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Cruise tourism: Implications and impacts on the destinations of Croatia and Portugal

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ABSTRACT

Cruise trips have been rising in popularity since the 1970s as a result of the need of attracting passengers due to the air transport development and aircraft travel range increasing. The cruise companies had to find new markets and currently cruising is a strong trend in the tourism market with multiple destinations, themes and purposes. Nowadays, larger cruise liners are also seen as mobile and floating resorts because of their diverse offer onboard. Hence, these ships are considered the primary destination of tourists, while all other (land) destinations where the ships dock are secondary. With this increase of size and services, the impacts have been getting more significant. This constant growth in the number and size of ships has economic, but also social and ecological impacts on the destinations. The general upward trend in the number of cruise passengers and dockings is also present in Croatia's most popular cities, Dubrovnik and Split (in the context of the Mediterranean routes), and in Portugal (in the context of the North Atlantic routes), through the cities of Lisbon and Oporto, among others. In this sense, this investigation intends to explain the influence that cruise tourism performed in these maritime destinations and two countries of the European south. The purpose of this research is to collect and analyse data related to the passenger and ship traffic in the cruise destinations. The objective is to highlight the multiple impacts of cruise tourism for both countries. Specifically, analysing positive and negative impacts of cruise tourism on the destinations, instead of the importance of cruises for the national economies.

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1 Introduction

Cruises are today one of the trends in the tourism market. As tourists become more discerning in their needs, wants, motivations and characteristics, the cruise offering is increasingly diversifying. Travellers can exercise their choice of short or long cruises, island, coastal or river cruises, theme cruises, adventure cruises and others.

The trend towards larger ships is paralleled by the trend towards building cruise terminals in the most attractive locations to accommodate these ships. In most locations the terminals are fully utilized all year round. However, in locations where the cruise industry reflects a seasonal character, the terminal facilities additionally serve the local population.

Cruising implies both positive and negative consequences. The positive consequences are the populariza-

tion and recognition of the tourist destination, the arrival of more tourists and the financial effects. The negative effects are especially evident in the increased amount of waste, rising prices and large inflow of tourists on small territories, with the risk that the tourism maximum carrying capacity of the destination will be reached or even exceeded. The issues of waste, safety and the increasing risk of crime occurrence in these circumstances overshadows the positive effects.

Croatia is a well-known cruising destination because of its natural and cultural-historical attractions, favourable climate, among other factors. Although Dubrovnik and Split are particularly prominent, the cities of Zadar and Šibenik, Pula and Rijeka demonstrate considerable potential for the sustainable development of cruise tourism.

Portugal presents itself mainly as a stop-by country within the scope of cruise tourism, due to the cultural rich-

ness of its cities and for its strategic geographical position – between Europe and America, between the Mediterranean and the Atlantic – and is, therefore, an increasingly important element in the planning of cruise routes by the managing companies. Oporto (through the nearby seaport of Leixões), Lisbon and Portimão are the main seaports and cities in continental Portugal which receive the largest number of cruises. Funchal in Madeira Island, and Ponta Delgada in the Azores archipelago, complement the list of the country's main busiest ports.

2 Theoretical background

Compared with other types of tourism, cruise tourism emerged relatively late. Modern cruise tourism began in 1966, the year in which the Norwegian Caribbean Line became the first company to offer a year-round cruise itinerary targeting the broader market [26]. The 1960s saw the rapid development of cruise tourism with trips to and within the Caribbean. It is apparent from the Worldwide Cruise Ship Activity Report that in the 1990s the cruise trend began to spread to Europe, Great Britain in particular, and then to the Asia Pacific region [27]. The nature of cruise trips, which are based on ships and navigation, places cruise tourism in the category of nautical tourism [18]. Cruise ships are floating hotels, and in broader terms, large cruise liners are also seen as mobile destinations (mobile or floating resorts). These ships are considered the primary destination chosen by tourists, while all other destinations at which the vessels call are secondary [10].

From the perspective of ship owners, the international cruise supply consists of ports (and their maritime and infrastructural features) to accommodate cruise ships, service prices, and ship arrival and departure procedures, together with tourist resorts (with their attractions and supply), and separate tourist attractions (if accessible to organized visits). Although the share of cruise tourists participating in excursions or sightseeing tours differs from destination to destination, according to Klein (2006) it amounts from 50 % to 80 % of passengers. This trend is still present.

