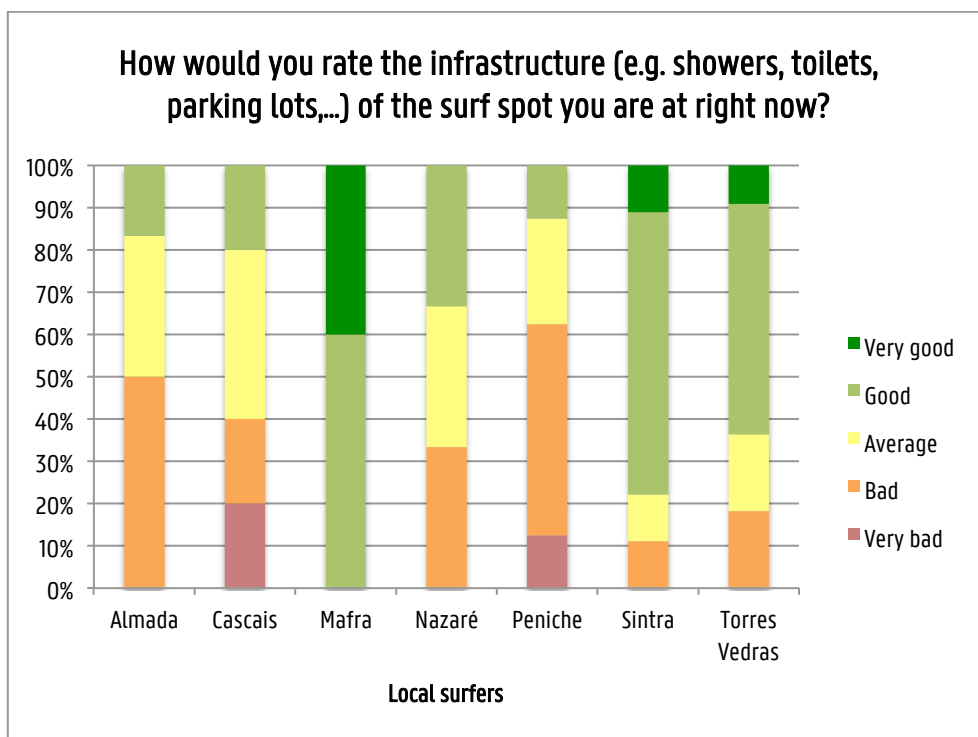
Appendix 2.28: Rating of beach infrastructure by local surfers
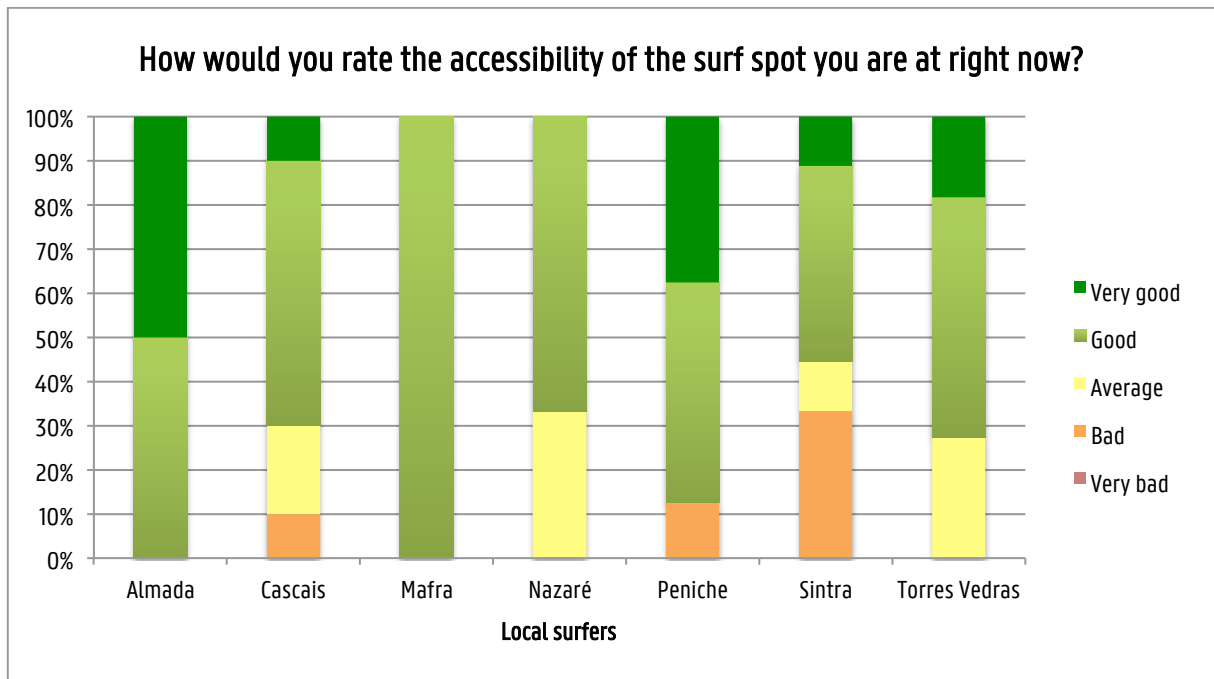
Appendix 2.29: Rating of accessibility of surf spot, by local surfers
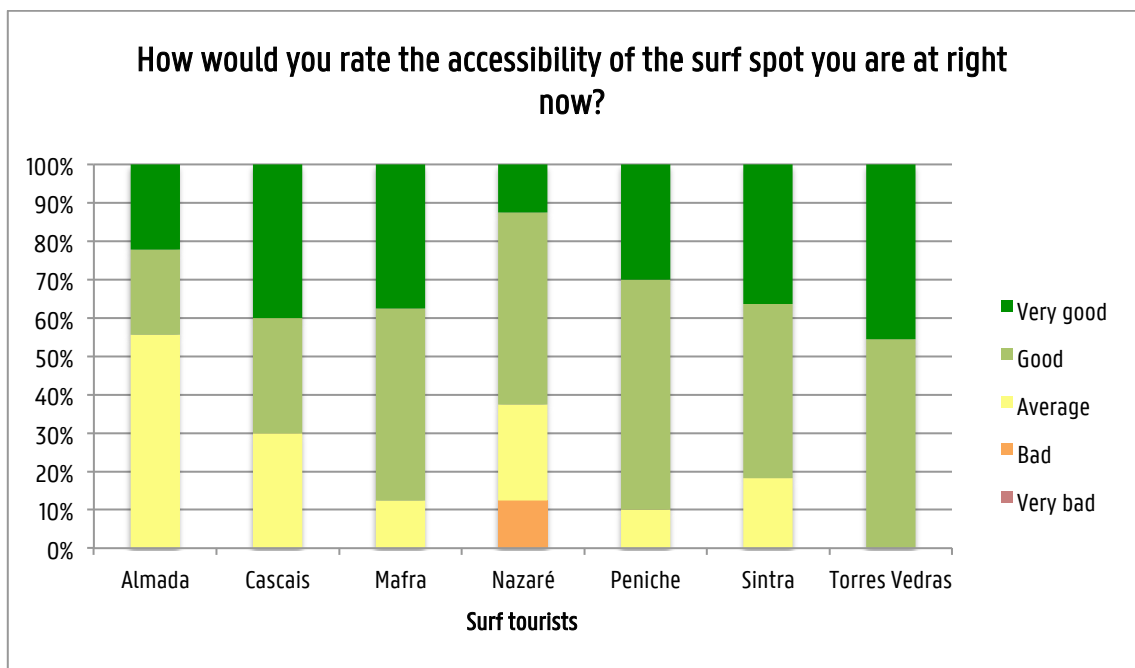
Appendix 2.30: Rating of accessibility of surf spot, by surf tourists

