



# Living islands, for a sustainable Mediterranean

Biodiversity (re)connecting nature and resilient communities

S. Petit, A. Abreu, P. Emmanouilidou and K. Hogg



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**Coordinator:**

Yaprak Arda, IUCN Centre for Mediterranean Cooperation

**Edited by:**

Kate Hogg, Kate Hogg Consulting

**Cover design:**

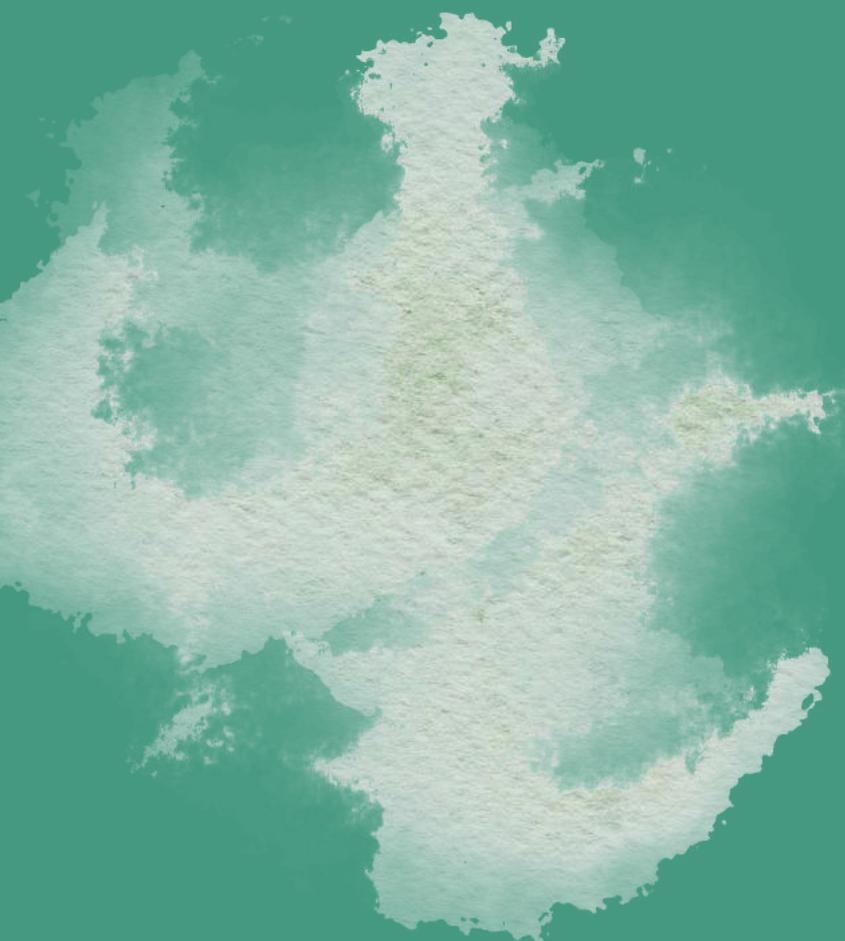
Daniel Mendes, Chameleonic Consulting

**Layout by:**

Daniel Mendes, Chameleonic Consulting

# Table of contents

<b>Executive summary</b> .....	<b>vii</b>
<b>1. Introduction</b> .....	<b>1</b>
1.1. The Mediterranean islands and their biodiversity .....	2
1.2. Why a strategy for the preservation of biodiversity on Mediterranean islands? .....	6
<b>2. Current trends and challenges affecting the Mediterranean islands</b> .....	<b>8</b>
2.1. Main socioeconomic trends on Mediterranean islands .....	11
2.2. Biodiversity policies and laws within the Mediterranean islands context .....	14
<b>3. Priority themes for island biodiversity conservation</b> .....	<b>19</b>
3.1. Strengthen knowledge and raise awareness on Mediterranean island biodiversity .....	21
3.2. Embed capacity for biodiversity conservation and sustainable management at the island level .....	26
3.3. Pilot the development and implementation of island-level joint initiatives in conservation and restoration of biodiversity and its ecosystems .....	29
3.4. Promote sustainable use of biodiversity and ecosystem services for living islands .....	32
3.5. Build a strong community of practices to reconnect .....	36
3.6. Facilitate financing and government support .....	38
<b>4. Governance and partnership for implementation</b> .....	<b>41</b>
<b>5. Timeline, monitoring, evaluation, revision</b> .....	<b>43</b>
<b>Bibliography</b> .....	<b>45</b>



# Executive summary

With almost 5,000 islands and islets, the Mediterranean basin has one of the largest groups of islands in the world and yet, despite valuable initiatives, there exists a pressing need to adopt a shared vision for the preservation of Mediterranean islands and the unique biodiversity they sustain. The strategy and action plan, outlined in what follows, for Mediterranean islands has a clear purpose to: strengthen and improve management efficiency in protected areas and other natural spaces, along with promoting an integrated approach that will lead to changes in production and consumption models that benefit biodiversity.

The aim of the strategy is to help realize the vision of productive and biologically diverse Mediterranean islands that can meet the long term needs of people and nature, stop further loss of biodiversity and assist in the recovery of threatened Mediterranean island biota by 2030.

Addressed to public authorities, conservation bodies and relevant actors working throughout the Mediterranean region, it is hoped that the present strategy brings biodiversity to the forefront and highlights its importance as a key pillar for supporting continued socioeconomic development and resilience of Mediterranean islands that will ensure a brighter tomorrow.

The Mediterranean Islands Collective (MIC), financed by the MAVA foundation,

has developed this strategy through extensive collaboration with project partners, pilot projects, and in-depth consultations at national and regional level. The implementation and progression of the strategy will continue to be led by MIC partners, in a coordination role. However, it is strongly recognized that the responsibility for its delivery is shared across relevant regional and EU organisations, local and national governments, business, environmental and community groups and private individuals throughout the Mediterranean region.

The strategy and action plan presented below is beneficial as it builds off projects, work and initiatives that are already underway or have been trialled throughout the region, working to protect and care for coastal, marine and island environments. Rather than re-inventing the wheel it is hoped that this strategy is seen to bring all this existing work together, adding leadership, greater coordination of efforts, and a fresh momentum at a much larger Mediterranean scale.

Shaped by results of pilot projects and consultations, the Mediterranean islands strategy and action plan seeks to minimise the threats facing the region's islands and maximise opportunities. The strategy sets out six strategic pillars and a range of actions and measures to help its delivery:



# 1 Strengthen knowledge and raise awareness on Mediterranean islands

Actions will be aimed at:

- Advancing inventories and mapping of biodiversity hotspots at local level (species, habitats, ecosystem services) particularly on lesser researched islands, endangered species and taxa, and degraded sites;
- Developing an integrated regional insular biodiversity database with the mapping of Key Island Biodiversity Areas;
- Supporting local-based research initiatives on biodiversity;
- Helping local communities understand biodiversity conservation on the islands;
- Sharing knowledge (data, best practices, etc) using up-to-date communication means at local, national and regional levels.



## 2 Embed capacity for biodiversity conservation and sustainable management at the island level

Actions will be aimed at:

- Developing and implementing capacity-building programmes addressing specific needs on biodiversity conservation at local, national and regional levels;
- Promoting initiatives engaging the socioeconomic sector on conservation and sustainable use of biodiversity (e.g., sustainable nature-based tourism, fisheries, agriculture);
- Training protected area managers and technicians on the fundamentals of a co-management approach.

## 3 Pilot the development and implementation of island-level joint initiatives in conservation and restoration of biodiversity and its ecosystems

Actions will be aimed at:

- Developing restoration initiatives on degraded sites and important habitats, species and ecosystems;
- Enhancing marine invasive alien species control measures and programmes;
- Promoting co-management approaches at the level of island based protected areas.

## 4 Promote sustainable use of biodiversity and ecosystem services for living islands

Actions will be aimed at:

- Supporting the inclusion of biodiversity conservation in all public, national, and local policies, strategies and plans;
- Facilitating stakeholders' participation and engagement in biodiversity conservation actions;
- Promoting citizen-science initiatives related to island biodiversity conservation;
- Engaging with relevant sectors and developing environmentally sound, and economically viable, activities in the fields of tourism, agriculture and fishing at the local level (e.g., developing circular economy dynamics, enhancing local value chains, integrated water resource management).

## 5 Build a strong community of practices to reconnect biodiversity conservation with resilient island communities

Actions will be aimed at:

- Developing and implementing an integrated regional communication programme for island biodiversity conservation (*e.g., create a user friendly and attractive design for the strategy and promote its dissemination*)
- Implementing a regional capacity building and transfer knowledge programme on island biodiversity management and conservation;
- Ensuring a Mediterranean participation/voice in relevant international biodiversity fora.

## 6 Facilitate financing and government support for long term and sustainable programmes to reach island conservation

Actions will be aimed at:

- Creating a permanent observatory/forum and Secretariat of Mediterranean Island Biodiversity Conservation;
- Identifying and mapping potential donors for long-term conservation goals;
- Ensuring regular review and updates of Mediterranean Island Biodiversity Conservation priorities.

This is a long-term strategy, ten years is proposed for its implementation, which will undergo periodical review. MIC partners will be responsible for monitoring the progress of its implementation and delivery. As a long-term strategy the objectives and actions that underpin the strategy will be achieved in the short, medium, and long term, depending on the objectives and complexity and collaboration required. Annual progress reports will be produced at island level, enabling an integrated analysis and evaluation, and facilitating the exchange of experience between Mediterranean islands. A mid-term review will be carried out at the end of the fourth year, allowing for adjustments, and again at the end of the ten years, ensuring a positive difference is being achieved through this work.

In addition, MIC partners aim to create a representative observatory for the different relevant sectors that will be responsible for analysing developments in the different strategic guidelines and specific actions.



# 1.

## Introduction



Islands represent about 6% of the Earth's terrestrial areas, hosting the greatest concentration of biodiversity and sadly the highest number of species extinctions. They are home to 20% of all known animal and plant species, and therefore play an enormously important role in preserving global biodiversity, from ecologically and economically<sup>1</sup>.

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**Biodiversity refers to the variety of life on Earth in all its forms, levels and combinations: genetic diversity, species diversity, and ecosystem diversity. In addition to the intrinsic value of life, biodiversity provides essential ecosystem services. The Organisation for Economic Co-operation and Development (OCDE) and the World Economic Forum indicate that ecosystem services of world biodiversity are estimated to be worth USD 125-140 trillion per year, representing more than half of the global gross domestic product<sup>2</sup>.**

---

Islands represent key refuges for biodiversity, particularly where rare and threatened species are struggling to survive on the continental coasts, but are themselves being more and more threatened<sup>3</sup>. Island species are often evolutionarily distinctive and highly vulnerable to novel disturbances, particularly invasive species<sup>4</sup>. **The degradation of natural systems due to human activity and the consequent loss of biodiversity is a global problem that requires urgent worldwide intervention.** Unprecedented increases in consumption associated with demographic growth and the extractive nature and intensity of production systems are exerting a constant and ever-increasing pressure on biodiversity. This pressure is resulting in profound changes to natural habitats, loss of species, contamination and a consequent loss in ecosystems' ability to regenerate and continue to provide essential ecosystem services that are fundamental to mankind's survival. It is widely acknowledged by scientists and

international organisations that islands are an outstanding source of biodiversity as they host a significant proportion of endangered species<sup>5</sup>.

