



# Mediterranean Tourism Facing Climate Change: Towards a Redefinition of the Tourism Model

## 1 . Introduction and current context of tourism in the Mediterranean

“Sand, sun and sea”: the Mediterranean has long embodied this imagery, attracting large numbers of travelers in search of sun, sea, and heritage (MED 2050 – Variable sheet – Tourism, 2021<sup>1</sup>). Over the decades, the region has established itself as one of the world’s leading tourist destinations. In 2019, it welcomed nearly 400 million international tourists, representing approximately 30 to 40% of the global total (Plan Bleu, 2022) (Figure 1), with projections exceeding 500 million visitors by 2030. The sector generates some 20 billion dollars for the Mediterranean economy (Sciacca et al., 2025), accounting for 11.3% of regional GDP and 11.5% of employment<sup>2</sup> (Plan Bleu, 2022). Studies conducted prior to the pandemic highlighted that tourism was expected to expand further, reaching a projected 12.5% of regional GDP by 2026 and representing 2.8 million jobs in 2027 (Petrick et al., 2017).

These flows are mainly concentrated in coastal areas, where hotel, port, and residential infrastructures have proliferated since the 1970s. Furthermore, the democratisation of low-cost flights has further increased the influx of visitors to the region (Caire et al., 2023).

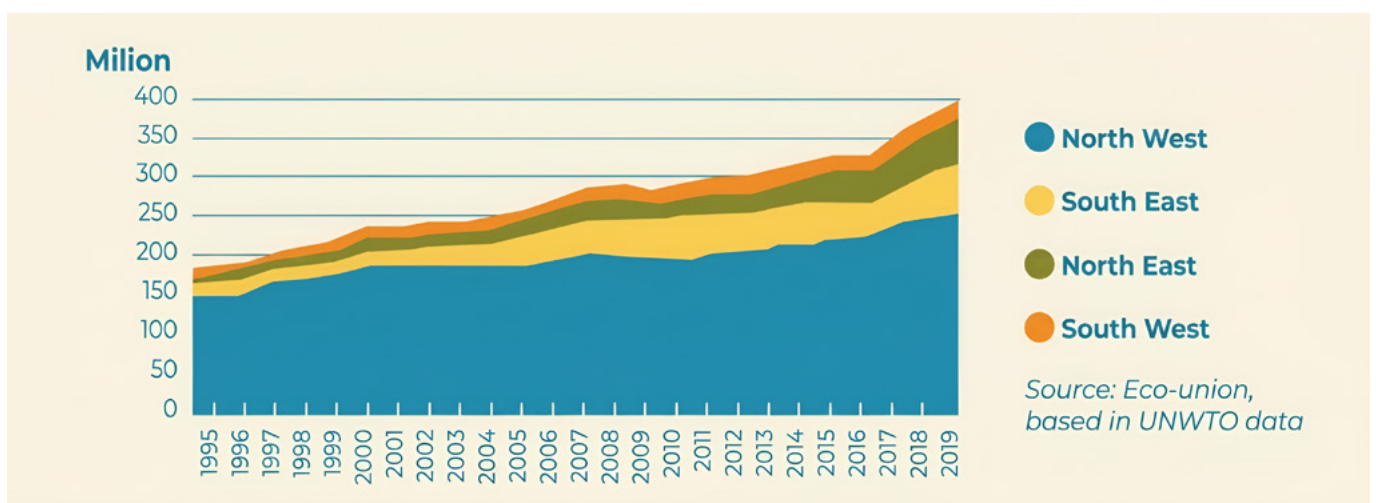


Figure 1: International tourist arrivals in Mediterranean countries, 1995-2019. © UN Tourism

According to UN Tourism<sup>3</sup>, in 2024, the Mediterranean region recorded 378.8 million international tourist arrivals, an increase of 7.6% compared to 2023, returning to pre-pandemic trends. Revenues generated by these arrivals<sup>4</sup> rose to 354.6 billion USD, up 8.8% from the previous year. While the number of tourists has continued to grow since 2020, despite the sector’s sharp decline due to the Covid-19 pandemic, certain recent signals reveal new trends in supply and demand, which will be detailed below.

<sup>1</sup> Authors: Ioannis Spilanis, Thierry Lavoux, Gloria Lazaro (Plan Bleu - Interreg MED Community), Jean de Montgolfier, Antoine Dolez (Plan Bleu), Antonio Troya & Arnau Teixidor-Costa (IUCN-Med), Josep Rodriguez (Coordinator of the Sustainable Tourism Community - Interreg Med project), Christoph Schröder (ETC-UMA), Claudia Guzzon (CPMR), Hrvoje Carić.

<sup>2</sup> These figures are pre-pandemic data from 2014 and 2015 respectively.

<sup>3</sup> For further information: [Link](#).

<sup>4</sup> This figure does not include data for Palestine, Syria, and Libya as none are available.



# Mediterranean Tourism Facing Climate Change

Mediterranean tourism has always been marked by a certain vulnerability: high seasonality, strong economic dependence of many countries on the sector, and the cumulative impact of anthropogenic pressures on coastlines and natural resources. These fragilities are now exacerbated by climate change, which acts as a risk multiplier. Indeed, the region is warming 20% faster than the global average<sup>5</sup>. This is notably due to its physical characteristics as a semi-enclosed sea—which is warming twice as much as the global ocean (+1.2°C vs. +0.6°C)—but also to the intensity of coastal urbanisation. Consequently, the effects are already visible: increasingly hot and dry summers, water stress, marine submersion, and the degradation of marine and coastal ecosystems (MED2050 and variable sheet; Cramer et al., 2018).

According to a recent study by economists, the summer of 2025—marked by extreme weather events (droughts, floods, wildfires, etc.)—cost Europe 43 billion euros, including 10 billion for France alone, one of the three most affected countries alongside Spain and Italy. The authors estimate that by 2029, economic costs related to summer disasters could reach 126 billion euros, or 0.78% of the EU's Gross Value Added (GVA) (Usman et al., 2025). These figures represent only the costs associated with floods, droughts, and heatwaves. Wildfires that occurred during the summer of 2025, which also incur costs, are not included.

These transformations are not only environmental: they are linked to socio-economic dynamics that are redefining the contours of Mediterranean tourism. Population growth, ageing populations, evolving consumption patterns, and tensions related to overtourism in certain destinations reflect profound shifts in the sector (MED2050, 2025; MED 2050 - Variable sheet - Tourism, 2021).

The Covid-19 pandemic constituted a first turning point in tourist consumption patterns. However, other weak signals, particularly related to climate change, are gradually emerging and affecting consumption habits. In 2018, the UfM<sup>6</sup> (Union for the Mediterranean) already stressed that the Mediterranean tourism sector would soon face the increasing effects of climate change, while noting that local stakeholders had limited capacity to anticipate and adapt, due to a fragmented market dominated by SMEs (Small and Medium-sized Enterprises)<sup>7</sup> ill-equipped to act in the long term. This “adaptation failure” (or maladaptation) already called for structured public intervention to support the transition (UfM, 2018). More recently, analyses by the European Travel Commission (ETC)<sup>8</sup> on 2025 tourist

arrivals highlight that “Southern/Mediterranean Europe remains the most popular region (41%), although interest has dropped by 8%, possibly due to rising temperatures”. Corroborating this trend, the same study interviewing a London-based tour operator noted a shift in traveller preferences to avoid summer heat, indicating that visiting intentions for the Mediterranean fell by 10% between June and November 2023 (Maldonado, 2024).

All these developments point towards an uncertain trajectory. On the one hand, the Mediterranean remains attractive thanks to its unique climate, culture, and landscapes. On the other, the impacts of climate change and the resulting socio-economic tensions pose a central question: what is the future of Mediterranean tourism in the era of climate change?

In this context, it is essential to adapt public policies to reduce the footprint of tourism and turn it into a driver of sustainability. This requires implementing regulations, adapting calendars, and integrating the sector into spatial planning policies, while also giving space to regional cooperation. However, the challenge is not only to correct the excesses of the past (e.g., land sealing/artificialisation, linear economy, etc.): it is also about avoiding new “maladaptations” to climate change, whether coastal infrastructures that accelerate beach erosion, increased pressure on water and housing resources, biodiversity loss, or vulnerability to heatwaves.

Thus, this thematic note proposes to analyse the challenges of tourism in the Mediterranean in the face of climate change by first presenting a global overview of the structural climate-related trends currently shaping the sector. It then provides an overview of the weak signals associated with these developments, which are beginning to exert—albeit still in an underlying manner—an influence on both supply and demand. Furthermore, a focus is placed on the Pelagos Sanctuary, regarded as an emblematic area for analysing the interactions between tourism, conservation, and climate change in the Mediterranean. The note then presents three potential trajectories for 2050, designed to inform reflections on the future of Mediterranean tourism. Finally, it identifies possible responses and adaptation levers for policymakers, highlighting the central role of Nature-based Solutions (NbS) and integrated governance.

climatique en Méditerranée. La note présente ensuite trois trajectoires potentielles à l'horizon 2050, destinées à nourrir la réflexion sur l'avenir du tourisme en Méditerranée. Enfin, elle identifie les réponses possibles et leviers d'adaptation pour les décideurs, en soulignant notamment le rôle central des Solutions fondées sur la Nature (SfN) et de la gouvernance intégrée.

<sup>5</sup> The temperature of the Mediterranean basin (land + sea) has risen by 1.5°C compared to pre-industrial levels (vs. 1°C for the global atmosphere), even exceeding 2°C in summer: “Warming is projected to reach +2.2°C by 2050. Consequently, terrestrial and marine heatwaves, which are already intense, long, and frequent, will continue to become even more so” (MED 2050, 2025).