How would you rate the crowd of the surf spot you are at right now?
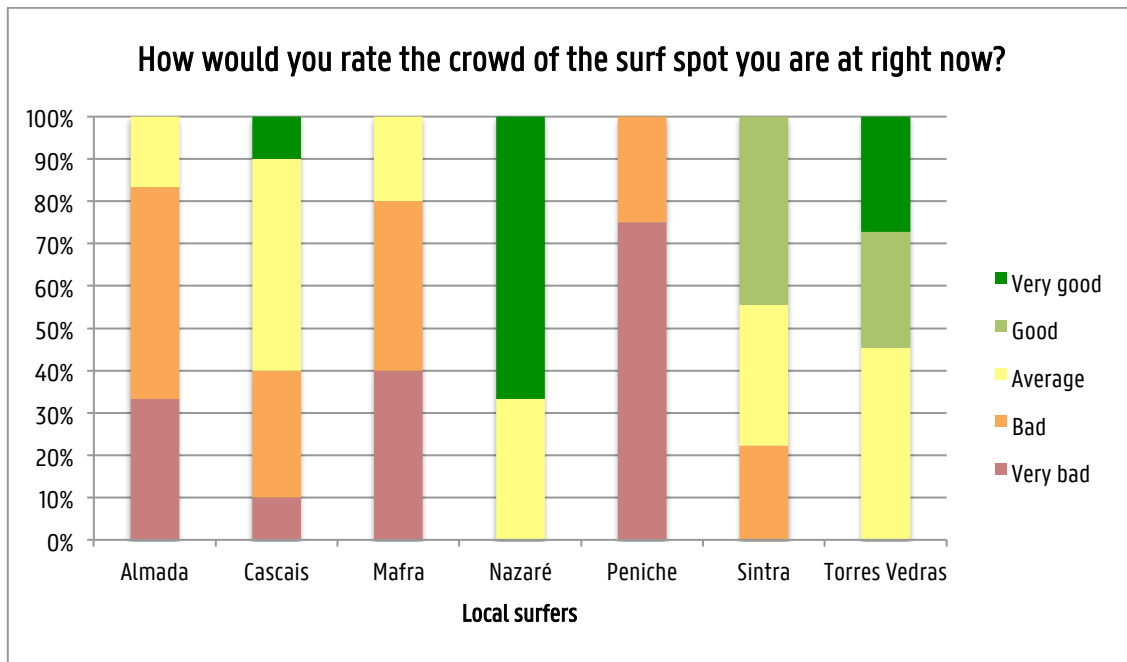
Local surfers

Appendix 2.31: Rating of the crowd of the surf spot, by local surfers

How would you rate the crowd of the surf spot you are at right now?
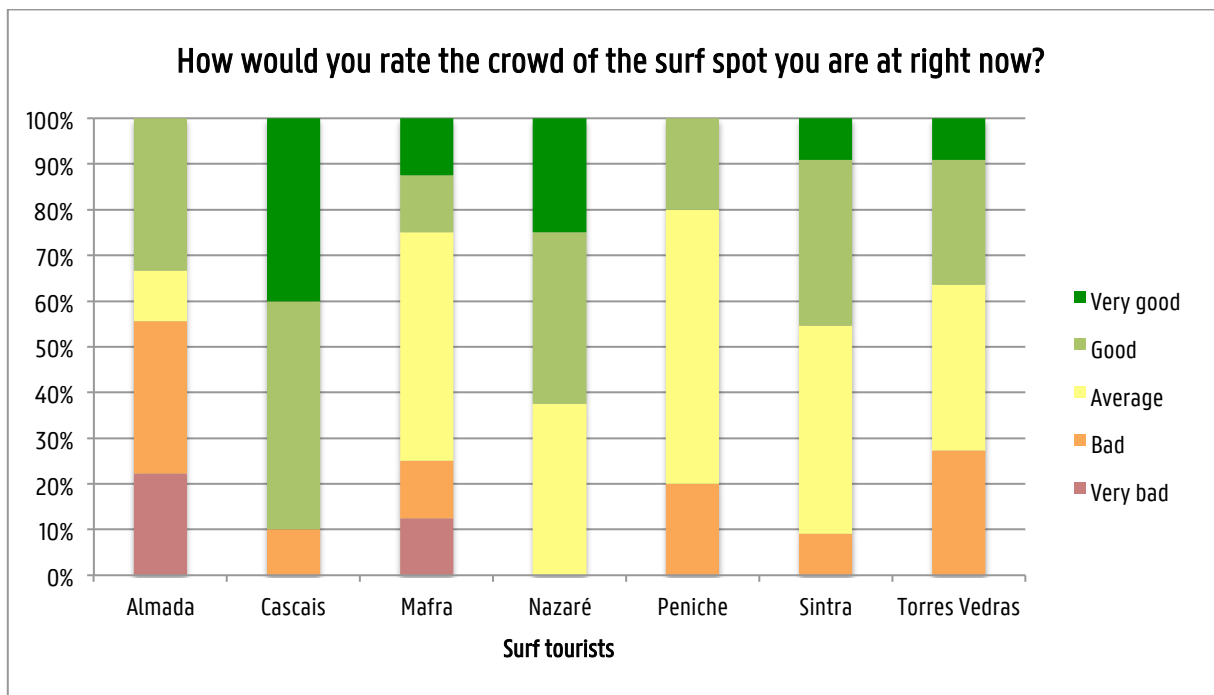
Surf tourists