However, their evolutionary distinctiveness and high vulnerability make islands extinction epicentres. Island species have increased vulnerability as they have diminished dispersal capability, smaller restricted habitats and tend to evolve in competition with relatively few other species. As a result, they develop survival strategies based on interdependency, co-evolution, and mutualism rather than defence mechanisms against a broad range of predators, competitors and other external threats. For this reason, many island species have become rare or threatened, and islands have a disproportionate number of recorded species extinctions when compared to continental systems<sup>6,7</sup>. To date, approximately 75% of reptile, bird, amphibian and mammal extinctions combined have occurred on islands<sup>5</sup>.

## 1.1.

### The Mediterranean islands and their biodiversity

With almost 5,000 islands and islets (figures differ a little from one authority to the other), the Mediterranean basin has one of the largest groups of islands in the world. The region is of great importance to global biodiversity thanks to its wealth of species, relatively high rate of endemism, long species history, as well as its role as a natural laboratory for evolutionary studies<sup>3</sup>. Approximately 4,000 of the islands are smaller than 10 km<sup>2</sup> in area and 162 of the islands are at least 10 km<sup>2</sup><sup>8</sup>. The nine Mediterranean islands that are over 1,000km<sup>2</sup> account for 83% of the total island area<sup>9</sup>. Small islands of less than 10 km<sup>2</sup> represent more than 85% of the Mediterranean's island units.

The Mediterranean basin has a complex geological history which means some islands have much higher proximity to continental coasts than others and some have been isolated for much longer. This combined with the high topographical and ecological variation of this region and the reduced severity of Quaternary climatic oscillations have produced a flora and fauna of exceptional diversity<sup>3,10</sup>. Isolation resulting from insularity has led certain species to evolve genetically, particularly on the islands, creating high levels of endemism<sup>9</sup>. **As a result of this unique situation the Mediterranean represents the second most important hotspot on Earth.**

Thanks to speciation occurring on islands, endemism is higher, a fact that mechanically increases genetic diversity and means that species can be found on only one or a group of islands. Small islands provide natural and undisturbed habitats for specific flora and fauna as well as unique biodiversity assemblages. Islands also represent the only refuges left for species that have disappeared from continental areas and act as a refuge for endangered species, such as populations of seabirds that are found almost exclusively on small islands. Species occasionally behave differently on islands due to food resource scarcity and absence of predation – showing changes in their diet and island tameness<sup>6,7</sup>. These specific behaviours make them more vulnerable but also represent a *behavioural diversity* that deserves to be protected.

All this rich biodiversity and life in the Mediterranean has attracted and sustained mankind since antiquity. Spanning 22 countries, the Mediterranean's coastline exceeds 46,000 km. The coastline and islands are the most productive areas and therefore the most attractive for economic activities and development. Indeed, of the 529 million inhabitants in the Mediterranean, ap-

proximately one third are located along the coasts and 55% live in coastal hydrological basins<sup>11</sup>. This means a considerable amount of the total population is concentrated in a very small area and that Mediterranean ecosystems have been altered in many ways<sup>12</sup>. Development, urbanisation and continual exploitation and use of natural resources is putting incredible strain on the Mediterranean's biodiversity, particularly on its islands. The impact from human activities is proportionally stronger in the Mediterranean than in any other sea of the world<sup>11,13</sup> (and see Louis Brigand et al., UNEP - BP/RAC, 1991 cited in<sup>14</sup>).

These 529 million inhabitants are reliant upon the Mediterranean's natural resources and the ecosystem services it provides; however, its unique ecosystems are significantly degraded by a growing number of drivers of change. Habitat degradation and loss are being accentuated in the Mediterranean (and on its islands) by human activities that are transforming the coast, the land and the sea in response to the needs for agriculture, pastures, ports and other infrastructures, settlements, tourist resorts and leisure activities, etc. In addition, we are now seeing the impacts from climate change at rates beyond experts' expectations, and increasingly worrying trends in disturbances caused by invasive species. As some characteristics of islands worsen the environmental and climate change challenges these threats are increasing the vulnerability of native and endemic species found throughout the basin, but especially on islands. Islands' limited space and isolation highly restrict the mobility of some species and therefore increase the consequences of events such as heat waves or droughts and explain why the arrival of invasive species can have severe consequences for native species and island assemblages on islands and in other settings with high proportions of endemic species<sup>15</sup>.

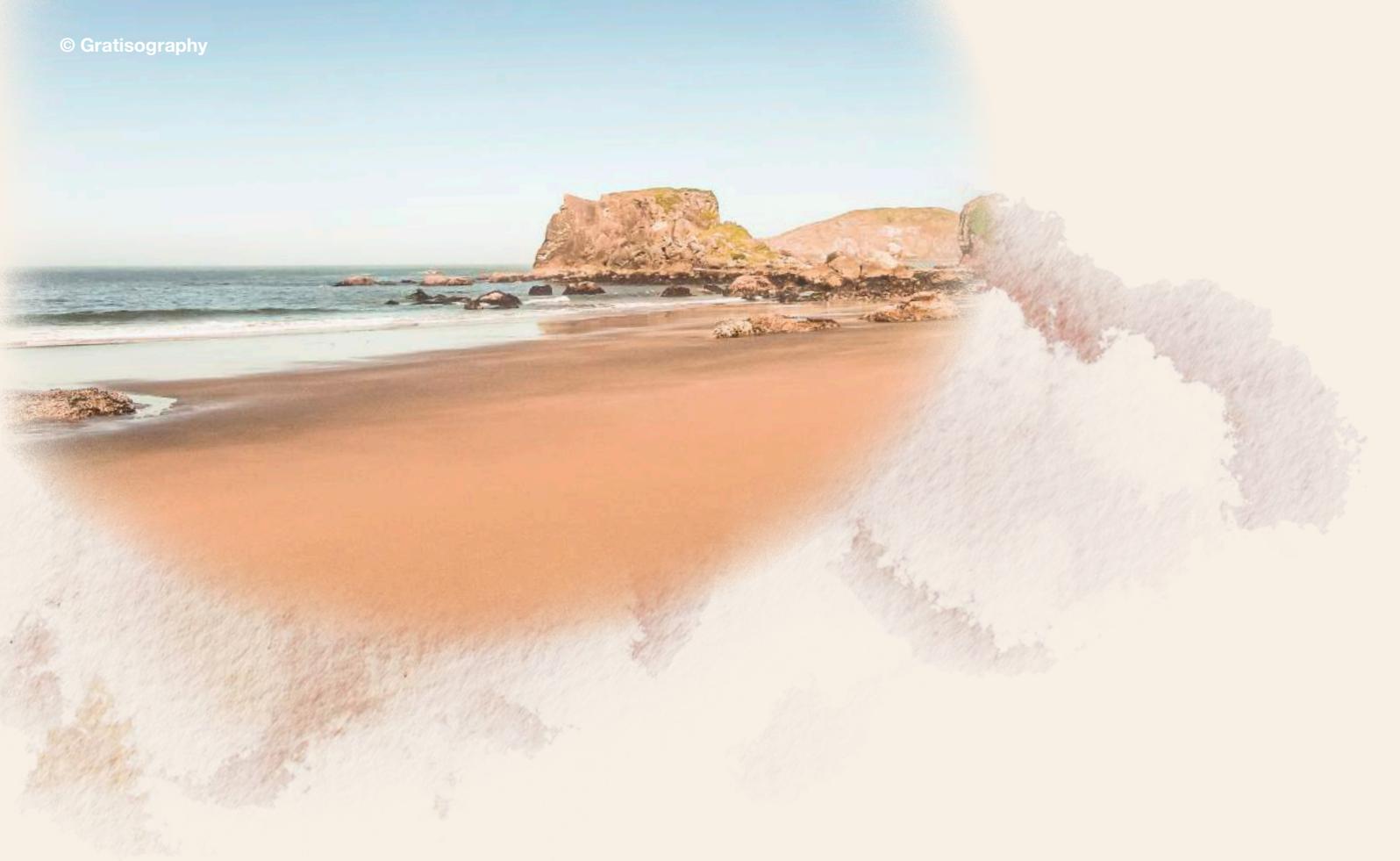
Small islands are of special interest for sustainable development because of the aforementioned unique characteristics and vulnerabilities. They are ecologically fragile, have limited resources, are susceptible to natural disasters and increasingly vulnerable to climate change and invasive species. At the same time, island ecosystems provide valuable provisioning, regulating and cultural ecosystem services to island communities and visitors. ***Ecosystem services are the direct and indirect contributions of ecosystems to human well-being***<sup>16</sup>. This definition implies a dependence of human societies on well-functioning ecosystems, and therefore sustainable management and conservation is critical.

Healthy island ecosystems are known to provide five key ecosystem services: food and water provisioning, erosion and pollination regulation and recreation and eco-tourism. In island environments, food provisioning services can be vital in terms of the economy and food security. Freshwater is an important and scarce resource on many small islands, making water provisioning and water quality regulation of high priority. Islands' cultural ecosystem services in the form of recreation and eco-tourism are highly valued by tourists and locals alike and contribute directly to island economies and play an important role in structuring islands' landscapes<sup>17</sup>. There is increasing recognition of the wealth of human health benefits that stem from experiencing nature and biodiversity<sup>18</sup>. In the Mediterranean cultural traditions run strong, one such example can be found in how closely tied native plants are with traditional human activities that act in a way to maintain this species richness<sup>9</sup>. Erosion control and pollination regulation play important roles in the delivery of food provisioning. Island ecosystems also contribute to the maintenance of ecosystem functions: they provide defence against nat-

ural disasters, support nutrient cycling, and soil and sand formation; and they contribute to the regulation of climate and diseases<sup>19</sup>.

**Conserving biodiversity and therefore strengthening associated ecosystem services, is of utmost importance and fundamental to the socio-economic development of human communities particularly in island geographic contexts.**

There is a pressing need to reverse the trend of biodiversity loss. Action needs to be taken – at the Mediterranean basin level to ensure that the ecosystem services upon which we rely can continue to serve us. A Mediterranean wide strategy is urgently needed that will help the region and individual countries to strengthen and improve management efficiency in protected areas and other natural spaces, along with an integrated approach to significantly change production and consumption models. To this end, we are witnessing the introduction of global, regional, local or thematic strategic visions and initiatives that intend to contribute to the conservation and sustainable use of biodiversity in islands.



