

Touristic Fluxes and Carrying Capacity

Spanish scale





Co-Evolve4BG

Analysis of Threats and Enabling Factors for Sustainable Tourism at Pilot Scale

Touristic fluxes and Carrying capacity Spanish scale

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OVERVIEW

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REVIEW

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Abstract

This report aims at identifying the main touristic fluxes and carrying capacity of the Spanish coastal zones. It is developed through the review of existing data at national and regional scale. The document is structured as follows. The first part describes the main tourist fluxes in Spain. The second part introduces the concept of the carrying capacity of tourism. The third part describes the methodology and characteristics of touristic fluxes and carrying capacity parameters selected in this project.

I. Introduction

This document constitutes a deliverable to the Touristic Fluxes and Carrying capacity in Spanish tourist areas which is part of the project of the Analysis of Natural Ecosystems evolution in relation to Threats and Favourable Factors for maritime development and coastal tourism on a national scale.

A good climate, friendly people, an abundant cultural heritage, gastronomic richness and landscapes, Spain has all the ingredients to be a perfect tourist destination. In 2018 Spain received a record number of 82.8 million foreign visitors, according to the [National Statistics Institute \(INE\)](#), making it rank third in the world in terms of the number of tourists – only preceded by France and the USA – and rank second in terms of revenues, also acquiring a record of 89,856 million euro.

It was ranked at the second place according to the World Tourism Organisation in its report [UNWTO Tourism Highlights](#), from 2018, only surpassed by France and ahead of countries like the USA and China. For six consecutive years now, there have been a record number of visitors, coming mainly from the UK, Germany and France.

One of the main attractions for tourists in Spain is its overwhelming cultural heritage. It is ranked third in the world with the most places declared as Heritage of Humanity by UNESCO (only behind Italy and China). The Córdoba Mosque, the Alhambra in Granada, the aqueduct in Segovia, the Burgos cathedral, the works of Gaudí in Barcelona and San Cristóbal de La Laguna in Tenerife are just some of the 47 places singled out for their exceptional universal value.

UNESCO has also designated 18 Spanish cultural traditions or expressions as Intangible Cultural Heritage of Humanity. These include the Mediterranean diet, flamenco, the Courtyards of Córdoba, the “Fallas” of Valencia and the “Tamborradas”. We are ranked fourth with the most designations of this type. With all this potential, it is no surprise that the [US publication US News & World Report](#) considers Spain as the third ranked country in terms of cultural influence worldwide, only behind Italy and France. This was taken from the results of more than 20,000 interviews of people from 80 countries, highlighting the cultural legacy of Spain from Velázquez, Goya and Picasso to Flamenco dancing and music, as well as Don Quixote from Cervantes.

Spanish cuisine has also gained in popularity. According to the report, Gastronomy in the Spanish economy compiled by KPMG in 2019, in recent years gastronomic tourism has grown and now exceeds 15%. In other words, 15 out of every 100 tourists come to Spain for its gastronomy. And they don't come in vain as it is ranked the 5th country in the world with the most Michelin stars and the country with the most restaurants on The World's 50 Best Restaurants list, a total of 7, 3 of which feature in the top 10.

Spain is also the country with the largest number of Biosphere Reserves in the world. A total of 49 natural spaces, including terrestrial, marine and coastal ecosystems, designated by UNESCO for its protection and conservation of biodiversity. The marshes

of Odiel, Doñana, the island of La Palma, Cabo de Gata, Sierra Nevada, the Ebro lands and the pastures of Sierra Morena are just some of the zones declared by UNESCO.

It is also a world leader in the number of beaches with a blue flag: 696 in total, 590 of them are beaches and 101 are marinas (Fig. 1). An award which has been granted every year since 1987 by the European Foundation for Environmental Education to beaches and ports that comply with a series of environmental conditions and installations such as the quality of bathing water, environmental information and education, environmental management and safety, services and facilities. Spain is ranked first, followed by Greece, Turkey, France and Italy.