<sup>6</sup> For further information: [Link](#).

<sup>7</sup> Small and Medium-sized Enterprises

<sup>8</sup> For further information: [Link](#).



# Mediterranean Tourism Facing Climate Change

## 2. Structural trends in the tourism sector in relation to climate change

The Mediterranean tourism sector is currently both a victim of and a contributor to climate change. As a pillar of economic growth, employment, and cultural exchange, tourism holds a central place in Mediterranean societies. However, this position relies on structural dynamics that are now undermined by ongoing environmental and climatic transformations (MED2050, 2025; MED 2050 – Variable sheet – Tourism, 2021; IOBE<sup>9</sup>, 2025).

The causal link is two-fold: tourism, through activities with high greenhouse gas (GHG) emissions and the pressure it exerts on local ecosystems, actively contributes to climate change and environmental degradation. For instance, in France, tourism is responsible for 11% of emissions according to the national GHG inventory (ADEME, 2024), and 8.8% globally (Sun et al., 2024). These interactions result in chronic climate risks (rising temperatures on land and sea, sea-level rise, desertification, biodiversity loss) and acute climate risks (floods, droughts, wildfires, heatwaves), which, in turn, directly affect the viability and attractiveness of Mediterranean tourist destinations. Indeed, the tourism system as it operates today resembles a vicious circle of degradation (Figure 2).

## 3. Climate, tourism, and travel behaviour in the Mediterranean: Dynamics and post-Covid weak signals

In 2025, European tourism continues to show marked growth. After exceeding pre-pandemic levels in 2024<sup>10</sup>, the momentum was maintained at the start of the year: international arrivals grew by 4.9% and overnight stays by 2.2% in the first quarter of 2025 (ETC Q1 2025). Over the first five months of the year, arrivals increased further by 3.3%, although overnight stays fell slightly (-0.7%), indicating that visitors are staying for shorter periods (ETC Q2 2025). This growth, however, is accompanied by increasing vulnerabilities related to climate, the economy, and social pressures, which are manifesting across the entire Mediterranean basin.

Recent climate events confirm this vulnerability. The summer of 2025 was marked by several wildfires around the Mediterranean. The hot and dry climate, typical vegetation, and the exposure of certain destinations to strong winds—factors exacerbated by global warming—increase the probability and intensity of fire outbreaks. In the EU, a record 1,015,731 hectares (10,000 km<sup>2</sup>) were lost during the summer of 2025<sup>11</sup>. In Morocco, very strong winds coupled with intense drought coincided with serious fires in the tourist region of Chefchaouen: approximately 500 hectares of forest and agricultural land were affected, with

many people impacted and displaced (Le Monde, 2025). In Turkey, fires caused 17 deaths and forced at least 3,500 residents to evacuate<sup>12</sup>. Such events can weigh on the perception of safety and the international image of destinations, weakening the tourism sector. This was indeed observed in Valencia (Spain), where arrivals fell following extreme flooding in late 2024: spending by foreign visitors decreased by approximately 90% in the first week and remained at -82% by the end of that month. In other affected municipalities, the decline remained around -25% to -29%, while, over the same period, international tourism spending increased by 14% nationwide. This decline is notably explained by disruptions to transport infrastructure and the deterrent effect of the event on travellers, illustrating the sector's high sensitivity to hydro-meteorological hazards (ETC Q1 2025; CaixaBank Research, 2024).

These episodes, observed across the entire basin, serve as a reminder that all Mediterranean destinations face increased climate risks, with cumulative effects on the environment and people's livelihoods.

In Marseille (France), the summer of 2025 provided a concrete illustration of tourism disruption linked to heatwaves. The average temperature from June to August reached 27.3°C, which is +2.1°C above the 1991-2020 average, with several consecutive days exceeding 38°C and a peak of 39.2°C on 19 July (Meteocity, 2025). These episodes coincided with a perceptible drop in footfall, a period described as «the time when there were the fewest tourists» by several local actors (shopkeepers, restaurateurs, VTC drivers). Marseillais restaurateurs evoke a «catastrophic» season with declining turnover (Maritima, 2025), and the UMIH (Union of Hotel Trades and Industries) estimates a 15% to 20% drop in attendance (France Bleu Provence, 2025). While other factors may also play a role, these observations align with a trend highlighted by scientific research: summer heatwaves reduce the attractiveness of Southern European destinations, particularly for international tourists. A paper by Milbourn et al. (2025) provides quantified insight into these dynamics: in the seven departments of the Mediterranean coast, from Hérault to Alpes-Maritimes, a one-degree increase in the minimum summer temperature is associated with an average decrease in international tourist arrivals of -3.9%, and -2.6% for French visitors. These results show that heat episodes do not only shift the seasonal distribution of flows but can also lead to a decrease in summer attendance, which is more pronounced for international tourists. Since the latter have a significantly higher level of spending, a decrease in their presence can result in a proportionally larger loss of earnings for coastal territories. A comparable phenomenon is observed in Greece, where spending per visitor decreased by 12% in 2024 (IOBE, 2025), a result consistent with analyses anticipating a drop in tourism consumption under the hottest climate scenarios (Milbourn et al., 2025).

<sup>9</sup> IOBE: Foundation for Economic & Industrial Research.

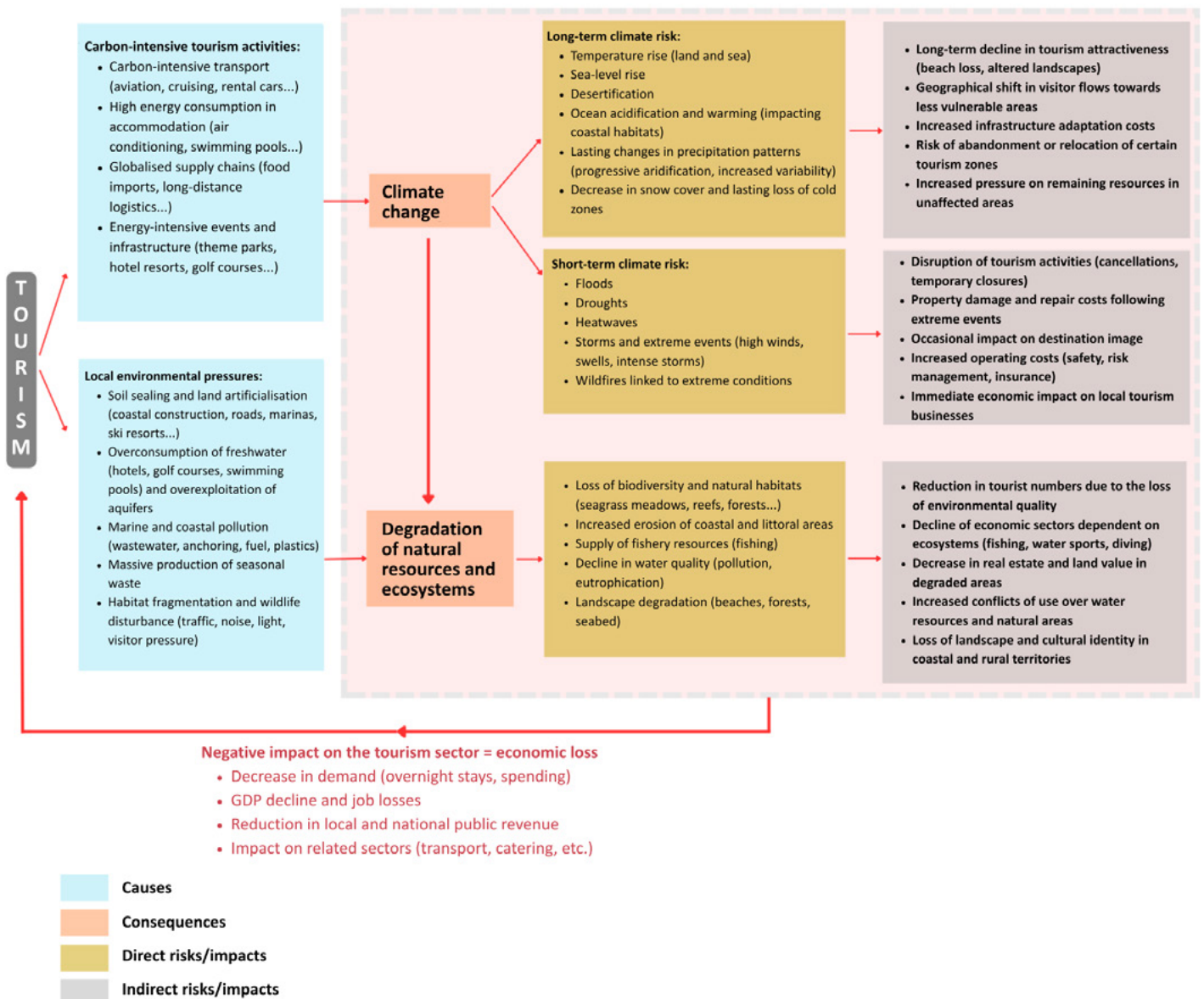
<sup>10</sup> In 2024: +6.2% international arrivals in Europe (ETC Q1 2025).

<sup>11</sup> For further information: [Link](#).

<sup>12</sup> For further information: [Link](#).