For many years, cruises were available only to guests of greater purchasing power. In 2010, however, ship owners realized that cruises had become affordable to a much broader population group. Today, cruising has acquired the characteristics of mass tourism. In that same year, 11 new cruise ships were launched; the largest can accommodate 5,400 passengers, and all together, they can carry about 25,000 passengers. In 2019 and in the context of the cruise lines that are part of the world's largest cruise industry trade association (Cruise Lines International Association – CLIA), there were 272 cruises in operation and 18 scheduled to debut that year [9].

The importance of the cruise industry to the economy is obvious [16]. Torbianelli [25] agrees with McCarthy, who points out [20] that the benefits of the cruise industry

at a local level can be classified as economic, environmental and planning gain benefits.

According to the Cruise Lines International Association, the total value of the cruise industry market in 2013 was estimated at \$36.2 billion, a 4 % growth compared with 2012. In 2017, the total global impact resulted in a total of \$45.6 billion. Concerning the number of tourists carried amounted to 20.9 million, a 3.3 % increase relative to 2012. In 2017, this number rose to 28.5 million [9]. The average spending in seaports by international cruise passengers varies, depending on the destination's supply (rural or urban area), the passengers' country of origin, their socio-economic characteristics, and the stay length in a seaport.

The number of repeated cruises, some even following the same itineraries, is growing. As a result of this fact, the number of passengers disembarking in a destination may drop, making it necessary to develop new offers and to design new itineraries. While the price of cruises is dropping, the duration of cruises is also shortening (several days), and a new offering known as easyCruise has been introduced. Targeting primarily younger age groups, easyCruise provides passengers the option of embarking or disembarking at any of the destinations included in the itinerary, promoting the possibility of adapting cruise journeys to the time available to passengers for travel.

Between 1990 and 2011, the number of cruise tourists increased at an average rate of 8 % annually, where it was recorded in 2009 almost of 17.5 million cruise tourists. There were 480 cruise ships in the world in 2018 with a capacity of 660,000 passengers, and in 2018, these ships hosted almost 29 million passengers.

The Mediterranean is the most visited cruise destination in Europe (16.7 % in 2018) and the second region in the world after the Caribbean (35 %). Most cruise tourists are from North America, Germany and the United Kingdom. As demand for cruise ships in the world grows, so does the visitors' consumption and the number of jobs this industry provides. Between 2010 and 2015, the total employment increased by 17.2 %. In the Mediterranean, the most visited countries for cruises were Italy, Croatia and Greece. According to 2018 data, Italy received 2.4 million passengers, followed by Croatia (1.3 million) and Greece (0.74 million). The top five cruise ports in the Mediterranean in 2018 by passengers' number were Barcelona (3 million), Civitavecchia (2.4 million) Palma de Mallorca (2 million), Marseille (1.71 million) and Venice (1.56 million). Other cities also received interesting figures: Piraeus (0.96 million), Corfu (0.735 million), Dubrovnik (0.732 million) and Kotor (0.49 million) [1].

According to the Association of Mediterranean Cruise Ports, Italian ports, followed by Spanish ports, account for the largest share of home ports, transit ports and general ports with the greatest number of calls. Croatian ports account for 6.9 % of transit ports and 9.5 % of all cruise calls. Croatia ranks higher than France and very close to Greece and Turkey because of Dubrovnik.

In 2018, 891 cruise ships entered Portugal (1 % more than in the previous year) and the number of passengers was 1.4 million (+ 8.5 % than in 2017). The seaport of Lisbon was the most visited, 577.6 thousand (+10.9 %), representing 41.1 % of all entries in the country [14].

3 Analysis of cruise tourism in Croatia

Croatia has seven coastal counties with a total of 378 tourist towns and cities. There are about 20 ports open for international cruise traffic in the country. According to the law, international cruising can be organized in international importance ports, county ports and local ports.

The numbers source for the statistical survey on cruises of foreign ships in Croatia is the Croatian Integrated Maritime Information System (CIMIS). Among other information, ships send data information on the traffic of goods and passengers to CIMIS through authorized maritime agents and shippers. Accuracy and completeness of data in the official proceedings of registration is verified by the harbour master's offices. The Croatian Bureau of Statistics takes over a part of the database from the Ministry of Sea, Transport and Infrastructure, after which it performs further processing. Observing the state of Croatian cruise tourism from 2009 to 2017, it is noted that the number of passengers increased until 2014, when its decline occurred. The following two years corresponded to a new growth, and in 2017 the number decreased again (13.3 % compared to the previous year); for the first time to less than one million arrivals in the observed period of eight years.