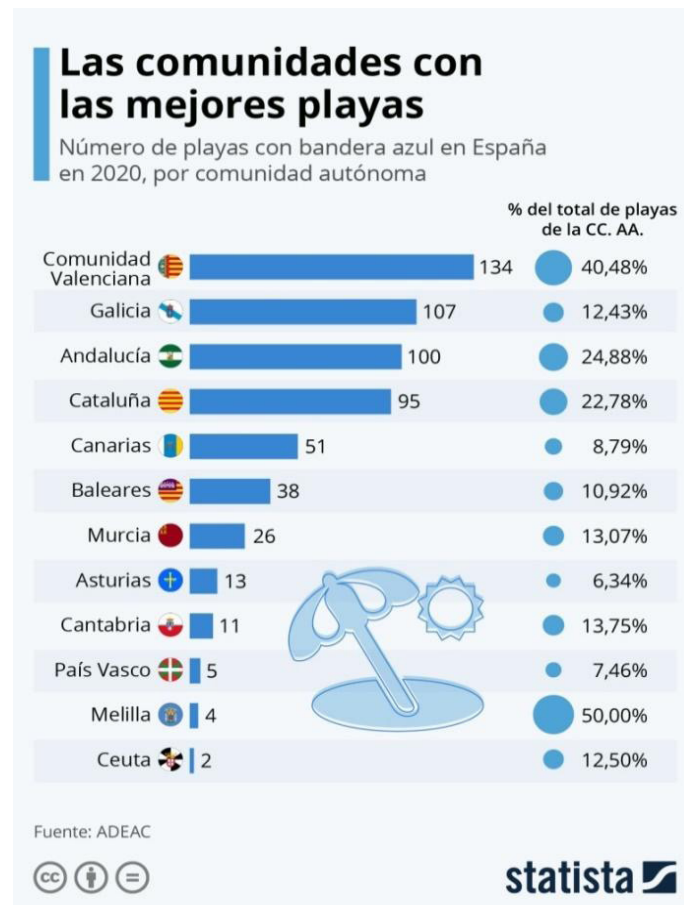


Figure 1. Number of beaches and total percentage of beaches with blue flags in Spain by autonomous community in 2020 (ADEAC (2021))

II. Touristic fluxes in Spain

Spain has industrial quantities, sun and coast, which, added to its hotel plant, results in one of the most powerful tourist industries in the world. The good weather and the quality of the beaches - a perfect combination for visitors' recreation - attracting millions of national and international tourists to the Spanish coasts each year, especially the Mediterranean and the Canary Islands. The influx is constant throughout the year, but it is in the months of July and August when hotel occupancy peaks.

Figure 2 shows the ranking of the tourist areas in Spain with the most overnight stays in hotel establishments (hotel, apartment or aparthotel, motel, hostel, pension, inn, guest house) registered in 2019. In that year, the hotels on the island of Mallorca registered a total of 45 million overnight stays. In second place, the island of Tenerife registered more than 25 million, around 2.8 more than Barcelona.

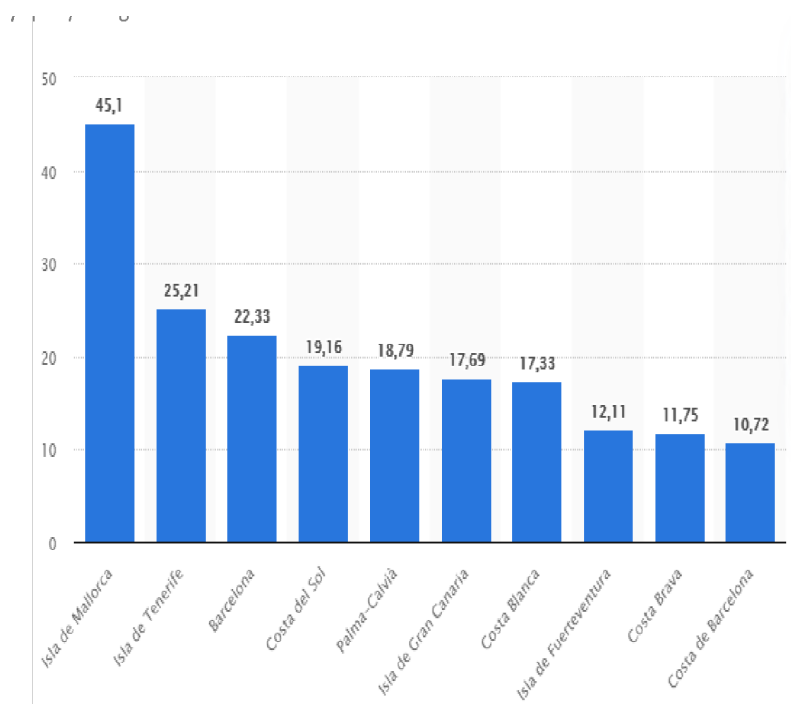


Figure 2. Tourist areas with the highest number of hotel overnight stays in Spain in 2019 (in millions) (Statista (2021))