At the international level, there are the [CBD Island diversity Programme](https://www.cbd.int/island/pow.shtml) of work (<https://www.cbd.int/island/pow.shtml>) and [Global Island Partnership](https://www.cbd.int/island/glispa.shtml) (GLISPA <https://www.cbd.int/island/glispa.shtml>) that “assists islands in addressing one of the world’s greatest challenges: to conserve and utilise the invaluable island natural resources that support people, cultures, and livelihoods in their island homes around the world.” The Small Islands Organisation (SMILO), a partner to MIC and this current project, is creating a network of small islands with a shared vision to foster innovations on islands that benefit the local population and their environment. They are helping small islands curb the impacts caused by human development and activities and are focusing on sustainable solutions in the fields of water & sanitation, waste, energy, biodiversity, landscape and heritage. In 2021, the Virtual Islands Summit and the Island Space at CBD COP26 brought together influential changemakers, experts, and entrepreneurs to devise strategic visions and discuss the innovation taking place on global islands. In addition to

these visions and strategies, interesting initiatives to find workable sustainable solutions for the future are being pioneered e.g., the adoption of emissions trading schemes and clean solar energy schemes that aim to improve the sustainability of island communities.

The Mediterranean islands are unique hotspots of biodiversity, within the greater Mediterranean hotspot, thanks to their rich and endemic flora<sup>20</sup>. Yet they do not exist independently. It is not just one island, or one island next to another that contributes to this wealth, it is the combined existence of them all that gives the Mediterranean such extraordinary variety. Thus, an integrated and targeted sustainable development/conservation approach for the Mediterranean islands, promoting cooperation under a common regional vision offers a key contribution to preserving the extraordinary and unique biodiversity of the Mediterranean islands and to securing the ecosystem services fundamental to socio-economic development and preservation of its rich cultural heritage.

## 1.2.

### Why a strategy for the preservation of biodiversity on Mediterranean islands?

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"The Mediterranean constitutes a very rich field of investigation for the study and understanding of island facts, and a field of specific actions for strategies for the protection and development of islands" (Louis Brigand et al., UNEP - BP/RAC, 1991 cited in <sup>14</sup>). This observation, drawn up in 1991, is even more relevant today, particularly concerning the development agenda in small islands, where many local, national and international stakeholders are looking to ensure the conservation and sustainable use of the natural and cultural heritage of these exceptional territories. In addition, conservation operations on islands are excellent examples of how these territories can contribute to global conservation progress: solutions found locally can often be replicated and inspire global solutions.

To date several initiatives and projects have aimed to improve the conservation of Mediterranean islands biodiversity, yet such efforts have often been localised, small-scale and/or lacked the regional coordination necessary to bring about significant change. A common vision and strategy for the Mediterranean islands biodiversity is therefore needed to boost and enhance conservation and sustainable use of these territories. The aim of this document is to outline a shared vision and strategy that will allow for coherence and alignment with the principles of different international treaties such as the aforementioned CBD Islands Programme of Work and Glispa, Resolution XII.14/2015 of the Ramsar Convention (the only legal text

that treats Mediterranean islands as a group), the Integrated Coastal Zone Management (ICZM) Protocol (Art. 12 which grants "special protection to islands, including small islands"), Article 174 of the Treaty on the Functioning of the European Union which requires members to "pay particular attention to island regions", the [CPMR Islands Commission](#) which urges "European Institutions and Member States to pay special attention to the islands, to acknowledge the permanent handicaps resulting from their insularity, and to implement policies that are best suited to their condition" and the Charter on the Conservation and Sustainable Use of Biological Diversity on European Islands of the Council of Europe. In fact, the latter indicates "the situation and characteristics of islands require the development and application of specially-adapted approaches and tools for problems analyses and response measures<sup>21</sup>."

The Mediterranean region is data deficient and the lack of scientific knowledge continues to hamper conservation efforts. Information specific to islands is even less available, hence it is only possible to portray a regional level overview, whilst at the same time highlighting the need for improved data collection and monitoring of islands. For example, within the last 60 years the Mediterranean has lost 41% of its top predators, over 20% of Mediterranean species are threatened with extinction and estimates suggest 30 endemic species will become extinct by the end of the 21st century<sup>22</sup>. Soil erosion is estimated to be twice as

high in the European Mediterranean than in the rest of Europe<sup>23</sup>. In Italy alone soil erosion is causing an annual loss of EUR 619 million with 33% of its total agricultural area affected by severe erosion<sup>24</sup>. Over 1000 non-indigenous species have been recorded in the Mediterranean Sea and are estimated to generate costs of EUR 26.8 billion<sup>25</sup>. And with temperatures going up 20% faster in the Mediterranean than the global average, there has never been a more critical or urgent time for action<sup>26</sup>.

The outline of a common Biodiversity Strategy on Mediterranean islands, presented here, can constitute a valuable entry point for action to address many of the challenges facing the region including habitat degradation, pollution and eutro-

phication, over exploitation, bioinvasions, and impacts of climate change, as well as putting forward opportunities for growth of the blue economy, nature-based tourism, ecological restoration, and an increase in natural and socio-economic wellbeing for island communities.

**Addressed to conservation bodies and relevant actors working throughout the Mediterranean region, the present document aims to contribute to the effort of bringing biodiversity to the forefront. It highlights the importance of biodiversity as a key pillar for supporting continued socioeconomic development and resilience of Mediterranean islands that will ensure a brighter tomorrow.**



© Pexels - Fayson Merege

A watercolor-style map of the Mediterranean region, showing the coastline of Europe, North Africa, and the Middle East. The map is rendered in shades of teal, grey, and white, with a soft, painterly texture. It is positioned in the upper right quadrant of the page, partially overlapping the teal background.

# 2.

## Current trends and challenges affecting the Mediterranean islands

For the most part Mediterranean islands and continental coastlines are faced with the same, numerous and interrelated, threats, but often the challenges facing biodiversity on, and surrounding islands, are more severe. Their isolation, smaller size, the density of human populations and concentration of economic activities and the fact that islands are often simpler systems make them more sensitive to threats (Louis Brigand et al., UNEP - BP/RAC, 1991 cited in <sup>14</sup>).

Tourism, urban development and artificialisation of natural habitats (particularly in coastal areas), overfishing, extensive farming and other types of land use changes are some of the most pressing threats impacting Mediterranean islands biodiversity and ecosystems, combined with a significant transformation of lifestyle, culture and heritage. The table below summarises the main threats leading to environmental degradation on Mediterranean islands and increased climate challenges.

## **A prioritisation of main threats and factors contributing to the vulnerability of biodiversity of Mediterranean islands**

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**1.**

**Impacts of tourism: frequentation, urbanisation, overexploitation of natural resources.**

**2.**

**Impacts of economic model: overexploitation of natural resources including overfishing, agricultural practices (intensification and land abandonment), soil and water pollution and water scarcity.**

**3.**

**Multi-factorial threats: Habitat loss, invasive species, marine pollution, non-implementation of environmental legislation.**

Impacts from climate change including drier conditions due to less rainfall and variations in land and sea temperature are increasingly more evident in the Mediterranean than in other regional seas<sup>27</sup>. Its semi-enclosed nature prevents rapid water exchange and therefore makes it more sensitive to temperature and pH variations<sup>28</sup>. Together with high human pressure from densely populated coastal areas, climate change is making the Mediterranean Sea an especially vulnerable place<sup>29</sup>. Worryingly, its islands are the areas most impacted by these changes.

Climate change is occurring faster than expected by the scientific community and rapidly altering temperature and precipitation patterns. As a result, species are being forced to migrate to other habitats if possible or to adapt to their new climate. The changes are occurring at such speed that they are potentially exceeding the adaptive capacity and resilience of island ecosystems<sup>30</sup>. Some

small low-lying islands face the increasing threat of water shortages and sea level rise, leading to habitat loss because of this encroachment. Of increasing concern is that climate change along with (associated) natural risks such as fire and heavy rains are also contributing to the destruction of natural habitats. Climate change favours the introduction of invasive exotic species, which often outcompete local populations and can cause major changes to population and ecosystem dynamics. In combination with invasive species climate change and these natural risks are exacerbating the degradation of island ecosystems.

Climate change and bio invasions are happening in already degraded systems which means their impacts are much more detrimental and together all the threats facing the Mediterranean Sea are acting together to push marine biodiversity into decline<sup>28,31</sup>.

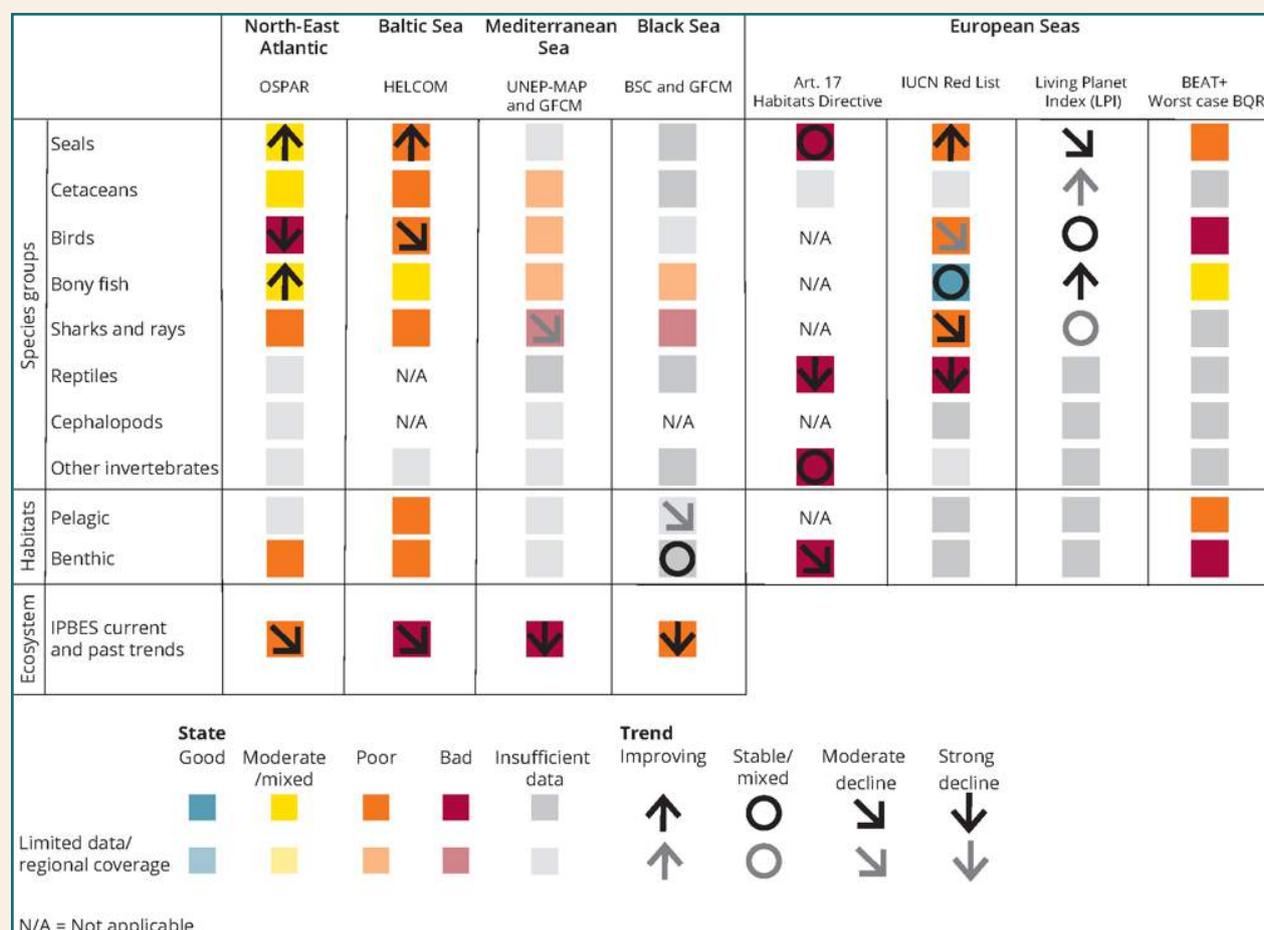


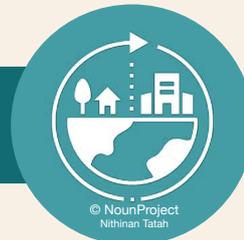
Figure 1: Level of conservation of ecosystems at sea