# Mediterranean Tourism Facing Climate Change



**Figure 2:** Channels of tourism influence on climate change and the environment, and negative feedback loops.

**Source:** Adapted from IOBE 2025 [p.36].

Beyond the summer season, these dynamics are part of a broader context of structural climate change. The warming of the Mediterranean Sea, both at the surface and at depth, alters ecosystem functioning and accelerates coastal erosion: since the 19th century, more than 4,000 hectares of coastline have been lost in the Provence-Alpes-Côte d’Azur region (ADEME PACA, 2023). This phenomenon is also observed in Greece, where over 20% of beaches are threatened with retreat by 2050 (IOBE, 2025). The warming of the sea also leads to episodes of jellyfish blooms and invasive algae that threaten both bathers and marine ecosystems, such as Posidonia meadows, throughout the basin. In parallel, the frequency of tropical

nights (temperatures >20°C) has multiplied in the region; in Nice, for example, it has increased five-fold in 60 years, with 100 nights recorded in 2023 (ADEME PACA, 2023; Actu.fr, 2025). These nocturnal episodes can also increase health risks, particularly for vulnerable groups.

On the other side of the Mediterranean, economic trends confirm this vulnerability to climate change. In Morocco, despite a rebound in tourism (11.6 million visitors between January and July 2025, +16% compared to 2024), dependence on coastal areas remains high: about 30% of national tourism and 300,000 jobs are linked to the coastline. However, projections for 2035 predict a drop in tourist ar-



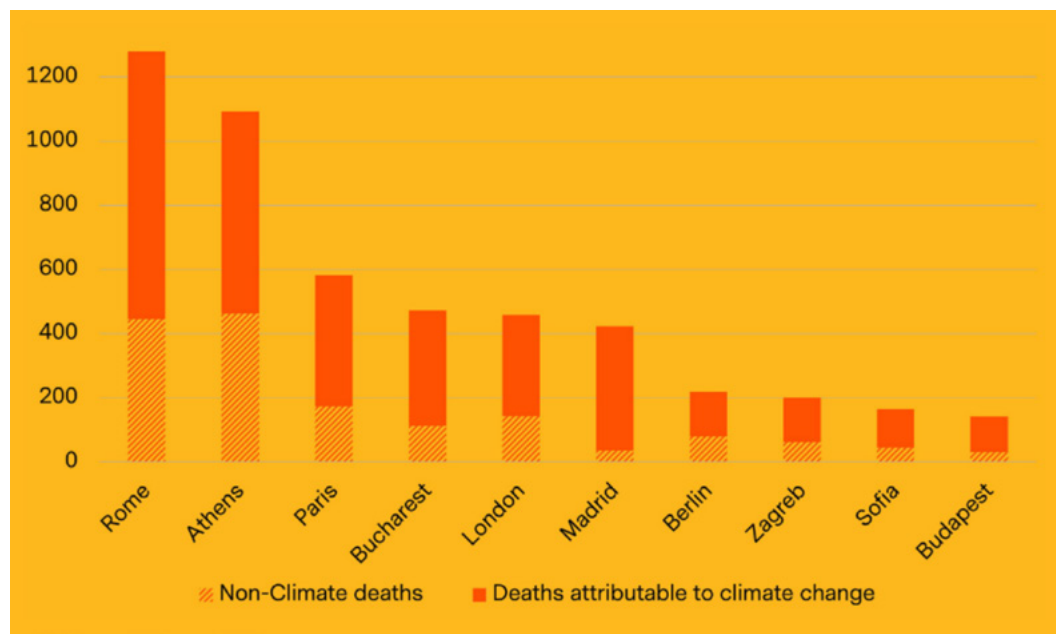
## Mediterranean Tourism Facing Climate Change

rivals, causing a loss of between -8% and -18% in tourism spending due to climate change<sup>13</sup>, and job losses that could reach 32% in coastal tourism (World Bank, 2024). In Tunisia, the situation is equally revealing: tourism represents 14.2% of GDP and 11% of total employment<sup>14</sup>, with nearly 90% concentrated in coastal areas. By 2050, the economic cost of sea-level rise (SLR) for Tunisian tourism could reach 6.9% of 2020 GDP, and approximately 1,100 jobs would be threatened in the absence of adaptation measures (World Bank, 2023).

Similarly, in Morocco, coastal erosion and sea-level rise threaten nearly 42% of the coastline by 2030<sup>15</sup>, while associated economic losses would already reach 0.4% of GDP per year (World Bank, 2024). In Tunisia, nearly 25% of coastal areas are considered high-risk by 2050, with vulnerability heightened by a high concentration of human activities: 90% of national economic activity and two-thirds of the population are located on the coast (World Bank, 2023). These territories, essential for seaside tourism, illustrate the structural dependence of Southern Mediterranean economies on high-value-added areas that are highly vulnerable to the effects of climate change—a duality that reinforces the need to integrate resilience into regional tourism strategies.

On a European scale, the effects of warming are also human: a preliminary study estimates the number of heat-related deaths during the summer of 2025 at 15,000, including around 800 in Rome, 600 in Athens, and nearly 400 in Madrid (Imperial Grantham Institute, 2025) (Figure 3).

These upheavals are changing traveller behaviour. According to a March 2025 survey<sup>16</sup>, nearly three out of four Europeans (72%) plan to travel by September, but intentions vary strongly across generations: 80% of those over 55 plan to go, compared to only 54% of the younger generation (Gen Z), down 10% from 2024. Although Southern/Mediterranean Europe remains the top destination region, attracting 41% of travel intentions, it has lost 8% in one year to regions perceived as more temperate. Meanwhile, Eastern European countries are seeing an increase in visitors of +3% compared to 2024 (Monitoring Sentiment for Intra-European Travel, ETC, 2025). Figure 4 illustrates the effects of current climate conditions on tourism demand and simulates future increases or decreases in this demand until 2100 under four warming scenarios.



**Figure 3:** Estimated number of additional heat-related deaths in European capitals during the summer of 2025. © London School of Hygiene and Tropical Medicine (2025).

<sup>13</sup> The effects of climate change have [...] been translated into losses of tourist visits – using tourist responses to the risk of wildfires and high temperatures.” (World Bank, 2024)

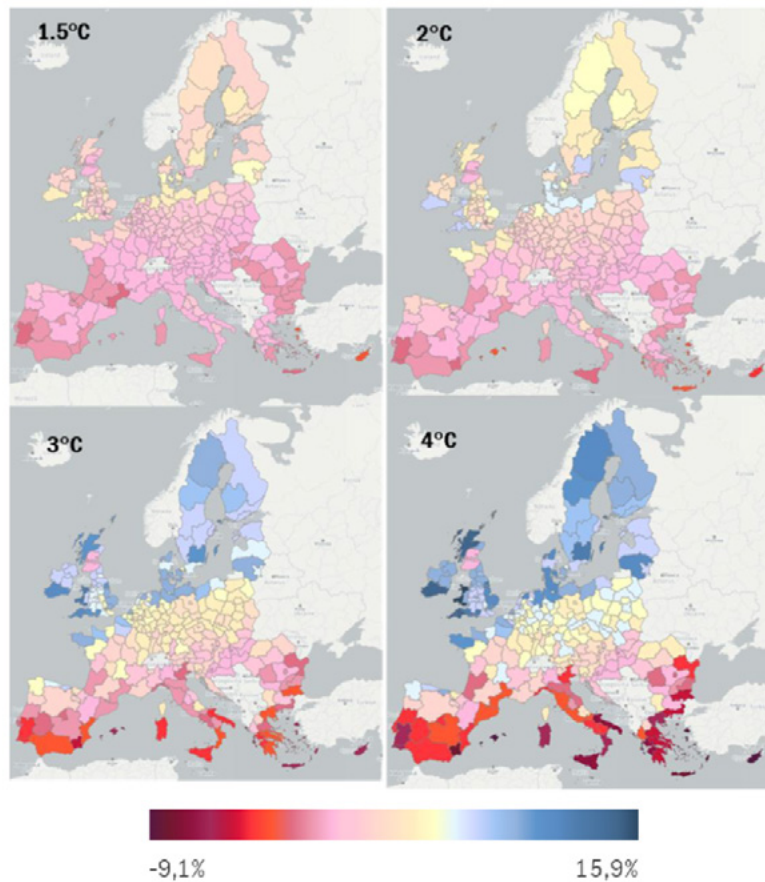
<sup>14</sup> In 2018.

<sup>15</sup> This figure may also apply to Morocco’s Atlantic coast.

<sup>16</sup> Monitoring Sentiment for Intra-European Travel - ETC (2025)



## Mediterranean Tourism Facing Climate Change



**Figure 4 :** Projected evolution of European regional tourism demand for all climate warming scenarios, compared to the current situation (2019) in percentage. © EU, 2023.

Climate has become a central criterion in trip planning (14% consider stable weather important in choosing a destination), alongside price (22%) and safety (17.5%). More than eight out of ten Europeans (+7%) state they have already modified their habits due to climate hazards: some now avoid destinations judged too hot or choose cooler destinations (28%), others change the timing of their holidays (10.4%), or monitor the weather before booking (16.6%) (ETC, 2025). This trend is reflected more broadly across the Mediterranean: 70% of tourists state they would change destination if the temperature became uncomfortable, and over 80% would give up coming if beaches disappeared (World Bank, 2024). These data confirm that climatic attractiveness is becoming a decisive factor in tourism competitiveness for the entire Mediterranean basin.