Figure 3 presents the ranking of the main tourist areas in Spain in which more international travelers stayed in hotel establishments (hotel, apartment or aparthotel, motel, hostel, pension, inn, guest house) in 2019. 7.4 million Travelers residing abroad stayed in Barcelona. As to the travelers residing in Spain, the Costa Blanca was the most visited destination.

Figure 4. presents the average stay of tourists staying in hotel establishments (hotel, hotel-apartment or aparthotel, motel, hostel, pension ...) of the main tourist areas of Spain in 2019. The island of Fuerteventura, with an average stay of practically eight nights, took first place. That year it was followed by its neighbouring islands of Gran Canaria and Tenerife.

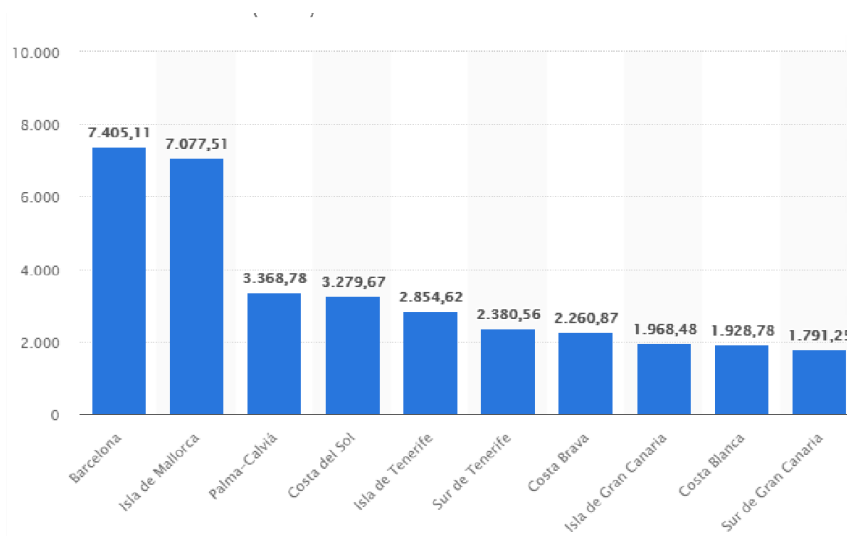


Figure 3. Main tourist areas in Spain according to the number of international tourists in hotels in 2019 (in thousands)(Statista (2021))

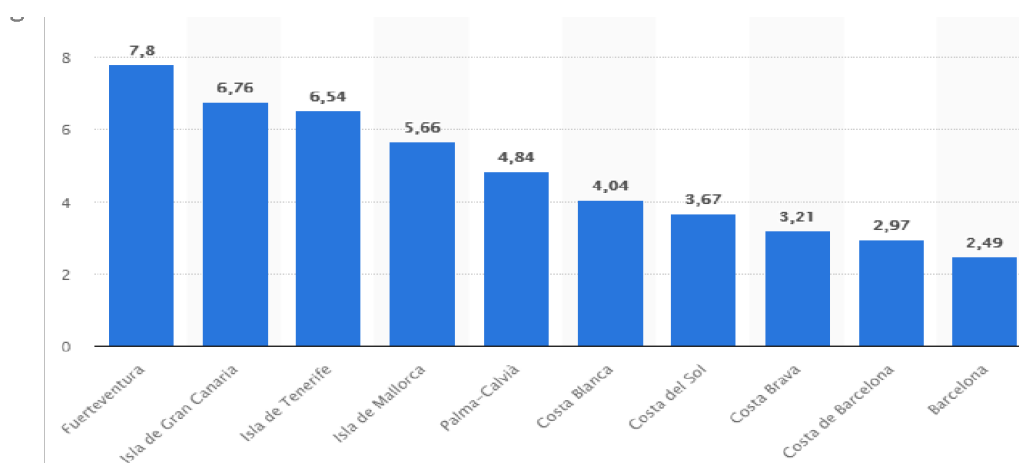


Figure 4. Average stay in hotels in the main tourist areas of Spain in 2019 (Statista (2021))

Among the tourist areas that registered the most overnight stays by tourists in Spain in 2019, the island of Mallorca, with more than 76%, registered the highest occupancy rate by beds in hotel establishments (hotel, hotel-apartment or aparthotel, motel, hostel, pension). Very close, with more than 74%, were the islands of Tenerife and Gran Canaria and Palma-Calvià (Fig. 5).