Cruise tourism in Croatia undergoes a marked seasonal fluctuation in the number of passengers, ranging from 309 in January 2017 to as many as 150,217 passengers in July of the same year. The majority of the cruise ship visits in the year 2018, were realized in the seaport of Dubrovnik (514 visits), followed by the seaports of Split (251 visits) and Zadar (120 visits). In addition to Dubrovnik, several other Croatian ports take part in the international cruise tourism with varying numbers of calls. The most important are Split, Zadar, Hvar, Rovinj, Pula and Rijeka.

In the period from January to December 2018 there were 75 cruise ships that arrived in Croatian seaports, which accomplished 693 journeys (Table 1). According to Croatian Bureau of Statistics [8] more than 1.0 million passengers were on board and they stayed for 1.421 days in Croatia. The most elevated number of cruise trips was realized by vessels under the flag of Bahamas (174 cruises) and Malta (165 cruises), while the highest number of passengers on board of the arrived cruise ships were under the flag of Panama (259 thousand passengers) and Italy (227 thousand passengers). Out of the total of 693 journeys of cruise ships, the majority was realized in the County of Dubrovnik-Neretva (55.4 %) and the County of Split-Dalmatia (25.4 %), which sets the total of 80.8 %. The remaining 19.2 % of journeys were realized in the

following counties: Zadar (6.2 %), Istria (6.1 %), Šibenik-Knin (4.9 %) and Primorje-Gorski kotar (2.0 %). It can be concluded that Croatia has less cruise ships, but more passengers on board.

Table 1 Foreign vessels on cruise in the republic of Croatia, 2018

Foreign ships on cruise			
	I. - XII. 2017	I. - XII. 2018	Indices I. - XII. 2018 I. - XII. 2017
Cruises	691	693	100,3
Sojourns	1 506	1 421	94,4
Passengers on board	947 306	1 033 885	109,1

Source: https://www.dzs.hr/Hrv_Eng/publication/2018/04-03-05_08_2018.htm

Tourism in Dubrovnik-Neretva County is, by revenue, employment and export orientation, at the distinct top of the regional economy, and cruise tourism is a key segment of it. This is justified by the fact that Dubrovnik accounts for more than 70 % of cruise tourism in Croatia and more than 90 % at the level of Dubrovnik-Neretva County, producing significant direct and indirect economic impacts on the city itself and in the overall regional tourism. The average share of cruise tourists in daily migrations during the summer is 11.8 %, and at the time of their maximum presence (usually around 13 hours) their share is 54.7 %.

The average spending of tourists coming from a cruiser in Croatia is 39 euros, while crew members spend an average of 29 euros. The largest customers are guests from the United Kingdom (51 euros), the United States (49 euros) and France (46 euros). Consumption by guests depends on the length of stay of the cruiser in the destination. For that reason, it would be important for Croatian ports to improve their infrastructure and to focus on the conversion of the typology and main function (from a transit-oriented port to a departure port), which could bring many benefits to the port itself and to the local community.

The seaport of Dubrovnik is the most popular destination for foreign ships on cruise. Annually visited by 500,000 to a million travellers, Dubrovnik is among the most visited destinations. Dubrovnik's tourism potential, stemming from its cultural, historical and natural resources and its geographic position as the best stop between Venice and Greek ports, has made it an important destination in cruise itineraries in the Eastern Mediterranean [22].

With limited space, traffic, urban, technical and organizational capacities, as well as pronounced seasonality (six months), the limits of sustainability of this form of tourism and possibilities for further development at a destination such as Dubrovnik open a crucial question. The increase in the number of mega ships (more than 2,000 passengers), the elevated concentration of cruise ships in the port, the

inadequate organization and limited possibilities of adequate reception of a large number of cruise tourists have, in recent years, raised the question whether the positive or negative effects of cruise tourism on other forms of tourism outweigh the economy as a whole, the environment and life of the local population. Authors [23] emphasize that Dubrovnik needs to manage cruise tourism in a way that will ensure the maintenance and improvement of the life quality in the local community. The appeal of Dubrovnik is known worldwide and demand for this destination shows no signs of decline. The Port Authority has limited the number of cruise tourists to 8,000 dailies because of congestion in the town core. Out of 243 days in a year, this number is exceeded only in 18 days, while the number of passengers slightly exceeds 10,000 in only four days in a year. A large investment project to reconstruct and expand the port ended in 2009. The port's new pier enables Dubrovnik to accommodate three large ships concurrently.