This phenomenon fuels the trend of “cool-cations”, where travellers seek to avoid summer heat peaks by opting for off-season stays or cooler regions (ETC Q1 2025). In January-February 2025, Cyprus recorded a 15.4% increase in arrivals and Malta 12.6%, proving that Mediterranean destinations that diversify their offer outside of summer can benefit from these developments (ETC Q1 2025). Conversely, some French tourists have chosen to forego holidays

in Marseille or the Côte d’Azur in favour of more temperate regions, such as the Cotentin, citing heat as the main reason (Actu.fr, 2025).

Despite these challenges, demand for more sustainable tourism is growing. Indeed, the “sustainable travel” score in Europe reached 7.75/10 in the second quarter of 2025 (ETC Q2 2025), and responsible practices are becoming rooted in habits: 48% of Europeans favour less touristy destinations, 40% opt for longer but less frequent stays, and 11% choose the train. Media and social networks help confirm this shift, with growing interest in slow travel, nature stays, cycling, or van travel (ETC Q2 2025). Some regions, such as Provence-Alpes-Côte d’Azur, are already experimenting with a redirection of tourism promotion (Figure 5) towards quieter seasons, in order to better distribute flows and limit impacts (ADEME, 2023). This marketing strategy has borne fruit: from November 2024 to February 2025, the Côte d’Azur recorded +10% international overnight stays in Nice compared to the previous winter, a +3% hotel occupancy rate from November to February, a +7% increase in revenue per room, and +16% international air arrivals at Nice Côte d’Azur airport (PACA Region, 2025).



# Mediterranean Tourism Facing Climate Change



Figure 5: Tourism advertisement – Métropole Nice Côte d’Azur. ©Région PACA, 2025.

This trend is also found in the southern basin, where adaptation and diversification strategies are beginning to emerge: in Tunisia, a combination of adaptation and decarbonisation actions in the power sector could bring GDP growth to +8.8% by 2030, and the adoption of an ambitious ICZM (Integrated Coastal Zone Management) policy would limit land losses to 44 million USD, compared to 1.6 billion USD in an inaction scenario (World Bank, 2023).

Signals are converging: climate risks and economic constraints are reshaping the Mediterranean tourism model. While heatwaves, fires, or coastal pollution weaken some destinations, these same challenges encourage innovation, diversification, and the promotion of more sustainable alternatives. In a summer where Europe has experienced record heat and mortality, the question of the future of summer tourism in the Mediterranean appears more than ever as a central issue for territorial and economic resilience.

## 4. FOCUS – The Pelagos Sanctuary: A Mediterranean laboratory for sustainable blue tourism

Located in the heart of the North-Western Mediterranean, the Pelagos Sanctuary is an area where major ecological issues overlap with some of the highest tourism intensity in the basin<sup>17</sup>. Identified as an Ecologically or Biologically Significant Area (EBSA) under the Convention on Biological Diversity (CBD) and classified as a Particularly Sensitive Sea Area (PSSA) by the IMO<sup>18</sup>, it was established in 1999 by France, Italy, and Monaco (Folegot et al., 2025). Within its 87,500 km<sup>2</sup>, nine species of marine mammals are regularly observed, including eight species of cetaceans. The fin whale and sperm whale, classified as endangered<sup>19</sup> in the Mediterranean, are particularly vulnerable to disturbances related to noise, summer maritime traffic, and collisions<sup>20</sup>. Their peak presence, notably that of the sperm whale between August and October, coincides with maximum tourist attendance, marked by intense ferry and passenger ship traffic in July-August (Couvat et al., 2012). In 2023, more than 37 million AIS positions, corresponding to nearly 60,000 vessels, were recorded in the Sanctuary (Folegot et al., 2025).



Figure 6: Limits of the Pelagos Sanctuary. © Pelagos Sanctuary

This traffic density directly contributes to underwater noise, which is identified as a major pressure for species that rely on acoustics to communicate, forage, and navigate (Folegot et al., 2025). Furthermore, vessel strikes present a persistent threat: 16% of fin whales stranded between 1972 and 2001 were killed by ships, and the known annual collision rate stands at 1.51 cases for the 1972–2009 period estimates that are widely considered to be undervalued (Couvat et al., 2012). Indeed, the risk of collision within the Sanctuary is reportedly 3.25 times

17 Flagship destinations: Nice, Monaco, Positano, Pisa, Corsica, Northern Sardinia.  
18 International Maritime Organization.  
19 International Union for Conservation of Nature.  
20 For further information: [lien](#).



## Mediterranean Tourism Facing Climate Change

higher than in other Mediterranean regions (WWF, 2017). Existing estimates reinforce this finding: by cross-referencing cetacean distribution with traffic intensity, researchers estimate that approximately 3,500 potential collisions could occur each year, over 3,100 of which involve fin whales. WWF (2017) also specifies that cetaceans frequently display avoidance behaviours around vessels, entailing ecological costs that remain poorly quantified (altered trajectories, reduced foraging time, and repeated disturbances). Added to this is plastic pollution: the Ligurian Sea exhibits some of the highest levels in the basin, and ports accumulate chemical contaminants, adding further pressure to existing disturbances (Roppo et al., 2025). Data from the Sanctuary show that cetaceans accumulate some of the highest concentrations in the world of Persistent Organic Pollutants (POPs) in their tissues—such as PCBs, PBDEs, and DDT—<sup>21</sup>, as well as plastic additives and pharmaceutical residues. These substances, bioaccumulated and biomagnified along the food chain, can compromise immune systems, disrupt endocrine functions, and increase susceptibility to infectious diseases. Direct ingestion or entanglement in marine debris, increasingly reported over the last five decades, poses an additional threat to the Sanctuary's cetaceans<sup>22</sup>.

Several studies also identify climate change as an emerging threat to marine mammals, compounding noise, habitat degradation, and vessel strikes (Couvart et al., 2012). While the specific effects of marine heatwaves are not detailed extensively, the Mediterranean warming trend is well documented: sea surface temperatures increased continuously between 1982 and 2016 (Pastor et al., 2018). Rising temperatures can also reduce prey availability for certain large cetaceans and disrupt the entire food chain, as highlighted by Chazot et al. (2020). Indeed, water warming and acidification broadly impact all Mediterranean marine ecosystems. Bleaching events affect cold-water coral reefs and gorgonians, while *Posidonia oceanica* meadows—which serve as vital biodiversity reservoirs, nurseries, and carbon sinks—show signs of regression under extreme temperatures (Gambaiani et al., 2009; Cerrano et al., 2000). Meanwhile, warming triggers a decline in calcifying organisms (such as oysters and mussels), and it is estimated that a 3°C increase above the summer maximum temperature could lead to a 100% mortality rate for Mediterranean mussels (GREC-SUD, n.d.). All these organisms form an essential part of the trophic base indirectly exploited by the Sanctuary's large cetaceans. Consequently, these temperature-driven upheavals alter the composition and seasonality of phytoplankton, occasionally creating a mismatch with the needs of dependent organisms. Stronger water column stratification also restricts vertical mixing and nutrient inputs from the deep, reducing the productivity of phytoplankton and subsequently

the zooplankton that feed on them. These shifts directly affect the fin whale: its primary prey in the Mediterranean, the krill *Meganyctiphanes norvegica*, is already close to its thermal limit and could see its populations decline as the sea warms (Gambaiani et al., 2009).

Finally, the physical transformations associated with warming influence underwater sound propagation: in 2023, the speed of sound varied by approximately 30 m/s between summer and winter, altering exposure conditions to underwater noise (Folegot et al., 2025). These factors demonstrate that climate change intensifies pressures that are already high and exacerbated by the tourist season. The steady growth of whale watching adds another dimension: in the French Mediterranean, the number of operators<sup>23</sup> is growing by 3.5% per year (Mayol et al., 2014). While this activity is an important vehicle for public awareness, it can also cause disturbances and increase collision risks, particularly between Toulon and Antibes and around Corsica, where high-risk areas for fin whales are notably pronounced in summer (Mayol et al., 2013). These interactions compound the natural movements of striped dolphins, which approach recreational boating areas at dawn and dusk (Mayol et al., 2013).

In the face of these vulnerabilities, the Pelagos Sanctuary also serves as an arena for innovation. The implementation of a code of conduct<sup>24</sup> as early as 2005, followed by a “High Quality Whale Watching” certificate guaranteeing environmental quality developed jointly with ACCOBAMS<sup>25</sup> and reinforced by operator training sessions from 2012 onwards—marked a turning point in the regulation of whale watching (Mayol et al., 2014). Several tools have been deployed, such as the REPCET system<sup>26</sup>, tested through seasonal monitoring on ferries, which enables vessels to detect and report the presence of cetaceans in real time in order to reduce collisions (Couvart et al., 2012). Additionally, the NETCCOBAMS platform (developed by ACCOBAMS) gathers data relevant to cetacean conservation across the Mediterranean. Through its VisiZone module, it offers near-real-time visualisation of AIS-derived speeds within areas of interest, providing animated maps and dashboards to objectively monitor speed compliance and target areas with a high risk of collision, particularly in the North-Western PSSA<sup>27</sup>. Concurrently, acoustic analyses show that reducing vessel speed is a direct lever for simultaneously mitigating noise, collision risks, and maritime transport emissions (Folegot et al., 2025). Finally, local initiatives such as Pelagos Plastic Free, which led several municipalities to adopt guidelines against single-use plastics and prompted several fishers to sign a Memorandum of Understanding to prevent the loss of fishing gear, demonstrate the growing mobilisation of local stakeholders (Ballerini et al., 2019).

<sup>21</sup> Polychlorinated biphenyls, PBDEs: Polybrominated diphenyl ethers, DDT: Dichlorodiphenyltrichloroethane.

<sup>22</sup> For further information: [lien](#).