In 2020, the arrival of foreign visitors to Spain fell by 71% compared to the previous year. After a record in 2019, the COVID-19 pandemic caused the number of tourists to drop to 19 million and that of hikers (non-overnight visitors) to about 17.5 million (Fig. 6). Domestic travel by Spaniards, as also of great importance for the country's economy, declined during the first semester. Between July and September, however, given the difficulties in traveling abroad and the relaxation of restrictions in the national territory, the figure was very similar to that of the same period in 2019.

This statistic presents the annual evolution of the total contribution of the tourism sector to the gross domestic product (GDP) in Spain between 2012 and 2019. In that year, the total contribution of the tourism sector to the Spanish GDP was close to 180,000 million euro (real prices; Fig. 7).

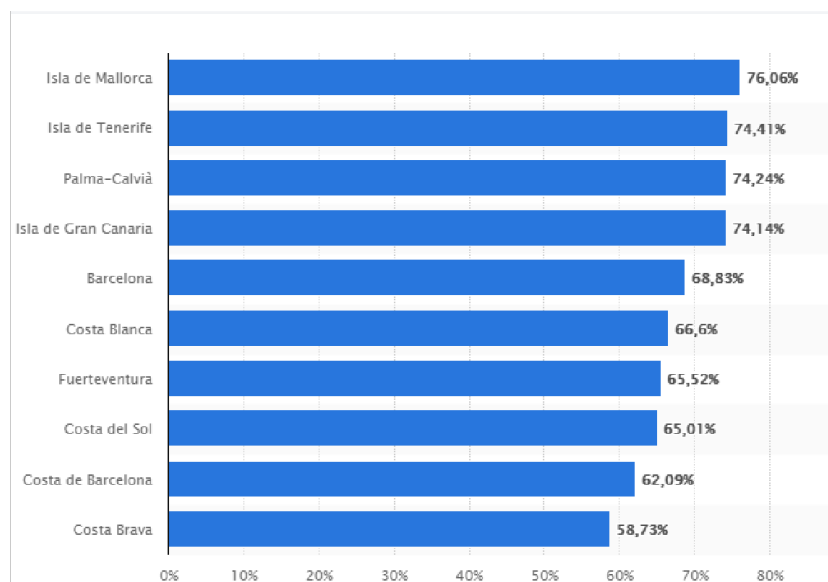


Figure 5. Hotel occupancy rate by beds in the main tourist areas of Spain in 2019 (Statista (2021))

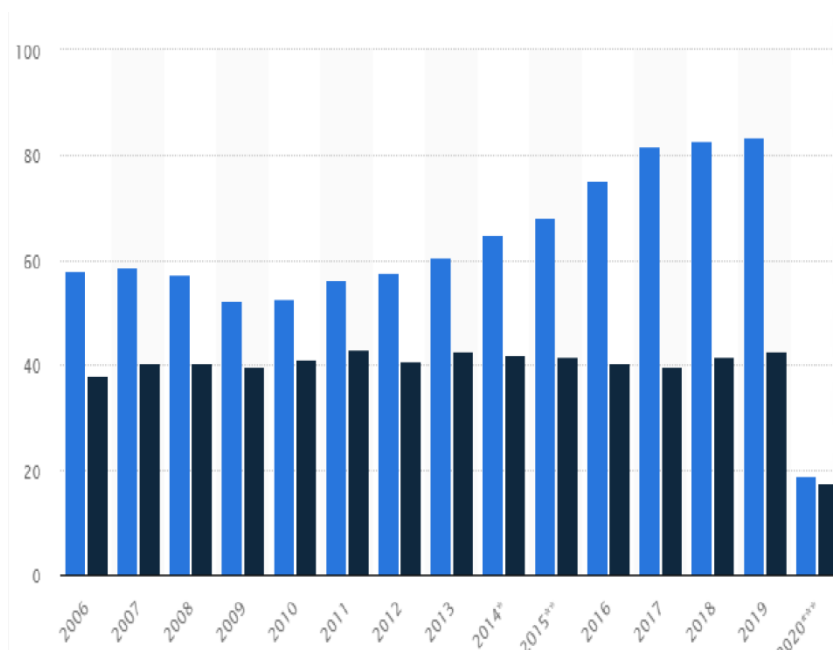


Figure 6. Annual evolution of the number of international visitors to Spain from 2006 to 2020, by type (in millions). Tourists represented in blue and hikers in dark blue (Statista (2021))