Source: EEA, 2021<sup>32</sup>

## 2.1.

### Main socioeconomic trends on Mediterranean islands

#### Urbanisation - Demography



As stated previously the 22 countries bordering the Mediterranean Sea are home to a total of 529 million inhabitants: 205 million live on the northern shore and 324 on the southern and eastern shore<sup>33</sup>. Based on current trends, in the next 30 years (2020-2050), the population of the Mediterranean region will increase by 90 million inhabitants, reaching 611 million. In 2050, one third of the Mediterranean population will live on the northern

shore, and two thirds on the southern and eastern shores<sup>34</sup>. The increasing population combined with changes in lifestyle and demand patterns result in growing demands for water, energy and food from the Mediterranean Basin. The overexploitation of existing water reservoirs and groundwater aquifers and the enhanced utilisation of ecosystem services adds increased stress to islands.

#### Tourism



A leading tourism destination, both for domestic and international travelers, the Mediterranean receives more than 300 million international tourists a year which accounts for 30% of total world tourism<sup>35</sup>. This figure is expected to reach 500 million by 2030<sup>35</sup>. The tourism industry is one of the major economic sectors of the region and therefore an extremely important source of income for the Mediterranean and its islands, especially the smaller ones. Most island economies are dependent on tourism. Annually coastal tourism in the Mediterranean generates €300 billion and marine

tourism €110<sup>36</sup>. Tourism represents around 9,5% of the EU GDP, for insular regions, with this share increasing between 15-30% of GDP, and even 50% for several islands<sup>37</sup>. For example, the Greek Islands represent 60% of Hellenic tourism, an activity that contributed 20.8% to GDP in 2019. In recent years, the consequences of COVID-19 on tourism have had significant impacts in insular regions, which in part has led to the development of the CPMR Islands Commission draft action plan 2022-2023 (see <sup>38</sup>).



## Transport

The Mediterranean represents only 1% of the surface of the seas and oceans, but it accommodates 15% of global shipping<sup>39</sup>. Vital for the island communities, their development and increased transport links are problematic for the environment. Transport is therefore a priority subject for the Mediterranean and it is systematically included in international provisions targeting islands (for example, in the Mediterranean Strategy for Sustainable Development, in the framework of the Barcelona Convention). The “Mediterranean Corridor” is a large-scale EU transport project that has

financed 54 rail projects and 33 maritime ones, connecting the coastal areas of the basin. These projects mean to support passengers and freight traffic, which is expected to double between 2010-2030<sup>39</sup>. This growth will come at a significant cost to the environment with increasing impacts from chemical pollution (hydrocarbons), noise pollution and collisions with marine mammals<sup>40</sup>. These environmental impacts are an issue for the whole Mediterranean basin, but they are of critical importance for the region's Marine Protected Areas, which are mostly concentrated around islands.

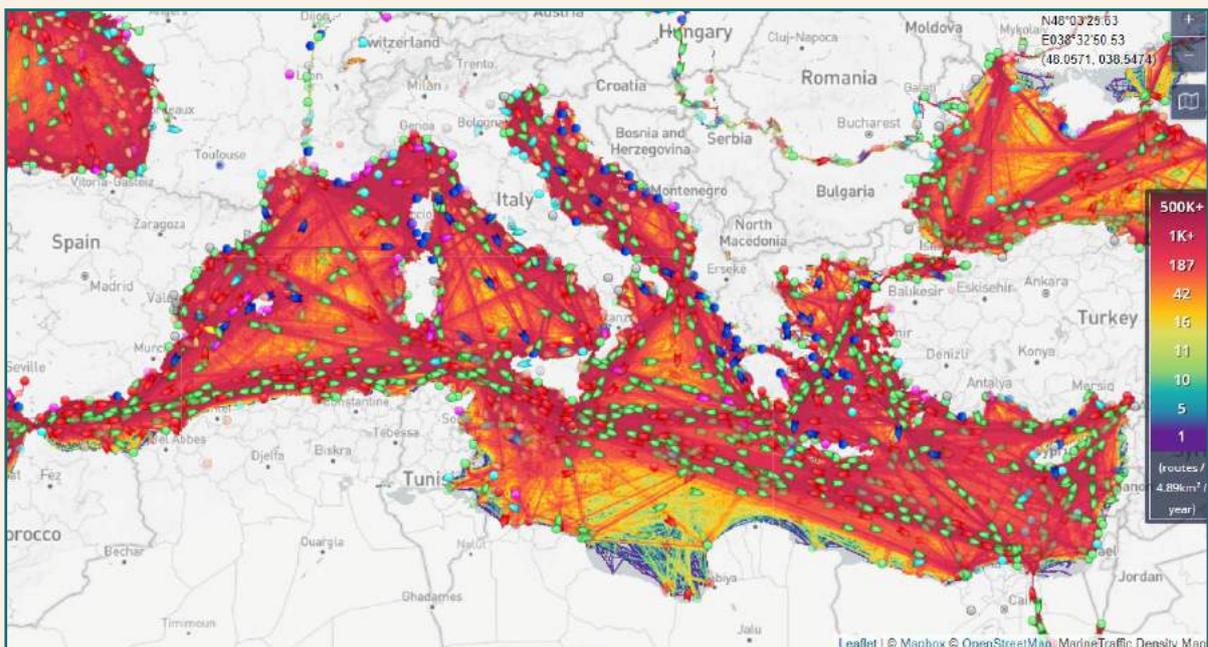


Figure 2: Marine Traffic Density map

Source: <https://www.marinetraffic.com/>, extracted on the 24/03/2022

## Fisheries



Although the Mediterranean represents, along with the Black Sea, only 6% of the world fishing industry, it continues to be an important contributor to the region's economy and is an activity traditionally linked to island life. The overall annual economic value of fisheries in the region is estimated at €9.4 billion and contributes livelihoods to a total of 785,000 people, 57% of which are linked to small-scale fishing<sup>41,42</sup>. Worryingly, the Mediterranean and Black Sea have the highest percentage (62.5%) of stocks being fished at unsustainable levels<sup>41</sup>.

Island communities specialised in fishing have existed since antiquity. These communities hold a wealth of cultural heritage with incredible local ecological knowledge and traditional practices, some of which favour sustainable fishing.

However, over the last few decades, in the context of a global fishing economy, the relationship fishers have with their activity has been changing. The importance of these islands for the fishing industry therefore goes far beyond their limited territories because fishery products are no longer intended for local consumption only. In this context, the Mediterranean islands bear an unequal challenge. Despite a specific regulatory framework, small islands compete with the global market, which demands a continued increase in production.

The Kerkennah Islands in Tunisia provide a fair illustration of the dilemma between tradition and competitiveness. The traditional fishing activity included the use of palm leaves to create fixed fisheries in the low waters that surround the islands. This method requires time consuming preparation of the palm leaves. Pressured to produce more to capture larger quantities of fish, the use of palm leaves was replaced by plastic. Therefore, palm trees declined as fishermen no longer had a need to conserve them<sup>43,44</sup>. The change in production scale and methods has caused a significant environmental imbalance that has rendered the fishing practices unsustainable<sup>43</sup>. **These fishing islands are not endowed with any specific legal measure that would allow the environmental and social balance to be restored.**



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## 2.2.

### Biodiversity policies and laws within the Mediterranean islands contexts

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Islands are addressed by international, regional and national laws and policies for three different reasons. First of all, their biodiversity needs special attention. Secondly, islands are significant for maritime boundaries. Finally, islands create living conditions that are hard for humans, and laws are used to ease them.

#### Policy frameworks to protect island biodiversity

At global level, the need to conserve island biodiversity is widely recognized, increasingly so in response to climate change. However, this recognition has been translated into legal and political texts as an intention for action rather than to provide specific measures and/or tools. The aforementioned [CBD Island Biodiversity Programme of Work](#) provides one such example. As does, Agenda 21, adopted in 1992 at the Earth Summit by 178 States, proposed for the first time, in Chapter 17, that small islands are territories that require priority protection, since they are particularly vulnerable to climate change. Being a declarative and non-binding document, it aimed to inspire States to adapt their national laws accordingly. Similarly, at the eighth CBD meeting (Brazil, March 2006), the Conference of the Parties adopted the first-ever programme of work dedicated solely to the uniqueness and fragility of island biodiversity ([decision VIII/1](#)). “Its aim was to significantly reduce the rate of island biodiversity loss by 2010 and beyond as a contribution to poverty alleviation and the sustainable development of islands, particularly small island developing States<sup>45</sup>.”

Being specific to wetlands conservation at the international level, the Ramsar Convention on Wetlands addresses several aspects of island wetlands. The text of the Convention allows that islands are enlisted as a whole as wetlands of international importance, as article 2 states that “The boundaries of each wetland shall be precisely described and also delimited on a map and they may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands, especially where these have importance as waterfowl habitat.”

Going further from the simple establishment of protected areas, Resolution XII.14 of the 12th Conference of the Parties of the Ramsar Convention proposes a methodology for action to protect island wetlands in the Mediterranean. This Resolution gave impetus to a Mediterranean dynamic to compile an inventory of island wetlands whose existence was not registered and to adopt legal instruments for their protection.