<sup>23</sup> 32 active operators between La Ciotat and Le Lavandou.

<sup>24</sup> Exemple: Ban on swimming with cetaceans.

<sup>25</sup> Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean and contiguous Atlantic area.

<sup>26</sup> Real-time positioning of cetaceans.

<sup>27</sup> Adapt' Pelagos workshop (Monaco, 16 September 2025), Plan Bleu.



# Mediterranean Tourism Facing Climate Change

By combining high tourism density, ecological vulnerabilities, and transboundary cooperation, the Pelagos Sanctuary operates today as a genuine Mediterranean laboratory. It demonstrates that challenges related to intensifying maritime uses and global warming can be anticipated and mitigated through concerted measures, technological innovations, and shared governance. The lessons learned from the Pelagos Sanctuary thus offer concrete pathways for adapting maritime tourism across the entire Mediterranean basin. The ADAPT-Pelagos project<sup>28</sup>, led by Plan Bleu (2024–2027), is fully part of this dynamic: it aims to strengthen the action capacity of local stakeholders and foster concrete solutions for a more sustainable blue economy. Through a series of thematic workshops—namely (i) Cruise and Recreational Boating, (ii) Sustainable Tourism, (iii) Carrying Capacity and Marine Protected Areas, and (iv) Blue Economy Indicators—it helps structure operational tools and disseminate best practices within the Sanctuary.

## 5. Future Trajectories for the Sector

The future of Mediterranean tourism will largely depend on the capacity of territories to adapt and reorient their models in the face of climate constraints. Three trajectories for 2050 can be outlined based on observed trends and weak signals, drawing inspiration from the prospective scenarios of the MED 2050 Report (2025) and ADEME (2023): maintaining a model centred on summer growth (Business as usual), adaptation through technological innovation, and finally, a spatio-temporal adaptation aimed at spreading flows throughout the year while seeking to redistribute activities and destinations towards less vulnerable areas, in accordance with the carrying capacity of socio-ecosystems.

Trajectories	Impacts on the Tourism Offer	Impacts on Tourism Demand	Structural Impacts	Implementation Conditions / Levers for Action	Degree of Adaptation
<b>Business as Usual: A Model under Strain</b>	<ul style="list-style-type: none"> <li>Retention of a highly seasonal offer concentrated on the coastline.</li> <li>Infrastructure and facilities poorly adapted to climate hazards (heat, fires, erosion, submersion, shrink-swell capacity of clay soils).</li> <li>High dependence on carbon-intensive transport and fossil fuels.</li> <li>Gradual degradation of services and tourist sites (pressure on beaches, water, biodiversity).</li> <li>Increased public health risks (toxic algae, invasive species).</li> <li>Rising insurance costs.</li> </ul>	<ul style="list-style-type: none"> <li>Demand heavily concentrated in time (summer), despite deteriorating climate conditions.               <ul style="list-style-type: none"> <li>Gradual drop in visitor satisfaction and loyalty due to heatwaves, congestion, and environmental degradation.</li> <li>Increased sensitivity of attendance to climate hazards (cancellations, postponed stays, shift to competing destinations).</li> <li>Inflexible demand based on rigid practices and calendars (school holidays, carbon-intensive mobility).</li> <li>Risk of decline in certain visitor segments (families, seniors) in favour of more opportunistic or short-stay attendance.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Increased pressure on natural resources and infrastructure.</li> <li>Heightened economic vulnerability and dependence.</li> <li>Drop in tourist arrivals (= collapse of the sector).</li> </ul>	<ul style="list-style-type: none"> <li>Weak intersectoral coordination.</li> <li>Fragmented and reactive adaptation policies.</li> <li>Absence of strong incentives for transition.</li> <li>Limited regulation of carrying capacity and coastal planning.</li> </ul>	<b>Low / Unsustainable</b>

<sup>28</sup> Pour plus d'informations sur le projet: [lien](#).



# Mediterranean Tourism Facing Climate Change

<p><b>Adaptation through Innovation: Technology and Modernisation</b></p>	<ul style="list-style-type: none"> <li>• Modernisation of the offer via «resilient» infrastructure (sediment replenishment and beach nourishment, coastal structures, modular equipment).</li> <li>• Advanced digitisation of the tourist experience (flow management, smart services) leading to increased costs.</li> <li>• Development of a technological blue and green economy (marine energies, hydrogen).</li> <li>• Upscaling and polarisation of the offer: highly equipped sites vs. less attractive territories.</li> </ul>	<ul style="list-style-type: none"> <li>• Retention of attractiveness despite warming, thanks to comfort, safety, and flow control.</li> <li>• More regulated demand, oriented towards technologically advanced destinations.</li> <li>• Increased visitor dependence on technological devices</li> </ul>	<ul style="list-style-type: none"> <li>• High dependence on investment, Euro-Mediterranean cooperation, and technology.</li> <li>• Maintenance of tourist arrivals during the summer season.</li> <li>• Risks of rebound effects (increased energy and resource consumption).</li> </ul>	<ul style="list-style-type: none"> <li>• Massive investment in digital tech, decarbonised energy, and innovation.</li> <li>• Public-private partnerships for infrastructure and services.</li> <li>• Regulatory frameworks favouring pilot tests and experimental zones.</li> <li>• Deployment of data systems and AI to manage flows and risks.</li> <li>• Euro-Mediterranean cooperation (technology transfers, funding).</li> </ul>	<p><b>Medium / Techno-centric transition</b></p>
<p><b>Spatio-temporal Adaptation: Sobriety and Territorial Cooperation</b></p>	<ul style="list-style-type: none"> <li>• Diversification and relocation of the offer by increasing the attractiveness of less vulnerable areas (hinterland, rural areas, small towns).</li> <li>• Restriction of coastal densification, respecting and accounting for carrying capacities and adapting existing infrastructure.</li> <li>• Integration of Nature-based Solutions (NbS) and Integrated Coastal Zone Management (ICZM) into tourism planning.</li> <li>• Development of offers less dependent on summer climate (nature, culture, slow tourism).</li> <li>• Improved climate comfort for off-season visitors.</li> <li>• Inclusion, involvement, and empowerment of local communities in creating tourism offers.</li> </ul>	<ul style="list-style-type: none"> <li>• Gradual decoupling from seasonal demand.</li> <li>• More balanced distribution of flows over time and space.</li> <li>• Reduction of summer pressure on resources and ecosystems.</li> <li>• Increased search for local, low-impact, and authentic experiences.</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable reduction of coastal vulnerability.</li> <li>• Promotion of local resources and economic diversification.</li> <li>• Strengthening of ecological and social resilience.</li> <li>• More stable economic activity throughout the year.</li> <li>• Greater social acceptance of tourism among local communities.</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated, multi-level governance (local, regional, national).</li> <li>• Long-term spatial planning.</li> <li>• Coordination between public, private, and civil society actors.</li> <li>• Incentive policies (pricing, communication, events).</li> <li>• Adaptation of calendars (school holidays, transport, events).</li> <li>• Public/private funding directed towards territorial transition.</li> </ul>	<p><b>High / Deep transformation</b></p>



# Mediterranean Tourism Facing Climate Change

These three trajectories are not mutually exclusive: they merely provide an analytical framework to inform deeper prospective reflections<sup>29</sup> on the future of tourism facing climate change. The Business as usual trajectory extends current, observable dynamics, where seasonal and spatial imbalances reinforce vulnerabilities and amplify warming effects. The Adaptation through Innovation trajectory relies primarily on technical solutions, infrastructure, engineering, and market mechanisms to address climate impacts, without committing to a deep transformation of the tourism model. Conversely, the most ambitious pathway, Spatio-temporal Adaptation, proposes a structural transition towards an integrated tourism that respects socio-ecosystems, consistent with the environmental, social, and territorial imperatives specific to the Mediterranean basin. The next section of this note focuses on potential levers to implement within the Spatio-temporal Adaptation trajectory.

## 6. Adaptation and Mitigation Levers, and Recommendations

In the face of accelerating climate change, responses from the Mediterranean tourism sector must aim to simultaneously reduce its environmental pressures and greenhouse gas emissions while strengthening the resilience of coastal territories. On an international scale, the Glasgow Declaration on Climate Action in Tourism provides a voluntary framework to align the tourism sector with the Paris Agreement, pursuing a net-zero target by 2050. Although non-binding, this declaration establishes a shared action pathway for tourism stakeholders, structured around five complementary pillars: measuring impacts, decarbonising activities, regenerating ecosystems, strengthening stakeholder collaboration, and mobilising finance<sup>30</sup>. The recommendations below draw on three recent reports, namely *Tourisme en PACA 2050* (ADEME, 2023), *Sustainable Blue Tourism* (IUCN, 2025), and *Impact économique du changement climatique sur le tourisme grec et scénarios d'adaptation* (IOBE, 2025). They all converge on the same finding: without rapid adaptation, the Mediterranean risks seeing its main asset its climate become a factor of vulnerability. Consequently, five lines of action can be identified:

### a. Reducing the carbon footprint and energy dependence of tourism

The Mediterranean tourism sector contributes significantly to greenhouse gas emissions, particularly through air travel, the air conditioning of tourism infrastructure, and reliance on fossil fuels. Reports emphasize the urgency of

a gradual decarbonisation of the tourism system, based on sobriety, the renovation of existing infrastructure, and innovation.