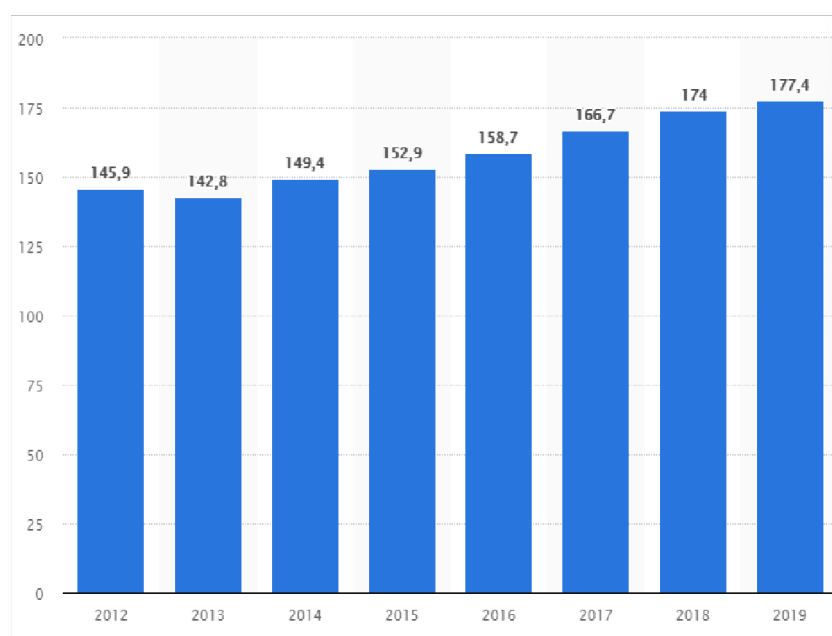


Figure 7. Evolution of the total contribution of tourism to GDP in Spain 2012-2019 (in billions of euro (Statista (2021))

Spain is an established market in the global travel industry and ranks as one of the world's leading travel destinations. In 2018, international tourism expenditure valued 68.9 billion euro and with figures predicted to rise, the future market outlook remains positive. Key international markets visiting Spain include the United Kingdom, France and Germany. Travel and tourism are important activities for the Spanish economy as they have a major impact on the country's economic growth and employment.

The tourism sector's contribution to GDP in Spain reached 178 billion euro in 2018 and added a total of around 2.9 million jobs.

This statistic shows the total annual spending of international tourists ('foreign visitors') in Spain from 2012 to 2019. Inbound tourism expenditure in Spain reached over 70 billion euro in 2017 for the first time (Fig. 8).

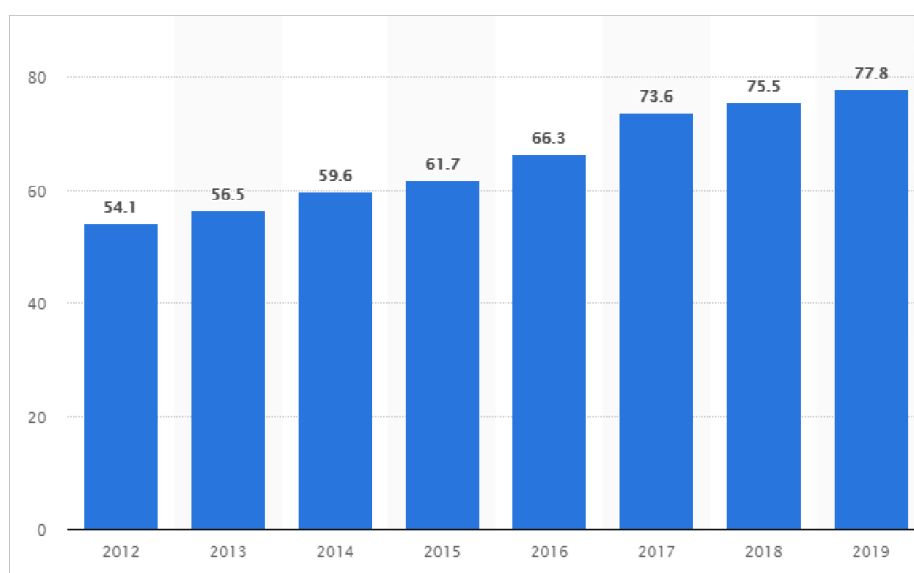


Figure 8. Spending by international tourists in Spain from 2012 to 2019 (in billion euro) (Statista (2021))