Appendix 2.32: Rating of the crowd in surf spots by surf tourists
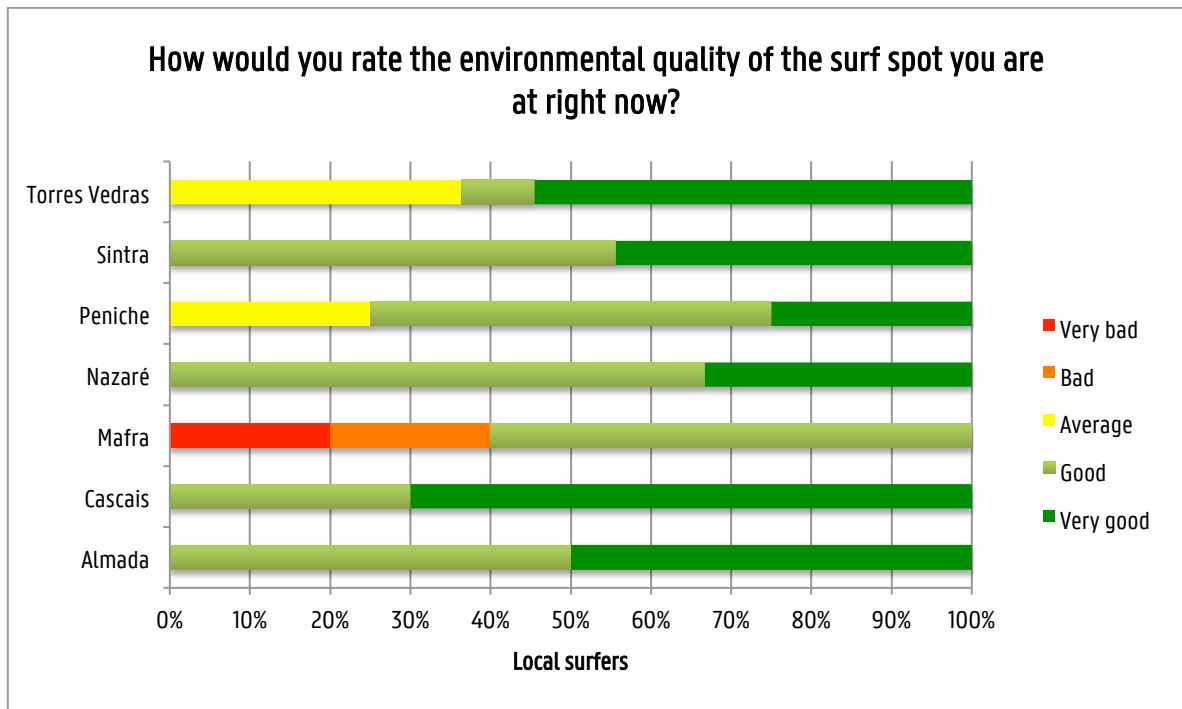
Appendix 2.33: Rating of environmental quality of surf spot by local surfers
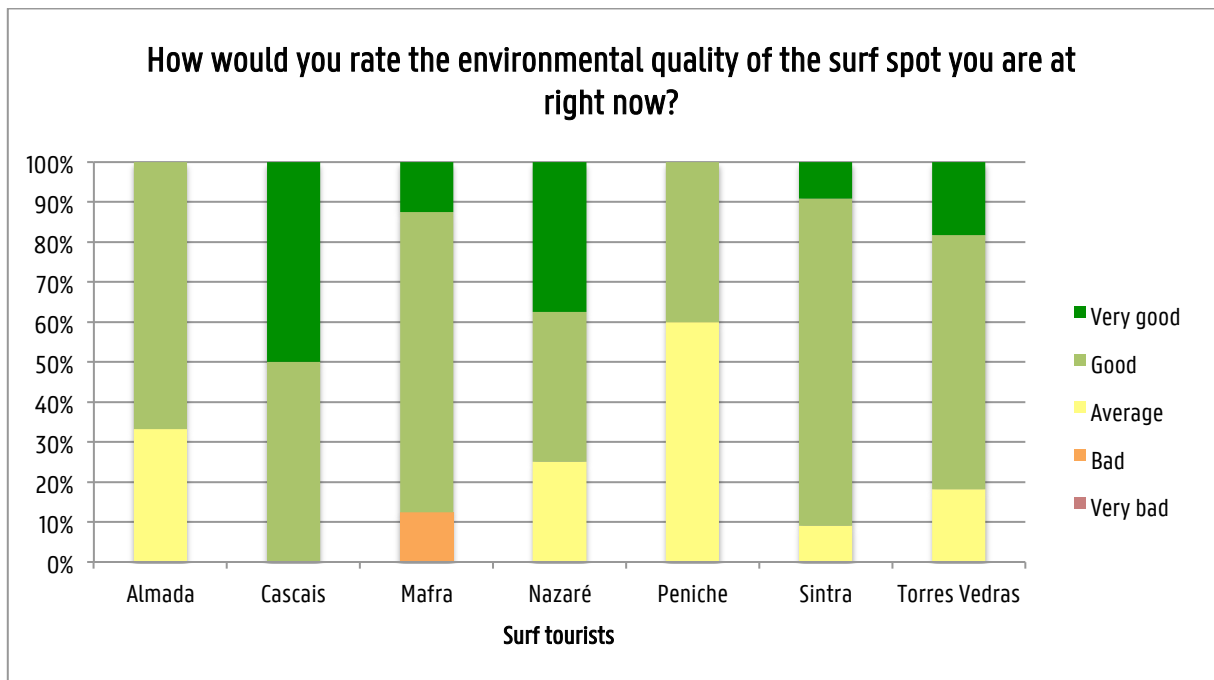
Appendix 2.34: Rating of environmental quality of surf spot by surf tourists