Reducing the energy demand of tourism infrastructure is another key mitigation lever. Indeed, studies by the IUCN (2025) and ADEME (2023) call for the development of clean rail and maritime corridors<sup>31</sup>, the improvement of intermodality, and the promotion of domestic tourism through tailored pricing and communication policies. In 2022, mobility accounted for 69% of GHG emissions in the French tourism sector, with 29% from air transport alone (ADEME, 2024). Throughout the Mediterranean basin, air travel retains a dominant share in the regional carbon footprint, whereas developing eco-mobility (trains, cycling, public transport) can notably reduce short-term impacts. Financial incentives (subsidies, tax exemptions, public-private investments) are necessary to foster alternative transport modes and accelerate decarbonisation.

Reducing the energy demand of tourism infrastructure is another key mitigation lever. In Greece, the IOBE (2025) advocates for energy renovation programmes for accommodation and the adoption of architectural standards adapted to the Mediterranean climate, based on natural ventilation, thermal insulation, and the use of local materials and expertise. For instance, recent work on the Kasbahs and Ksour of Southern Morocco shows how culture-based solutions utilising local materials, high thermal inertia, natural ventilation systems, and biophilic spatial layouts maintain summer comfort while significantly reducing energy needs. These vernacular architectures, analysed through a biophilic design matrix, demonstrate the capacity of traditional knowledge to provide low-impact, resilient responses to extreme heat (Abyaa et al., 2025).

These low-energy approaches, which are also being trialled in certain PACA hotels and transport modes, reduce energy consumption while improving the summer comfort of visitors. The creation and mainstreaming of public aid, such as ADEME's Sustainable Tourism Fund in France (now closed), serves as a genuine lever for the sector's energy transition.

Finally, it is necessary to emphasize the transition towards a circular and resource-efficient economy, integrating waste management, biowaste recovery, and material reuse in tourism construction. The IUCN (2025) recalls the importance of restricting single-use plastics and integrating the entire tourism value chain into regional circular economy policies ranging from farmers and logistics/port networks to local hoteliers<sup>32</sup>. These joint efforts reduce the sector's indirect emissions while strengthening its social and environmental acceptability.

<sup>29</sup> Prospective exercises require a robust and proven methodology. To this end, the methodology used in the MED2050 report (2025) is recommended.

<sup>30</sup> For further information: [Link](#).

<sup>31</sup> Mediterranean Nitrogen Oxides Emission Control Area (Med NOx ECA): [Link](#). Impacts of a Med NOx ECA on the fisheries and tourism sectors: [Link](#).

<sup>32</sup> For further information on pollution management, particularly plastics in the Mediterranean: [Link](#).



# Mediterranean Tourism Facing Climate Change

## b. Protecting and restoring coastal and marine ecosystems

Adaptation cannot be effective without preserving the ecosystems that underpin the very attractiveness of Mediterranean tourism. The three reports converge on the decisive role of Nature-based Solutions (NbS), which offer an ecological, economic, and social response to climate impacts. Restoring wetlands, dunes, Posidonia meadows, and lagoons is a regional priority. These natural environments act as living barriers against erosion, submersion, and biodiversity loss<sup>33</sup>. The ADEME (2023) report illustrates this approach with local dune rehabilitation and meadow replanting initiatives aimed at strengthening the resilience of tourist beaches. On a regional scale, Plan Bleu contributes to the preservation of Posidonia meadows through the ARTEMIS project<sup>34</sup>. This project aims to accelerate the restoration of Posidonia meadows and the recovery of associated ecosystem and ecological services in the Euro-Mediterranean zone.

Ultimately, NbS enable a form of nature tourism that is «triple-win». Indeed, it not only «protects biodiversity, but also creates rewarding jobs and generates strong economic spillovers» (Voegele, 2025), as well-preserved natural heritage acts as a tourist attraction in its own right. There is thus a convergence between local development and nature conservation.

The IUCN (2025) report calls for the ecological management of the coastline, combining mooring regulations, building restrictions in sensitive areas, and the integration of Marine Protected Areas (MPAs) into tourism planning. These measures preserve the ecological functions of marine environments while promoting sustainable tourism practices (responsible diving, coastal ecotourism). Furthermore, the IOBE (2025) complements this approach by emphasizing the concept of territorial carrying capacity. It recommends defining ecological, social, and infrastructural thresholds for attendance to prevent the saturation of island and coastal zones. Every new tourism development should thus be subject to a climate vulnerability and resource availability assessment. The report also highlights the need to account for the social carrying capacity of residents to avoid tensions related to overtourism<sup>35</sup>. These carrying capacity and local acceptability indicators serve as operational decision-support tools.

Finally, scientific monitoring of pressures (water quality, biodiversity, recreational uses) must guide the management of flows within tourist sites. In the Calanques of Marseille<sup>36</sup>, for example, reservation and counting systems have been implemented to limit attendance and preserve fragile environments a model that can be replicated in

other Mediterranean areas. These approaches combine ecological protection, sustainable attractiveness, and climate change adaptation.

## c. Rebalancing the spatial and temporal model of tourism

The concentration of summer flows on coastlines and the dependence on a short peak season weaken the economic model and amplify climate impacts. The three reports agree on the need for a spatial and temporal rebalancing of tourism, based on offer diversification and seasonal adjustment (deseasonalisation). This approach is reinforced by recent studies introducing an innovative methodology: the joint analysis of climate and tourism data at a fine granularity, on both a departmental and monthly scale (Milbourn et al., 2025). This increased granularity makes it possible to pinpoint exactly how climate variations manifest across time and space, revealing attendance dynamics that were previously difficult to observe. By cross-referencing maximum/minimum temperatures with monthly tourist flows, these approaches provide a more nuanced understanding of the seasonal and territorial shifts in tourism under climate constraints. Furthermore, these insights are essential for tourism stakeholders (hoteliers, restaurateurs, local authorities, tourist offices, etc.).

Consequently, a primary lever for adaptation is the promotion of the shoulder seasons. IUCN (2025) and the ADEME (2023) report recommend promoting spring and autumn as preferred periods, by developing cultural, natural, and gastronomic offers tailored to more favourable climate conditions. The IOBE (2025) shows that, according to the Tourism Climate Index (TCI), thermal comfort levels will be optimal during these periods by 2050, justifying a strategy to spread visitor flows. This approach reduces summer pressure on resources and ensures more stable economic activity throughout the year.

In parallel, geographic diversification of destinations can reduce coastal vulnerability. The development of rural, mountain, or heritage tourism, supported by regional policies (ADEME, 2023), fosters the development of the hinterland and low-density areas. In Albania, the ADAPT project (2019–2024) in the municipality of Elbasan illustrates this potential: forest landscape restoration and sustainable land management improved ecological resilience while supporting local agro-tourism and ecotourism, providing new economic prospects for over 1,000 households (Plan Bleu, 2024). These initiatives thus redistribute economic benefits while alleviating pressure on coastal areas. The spatial restructuring of tourism thereby becomes a lever for adaptation and territorial cohesion, aligned with the climate and environmental objectives of the Mediterranean basin.

<sup>33</sup> For further information on NbS for water and flood management in the Mediterranean: [Link](#).

<sup>34</sup> For further information: [Link](#).

<sup>35</sup> This concept is defined as “the degree to which a local community can host tourism without a deterioration in quality of life or social relations.” (IOBE, 2025).

<sup>36</sup> For further information: [Link](#).



# Mediterranean Tourism Facing Climate Change

## d. Integrating climate adaptation into tourism governance

Integrating climate change into tourism planning and governance is another common thread across the three reports. All emphasize the need for intersectoral and multi-level coordination to avoid fragmented and reactive policies. The IUCN (2025) proposes incorporating tourism adaptation into National Adaptation Plans (NAPs) and aligning it with Integrated Coastal Zone Management (ICZM) and Maritime Spatial Planning (MSP). The IOBE (2025) shares this approach, recommending the creation of a national framework of technical standards and climate indicators for Greek tourism (replicable in other countries), including environmental tolerance thresholds per destination. For its part, the ADEME (2023) report stresses the integration of tourism into spatial planning documents<sup>37</sup>, to account for climate risks (erosion, heatwaves, submersion).

The IOBE (2025) highlights the Tourism Climate Index (TCI) as a decision-support tool to measure climate comfort and anticipate shifts in tourist flows. A regional harmonisation of this indicator could form the basis of a shared Mediterranean Tourism Climate Index, useful for regional cooperation and prospective exercises.

Adaptive governance also requires greater participation from local stakeholders. The IUCN advocates for multi-stakeholder platforms bringing together local authorities, businesses, scientists, and civil society to co-design adaptation strategies and manage climate crises (wildfires, heatwaves). In line with this approach, networking regional climate-tourism observatories, as proposed by the IOBE, would strengthen the shared monitoring of indicators (temperature, attendance, water availability, environmental quality). The Plan Bleu Observatory<sup>38</sup> already holds an extensive range of data on climate, extreme weather events, and tourism. Thus, through this innovative tool, Plan Bleu provides a solid and interoperable foundation to inform decision-making and guide public adaptation policies at the regional scale.

Similarly, the NaTour4CChange project<sup>39</sup>, in which Plan Bleu is a partner, perfectly illustrates this dynamic: it fosters trans-Mediterranean cooperation by bringing together 10 partners from several countries, including 5 Regions and 6 coastal tourist destinations. Through its activities, the project implements innovative methodologies to assist tourist destinations in achieving better governance when planning their adaptation to climate change. The project notably aims to co-design 5 regional strategies and 6 action plans for Mediterranean coastal destinations and to test Nature-based Solutions (NbS) to strengthen the resilience of coastal and marine environments.