This statistic shows the number of travel accommodation establishments in Spain in 2018, by type. In total there were around 51,418 accommodation establishments in Spain in 2018, including hotels, camping grounds, recreational parks, holiday and other short-stay accommodation establishments (Fig. 9).

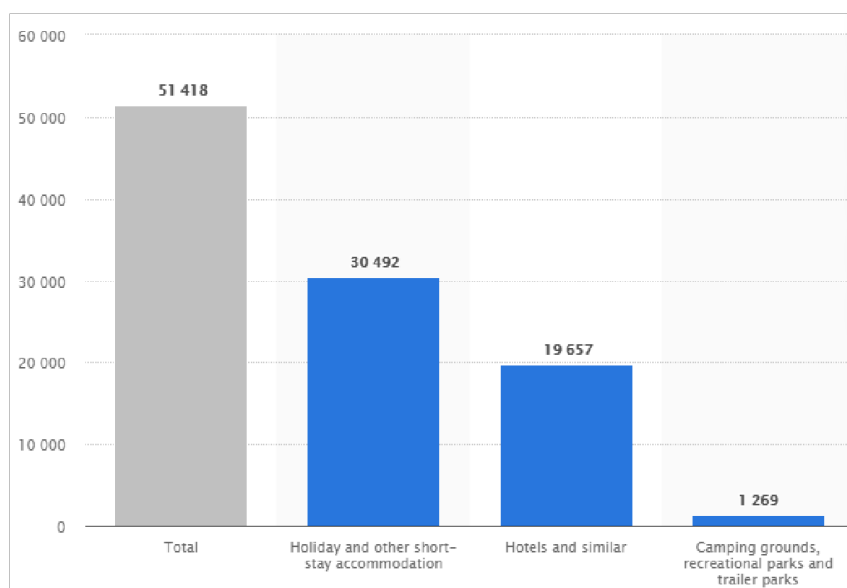


Figure 9. Number of travel accommodation establishments in Spain in 2018, by type (Statista (2021))

III. Touristic carrying capacity in Spain

Although there is no doubt that tourism is one of the world's great economic engines, it also generates - notably - negative impacts that affect the industry itself.

Researchers have defined these aspects as “the five load capacities applied to tourism”, with which it is intended to quantify the impact of tourism in different dimensions:

- Ecological carrying capacity: deterioration that tourism generates in environmental resources.
- Social carrying capacity: reduction in the quality of life of the inhabitants due to the increase in the number of tourists.
- Economic carrying capacity: economic repercussions such as investing in rehabilitating tourist areas.
- Perceptual carrying capacity of the tourist: distortion of the perception of the visitors themselves due to the crowds.
- Physical carrying capacity: capacity of the infrastructures or tourist areas to accommodate visitors (museums, hotels, beaches, etc.)

Its incidence is increasing, so it is necessary that public entities regulate the tourism industry in order to guarantee sustainability parameters that favor the development of destinations in the long term. In Spain, in recent times, year after year the records in the main tourist indicators are pulverized; in 2019 the 80 million international tourists received were exceeded. On the other hand, residents of Spain once again revived their tourist demand, with figures that annually exceeded 150 million tourist trips within the national territory, making more than 325 million excursions per year.

And as a result of all this, we wonder if these figures, despite being positive, are sustainable or not. Here arises the debate on the carrying capacity of tourist destinations, understood as the limit beyond which tourist activity in that destination is unsustainable and harmful.

Tourist carrying capacity (CCT) is a way of measuring or quantifying tourism sustainability, and thus, it has a differentiating feature, which is multidimensionality. The CCT is related to the territory, the environment, the use of resources, infrastructures, connectivity, equipment, local development, the preservation of cultural traditions, etc. Therefore, it is not an absolute limit, since for each dimension there is a threshold or restriction not to exceed.