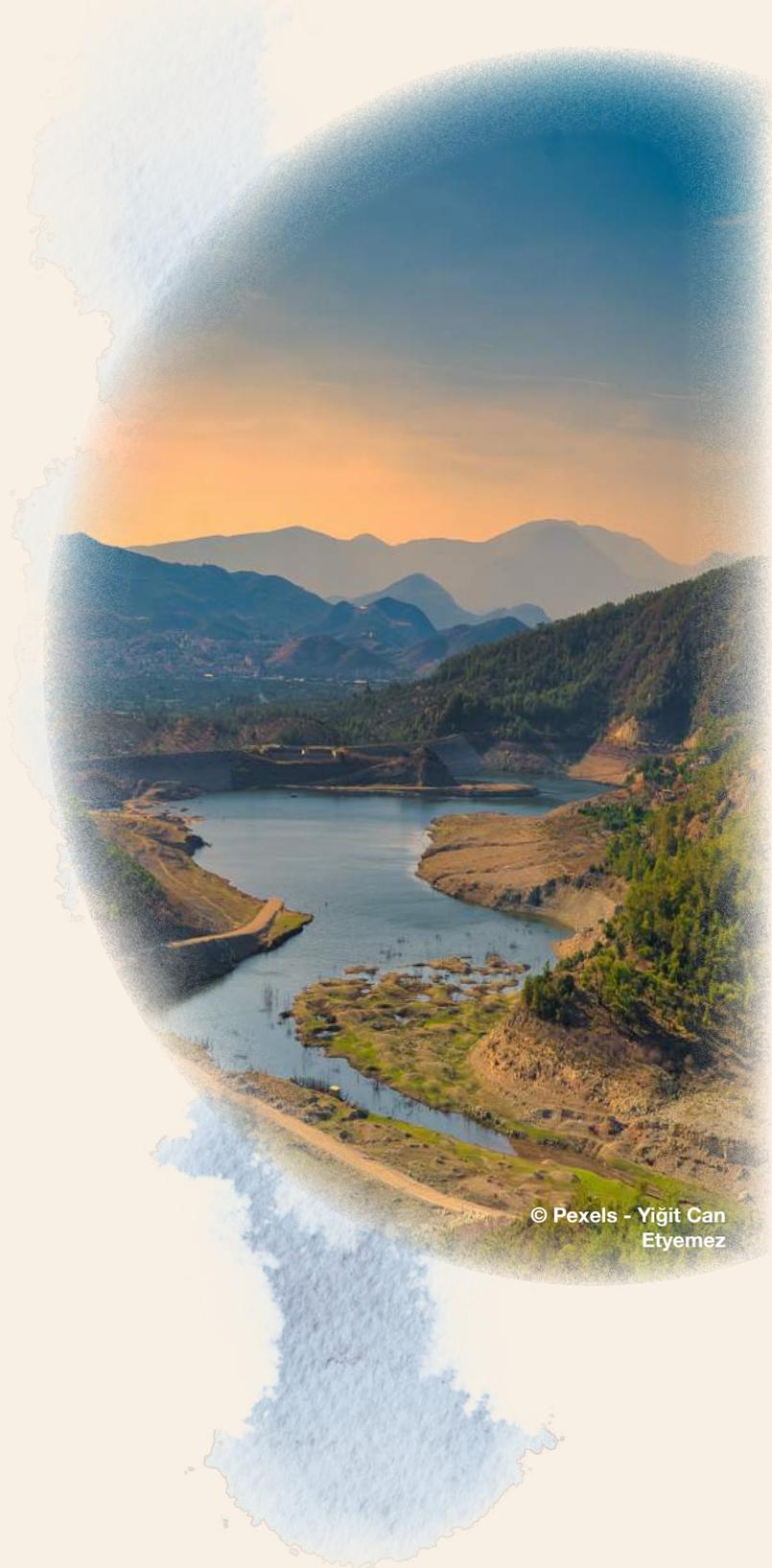
Transboundary policy processes have continued to highlight the importance of addressing biodiversity challenges in Mediterranean islands. The EU Biodiversity Strategy, which is applicable to islands, sets up ambitious goals to be achieved by 2030 to protect and restore nature, as biodiversity and well-functioning ecosystems are the “key to boost our resilience”. A more island-centred example comes from the Council of Europe, whose “Charter on the conservation and sustainable use of the biodiversity of the islands of Europe” recognises the need

management to allow the conservation of island biodiversity<sup>46</sup>.

The Mediterranean islands' biodiversity issues are taken into consideration by the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, also known as the Barcelona Convention. It contains regional plans with binding targets as well as some specific provisions for islands, such as those referenced at the Protocol on Integrated Coastal Zone Management. Its article 12 states that the contracting Parties “undertake to accord special protection to islands, including small islands”, protection that can be reflected in national coastal plans and programs.

The Barcelona Convention has established a list of Specially Protected Areas of Mediterranean Importance (SPAMIs), with the goal of promoting international cooperation for the conservation of natural heritage by choosing flagship sites of Mediterranean biodiversity. Although there is no explicit reference to the need to protect islands, half of the SPAMI sites are on islands which reflects their significance for biodiversity protection (21 out of 39 sites).

In addition, since the end of the 20th century, there has been a favourable trend towards the designation of protected areas which are insular or include islands, on both shores of the Mediterranean, with variable protection and conservation status, such as the Habibas Islands UNESCO Nature Reserve in Algeria (also a SPAMI) or the Palm Islands in Lebanon (National nature reserve, SPAMI and Ramsar Wetland), Zembra-Zembretta National Park in Tunisia (also UNESCO Biosphere Reserve under the Man and Biosphere Programme and a SPAMI) or Port-Cros in France (National parc and SPAMI) or the Marine Protected Area of Tavolara in Sardinia.



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## Policy frameworks to regulate island maritime delimitation

Islands play an important role in maritime boundary delimitation. Negotiated for 20 years, the Convention on the Law of the Sea, regulates the regime of islands by stating that the inhabited islands or those having an economic life can have their own maritime zones (art. 121). Uninhabited islands ('rocks') have only a territorial sea and a contiguous zone. This ambiguous provision leaves the possibility of changing the regime applied depending

on the status of the island as inhabited or not. This ambiguity has created several disputes, especially in southern China. In the Mediterranean, maritime delimitations still create conflicts between States and islands are at the heart of the claims. For example, there are delicate delimitations between Cyprus, Lebanon, and Israel, between Greece and Turkey and between France and Spain. The conflicts on the delimitation of the marine space have an economic and an ecological stake since the coastal States have the responsibility to also protect the environment in their maritime zones.

Table 1: Summary of the provisions specific to the islands.

Geography	Legal text	Provision concerning islands
Global	Law of the Sea Convention UNCLOS, (1982) – binding agreement	Art. 121: defines islands and clarifies maritime zones around them. “Rocks”, meaning islands which cannot sustain human habitation or economic life, can only have a territorial sea and a contiguous zone.
	Agenda 21 – Chapter 17 (1992): non-binding text	Islands are priority areas due to their vulnerability to climate change and their other characteristics and should be the subject of international cooperation.
	Convention on Biological Diversity (CBD) – binding text	Decision VIII / 1 (2006) “Program of work on island biodiversity”: it proposes the restoration of 15% of degraded island ecosystems.
	Convention on the Protection of Wetlands (Ramsar, 1972) – binding text	Art. 2.1: Islands can be protected as wetlands.  Decision XIV / (2015) on the conservation of island wetlands in the Mediterranean: States must increase efforts to conserve and restore island wetlands.

Geography	Legal text	Provision concerning islands
Mediterranean	Protocol on Integrated Coastal Zone Management of the Barcelona Convention (2007) – binding text	Art. 12: States must provide special protection to the islands. National coastal plans must consider the specificities of the island environment.
	Berne Convention – non binding text	Charter on the conservation and sustainable use of the biodiversity of European islands (2011).

Source: S. Petit, A. Abreu, P. Emmanouilidou and K. Hogg, 2022

## Policy frameworks to ease island living conditions

Island living conditions lead to the adoption of regulations of socio-economic activities, whose goal is to ease human difficulties. These matters are mostly regulated at a national or EU level. For example, the legal framework for the tourism sector is mainly a decision of national and regional authorities. At the international level, there are only declaratory provisions. For example, the Charter of Lanzarote, which applies to all islands, states that tourism must "contribute to sustainable development" and "respect the fragile balances which characterise many tourist destinations, in particular small islands"<sup>1</sup>. The European Union has a supporting competence in this matter, so it can only intervene to complete the action of the Member States. The financial stake both for the State and for the inhabitants is gigantic and can compromise the es

establishment of regulatory tourism policies adapted to the challenges of nature conservation and island biodiversity.

As mentioned previously, within the EU, member States are required to "pay particular attention to island regions" under Article 174 of the Treaty on the Functioning of the European Union. This attention can be translated into different types of legal measures adapted to island particularities. However, the main goal of the article is to trigger measures that serve to reduce the gap between the level of development of island and mainland regions and not to protect island biodiversity. Indeed, the EU Parliament report on a strategy for sustainable tourism, repeats the importance of considering insularity<sup>37</sup>.

<sup>1</sup> UNESCO / UNWTO / UNEP, Charter of Lanzarote, art. 2, 1995.

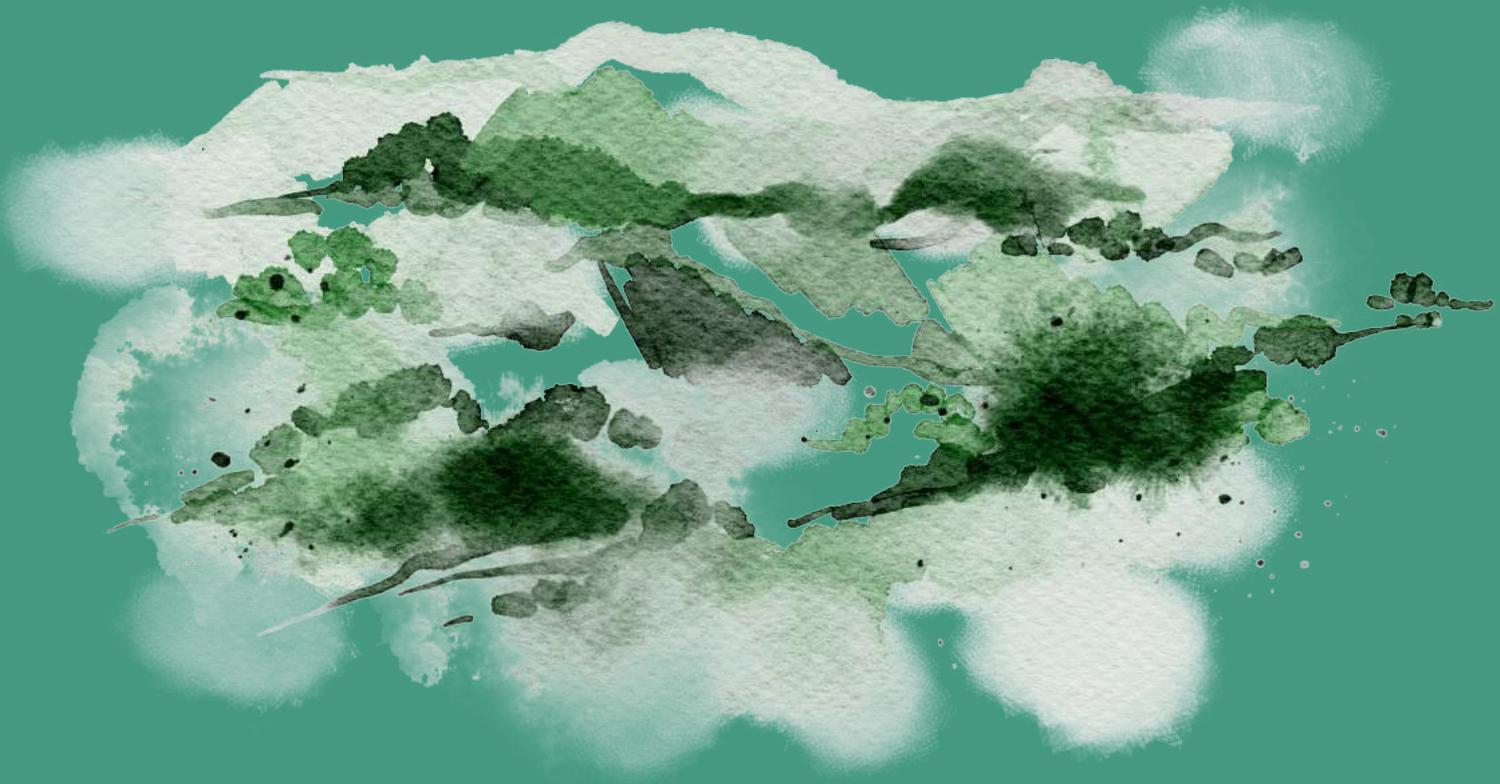
However, there are several international and Mediterranean wide declarations and initiatives that have been designed to influence policy and be adopted by national and regional authorities with the goal to make tourism more sustainable. For example, the CPMR InterMediterranean Commission task force on culture and sustainable tourism<sup>47</sup>. The DestiMedPlus project which aimed to improve levels of integration between tourism and conservation policies through the creation of ecotourism itineraries. This project also led to the development of a Mediterranean Ecotourism Consortium and a Mediterranean ecotourism policy roadmap which provides policy makers at regional and local level with context and key policy orientations for the development of ecotourism governance and the integration of tourism and conservation policies in the Mediterranean<sup>48</sup>.