Split, the second largest city in Croatia, is an important cultural, tourist, industrial, commercial, administrative and a sports centre of Dalmatia. The port of Split, located in an exceptional geographical position in the Mediterranean and with excellent maritime characteristics for receiving ships, is one of the most important destinations for local and international maritime transport. Due to its exceptional historical heritage and 1700 years of tradition, the port and the city of Split became a cruise destination for ships cruising the Mediterranean.

The Split City Port is a passenger port with a growing cruise ship traffic in recent years. Because of difficulties in accommodating larger ships, these vessels have to anchor in front of the port entrance, resulting in lower revenue from taxes for the seaport. Concerning the number of cruise passengers in the seaport of Split, it increased steadily from 2002 to 2012. The first decreasing in passenger numbers occurred in 2013 and in 2014. It then grew to fall again in the first ten months of 2017, compared to the same period in 2016. By country of origin, most tourists were from the United Kingdom, Italy, the United States, Spain, France and Germany. In relation to tourists age groups, almost 60 % were between 18 and 65 years old. Up to November 2017, there were 211 cruise ship entries in the port of Split. The total number of passengers in transit was 202,203, and the average cruise time at the port of Split was 17 hours and 31 minutes. It should be noted that the port of Split does not have facilities for receiving waste from cruisers or coastal electricity to supply ships.

4 Analysis of cruise tourism in Portugal

Portugal presents a different context and consequently a singular dynamic when compared to Croatia and its cities. Due to its geographical position, close to the Mediterranean and with its coastline and archipelagos in the middle of the Atlantic Ocean, it is visited by cruise ships that mainly operate between Morocco, Spain, France

and Italy, as well as in the Atlantic archipelagos of Madeira and the Canary Islands. In terms of transatlantic cruises, the archipelagic ports of Funchal (Madeira island) and Ponta Delgada (Azores islands) occupy an increasingly important position for cruises departing from the United Kingdom and travelling to South America, the Caribbean, and from there to the Pacific through the Panama Canal.

Taking into account the country's low indented coastline and at the mercy of the Atlantic Ocean, as well as the distribution of the population largely concentrated in the two metropolitan areas of Lisbon and Porto, Portugal has a small number of seaports with the minimum dimensions or technical conditions necessary for the arrival of cruise ships. In 2018, in mainland Portugal, there were 506 cruise ships arrivals concentrated in four seaports (Viana do Castelo, Leixões, Lisbon and Portimão). In relation to the Portuguese islands, the port of Funchal received 283 of the 293 ships that arrived in the archipelago of Madeira. In the case of the Azores, the port of Ponta Delgada received 75 of the 92 ships that visited the archipelago (INE 2019), [14].

The production and publication of statistical data in Portugal is the responsibility of the Instituto Nacional de Estatística (National Institute of Statistics). With regard to the figures on cruise tourism, this information was only recently (in 2011) added to the annual publication and entitled in English as Tourism Statistics. The published data is provided by the respective port authorities where cruises arrive. In this sense and referring to the period 2011-2018, it appears that in 2011 there were 847 arrivals of cruise ships and in 2018 this number amounted to a total of 891 arrivals. Regarding the number of passengers on board, in 2011 the number of passengers was 1,219,888 (entry and exit of passengers and transit passengers). If compared to 2018, there was an increase of 7.1 % in the number of passengers, totalling 1,405,772.

The dynamics of the number of cruise ships and the number of passengers was similar over the period from 2011 to 2018. From 2011 to 2012, the number of ships and passengers increased. This was followed by a decrease in 2013 and 2014. In 2015 there was an increase (819 ships and 1,278,052 passengers) although it was not sufficient to recover from the figures obtained in 2011. In 2016 there was a slight decrease, but in 2017 and 2018 there was a significant increase, both in the number of ships and in the number of passengers, enabling better results to be achieved than in the first year of analysis (2011) [11], [12], [13], [14].

Regarding the representativeness of the ports that receive cruise ships, it can be seen that the port of Lisbon is the most important one, having received in 2018 about 37.9 % (n=338), followed by the port of Funchal with 32.9 % arrivals (n=293). These two ports, consequently, receive almost two thirds of the arrivals (70.8 %) at national level. In relation to the number of passengers, the two most visited ports for cruises obtained a higher percentage in relation to the context of Portugal. In 2018, the Port of Lisbon obtained a representation of 41.1 % and

the Port of Funchal 38.5 %, achieving almost four fifths (79.6 %) of the tourists arriving and departing by sea and cruise [14].