175
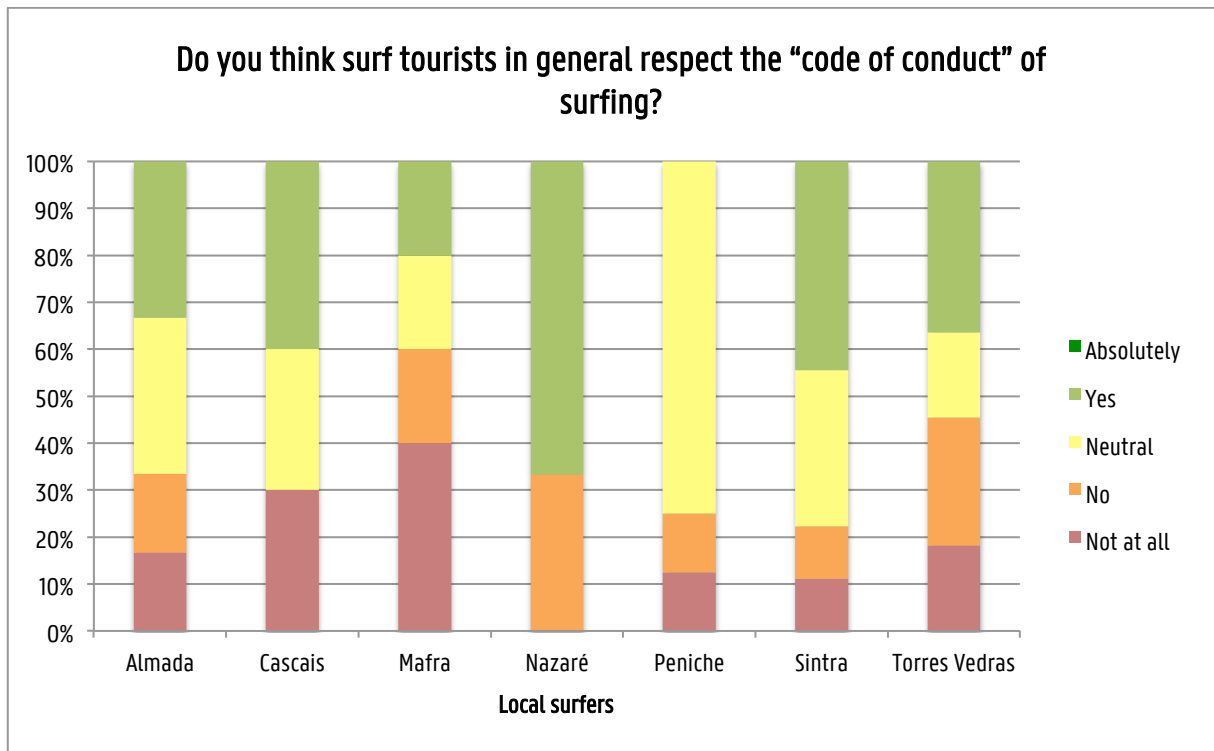
Appendix 2.35: Surf code of conduct adoption of surf tourists, rated by local surfers
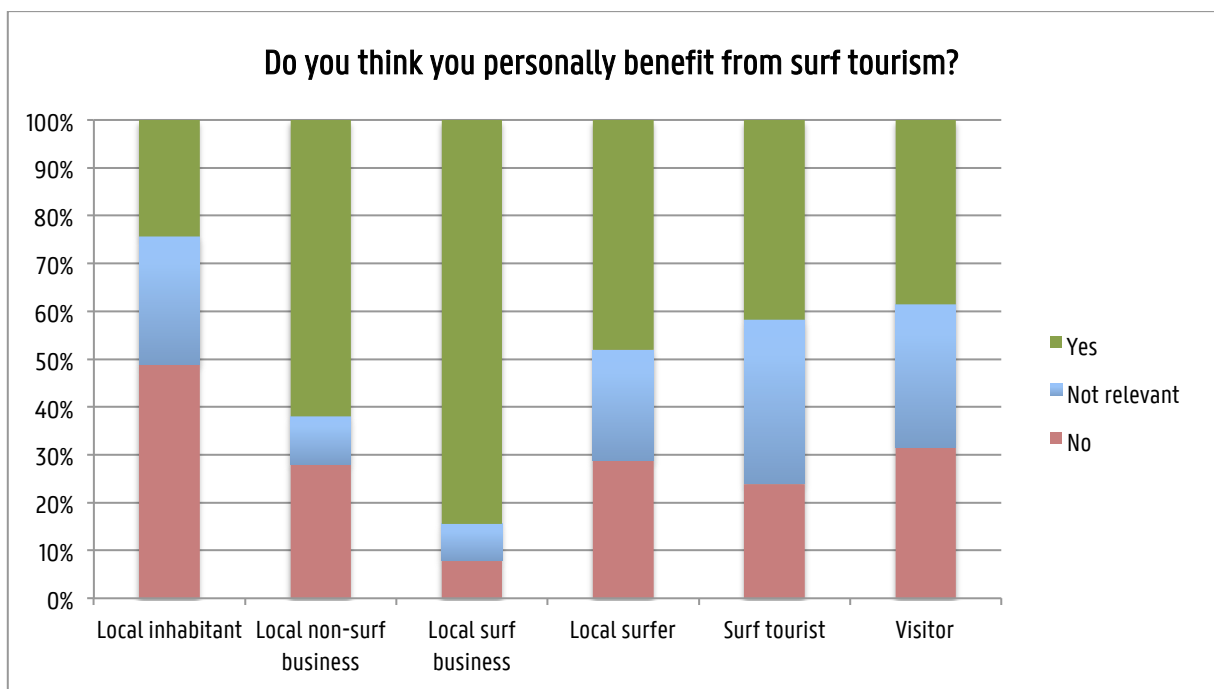
Appendix 2.36: Personal benefit from surf tourism, by stakeholder groups