## e. Supporting the transition through knowledge and investment

Finally, the reports remind us that adaptation requires not only financial and technical resources but also the strengthening of human skills at all levels of the sector. Developing training and capacity-building programmes is an essential prerequisite to accelerate the transition. The goal is to equip tourism professionals with the necessary knowledge for climate risk management, eco-design, energy demand reduction, and the circular economy. These initiatives can leverage existing regional networks (e.g., universities, tourist offices, etc.) to more widely disseminate a shared culture of adaptation and sustainability across Mediterranean destinations.

The financing of the transition is also central. The IUCN (2025) proposes mobilising European and international funds to support the energy transition, ecological restoration, and sustainable coastal management. This public funding can be reinforced by blended finance mechanisms, combining public and private capital to share risks and stimulate investment. This model would notably support small and medium-sized tourism enterprises in their modernisation and climate adaptation projects. In parallel, creating economic incentives (e.g., nature-based credits, payments for ecosystem/environmental services provided) would encourage the gradual reorientation of the sector toward models compatible with regional climate targets, while supporting competitiveness and local employment.

## 7. Conclusion

L Recent dynamics confirm the emergence of weak signals of change in the Mediterranean tourism sector: visitors increasingly factoring climate change into their choices, lower summer attendance in certain destinations, and rising demand for more sustainable offers, among others. However, these weak signals above all reveal an inescapable reality: the effects of climate change are already present and concretely affect the attractiveness, practices, and economic models of tourism. They highlight the urgent need to commit massive, rapid, and coordinated adaptation resources, commensurate with the ongoing disruptions.

While mitigation remains an essential, long-term strategy, it cannot suffice to address immediate impacts. The challenge for the coming years therefore lies in our collective capacity to finance and deploy this adaptation—an indispensable condition for durably anchoring Mediterranean tourism in a trajectory compatible with the climate and environmental objectives of the region. This funding, and the political will stemming from it, will constitute a litmus test of the genuine commitment of public and private

<sup>37</sup> SRADDET: Regional Scheme for Spatial Planning, Sustainable Development and Equality of Territories (France);

SCOT: Territorial Coherence Scheme (France);

PLU: Local Urban Plan (France).

<sup>38</sup> For further information: [Link](#).

<sup>39</sup> For further information: [Link](#).



# Mediterranean Tourism Facing Climate Change

stakeholders to transforming the sector.

## 8. Bibliography

Abyaa, Z., Harrouni, K. E., Degron, R. (2025). Characterizing Sustainability and Assessing Biophilic Design in Vernacular Architecture: Case of Kasbahs and Ksour in South of Morocco. *Sustainability*, 17(10). <https://doi.org/10.3390/su17104680>

Actu.fr. (2025). « On allait à Marseille mais on a changé d'avis » : face à la canicule, la solution du Cotentin. [https://actu.fr/normandie/cherbourg-en-cotentin\\_50129/on-alait-a-marseille-mais-on-a-change-davis-face-a-la-canicule-la-solution-du-cotentin\\_63024317.html](https://actu.fr/normandie/cherbourg-en-cotentin_50129/on-alait-a-marseille-mais-on-a-change-davis-face-a-la-canicule-la-solution-du-cotentin_63024317.html)

Actu.fr. (2025, July 14). Incendies, chaleurs intenses... Le tourisme a-t-il encore un avenir sur la côte méditerranéenne ? [https://actu.fr/societe/incendies-chaleurs-intenses-le-tourisme-a-t-il-encore-un-avenir-sur-la-cote-mediterraneenne\\_62883035.html](https://actu.fr/societe/incendies-chaleurs-intenses-le-tourisme-a-t-il-encore-un-avenir-sur-la-cote-mediterraneenne_62883035.html)

ADEME. (2023). Quatre scénarios pour le tourisme côtier en région Provence-Alpes-Côte d'Azur à l'échéance 2050. <https://librairie.ademe.fr/societe-et-politiques-publiques/6703-quatre-scenarios-pour-le-tourisme-cotier-en-region-provence-alpes-cote-d-azur-a-l-echeance-2050.html>

ADEME. (2024). Bilan des émissions de gaz à effet de serre du secteur du tourisme en France en 2022. <https://librairie.ademe.fr/changement-climatique/7637-bilan-des-emissions-de-gaz-a-effet-de-serre-du-secteur-du-tourisme-en-france-en-2022.html>

Ballerini, T., Di Marco, S., Di Vito, S., Dominici, M., Dumontet, B., Grasso, P., Turiani, E., & Nardicchia, S. (2019). Pelagos Plastic Free project – Final report. [https://pelagos-sanctuary.org/wp-content/uploads/2024/11/03.-Ballerini-et-al-2019\\_ConsolidatedReport\\_PelagosPlasticFree.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2024/11/03.-Ballerini-et-al-2019_ConsolidatedReport_PelagosPlasticFree.pdf)

Caire, G., Bazin, C., Cousin, S., & Wanner, P. (2023). Aérien et tourisme : des liaisons dangereuses ? <https://hal.science/hal-05031455>  
CaixaBank Research. (2024).

Economic impact of the floods in the Valencia province. <https://www.caixabankresearch.com/en/economics-markets/activity-growth/economic-impact-floods-valencia-province>

Cerrano, Carlo & Bavestrello, Giorgio & Bianchi, Carlo Nike & Cattaneo-Vietti, Riccardo & Bava, S. & Morganti, C. & Morri, Carla & Picco, P. & Sara, G. & Schiaparelli,

Stefano & Siccardi, A. & Sponga, F.. (2000). A catastrophic mass-mortality episode of gorgonians and other organisms in the Ligurian Sea (North-Western Mediterranean), summer 1999.. *Ecology Letters*. 3. 284 - 293. [10.1046/j.1461-0248.2000.00152.x](https://doi.org/10.1046/j.1461-0248.2000.00152.x).

Chazot, J., Charrier, E., Leseignoux, L., & Labach, H. (2020). High-Quality Whale-Watching® en Méditerranée française. [https://pelagos-sanctuary.org/wp-content/uploads/2024/11/14.-Chazot-et-al-2020\\_HQWW\\_effet-de-la-marque\\_perception.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2024/11/14.-Chazot-et-al-2020_HQWW_effet-de-la-marque_perception.pdf)

Couvat, J., Mayol, P., & Gambaiani, D. (2012). Étude des déplacements des grands cétacés dans le Sanctuaire Pelagos. [https://pelagos-sanctuary.org/wp-content/uploads/2024/11/17.-Couvat-et-al-2012\\_Etude\\_de\\_deplacements\\_des\\_grands\\_cetaces\\_PELAGOS.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2024/11/17.-Couvat-et-al-2012_Etude_de_deplacements_des_grands_cetaces_PELAGOS.pdf)

Cramer, W., et al. (2018). Climate change and interconnected risks to sustainable development in the Mediterranean. *Nature Climate Change*. <https://doi.org/10.1038/s41558-018-0299-2>

Cruise News. (2025). Santorini's 2025 Tourist Season Faces Delays and Seismic Concerns. <https://www.cruiseneews.io/santorinis-2025-tourist-season-faces-delays-and-seismic-concerns/>

ETC Corporate. (2025, May 7). European Tourism 2025 – Trends & Prospects (Q1/2025). <https://etc-corporate.org/reports/european-tourism-2025-trends-prospects-q1-2025/>

ETC Corporate. (2025, July 3). European Tourism 2025 – Trends & Prospects (Q2/2025). <https://etc-corporate.org/reports/european-tourism-2025-trends-prospects-q2-2025/>

Faouzi, A. (2025). Morocco Tourism Revenues Surge to \$6.7 Billion... <https://www.moroccoworldnews.com/2025/08/256155/morocco-tourism-revenues-surge-to-6-7-billion-in-first-seven-months/>

Folegot, T., Clorennec, D., Hemon, E., & Gallou, R. (2025). Assessment of the distribution of maritime traffic and underwater noise... [https://pelagos-sanctuary.org/wp-content/uploads/2025/07/2.-Folegot-et-al\\_final-report\\_TRAFFIC\\_NOISE.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2025/07/2.-Folegot-et-al_final-report_TRAFFIC_NOISE.pdf)

France Bleu Provence. (2025). "C'est une catastrophe" : un été 2025 difficile... <https://www.francebleu.fr/infos/economie-social/>



# Mediterranean Tourism Facing Climate Change

un-ete-2025-difficile-pour-les-restaurateurs-marseille-lais-6583393

Gambaiani DD, Mayol P, Isaac SJ, Simmonds MP. (2009). Potential impacts of climate change and greenhouse gas emissions on Mediterranean marine ecosystems and cetaceans. *Journal of the Marine Biological Association of the United Kingdom*. 89(1):179-201. doi:10.1017/S0025315408002476

GREC-SUD. (n.d.) L'acidification de la mer Méditerranée. <https://www.grec-sud.fr/article-cahier/articles-du-cahier-mer-et-littoral/la-relation-entre-la-mer-et-le-climat-sur-la-cote-mediterranee/lacidification-de-la-mer-mediterranee/>

Imperial Grantham Institute. (2025). Summer heat deaths in 854 European cities... <https://spiral.imperial.ac.uk/server/api/core/bitstreams/4d5b1a8a-c5ed-47fd-894c-f05ae31ae69d/content>

IOBE. (2025). Οικονομικές επιπτώσεις της κλιματικής αλλαγής στον ελληνικό τουρισμό. <https://www.iobe-climatechange21.gr/studies/Tourism.pdf>

IUCN, IATUR, IDDRI & eco-union. (2025). Sustainable Blue Tourism in the Mediterranean. <https://iucn.org/fr/actualite/202510/un-nouveau-rapport-de-luicn-souligne-le-besoin-urgent-dun-tourisme-bleu-plus>

Juergen Voegelé. (2025). Protéger pour prospérer : le tourisme de nature... <https://blogs.worldbank.org/fr/voices/protect-to-prosper-how-nature-based-tourism-drives-jobs-and-growth> Le Monde. (2025).