Lisbon being one of the few European capitals located by the sea, possessing a vast and culturally rich past, it easily became one of the main stopping points for cruises that cross the Portuguese waters. The port of Lisbon is Portugal's main maritime transport terminal. It is located at the meeting of the waters of the Tagus River and the Atlantic Ocean, forming a natural port in the Tagus estuary, totalling a net basin of 32 thousand hectares, which allows it to receive ships of any size, such as transoceanic. The total of 338 arrivals to the seaport of Lisbon was carried out by 123 ships.

The statistics provided by the administration of the Port of Lisbon show that in 2018 there were four periods of seasonality. April and May and then September and October were the months with the highest passenger movements, concentrating these four months 57.2 % of total tourist traffic [2]. Funchal's port has a high season that extends from October to April, corresponding to 88.9 % of the total number of passengers linked to cruise tourism [4].

With regard to the provenance of passengers, the most represented country is the United Kingdom (42 %), followed by Germany (21 %), the United States of America (12 %), Italy (7 %) and France (2 %). In the context of the Iberian Peninsula countries, the port of Lisbon ranks 5th (after Barcelona, Balearic Islands, Las Palmas and Santa Cruz de Tenerife) among the maritime structures that received more cruise ships and passengers in 2018. Funchal's port is ranked 8th among the ports that receive most ships but 6th among the ports that receive the most passengers [3]. Despite the small size of Madeira island, this territory is a consolidated tourist destination, with its own and marked culture, and with a mild climate throughout the year. As a recognized tourist destination for several decades, it also presents a set of events throughout the year with international attraction capacity. Among them, the famous New Year's Eve where several cruise ships gather in the port and bay of Funchal to watch one of the ten best fireworks in the world.

According to a questionnaire applied in 2016 by the Lisbon Tourism Observatory to passengers who stopped by this city, it was found that 52.5 % are between 45 and 64 years old, 74.7 % of the respondents were married or cohabiting, and had a high level of school education (69.1 % had at least a university degree) [21]. On average, these passengers spent 11h21 hours in Lisbon and spent around €56.80 per person / individually. These expenses are mainly related to purchases (44 %), food (31.5 %) and travel within the city (15.2 %). Approximately one third (33.0 %) of the passengers were on their first cruise experience. On average, the cruises they were on lasted 12.6 days. Sixty-seven percent (67.0 %) of passengers already had some previous experience in cruises and the vast majority of these chose the Mediterranean or the Caribbean.

In this sense, the seaport of Lisbon serves as a point of passage for the two regions mentioned, the main world regional destinations for cruise tourism.

5 The effects of cruise tourism on the destination

The entry and stay of ships in ports generate direct effects such as administration fees for mooring, removal of solid and liquid waste, use of water and electricity. But cruisers, in addition to financial effects and benefits, have other and often negative consequences on the environment.

5.1 Effects on the local community

Cruising has positive effects on the destination, both direct and indirect, and negative impacts such as: i) generally rising prices and especially rising real estate prices; ii) increased imports of goods for the supply of ships; iii) additional costs of building infra and supra-structures; iv) potential economic dependence on cruise tourism and negligence of other economic activities; v) an increase in crime; vi) commodification (change and sometimes destruction of original customs and manifestations) and; vii) excessive standardization (loss of cultural diversity).

Although tourism brings positive changes to society in terms of learning about different cultures, customs and people, the socio-demographic effects of tourism today reflect their negative sides. On the other hand, and as some authors [17] point out, development of cruising on small islands can get the benefits for local communities.

The authors [23] indicate that the objective and subjective negative effects of cruise tourism adversely affect a number of economic and social aspects, so that the so-called paradox of cruise tourism, as in spite of its economic effects that are indisputable to the local population, it is most often concerned with the cruise ships sector growth.

It is argued ([5] and [22]) that the impact of cruise tourism on destination development largely depends upon the attitude of the destination towards cruise tourism development. In Croatia but also in Portugal, this multidimensional impact is reflected in: i) the society, due to different tourist behaviour and tourist needs; ii) the economy, because cruise tourism development involves capital investment; iii) the environment, because of the constant threat of marine pollution by cruise ships during navigation or when anchored, and; iv) the destination, from the perspective of stationary tourism, which could experience adverse trends. Local self-governments may act as promoters of cruise destination development. The authors agree with Carvalho [7] who suggests that one of the issues that local administrations need to address is how to maximise the opportunities for profits and spread them throughout the destination.

As pointed out [25], at the core of every local policy for the development of cruising opportunities, there should



Figure 1 Air pollution generated by cruisers

Source: <https://www.businessgreen.com/bg/analysis/3016660/cruise-ships-urged-for-sea-change-in-air-pollution-efforts>

be a well-devised and possibly formalized strategy. This strategy should have the characteristics of a real business plan that can help in establishing goals, educating the people involved and managing the system at a local level.