The overall load capacity or reception of a tourist destination is determined by the interrelation of all its dimensions depending on the endowment of resources, the territory and time factors, therefore seasonality is another of the determining factors. For example, a destination like Spain can host 70 million tourists in a year, but not in a month. Hence, the great concern about seasonally adjusting tourist demand, since

tourist flows are increasingly concentrated, in 2018 of the 80 million international arrivals, 47% of them came between June and September, while in 2010 they were 36%, for the same period. In addition, international tourist arrivals to Spain are concentrated in the destinations of the “Mediterranean Arc”, the islands and the capital Madrid.

The CCT is related to the evolution of the tourist market (Van der Borg, 1998), therefore it is linked to the behavior of the life cycle of a tourist destination, that is, the thresholds or limits are exceeded when tourist flows are reduced by considering part of the tourists by whom the destination is already excessively congested and unattractive.

A reflection of all the above is to think that reaching record after record for years is not sustainable in the medium term nor is it beneficial. It has not been quantified if the limit is at 75 or 100 million international arrivals a year, concentrated in sun and beach destinations and in the summer period, but what is clear is that there is a threshold that generates negative effects at the social, economic, cultural and environmental levels.

In addition, there is concern about whether the boom in demand has negative effects on tourism supply by discouraging investment, competitiveness and quality.

What would be the solution to the dilemma “Tourism and sustainability”? One solution would be to seasonally adjust demand; on the one hand, with measures already in place such as promoting senior tourism and, on the other, the distribution of tourist flows in non-congested territories, for this it is necessary to influence the promotion of inland, shopping, cultural, gastronomic, nature tourism, all alternatives to the “Sun and Beach”.

IV. Selection of parameters in CoEvolve4BG

IV.1. GIS database

Geographic Information System (GIS) is applied to computer systems aimed at managing spatial data that visually allow us to analyze, manage and interpret geographic data. The methodology of this study has consisted of searching and processing shapefile layers and their subsequent analysis GIS. Shapefile layers have been downloaded from official national statistical platforms (Ministry of Ecological Transition and Demographic Challenge, MITECO, 2021) and from European platforms such as the European Marine Observation and Data Network (EMODnet, 2021).

The Spatial Reference System has the ETRS89 datum with UTM projection in the 30 North zone, with EPSG code: 25830. Additionally, they are based on official statistical platforms or rigorous studies, which guarantee the soundness of the information expressed. The GIS results were expressed by NUTS administrative boundaries from the EU (EUROSTAT <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-20-092>, 2021).

The NUTS classification subdivides the economic territory of the EU Member States into territorial units (regions; Fig. 10). The classification is made up of three hierarchical levels: each Member State and the UK are divided into NUTS 1 regions, which in turn are subdivided into NUTS 2 regions and then further divided into NUTS 3 regions.

Each of these regions is allocated a specific code and name. Since several different regions within Europe have the same name, a distinction has been made by adding to each of these the abbreviation for the country concerned.