Appendix 2.37: Wordcloud visualising personal benefits

Appendix 2.38: Wordcloud visualizing benefits for local businesses
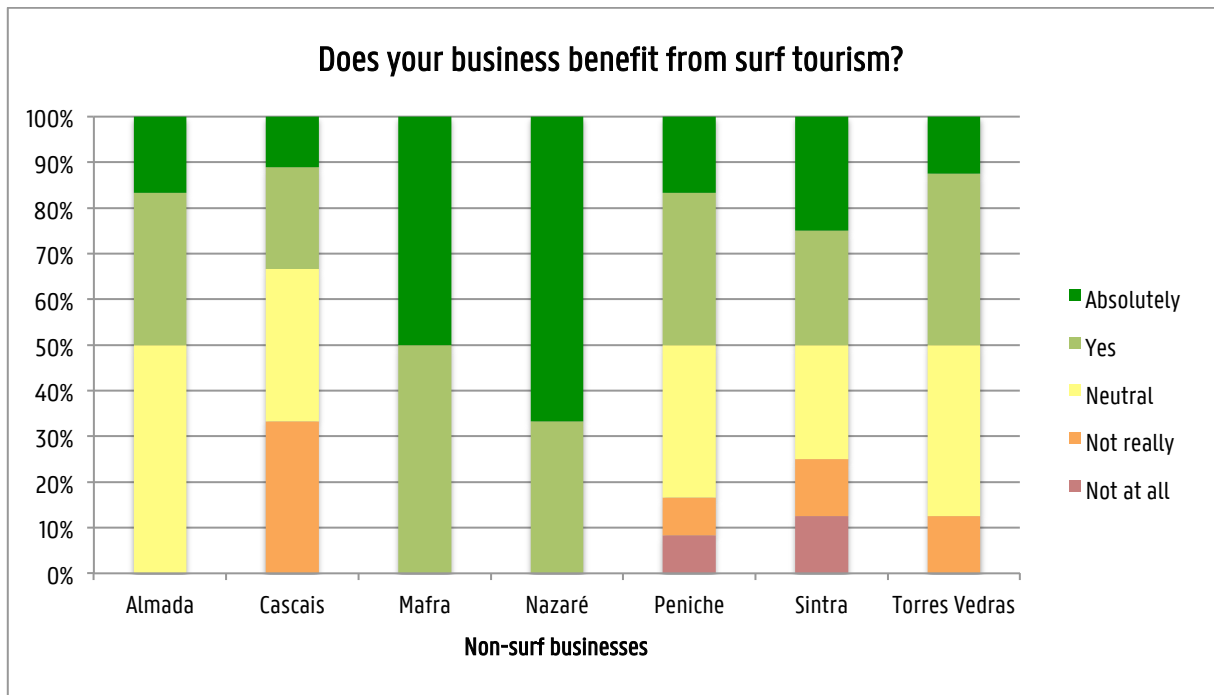
Appendix 2.39: Benefit of surf tourism for non-surf businesses
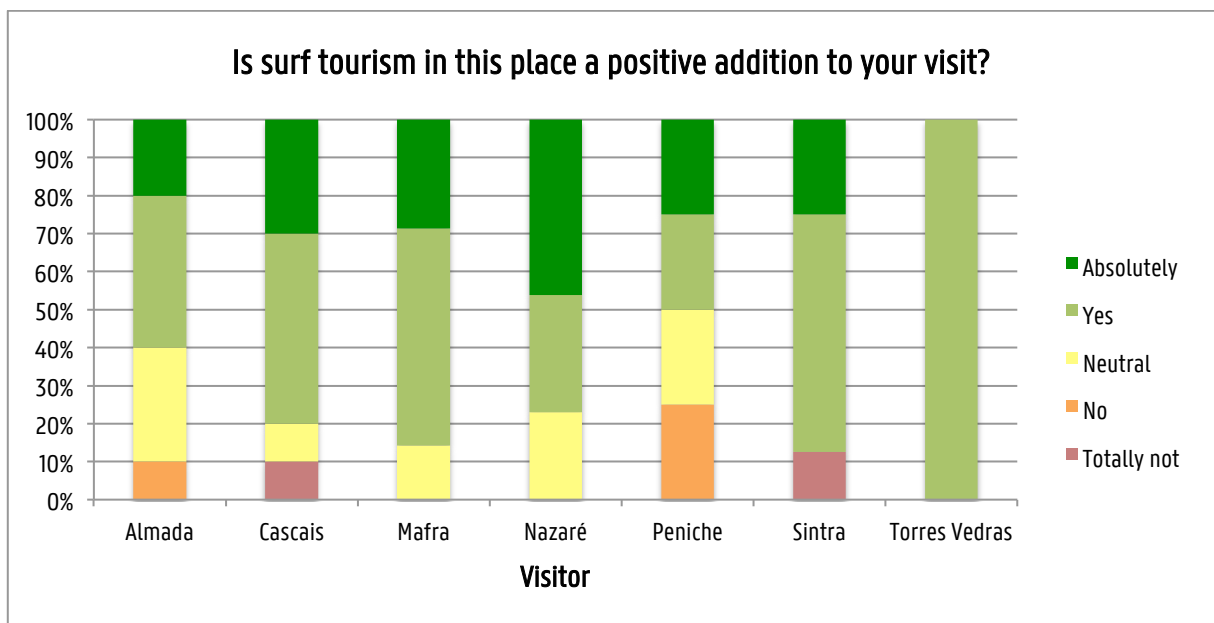
Appendix 2.40: Positive addition of surf tourism to visitors

Environmental impacts								
	Positive			Negative					
	Relatively more sustainable form of tourism than other forms of tourism	Environmental awareness of surf tourists	Beach clean-ups and other environmental actions	Causing biodiversity loss	Causing loss of beach quality	Causing loss of ocean water quality	Littering (garbage)	Infrastructure growth	Overcrowding
Local inhabitant	3,91	3,96	4,22	2,82	2,76	2,49	3,13	3,89	3,51
Local non-surf business	3,84	3,92	4,14	2,64	2,52	2,28	2,90	3,62	3,56
Local surf business	3,88	4,16	4,13	2,56	2,81	2,53	3,05	3,78	3,50
Local surfer	3,85	3,90	4,15	3,00	2,96	2,83	3,35	3,88	3,83
Surf tourist	3,94	3,84	3,91	2,93	2,67	2,43	3,19	3,85	3,70
Visitor	3,93	3,84	3,91	2,53	2,28	2,16	2,54	3,60	3,02
Average	3,89	3,94	4,07	2,74	2,67	2,45	3,03	3,77	3,52