The BEST MED project is another example. It is creating a Network of Sustainable Tourism Observatories for the Mediterranean (NSTO), gathering bodies / entities / organisations dealing with tourism data monitoring / management around the Mediterranean basin, to share ideas, techniques, and tools, and to build multi-level cooperation to seek the best solutions and work in a common direction towards sustainable tourism<sup>49</sup>. The Glasgow Declaration is another major step towards international commitments for improved tourism. The declaration aims to lead and align climate action across tourism stakeholders, including government and institutional agencies; donors and financial institutions; international organisations; civil society; the private sector; and academia<sup>50</sup>.



3.

# Priority themes for island biodiversity conservation



Despite the available information on biodiversity at national and international level, the importance of Mediterranean islands' biodiversity remains unrecognised and undervalued. This is hindering the acknowledgement of the urgency required to address their specific biodiversity challenges.

While some Mediterranean islands have made advances in promoting conservation and sustainable development initiatives, benefiting from policy frameworks and programmes with significant investment, their intrinsic vulnerabilities still remain, highlighting the need for adapted and specific approaches.

The **Mediterranean Islands Collective** (MIC), financed by the MAVA Foundation, has developed the present strategy and associated action plan which aims to better preserve the biodiversity of the Mediterranean islands to have coherent and collaborative action between the actors already working in the region. The strategy has been developed through extensive collaboration between PIM and MIC partners and in-depth consultations at national and regional level and is outlined below. The goal of the strategic plan is to stop further loss of biodiversity and to assist in the recovery of threatened Mediterranean island biota by 2030.

**Six operational priority pillars** provide a guide for achieving the specific objectives. For each pillar, a set of actions pave the way for diverse stakeholders that, in cooperation, at local, national and regional levels will ensure the Strategy can be delivered and implemented on the ground.

The specific objectives within each pillar and suggested actions are not an exhaustive list and should be treated as a guide. There are many more interventions that can be applied in favour of conservation and sustainable use of biodiversity in the Mediterranean islands. It should also

be noted that the 6 pillars of the Strategy should be considered in an integrated manner, whereby any proposed action may constitute a contribution to more than one pillar.

In structural and functional terms, it is assumed that without knowledge, it is not possible to conserve and manage biodiversity. Knowledge is the basis for promoting greater awareness and empowerment, whether at the level of biodiversity managers, socio-economic agents or the population in general. Therefore, knowledge is also the basis for sustaining a comprehensive communication, that can be transmitted through different support channels and be directed at multiple-levels and varied target audiences.

The successful implementation of the Strategy rests on carefully weighting the constraints resulting from climate change and what it implies in terms of adaptation. Understanding Mediterranean islands as a whole is key, and the Strategy has to be implemented in a spirit of solidarity between island communities, therefore with the ambition of reducing economic and capacity gaps between EU and non-EU Mediterranean countries.

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## Taking action in the Mediterranean, for living islands!

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# 1.

## STRENGTHEN KNOWLEDGE AND RAISE AWARENESS ON MEDITERRANEAN ISLAND BIODIVERSITY

Based on the principle that it is only possible to preserve what is known, and even though significant gaps remain in the existing knowledge on the Mediterranean and its biodiversity, one of the most problematic issues that exists is that the information that is available, such as, inventories, knowledge of ecosystems services and biodiversity maps, are not always accessible and available for use by all relevant stakeholders.

Updated knowledge, organised and made available in formats suitable and accessible to different users, is fundamental and can play a key role in supporting communication and awareness-raising actions on the importance of conserving island biodiversity in the Mediterranean. Knowledge also plays a central role in partnership building and awareness of biodiversity and climate change in the Mediterranean islands.

Mediterranean islands' biodiversity includes a high number of endemic and indigenous species, many of them with very small distribution areas. Most of

these species are poorly understood in terms of conservation status and vulnerability to human pressures and climate change. Under this pillar, the Action Plan will include activities aimed at:

- **Advancing inventories and mapping of biodiversity hotspots at local level (species, habitats, ecosystem services) particularly on lesser researched islands, endangered species and taxa, and degraded sites;**
- **Developing an integrated regional insular biodiversity database with the mapping of Key Island Biodiversity Areas;**
- **Supporting local-based research initiatives on biodiversity;**
- **Helping local communities understand biodiversity conservation on the islands;**
- **Sharing knowledge (data, best practices, etc) using up-to-date communication means at local, national and regional levels.**



## Action plan

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Collect and combine relevant information on **geology, geomorphology, soil conservation, hydrology**, with the information on species and habitats, in particular for the small islands at island level

Include a **risk and disaster action plan** as part of the Mediterranean biodiversity conservation tools

Map the **conservation status of indigenous and endemic species** and their habitats (terrestrial and marine)

### 1.1. Creating or updating inventories and mapping critical ecosystem services at island level

Update inventories of **key terrestrial and marine species** (particularly indicator species) E.g. seabirds, sponges, corals, and other lesser known taxonomic groups such as lichens, bryophytes and invertebrates

Create or update **island-specific Red Lists** of terrestrial and marine endangered species of Mediterranean Islands

Build on existing initiatives to map and assess **ecosystem services** of terrestrial and marine islands' ecosystems in the whole Mediterranean region

Develop a joint **coastal and marine assessment** at Mediterranean level. Identify biodiversity hotspots, such as RAPAM, or ReefCheck protocol

## 1.2. Supporting local-based research initiatives on biodiversity

Create **incentives that establish partnerships with research institutions** that can study the biodiversity, local ecosystems and impacts of climate change and make use of the scientific information to support management of protected areas and biodiversity conservation

Promote **partnership and networking** among administration and co-managers

## 1.3. Producing local and regional biodiversity reports

**Dissemination of updated information** on the state of biodiversity using different media

#### 1.4. Developing an integrated regional insular biodiversity database

**Integrate existing databases** and make them available and user friendly by **establishing a systematic and standardized programme for collecting information** on the conservation status of biodiversity

Creation of a **reference portal** on island biodiversity in the Mediterranean

#### 1.5. Promoting inclusive stakeholder involvement in the implementation of biodiversity conservation actions

**Map key island stakeholders** to help create links with experts and improve their understanding of, and participation in, natural heritage conservation activities

Launch a programme to **publicise opportunities** and ways of participating in conservation actions aimed at people, schools, associations, companies and other entities, including citizen science actions such as data collection



**1.6. Promote  
environmental  
education**

Establish  
**environmental  
education** in  
schools at all levels

**Create local natural  
history museums,** and  
museums that celebrate  
island culture and  
traditions that promote  
sustainable use of  
resources

**1.7. Involve  
the cultural  
sector in raising  
awareness**

## 2.

### **EMBED CAPACITY FOR BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT AT THE ISLAND LEVEL**

Despite a general understanding and knowledge of the major threats and needs related with the management of island biodiversity conservation, public managers, technical staff and other actors require capacity building and life-long training.

Strategic actions under this objective will cover all relevant areas such as conservation (in situ and ex-situ), project management, natural resource and landscape management, enhance ecosystem services, facilitate climate change adaptation, green entrepreneurship, innovation and sustainable agriculture, tourism and fisheries. Key activities to drive the implementation of concrete actions should be aimed at:

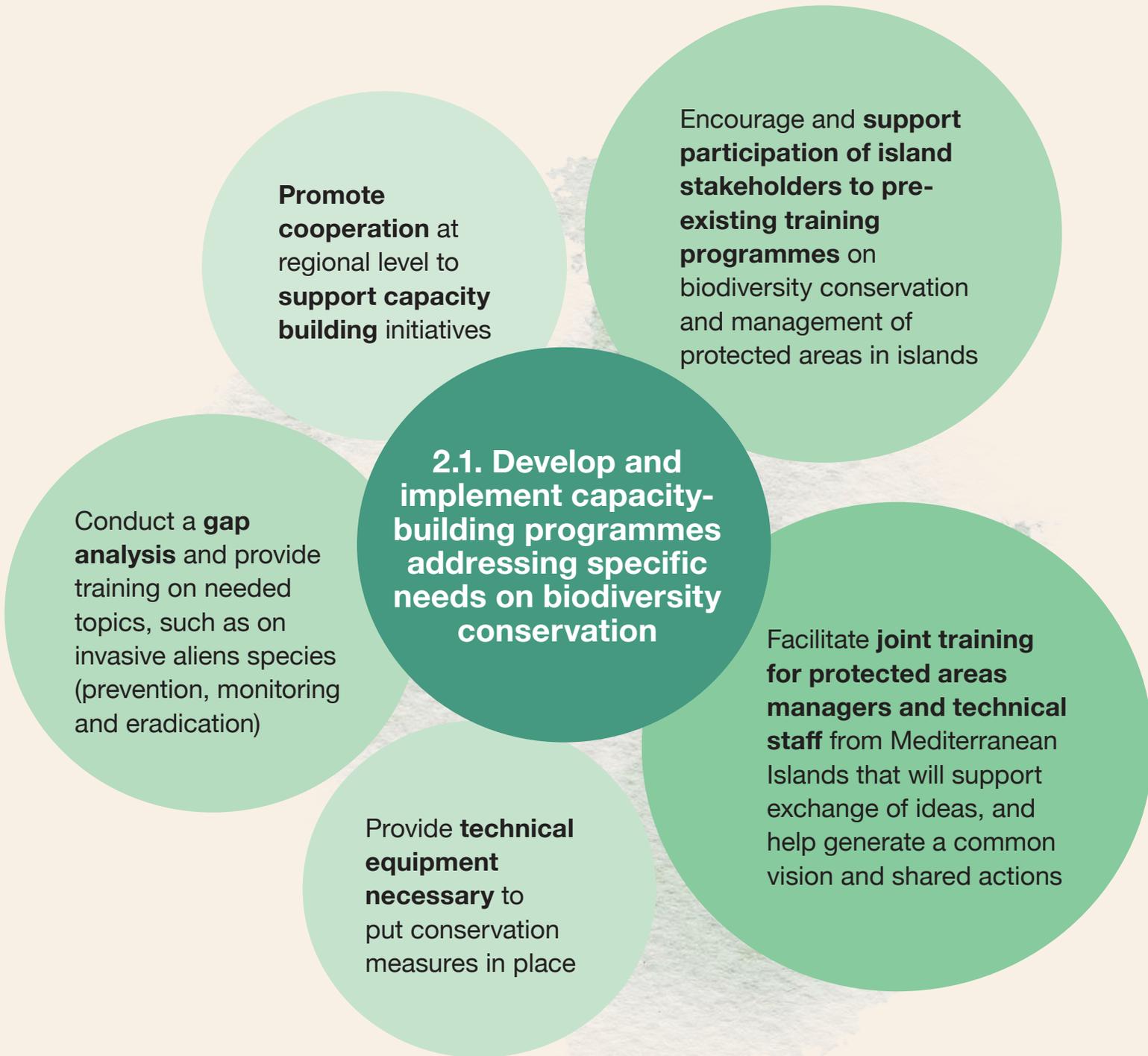
- **Developing and implementing capacity-building programmes addressing specific needs on biodiversity conservation at local, national and regional levels;**
- **Promoting initiatives engaging the socioeconomic sector on conservation and sustainable use of biodiversity (e.g., sustainable nature-based tourism, fisheries, agriculture);**
- **Training protected area managers and technicians on the fundamentals of a co-management approach.**



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## Action plan

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Creation and promotion of a **certification system** for economic agents and sectors that promote the conservation of nature and biodiversity

**2.2. Promotion of initiatives engaging the socio-economic sector on conservation and sustainable use of biodiversity (Ex: sustainable tourism, fisheries, agriculture)**

Launch and enhance **volunteer programmes** in biodiversity conservation actions open to companies, businesses and associations

### 3.

## PILOT THE DEVELOPMENT AND IMPLEMENTATION OF ISLAND-LEVEL JOINT INITIATIVES IN CONSERVATION AND RESTORATION OF BIODIVERSITY AND ITS ECOSYSTEMS

While identifying priorities and enhancing management capacities, specific actions should be implemented targeting native, endangered, endemic species, habitats and key ecosystem services that are relevant for supporting the wellbeing and socioeconomic development of island communities. These actions will drive joint participatory island-based initiatives, gathering all relevant stakeholders. Exchanges and inter-island knowledge transfer will be promoted. Key activities to drive the implementation of concrete actions should be aimed at:

- **Developing restoration initiatives on degraded sites and important habitats, species and ecosystems;**
- **Enhancing marine invasive alien species control measures and programmes;**
- **Promoting co-management approaches at the level of island based protected areas.**



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Nguyen Vinh

## Action plan

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Based on the assessment of the conservation status of biodiversity and ecosystems, **identify priority ecological restoration needs** and opportunities in the Mediterranean Islands

Creation of a **joint technical body** for the region, integrating participants from different islands of the Mediterranean in order to **offer technical support** in the design of restoration and conservation interventions

### 3.1. Promotion of a regional programme for identification and conservation of priority biodiversity and ecosystem services

**3.2. Development of concrete restoration initiatives on degraded sites and important ecosystems, habitats and species**

**Restoration and conservation actions** to be carried out on each island

**Capacity building** for agents and entities responsible for **biosecurity and invasive species control**, including proposals to revise legislation and improve control and monitoring mechanisms

**3.3. Enhance coastal and marine invasive alien species control measures and programmes**

Launch of regional **invasive species observation/monitoring campaign** with individual islands plans

# 4.

## PROMOTE SUSTAINABLE USE OF BIODIVERSITY AND ECOSYSTEM SERVICES FOR LIVING ISLANDS

Biodiversity and nature conservation being the pillars of sustainable development is still not well understood or widely accepted. Mainstreaming the need to consider biodiversity and nature within other sectoral and cross cutting policies and programmes requires awareness and sensitization. Additionally, it requires concrete demonstrations of how biodiversity and nature-based solutions can contribute to addressing socioeconomic challenges and provide opportunities e.g., job and benefit creation. Strategies to achieve this should support the inclusion of biodiversity in sustainable development and policy agendas. Key activities to drive the implementation of concrete actions should be aimed at:

- **Supporting the inclusion of biodiversity conservation in all public, national, and local policies, strategies and plans;**
- **Facilitating stakeholders' participation and engagement in biodiversity conservation actions;**
- **Promoting citizen-science initiatives related to island biodiversity conservation;**
- **Engaging with relevant sectors and developing environmentally sound, and economically viable, activities in the fields of tourism, agriculture and fishing at the local level (e.g., developing circular economy dynamics, enhancing local value chains, integrated water resource management).**



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## Action plan

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**Critical review** of the main development strategies at the level of each island and **identification of proposals for consideration and integration of biodiversity and nature conservation** in dialogue with the responsible entities

### 4.1. Support the inclusion of biodiversity conservation in all public national, and local policies, strategies and plans

Promotion of **citizen science initiatives** aiming for widespread participation in actions relating to the knowledge, management and conservation of biodiversity

Facilitate **stakeholder participation and engagement** in biodiversity conservation actions



Put **information signs** at protected and sensitive sites to inform tourists about the ecological risks of human activity and behaviour to adopt while on site

#### **4.2. Collaborate with the tourism sector to promote and enhance sustainable use of biodiversity**

**Create videos** on island biodiversity and best practices to help protect it to be shown on aeroplanes/boats to the islands

Create **more protected areas**, in accordance with species distribution

### 4.3. Rethink protected areas

Revisit and update **Natura 2000** sites to be more in line with species distribution

Provide **concrete management plans** with effective protection measures, like monitoring, patrolling and awareness raising activities. Enforce management plans.

Have adequate **environmental impact assessments**, especially for calculating the impacts of human activities in the sea (e.g. natural gas explorations). Potential for introducing carrying capacity.

### 4.4. Make better use of existing environmental legislation and ensure it is enforced

Implement **laws** on plastic pollution

# 5.

## **BUILD A STRONG COMMUNITY OF PRACTICES TO RECONNECT BIODIVERSITY CONSERVATION WITH RESILIENT ISLAND COMMUNITIES**

The strategy seeks to support building a solid and comprehensive Mediterranean Island community of practices for addressing biodiversity and climate change related issues. Communication and capacity building are key actions for enhancing participation, cooperation and knowledge transfer related to island biodiversity in the Mediterranean region. Activities to drive the implementation of concrete actions should be aimed at:

- **Developing and implementing an integrated regional communication programme for island biodiversity conservation (e.g., Create a user friendly and attractive design for the strategy and promote its dissemination)**
- **Implementing a regional capacity building and transfer knowledge programme on island biodiversity management and conservation;**
- **Ensuring a Mediterranean participation/voice in relevant international biodiversity fora.**



## Action plan

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5.1. Develop and implement an integrated regional communication strategy for island biodiversity conservation

5.2. Create a common communication platform to integrate and make information available to target a broad audience

5.3. Implement a regional capacity building programme on island biodiversity management and conservation that supports knowledge exchange between relevant actors

5.4. Ensure a regional participation/voice in relevant biodiversity international fora

Identification of **relevant international fora and events** for follow-up and participation by the Mediterranean islands

# 6.

## FACILITATE FINANCING AND GOVERNMENT SUPPORT FOR LONG TERM AND SUSTAINABLE PROGRAMMES TO REACH ISLAND CONSERVATION GOALS

Benefiting from the conceptual and operational framework provided by the Strategy, joint information, conservation actions and exchanges of experiences between the islands, and the possibility of establishing a platform for sharing and accessing resources for biodiversity conservation actions should be explored as a permanent activity. Identifying and mapping donors or financing opportunities and capacity building sources in line with Mediterranean Island biodiversity conservation goals will be vital for ensuring the sustainability of interventions. Key activities to drive the implementation of concrete actions should be aimed at:

- **Creating a permanent observatory/forum and Secretariat of Mediterranean Island Biodiversity Conservation;**
- **Identifying and mapping potential donors for long-term conservation goals;**
- **Ensuring regular review and updates of Mediterranean Island Biodiversity Conservation priorities.**



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## Action plan

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**6.1. Creation of a permanent observatory/forum of Mediterranean Island Biodiversity Conservation priorities**

**Organisation of annual/ biennial conferences/ meetings** to highlight the most relevant priorities and programmes for biodiversity conservation in the Mediterranean islands. Volunteer to host international Islands conferences in the region

Identification of **focal points** for all participating islands and relevant organisations

**6.2. Identification and mapping of potential donors and alternative funding sources for long-term conservation goals (e. g. corporate social responsibility, co-management, stewardship)**

**6.3. Regularly review and update conservation priorities for Mediterranean Island Biodiversity Conservation**

**6.4. Explore Nature-based Solutions and other funding opportunities e.g., carbon offsetting (blue carbon credits) and the UN-convened Net-Zero Insurance Alliance (NZIA), and directing these and other funds to conservation activities**

**6.5. Establish fees for visiting some protected areas and have fees feed back into the PA's preservation**

**6.6. Establish fees for the tourism and hunter sectors and ensure fees support conservation actions**

**6.7. Plan Bleu proposes to organise a regional workshop with other partners of the region on cross cutting issues. To serve as a basis to reflect together on a project in 2023 which could be submitted in 2024 for funding (H2020...)**