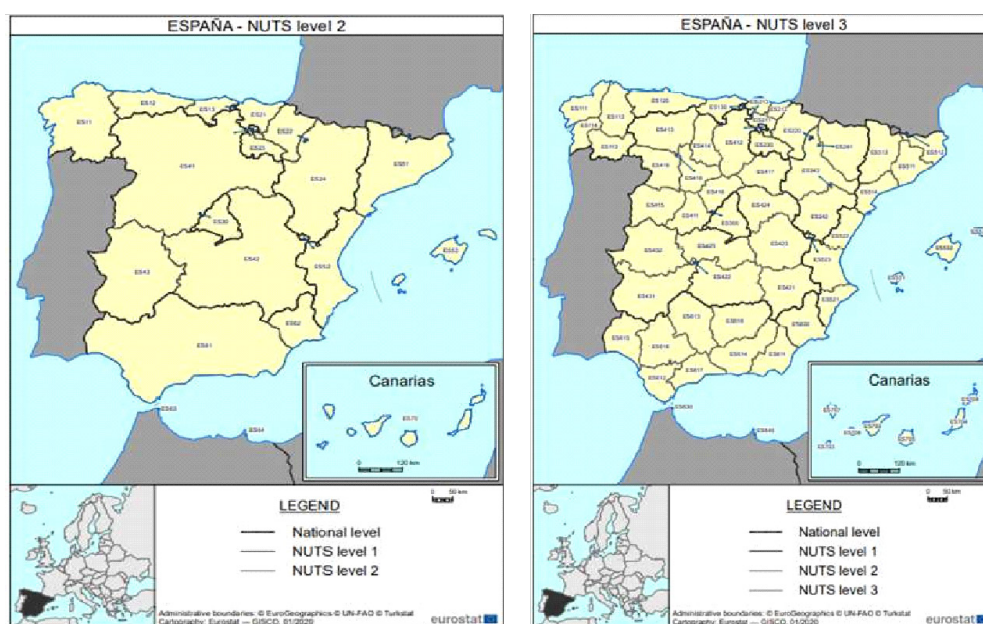


Figure 10. Spain (España): NUTS level 2 and 3 (EUROSTAT (2021))

IV.2. Data Records

This report includes a csv file with all the information at Nuts 3 level into the repository. The database will be updated and expanded as soon as new and improved data become available. The database presented here has been created using several publicly available datasets, which are thoroughly documented and described in reports or scientific articles (Table 1).

Thus, these datasets have undergone rigorous quality controls and/or validation. In addition, for those parameters where consistent information for the studied area were not available, new datasets were generated.

IV.3. Touristic fluxes and Carrying capacity

A panel of external experts and the working group at the Mediterranean level of the Co-Evolve4BG project has selected the following parameters of Climate Change and morphological stability, which will be analyzed on the National and Mediterranean scale (Table 1). In the supplementary material is located the excel table with the values of the parameters selected at the level of Spain.

Table 1. Touristic fluxes and carrying capacity parameters

Parameters	Variable	Description	Source
Number of establishments 2014 and 2019	Number	Identify the number of tourism establishments in the coastal district/region	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Tourism establishments growth for the last 5 years	%	Track the increase/decrease of the Tourism establishments over time. $[(NE_{establishment_nf} - NE_{establishment_ni}) * NE_{establishment_ni}^{-1}] * 100$	Own data
Number of tourists per year 2014 and 2019	Number	Track the increase or decrease of the length of visitor stay	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Growth of tourist arrivals for the last 5 years	%	Identify the growth of tourists' arrivals in touristic establishments : $[(TArrival(n+1) - TArrival(n)) * TArrival(n)^{-1}] * 100$	Own data
Number of Hotels (2019)	Number	Identify the number of hotels in the coastal district/region	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Number of beds	Number	Identify the number of beds available in the tourism establishment in the destination	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Number of overnights per year (2019)	Number	Track the increase or decrease of number of overnights registered in the touristic destination	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Average length of stay (2019)	Number	Track the increase or decrease of percentage of overnights registered in the touristic destination	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Visitor expenditures	Dollar/ stay	It is the total consumption expenditure made by a visitor during his/her stay at	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .

Quantity of energy used by tourism establishments	kwatt	Track energy uses by tourism establishments	https://www.academia.edu/37030187/Eficiencia_energ%C3%A9tica_aplicada_a_la_industria_hotelera
Volume of water used by tourism establishments	m³	Identify the volume of water used by tourism establishments	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .
Tourism is characterized by seasonality	Yes/No	Track the increase or decrease of the length of visitor	Instituto Nacional de Estadística https://www.ine.es/dyngs/INEbase/es/categoria .

V. Conclusions

The main conclusions of this work are:

- In 2018, Spain was ranked third in the world in terms of number of tourists received (82.8 million foreign visitors per year) and the second in terms of revenues (89,856 million euro).
- The main touristic areas of the Mediterranean coast of Spain are the island of Mallorca and Barcelona (45 and 23.33 million overnight stays in hotel establishments respectively) during 2019. The total contribution of the tourism sector to the gross domestic product (GDP) in Spain between 2012 and 2019 was close to 180,000 million euro and contributed with a total of around 2.9 million jobs.
- Tourist carrying capacity (CCT) is a way of measuring or quantifying tourism sustainability, and thus, it has a differentiating feature, which is multidimensionality. The CCT is related to the territory, the environment, the use of resources, infrastructures, connectivity, equipment, local development, the preservation of cultural traditions, etc. The tourist flows in Spain are mostly seasonal with almost half of them concentrated between June and September.

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