Appendix 2.41: Environmental impacts, by stakeholder groups

Economic impacts								
	Positive				Negative				
	Reducing seasonality of tourism	Diversification of the economy	Economic development	New business opportunities	Economy overly focused on surf tourism	Contributing to seasonality of tourism	Uneven distribution of economic benefits	Price competition between businesses leading to lower quality	Illegal businesses escaping taxes
Local inhabitant	3,49	3,84	4,02	4,07	3,22	3,40	3,07	3,29	3,13
Local non-surf business	3,50	3,82	4,08	4,26	3,32	3,20	2,88	3,24	3,10
Local surf business	3,66	4,08	4,13	4,23	3,22	3,11	2,64	3,16	3,19
Local surfer	3,58	4,00	4,04	4,06	3,33	3,37	3,25	3,46	3,33
Surf tourist	3,36	3,63	4,04	3,99	3,42	3,22	3,01	3,06	2,96
Visitor	3,53	3,70	4,07	3,98	3,02	3,11	2,81	2,93	2,68
Average	3,52	3,84	4,07	4,10	3,26	3,22	2,93	3,18	3,06

Appendix 2.42: Economic impacts, by stakeholder groups

Social impacts							
	Positive				Negative		
	Job creation	Improvement in quality of life	Improvement of local identity	Improvement of local infrastructures and services (parking lots, sewage systems, walking paths,...)	Increased cost of living	Loss of local identity	Social conflicts (e.g. between surf tourists and local inhabitants)
Local inhabitant	4,13	3,78	3,84	3,82	3,29	2,67	2,56
Local non-surf business	4,10	3,88	4,02	3,74	3,08	2,52	2,60
Local surf business	4,33	3,95	4,02	3,97	3,55	2,75	3,08
Local surfer	4,37	4,02	3,92	3,73	3,46	2,88	3,46
Surf tourist	4,16	3,63	3,60	3,97	3,78	2,82	3,19
Visitor	4,07	3,89	3,88	3,86	3,02	2,53	2,68
Average	4,20	3,85	3,87	3,86	3,39	2,70	2,95

Appendix 2.43: Social impacts, by stakeholder groups

What actions do you think could improve the surf tourism in this municipality?	Percentage of respondents
Infrastructure development (e.g. beach showers, walking paths, parking lots, etc.)	64,8%
Beach use planning (e.g. designating swim and surf zones)	62,0%
Support for local surfers (e.g. professional training centres)	60,8%
Code of conduct signs (e.g. about the "surf rules")	56,6%
A surf tourism strategy (e.g. for marketing)	49,1%
A surf business association (e.g. to be able to weigh on political decisions)	33,4%
Legislation and inspection (e.g. to combat tax evasion)	30,1%
Land use planning (e.g. regulating coastal area in detail plans)	23,2%
Tourist taxes (e.g. 3 euro for every overnight stay)	13,6%

Appendix 2.44: Actions that could improve surf tourism, by all respondents

To what degree do you think the surf tourism in this municipality will develop in a sustainable way during the next decade?

All respondents
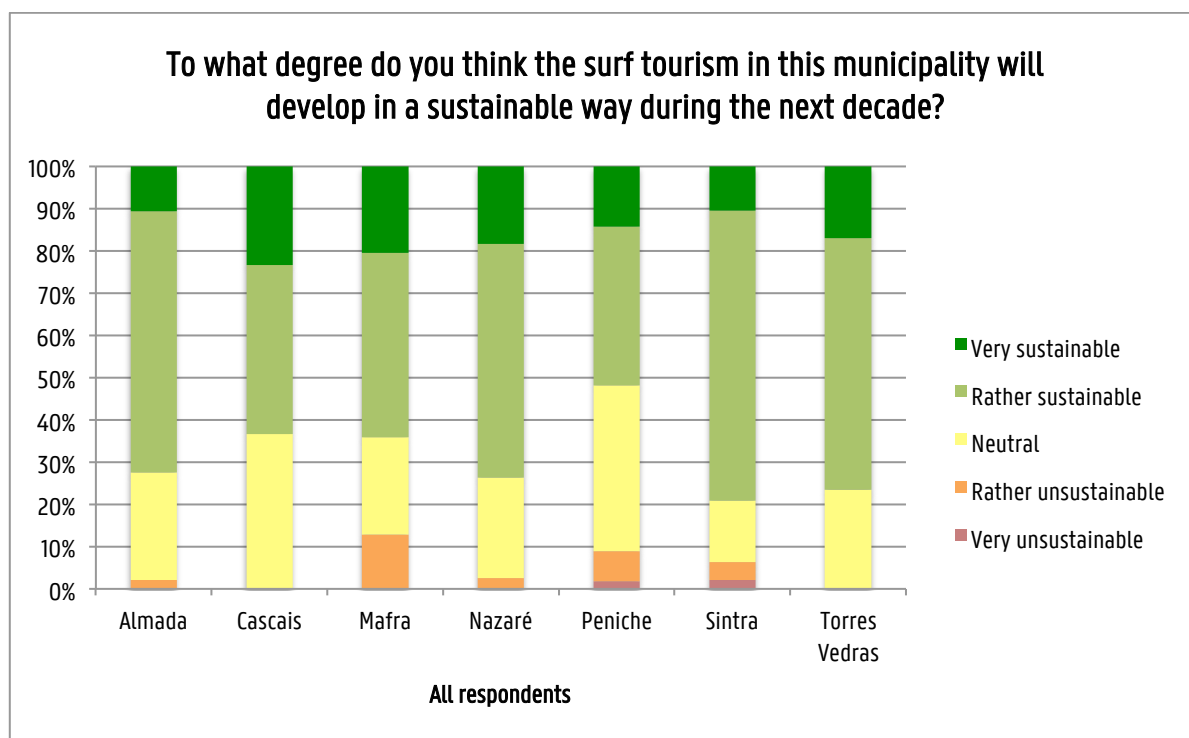
Appendix 2.45: Sustainable development of surf tourism in next decade, by municipality