A port is a vital factor of the cruise offer in any destination. It is observed that the infrastructure and professional staff of a port enable the accommodation of cruise ships and tourists. With over 20 million passengers per year, cruise terminals take on a variety of forms, from conventional to futuristic. Differences mostly depend upon the position of the shoreline and the visions of local authorities, partners and investors. Passenger traffic in home ports is steadily growing, in particular as a result of fly-cruise packages which include flights to the departure port [15].

5.2 Cruising tourism and the environment

The vast majority of cruise ships are powered by a propulsion engine using fossil fuel. In the specific case of ships, they use heavy fuels, which have a thousand-fold greater negative impact on air quality than fuels used in road transport (Figure 1). The propulsion engine of ships is the largest cause of air pollution (with exception when the energy source come from on board incineration of solid waste). The world's total fleet of cruise ships is increasing year by year, as well as the amount of harmful gases from marine propulsion machinery.

5.3 Pollution of the sea

The wastewater from cruise ships can be divided into three groups: i) black water (waste from toilet spaces), ii) grey water (wastewater from bathrooms, drains, showers, decks, saunas), iii) and ship's bilge (waste oils, lubricants, cleaners, metal and plastic debris). According to research,

almost every passenger on the cruiser produces 20-40 litres of black water and 120-450 litres of grey water. Black and grey waters contain organic nitrates and phosphates that lead to eutrophication in enclosed bays, harbours, and moorings, which kill a large number of plants and animal organisms in the sea. Wastewater can contain bacteria, pathogens, heavy metals. Cruisers, especially the newer ones, have wastewater treatment devices installed, which are discharged into the sea only after treatment. Older ships have filters that prevent the release of solids.

Marine pollution from cruisers can occur with the drop of hazardous substances such as detergents, cleaning supplies, medical drugs and others. According to Carnival Corporation, the production of dangerous goods per passenger on a cruiser is 0.13-016 kg/day.

In accordance with international and national regulations, the seaports which receive cruise ships are obliged to accept wastewater collection systems (faeces, grey wastewater). Marine pollution by solid waste of non-hazardous or hazardous origin from cruisers is also increasing. It is estimated that a cruise ship produces 2.4 to 4 kg of waste per day, and it can be concluded that a cruise ship of 3,000 passengers produces 50.4 tonnes of waste per week. Large quantities of waste are accumulated on cruisers, whereby solid waste can be incinerated in a ship's incinerator, but it releases harmful gases into the atmosphere. A more acceptable way of coping is to deliver solid waste to receiving stations [24].

Hazardous waste on the cruiser is created as a result of working dry-cleaners, photocopiers, furthermore, fluorescent lamps, protective paints and coatings, hospital waste, cleaning agents, etc. It is estimated that the cruiser produces 55 to 85 litres of hazardous waste daily.

The negative impact of cruisers is evident in developing and transition countries, but is also evident in other Mediterranean countries. The reasons are the lack of a

legal framework and the enforcement mechanisms for pollution control and management. The author refers to conventions (MARPOL, International Convention for the Prevention of Pollution from Ships) [19] and annexes that offer environmental protection mechanisms, but these countries are most often unable to enforce regulations [6].

In Croatia, waste can be taken over in all ports, according to the waste management regulations prescribed by individual port authorities, but bilge water takes only on request. Therefore, there is no total information on quantities and the effect of bilge water on the sea. Ballast water goes to the sea, since Croatia has not adequate tanks for collect this water.

6 Result and discussion

Considered integrally, the Croatian and Portugal coastal area (sea / ocean and land) is potentially one of the most important natural resources for national development. This development has to be permanent or sustainable over a longer period, stressing the importance of the rational managing of natural resources.

6.1 Differences and similarities

Croatia, as a desirable cruise destination, has a lot of historical and cultural sights and good geographic and climate conditions. Thus, factors are vital in developing a cruise itinerary. Prioritizing passenger comfort and security, ship owners tend to avoid areas with unreliable weather conditions.