Maroc : vaste incendie dans le nord-est... [https://www.lemonde.fr/afrique/article/2025/08/15/maroc-le-vaste-incendie-de-foret-dans-le-nord-est-circonscriit\\_6629896\\_3212.html](https://www.lemonde.fr/afrique/article/2025/08/15/maroc-le-vaste-incendie-de-foret-dans-le-nord-est-circonscriit_6629896_3212.html) Le Monde. (2025). Les incendies ont brûlé plus de 1 million d'hectares... [https://www.lemonde.fr/planete/article/2025/08/21/dans-l-union-europeenne-les-incendies-ont-brule-plus-de-1-million-d-hectares-depuis-debut-2025-un-chiffre-jamais-enregistre\\_6633126\\_3244.html](https://www.lemonde.fr/planete/article/2025/08/21/dans-l-union-europeenne-les-incendies-ont-brule-plus-de-1-million-d-hectares-depuis-debut-2025-un-chiffre-jamais-enregistre_6633126_3244.html)

London School of Hygiene & Tropical Medicine. (2025). Climate change-driven summer heat caused 16,500 additional deaths across Europe.

<https://www.lshtm.ac.uk/newsevents/news/2025/climate-change-driven-summer-heat-caused-16500-additional-deaths-across-europe>

Maldonado, D. (2024). ETC Special Report on Climate Change. [https://etc-corporate.org/uploads/2024/06/2024-ETC\\_Travelsat\\_Special-Report-on-Climate-Change.pdf](https://etc-corporate.org/uploads/2024/06/2024-ETC_Travelsat_Special-Report-on-Climate-Change.pdf) Maritima. (2025).

Marseille : quel bilan pour la saison touristique 2025 ? <https://maritima.fr/actualites/economie/marseille/8580/marseille-quel-bilan-pour-la-saison-touristique-de-lete-2025>

Mayol, P., Di-Méglio, N., David, L., Couvat, J., Labach, H., Ratel, M. (2014). Le whale-watching en Méditerranée française. [https://pelagos-sanctuary.org/wp-content/uploads/2024/11/49.-Mayol-et-al-2014\\_whale-watching-en-Mediterranee-francaise-etat-des-lieux.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2024/11/49.-Mayol-et-al-2014_whale-watching-en-Mediterranee-francaise-etat-des-lieux.pdf)

Mayol, P., Di-Méglio, N., David, L., Dhermain, F., & Serre, S. (2013). Whale-watching et plaisance. [https://pelagos-sanctuary.org/wp-content/uploads/2024/11/50.-Mayol-et-al-2013\\_Whale-watching-et-plaisance-precision-des-connaissances-et-des-mesures-de-gestion.-2013.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2024/11/50.-Mayol-et-al-2013_Whale-watching-et-plaisance-precision-des-connaissances-et-des-mesures-de-gestion.-2013.pdf)

MED 2050. (2021). Fiche variable 24 – Tourisme. Météocity. (2025). Bilan de l'été 2025 à Marseille... <https://actus.meteocity.com/actualites-meteo/bilan-de-lete-2025-a-marseille-un-ete-sous-le-signe-de-la-cha-leur-et-de-lensoleillement-record-889>

Milbourn, F. W., Wertlieb, E. R., & Orttung, R. W. (2025). Localized climate change impacts on tourism businesses. <https://doi.org/10.1016/j.annale.2025.100176>

Monitoring Sentiment for Intra-European Travel Summer/Autumn 2025. (2025). ETC Corporate. <https://etc-corporate.org/reports/monitoring-sentiment-for-intra-european-travel-summer-autumn-2025/>

Pastor, F., Valiente, J. A., & Palau, J. L. (2018). Sea Surface Temperature in the Mediterranean... <https://doi.org/10.1007/s00024-017-1739-z>

Pelagos Sanctuary. <https://pelagos-sanctuary.org/fr/especies/> Petrick, K., Fosse, J., Lammens, H., Fiorucci, F., Mancini, R., & Sens, A. (2017). Blue Economy in the Mediterranean. [https://ufmsecretariat.org/wp-content/uploads/2017/12/UfMS\\_Blue-Economy\\_Report.pdf](https://ufmsecretariat.org/wp-content/uploads/2017/12/UfMS_Blue-Economy_Report.pdf)



## Mediterranean Tourism Facing Climate Change

Plan Bleu. (2022). État des lieux du tourisme en Méditerranée.

<https://planbleu.org/publications/tourisme-mediterranee/>

Plan Bleu. (2025). MED2050 pour une Méditerranée durable et résiliente.

<https://planbleu.org/publications/la-mediterranee-a-lhorizon-2050/>

Plan Bleu. (2025). Vers une NECA méditerranéenne.

<https://planbleu.org/publications/med-nox-eca-impacts/rempec>. (2025).

E-Med NOx ECA Reg. Technical & Feasibility Study.

<https://www.rempec.org/en/knowledge-centre/online-catalogue/e-med-nox-eca-reg-expert-mtng-2025-inf-4-final-draft-technical-and-feasibility-study.pdf/view>

Région PACA. (2025). Record d'audience pour la saison 2 de « Nice Côte d'Azur en hiver ».

<https://provence-alpes-cotedazur.com/app/uploads/crt-paca/2025/03/CP-CRT-NICE-COTE-DAZUR-EN-HIVER-Bilan-Saison-2.pdf>

Roppo, C., Lanfredi, C., & di Majo, F. M. (2025). Sustainable ports in the Pelagos Sanctuary.

[https://pelagos-sanctuary.org/wp-content/uploads/2025/07/5.-Roppo-et-al\\_-final-report\\_ECO-PORTS.pdf](https://pelagos-sanctuary.org/wp-content/uploads/2025/07/5.-Roppo-et-al_-final-report_ECO-PORTS.pdf)

Sciacca, A. et al. (2025). La Méditerranée peut-elle réinventer le tourisme ?

<https://www.iddri.org/fr/publications-et-evenements/billet-de-blog/la-mediterranee-peut-elle-reinventer-le-tourisme>

Sky News. (2025). Turkey wildfires: At least 17 killed...

<https://news.sky.com/story/turkey-wildfires-at-least-17-killed-as-thousands-flee-their-homes-13403136>

Sun, Y.-Y., Faturay, F., Lenzen, M., Gössling, S., & Higham, J. (2024). Drivers of global tourism carbon emissions.

<https://doi.org/10.1038/s41467-024-54582-7>

Usman, S., Parker, M., & Vallat, M. (2025). Dry-roasted NUTS: early estimates of the regional impact of 2025 extreme weather.

<https://doi.org/10.2139/ssrn.5484206>

World Bank. (2023). Rapport national sur le climat et le développement en Tunisie. <https://www.banquemondiale.org/fr/country/tunisia/publication/tunisia-country-climate-and-development-report>

World Bank. (2024). Maroc : renforcer la résilience climatique pour préserver et développer l'emploi dans le tourisme côtier. <https://blogs.worldbank.org/fr/arabvoices/morocco-strengthening-climate-resilience-to-secure-guard-and-grow-coastal-tourism-jobs#:~:text=Les%20autorit%C3%A9s%20marocaines%20ont%20d%C3%A9j%C3%A0,financ%C3%A9%20par%20la%20Banque%20mondiale>.

WWF. (2017). Trafic maritime et risques de collisions avec les grands cétacés dans le Sanctuaire Pelagos.

[https://www.wwf.fr/sites/default/files/doc-2017-07/16\\_rapport\\_trafic\\_maritime\\_et\\_risques\\_de\\_collisions\\_avec\\_les\\_grands\\_cetaces\\_sanctuaire\\_pelagos.pdf](https://www.wwf.fr/sites/default/files/doc-2017-07/16_rapport_trafic_maritime_et_risques_de_collisions_avec_les_grands_cetaces_sanctuaire_pelagos.pdf)



# Mediterranean Tourism Facing Climate Change

## Disclaimer

The designations employed and the presentation of the information in this publication do not imply the expression of any opinion whatsoever on the part of UNEP/MAP, Plan Bleu, or the contributing organizations concerning the legal status of any country, territory, city, or area, or of its authorities, nor concerning the delimitation of its frontiers or boundaries. The views expressed in this publication are those of the authors and do not necessarily reflect those of UNEP/MAP, Plan Bleu, or the contributing organizations.

## Copyright

This publication may be reproduced, in whole or in part and in any form, for educational or non-profit purposes without prior permission from the copyright holder, provided that the source is duly acknowledged. Plan Bleu would appreciate receiving a copy of any publication that uses this document as a source. This publication may not be used for resale or for any other commercial purpose without the prior written permission of Plan Bleu.

© 2026 Plan Bleu

## Funded by



### PLAN BLEU

UNEP/MAP Regional Activity Centre  
Marseille, France

planbleu@planbleu.org - www.planbleu.org

Publication Director: **Antoine Lafitte** Author: **Aliki Sofos**

Contributor: **Chloé Martin**

Proofreader: **Eloïse Leguérinel**

Graphic Design: **Saif Salmi, Christelle El Selfani**

Legal Deposit: **N° ISSN 2606 61 06**



Mediterranean  
Action Plan  
Barcelona  
Convention