Actions	Summary of intervention/objective	Territorial extent	Involved entities (Leader/partner)		Temporal programming of investment		Priority
Certification actions for "Ondas Gigantes" as sustainable event (Praia do Norte, Nazaré	Actions for certification of "Giant Waves" as a sustainable event (certification by ISO 20121 – sustainable event management system)	Nazaré	CM Nazaré	Turismo de Portugal, APA	2017	€ 30 000	High
Certification actions for "Ocean Spirit" event in Torres Vedras	Promotion of Ocean Spirit event as sustainable event according to certification of ISO 20121	Torres Vedras	CM Torres Vedras		2017-2028	€ 198 000	High

Appendix 2.46: Actions to diversify the offer of tourism products (POC-ACE execution plan, 2019)

Actions	Summary of intervention/objective	Territorial extent	Involved entities (Leader/partner)		Temporal programming of investment		Priority
Creation of support structures for surfing on beaches with special aptitude for surf sports in the municipality of Peniche	Placement of structures with showers / dressing rooms and places to wash suits and boards and information boards in the main surf spots	Peniche	CM Peniche	APA	2017	€ 20 000	High
Creation of removable structures to support surfing on beaches with special aptitude for surf sports in the municipality of Torres Vedras.	Placement of removable structures with WC, changing rooms and places to wash suits and boards in the main surf spots / Placement of webcams in the main peaks	Torres Vedras	CM Torres Vedras		2017	€ 120 000	High
Actions to promote and enhance the Ericeira World Surfing Reserve	Implementation of equipment and infrastructure for promotion and enhancement. In a first phase, an action plan and/or management of the Reserve area will be promoted with the objectives of: a) Safeguarding and promoting the Reserve, as a preservation of identity and as a factor of differentiation and competitiveness; b) Ensuring the dynamisation of the heritage values in presence, through the definition of footpaths, areas of stay, areas of interpretation and viewing areas; c) Promoting the framing of wave sports, namely through the adoption of measures to safeguard and use the area of the World Surfing Reserve.	Mafra	CM Mafra	APA, Turismo de Portugal, ICNF	2017-2028	€ 1 000 000	High
Cascais Surf Center	Creation of the Cascais Surf Center by Quicksilver in the complex that includes a shop, a fitness/yoga gym, a restaurant and leisure area, a surf museum and an area dedicated to skateboarding, outdoor and indoor. It also includes the headquarters of the Portuguese Surfing Federation, the nautical section of the Recreational and Cultural Centre Quinta dos Lombos, the offices of the environmental association SOS - Salvem o Surf, the headquarters of the Portuguese Bodyboard Association and a commercial area related to surf.	Cascais	CM Cascais	Private	2021-2024	€ 4 000 000	Low
Creation of the Costa da Caparica International Surf Center	Creation of the International Surf Centre, in order to give consistent and structured expression to practices related to surf sports, as well as to support the installation of reference equipment, through the construction of essential infrastructures to be used for bathing, leisure and/or sport purposes	Almada	CM Almada	APA / IDPJ / Private	2017-2020	€ 536 000	High

Appendix 2.47: Actions to improve infrastructure to support bathing, water and surf tourism (POC-ACE execution plan, 2019)

Beach	Municipality	Intervention proposals
Praia do Norte	Nazaré	- Construction of a new, full beach support structure with functions for sport activities - Create raised pedestrian access - Requalify existing parking - Recovery of the dunes
Cantinho da Baia	Peniche	- Requalify parking by the main road - Building raised pedestrian accesses - Recovery of the dunes
Praia do Mirante	Torres Vedras	Rehabilitate the existing building
Ribeira d'Ilhas	Mafra	- Create parking at the source of the existing one to respond to moments of great demand. A project that valorizes the place should be elaborated and which allows the preservation and environmental protection of the area and the parking planning.
Praia Grande	Sintra	- New parking lot - delimited based on the Praia Grande Detail Plan Proposal (version approved by CM Sintra, March 2016) - Requalify existing parking lot
Praia do Guincho	Cascais	- The support car park located near Bar do Guincho (E2) should be requalified - Road access to the beach should be improved to ensure safety. - Pedestrian access, to be confirmed in the project, should be provided, which includes a connecting walkway between the Guincho Fort (Praia do Abano) and the Praia do Guincho parking lot, consisting of on a footpath of about four hundred meters, on a raised wooden platform, allowing the enjoyment and contact with the ecosystem without damaging it, aiming to annul vehicle access and routes existing motor vehicles in the coastal cliff area, preventing the destruction of the morphology of the terrain and the existing vegetation. - The 3 parking spaces provided for in UOPG 8 of the POOC Sintra - Sado should be completed. - Requalify the parking area - Valorization of other areas - Renaturalisation of the "clearance" adjoining the surf school at the north side of the beach
CDS	Almada	*No intervention proposals*

Appendix 2.48: Intervention proposals in beach intervention plans (POC-ACE beach intervention plans, 2019)

Appendix 3.1: Surf spots in Lisbon region, part 1 (from Leal & Cipriano, 2017)

LISBOA REGIÃO (2)
LISBON REGION (2)

58-69. Ericeira
70. Magoito
71. Praia da Aguda
72. Azenhas do Mar
73. Praia das Maçãs
74. Praia Pequena
75. Praia Grande
76. Praia da Adraga
77-87. Cascais
88. Torre
89. Inatel
90. Santo Amaro
91. Paço de Arcos
92. Caxias
93. Barreiro / Gasoline
94-101. Costa da Caparica
102. Lagoa de Albufeira
103. Praia das Bicas
104. Sesimbra

● **PRAIA** BEACH
● **CIDADE** CITY

1:560.000

OCEANO ATLÂNTICO
ATLANTIC OCEAN

Appendix 3.2: Surf spots in Lisbon region, part 2 (Leal & Cipriano, 2017)

MODELO ESTRATÉGICO
POC ALCOBAÇA - CABO ESPICHEL

VISÃO

Uma orla costeira preparada para as Alterações Climáticas e para uma fruição em segurança, com um património natural, paisagístico e cultural preservado, com um bom estado das massas de água, promotora de oportunidades de desenvolvimento suportadas na diferenciação e valorização dos recursos territoriais e na capacidade de aproveitamento competitivo e sustentável dos potenciais terrestres, marinhos e marítimos.