The start of the cruise tourism season in Croatia is March, and the season ends at the end of October. Between May and September, the largest cruise ship traffic in Croatia takes place. The largest number of boat trips and passenger traffic takes place on weekends. Cruise guests spend an average of five hours outside the boat touring tourist attractions. The most common activities of tourists in the destination are visiting catering establishments, going shopping, sightseeing, and going on organized excursions to the surroundings. In addition to the natural features, ports must be adequately connected to their hinterland and tourist attractions. Croatian ports are facing the problem of transport connectivity. In Croatia, in recent years, a special type of Old Cruiser cruising has been developed, which is a multi-day or excursion cruise on typical motor sailboats and *trabaculas*. These boats are specially equipped and adapted for longer cruises and stay guests. Cruising involves cruising a ship and is simultaneously connected to the port's infra-structure and superstructure. In Croatia, cruising is connected to the ports of cities on the Adriatic coast, with major world cruising developing its routes in ports such as Dubrovnik, Split, Zadar and others. The old timer domestic Adriatic cruising develops its routes in smaller ports and in ports such as Trogir, Telsatica, Hvar, Bol and others.

In Portugal, cruise tourism is still a relatively recent reality and concentrated in a few ports. However, there is an effective growth in the number of ships and passengers, allowing us to conclude that the country will be increasingly among the options for stopover of cruises. The average duration of a cruise call at a given port (using the Port of Lisbon as an example) limits the propagating effect of the tourist flow. Among the places most visited by tourists arriving by sea, only about 20 % are places between 50 and 60 minutes away by land. However, if the Lisbon crossing experience is frankly positive for passengers, it increases their likelihood of returning (by sea or air) and consequently increases their likelihood of visiting destinations further from the capital.

6.2 Measures for future development

The intensity of sea cruises impacts the size of investment in infrastructure, essential for a destination to accommodate cruise ships. Local authorities and the State must also become involved in planning and improving conditions for cruise ships in a destination, in order to this to translate into positive economic effects in the destination and broader region. Because of its favourable geographical position, Croatia has a potential location to accommodate cruise ships as a home port. Although existing several suitable sites for building a cruise terminal, the reasonable and acceptable choice would be the site in the immediate vicinity of Zadar or Rijeka (a maritime and port centre). A cruise terminal would contribute considerably to the region's development. It is up to the regional and local administration to do what is needed to initiate activities in positioning a home port.

Although the Portuguese Atlantic coast does not have navigation conditions as favourable or stable throughout the year as in the case of the Mediterranean and the Caribbean Sea, it is still competitive if compared with the coastal areas of higher latitudes such as Central and Nordic Europe.

Also, with the increasing experience of cruise passengers and the rising size of ships (more conditions and entertainment on board), more distant itineraries are being created, and the offer of transatlantic and even world-scale cruises is becoming more and more frequent. It is in this context that the Portuguese ports, especially Lisbon and Funchal (and their respective cities), are positioned as tourist destinations of passage of these alternative and longer routes. An economic opportunity can be found here, taking into account that these are more expensive cruises and consequently associated with highly educated passengers and higher purchasing power.

7 Conclusion

The rapid development of cruising has a major impact on changing the profile of the old ports that are changing

their infrastructure. Croatian cities of Dubrovnik, Split, among others, as well as Lisbon in Portugal have benefits from cruise tourism, like profit for local community, jobs, fees, etc. But today they have, as well, evidential problems with organisation, parking space, crowded places, overcoming number of tourists at the same time, waste, security and crime risks. It is logical to conclude that they have to plan carefully their future development as a cruise destination. Both passengers and residents are increasingly aware that cruises can be opportunities for territorial development but also create problems that may not exist until they arrive, such as air pollution and social instability generated by extenuation of the momentary cargo capacity of the destination.

With environmental and social sustainability increasingly becoming factors to be taken into account in the planning and management of tourism activities, as well as the necessary attention to be paid to climate change, cruise tourism must be brought to a necessary balance between the very form of locomotion (less polluting), the particularity and receptiveness of destinations and its residents, and the changing motivations of tourists on board.