PRINCÍPIOS ESTRATÉGICOS

PREVENÇÃO E PRECAUÇÃO

Prever e antecipar os problemas, adotando uma atitude cautelar face ao défice de conhecimento ou à insuficiente capacidade de intervenção, minimizando riscos e impactos negativos

SUSTENTABILIDADE E SOLIDARIEDADE INTERGERACIONAL

Promover a compatibilização entre o desenvolvimento socioeconómico e a conservação da natureza, da biodiversidade e da geodiversidade, num quadro de qualidade de vida das populações costeiras atuais e futuras

COESÃO E EQUIDADE

Assegurar o equilíbrio social e territorial e uma distribuição equilibrada dos recursos e das oportunidades pelos diversos grupos sociais e geracionais e territórios

PARTICIPAÇÃO E CO-RESPONSABILIZAÇÃO

Potenciar envolvimento e a co-responsabilização da sociedade, das instituições e dos agentes locais na gestão da orla costeira implementando um modelo de governança multinível apoiado na subsidiariedade, na cooperação interinstitucional e na avaliação de resultados

OBJETIVOS ESTRATÉGICOS SECTORIAIS

RISCOS COSTEIROS

OS1. Prevenir e reduzir os riscos costeiros e a vulnerabilidade às alterações climáticas

VALORES NATURAIS

OS2. Assegurar a proteção e conservação do património natural e paisagístico

RECURSOS HÍDRICOS

OS3. Promover a proteção dos recursos hídricos e assegurar os objetivos de qualidade da Água

COMPETITIVIDADE

OS4. Promover a competitividade económica da orla costeira suportada na utilização sustentável dos recursos territoriais específicos

LINHAS ESTRATÉGICAS SECTORIAIS

[OS11] Assegurar a preservação da atual linha de costa suportada na reposição do balanço sedimentar em regime natural

[OS12] Assegurar a preservação das manchas de empréstimo e a utilização de dragados das barras e canais de acesso às infraestruturas portuárias na alimentação de praias

[OS13] Conter a exposição territorial aos riscos costeiros, estabelecendo regimes para a salvaguarda das faixas de risco, numa perspetiva de médio e longo prazo

[OS14] Promover a adaptação planeada dos aglomerados urbanos à erosão costeira, galgamentos e inundações

[OS15] Assegurar a fruição pública em segurança do domínio público marítimo

[OS21] Proteger os ecossistemas dunares e as arribas, preservando o património natural e a geodiversidade da orla costeira

[OS22] Proteger e valorizar os habitats marinhos e os sistemas lagunares costeiros

[OS23] Promover a valorização, recuperação e reabilitação dos ecossistemas costeiros

[OS24] Proteger e valorizar o caráter e a identidade das paisagens costeiras

[OS31] Assegurar a qualidade das águas balneares

[OS32] Contribuir para o Bom estado das massas de água reduzindo ou eliminando os impactes através de uma gestão adequada das pressões

[OS33] Promover a valorização e proteção das lagoas costeiras, cumprindo os objetivos previstos para as zonas sensíveis na Lei da Água

[OS34] Promover uma utilização sustentável de água, baseada numa proteção a longo prazo dos recursos hídricos disponíveis

[OS41] Assegurar condições para o desenvolvimento da atividade portuária

[OS42] Assegurar a preservação do solo e a valorização do património agrícola e florestal

[OS43] Promover a exploração sustentável dos recursos marinhos

[OS44] Promover a valorização dos recursos turísticos da orla costeira e a qualificação dos destinos turísticos

OBJETIVOS ESTRATÉGICOS TRANSVERSAIS

PRAIAS

OT1. Valorizar e qualificar as praias marítimas enquanto recurso natural, social e económico

MONITORIZAÇÃO, AVALIAÇÃO E GESTÃO INTEGRADA

OT2. Assegurar uma governação multinível, participada e pró-ativa da orla costeira, suportada em processos de monitorização e avaliação

LINHAS ESTRATÉGICAS TRANSVERSAIS

[OT11] Assegurar a preservação das praias, dos sistemas dunares e das arribas associadas, bem como dos espaços envolventes

[OT12] Assegurar a segurança e a proteção dos utilizadores e das estruturas de apoio de praia

[OT13] Melhorar a qualidade de acesso e receção dos utilizadores, designadamente da população com mobilidade condicionada

[OT14] Assegurar o controlo de fluxos e a promoção de modos suaves de transporte no acesso às praias

[OT15] Promover uma gestão adaptativa e flexível que permita responder com eficácia às mudanças ambientais, sociais e económicas

[OT21] Assegurar a monitorização regular e sistemática da dinâmica sedimentar da orla costeira, da evolução da linha de costa e do desempenho das obras de proteção/defesa costeira

[OT22] Reforçar a cooperação técnica, institucional e operacional entre entidades com jurisdição na gestão da orla costeira, entidades científicas e a sociedade civil

[OT23] Promover a investigação e desenvolvimento de novas abordagens de proteção costeira e de gestão integrada da orla costeira

[OT24] Promover a capacitação técnica e disponibilização de ferramentas de suporte ao planeamento costeiro local e à adaptação às alterações climáticas

[OT25] Assegurar a sensibilização das comunidades costeiras e dos visitantes para a sensibilidade e importância dos ecossistemas costeiros, para a necessidade de adotar comportamentos cautelares face aos riscos e para os desafios das alterações climáticas

Appendix 3.3: Strategic model POC-ACE (APA, 2019)

Appendix 3.4: Ribeira d'Ilhas (APA/ARHTO, 2013)

Appendix 3.5: Praia do Mirante (APA/ARHTO, 2013)

Appendix 3.6: Cantinho da Baia (Baleal-Campismo) (APA/ARHTO, 2013)

Appendix 3.7: Praia Grande (APA/ARHTO, 2013)

Appendix 3.8: CDS (APA/ARHTO, 2013)

Appendix 3.9: Praia de Carcavelos (Wikpedia, 2013)

Appendix 3.10: Praia do Guincho (praias.sapo.pt, 2013)

Appendix 3.11: Praia do Norte (https://www.travel-in-portugal.com/beaches/praia-do-norte-nazare.htm, 2020)