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References

- [1] Adriatic Sea tourism report, Risposte turismo, 2017, 2018.
- [2] APL - Administração do Porto de Lisboa (2019a). Atividade de cruzeiros 2018. (http://www.portodelisboa.pt/portal/page/portal/PORTAL_PORTO_LISBOA/CRUZEIROS/ESTATISTICAS/Atividade%20de%20cruzeiros.pdf). APL - Administração do Porto de Lisboa.
- [3] APL - Administração do Porto de Lisboa (2019b). Tráfego de cruzeiros - Relatório de atividade 2018. APL - Administração do Porto de Lisboa.
- [4] APRAM - Administração dos Portos da Região Autónoma da Madeira (2019). Movimento dos passageiros de navios de cruzeiro no porto do Funchal no ano 2018. APRAM - Administração dos Portos da Região Autónoma da Madeira.
- [5] Bradley, M. Braun, Tramell, F. (2006) 'The Sources and Magnitude of the Economic Impact on a Local Economy from Cruise Activities: Evidence from Port Canaveral, Florida', in Ross K. Dowling, (ed.) *Cruise Ship Tourism*, Edith Cowan University: CABI International. pp. 280-289.
- [6] Carić H. (2011). Cruise tourism environmental risks. Conference proceedings. 3rd International Cruise Conference, Cruise Research Society & University of Dubrovnik.
- [7] Carvalho L. (2011) 'Cruise City Port "Cruise Traffic and Urban Regeneration Project Meeting - Presentation", CTUR Thematic Network annual meeting at Helsinki.
- [8] Croatia Bureau of Statistics, https://www.dzs.hr/Hrv_Eng/publication/2018/04-03-05_08_2018.htm
- [9] Cruise Lines International Association (2019). Cruise Trends and & Industry Outlook, Cruise Lines International Association, (<http://www.cruising.org>)
- [10] Dowling, R. K. (2006) 'The Cruising Industry ' in Ross K. Dowling, (ed.) *Cruise Ship Tourism*, Edith Cowan University: CABI International. p. 8.
- [11] Instituto Nacional de Estatística (2013). Estatísticas do Turismo 2012. Instituto Nacional de Estatística
- [12] Instituto Nacional de Estatística (2015). Estatísticas do Turismo 2014. Instituto Nacional de Estatística
- [13] Instituto Nacional de Estatística (2017). Estatísticas do Turismo 2016. Instituto Nacional de Estatística
- [14] Instituto Nacional de Estatística (2019). Estatísticas do Turismo 2018. Instituto Nacional de Estatística
- [15] Kesić, B., Jugović, A. (2006) *Menadžment pomorskoputničkih luka*. Rijeka: Pomorski fakultet u Rijeci, Liber d.o.o.
- [16] Lekakou, M.B., Pallis, A.A. and Vaggelas, G.K. (2009) 'Which homeport in Europe: The cruise industry's selection criteria'. *Tourismos: An International Multidisciplinary Journal of Tourism*, 4 (4), pp. 215-240.
- [17] Lekakou, M., Stefanidaki, E., Vaggelas G. K. (2011) 'The economic impact of cruise to local economies. The case of an Island'. *Athens Tourism Symposium - presentation*, Athens.
- [18] Luković, T., Kovačić, M. (2009) 'Seasonality of World and Croatian Cruising', *New Technologies, New Challenges - Conference proceedings*, 28th International Conference on Organizational Science Development, Portorož, 890-898.
- [19] **Marpol 73/78 (2002.), Annex VI of Marpol 73/78: Regulations of the Prevention of air Pollution from Ships**, Consolidated Edition, International Maritime Organisation, London.
- [20] McCarthy, J. (2009) 'Spatial Planning for Cruise Tourism: Maximising the Benefits', *Proceeding of the International Conference, City future 09" - City Futures in a Globalising World*, An International Conference on Globalism and Urban Change, Madrid.
- [21] **Observatório do Turismo de Lisboa (2017). Inquérito a passageiros de cruzeiro**. Observatório do Turismo de Lisboa.
- [22] Pavlić, I. (2013) 'Cruise Tourism Demand Forecasting - The Case of Dubrovnik', *Journal of Tourism and Hospitality Management*, vol. 19, No. 1, pp. 125-142.
- [23] Sindik, J., Manojlović, N., Klarić, M. (2017) *Percipirani učinci kruzing turizma kod stanovnika Dubrovnika*. Ekon. Misao i praksa, Dubrovnik, god. XXVI. (2017.), br. 1., pp. 151-170.
- [24] Šantić, L., Vilke, S., Grubišić, N. (2011) Čimbenici štetnog djelovanja cruising turizma. "Naše more" 58(5-6)/2011. pp. 229-243.
- [25] Torbanielli, V. (2012) 'The Local Economic Impact of Cruises: From Figures to the Active Policies of the European Harbour Cities', *Pomorstvo Scientific Journal of Maritime Research*, 26/1, pp. 139-150.
- [26] Wood, R. E. (2004) 'Cruise Ships: Deterritorialized Destinations', in Lumsdon, L. and Page, S. J. eds., *Tourism and Transport: Issues and Agenda for the New Millennium*, Elsevier. pp. 133-145.
- [27] UNWTO (2003.) *Worldwide cruise ship activity report*, UN World Tourist Organization, 2003, p. 9.