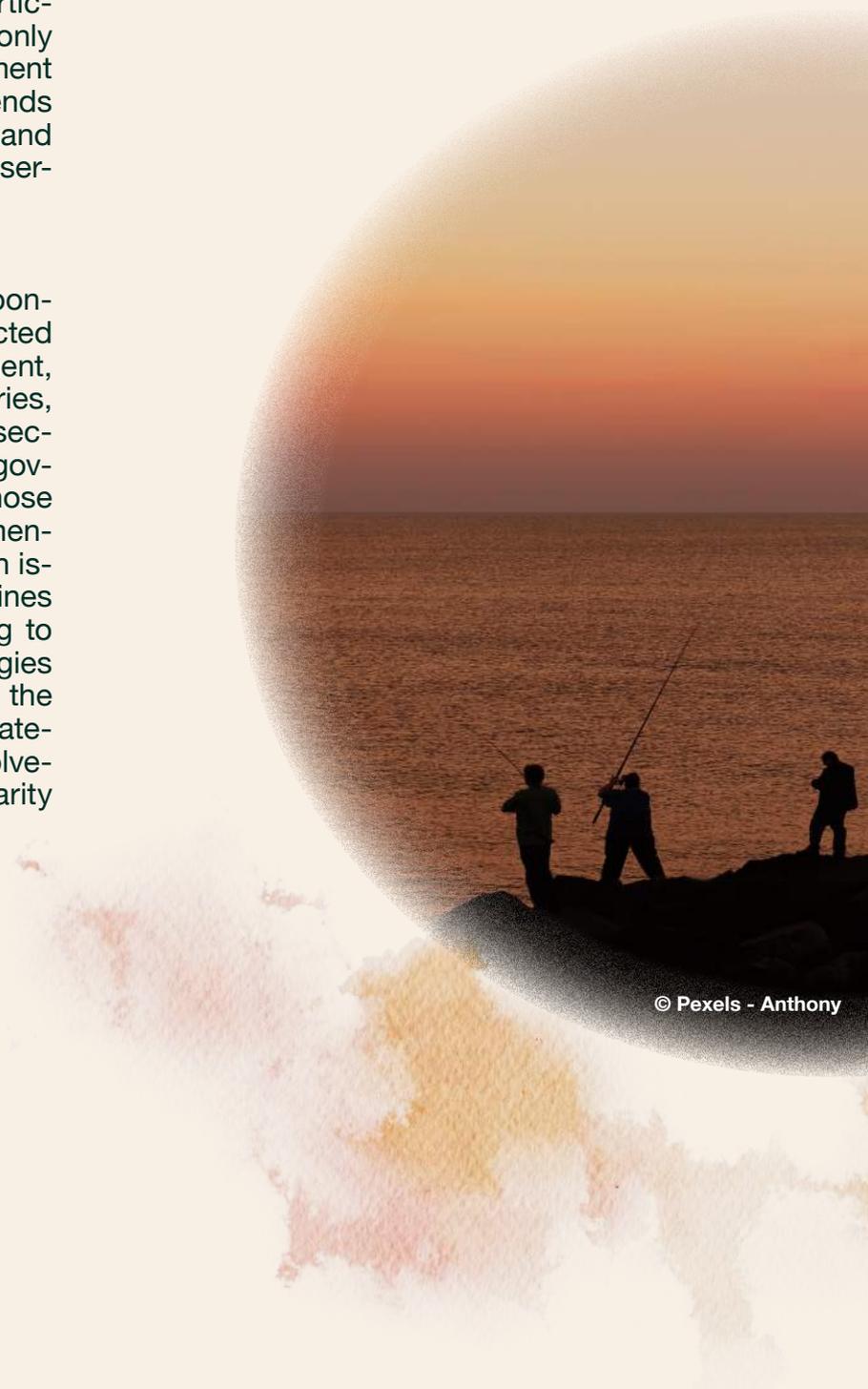
# 4.

## Governance and partnership for implementation



This strategy is intended to serve as a functional collaborative platform involving all relevant actors for biodiversity conservation in the Mediterranean islands. The conservation and sustainable use of biodiversity in the Mediterranean islands requires a broad commitment and participation from all sectors and is not only about nature conservation. Development on each Mediterranean island depends on the ability to ensure that species and ecosystems continue to provide key services to nature and society.

The scientific community, those responsible for the management of protected areas or land planning and management, urban planning, agriculture, fisheries, tourism, shipping, energy, water sectors, education, local and national governments are the recipients and those responsible for ensuring the implementation of specific actions that, on each island, give life to the vision and guidelines agreed in this strategy. Not intending to replace or overlap with other strategies and action plans already adopted in the Mediterranean island space, this strategy aims to facilitate collaborative involvement and participation, interdisciplinarity and dialogue between parties.



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# 5.

## Timeline, monitoring, evaluation, revision



The Strategy proposes ten years for its implementation, considering the general objectives and the nature and diversity of interventions included in the Action Plan. The MIC partners will be responsible for monitoring the overall progress of the implementation. Annual progress reports will be produced at island level, enabling an integrated analysis and evaluation, and facilitating the exchange of experience between Mediterranean islands.

The Strategy will include a mid-term review at the end of the 4<sup>th</sup> year, allowing for a reordering of priorities and actions according to the results obtained and the specific objectives on each island. A final evaluation, including a proposal for revision of the Strategy, should be carried out during the last year of the Strategy's duration.

MIC partners will establish a follow-up committee responsible for collecting all the relevant information for supporting the monitoring and evaluation of the Strategy, within the observatory. Monitoring and evaluation will use indicators and targets assigned to each action and the selection of indicators and targets should be established through a participatory process involving all relevant stakeholders.

When appropriate, the evaluation and results should consider the alignment with national (national biodiversity strategies) and international (Barcelona Convention, EU, IPBES, CBD) processes associated with nature conservation and biodiversity, underlining Mediterranean islands' contribution in global conservation efforts.

As a final outcome, as promoters of the strategy, the MIC partners aim to create a representative observatory for the different relevant sectors that will be responsible for analysing developments in the different strategic guidelines and specific actions. This planned observatory will act as the monitoring and follow-up tool, depending on the targets and indicators associated with each action, and will also be responsible for the integration and harmonisation of the diversity of data from the different levels of intervention (local, national, regional) under the Strategy.



# Bibliography

1. Sivaperuman, C., Jaisankar, I., Velmurugan, A. & Sharma, T.V.R.S. (2008). Tropical Islands: Ecosystem and Endemism. *Biodiversity and Climate Change Adaptation in Tropical Islands*, 31–52 <https://doi.org/10.1016/b978-0-12-813064-3.00002-8>
2. OECD (2019). *Biodiversity: Finance and the Economic and Business Case for Action*, Report prepared for the G7 Environment Ministers' Meeting, 5-6 May 2019.
3. Medail, F. (2017). Intérêt des petites îles de Méditerranée dans la compréhension des processus écologiques et évolutifs ; leur place dans la conservation de la flore littorale. *Sci. Rep. Port-Cros natl. Park* 31, 173–188 <http://www.portcros-parcnational.fr/fr/rapports-scientifiques/interet-des-petites-iles-de-mediterranee-dans-la-comprehension-des-processus>
4. Island Conservation (2019). *Impact Report*. <https://www.islandconservation.org/report/2019/wp-content/uploads/2019/11/Island-Conservation-Impact-Report-2019.pdf>
5. Bellard, C., Genovesi, P. & Jeschke, J.M. (2016). Global patterns in threats to vertebrates by biological invasions. *Proceedings of the Royal Society B: Biological Sciences*, 283(1823), 20152454. <https://doi.org/10.1098/rspb.2015.2454>
6. Cooper, W.E., Pyron, R.A. & Garland, T. (2014). Island tameness: living on islands reduces flight initiation distance. *Proceedings of the Royal Society B: Biological Sciences*, 281(1777), 20133019. <https://doi.org/10.1098/rspb.2013.3019>
7. Cabrera, D., Andres, D., McLoughlin, P.D., Debeffe, L., Medill, S.A., Wilson, A.J. & Poissant, J. (2017). Island tameness and the repeatability of flight initiation distance in a large herbivore. *Canadian Journal of Zoology*, 95(10), 771–778. <https://doi.org/10.1139/cjz-2016-0305>
8. Medtrix | PIM (n.d.). Initiative PIM : Petites îles de Méditerranée. [https://medtrix.fr/portfolio\\_page/pim/](https://medtrix.fr/portfolio_page/pim/)
9. Montmollin, B. de & Strahm, W. (eds) (2005). *The Top 50 Mediterranean Island Plants: Wild plants at the brink of extinction, and what is needed to save them*. Gland, Switzerland and Cambridge, UK: IUCN/SSC Mediterranean Islands Plant Specialist Group. <https://doi.org/10.2305/IUCN.CH.2005.8.en>
10. Cetlová, V., Zozomová-Lihová, J., Melichárková, A., Mártonfiová, L. & Španiel, S. (2021). Multiple Drivers of High Species Diversity and Endemism Among Alyssum Annuals in the Mediterranean: The Evolutionary Significance of the Aegean Hotspot. *Frontiers in Plant Science*, 12. <https://doi.org/10.3389/fpls.2021.627909>
11. European Environment Agency (EEA) (2016). *The European environment — state and outlook 2015: synthesis report*, European Environment Agency, Copenhagen. <https://www.eea.europa.eu/soer/2015>
12. Coll, M., Piroddi, C., Steenbeek, J., Kaschner, K., Ben Rais Lasram, F., Aguzzi, J., Ballesteros, E., Bianchi, C. N., Corbera, J., Dailianis, T., Danovaro, R., Estrada, M., Froggia, C., Galil, B.S., Gasol, J.M., Gertwagen, R., Gil, J., Guilhaumon, F., Kesner-Reyes, K., Kitsos, M-S., Koukouras, A. Lampadariou, N., Laxamana, E., López-Fe de la Cuadra, C.M., Lotze, H.K., Martin, D., Mouillot, D., Oro, D., Raicevich, S., Ruis-Barile, J., Sais-Salinas, J.I., San Vicente, C., Somot, S., Templado, J., Turon, X., Vafidis, D., Villanueva, R. & Voultsiadou, E. (2010). (2010). The Biodiversity of the Mediterranean Sea: Estimates, Patterns, and Threats. *PLoS ONE*, 5(8), e11842. <https://doi.org/10.1371/journal.pone.0011842>
13. Blondel, J. & Aronson, J. (1999). *Biology and Wildlife of the Mediterranean Region*. Oxford University Press, 1999. <https://doi.org/10.1080/002229303100015621>.
14. United Nation Environment Programme (UNEP) (2019). Agenda Item 5: Specific Matters for Consideration and Action by the Meeting, including Draft Decisions Draft 2019 State of the Environment and Development Report.
15. Bongaarts, J. (2019). IPBES, 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. *Population and Development Review*, 45(3), 680–681. <https://doi.org/10.1111/padr.12283>
16. De Groot, R., Fisher, B., Christie, M., Aronson, J., Costanza, R., Haines-Young, R., Gowdy, J.M., Maltby, E., Neuville, A., Polasky, S., Portela, R. & Ring, I. (2010). Integrating the ecological and economic dimensions in biodiversity and ecosystem service valuation. In P. Kumar (ed.) *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations* (pp. 9–40), London, UK: Earthscan, Routledge. <https://doi.org/10.4324/9781849775489>.

17. Balzan, M. V., Potschin-Young, M. & Haines-Young, R. (2018). Island ecosystem services: insights from a literature review on case-study island eco-system services and future prospects. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 14(1), 71–90. <https://doi.org/10.1080/21513732.2018.1439103>
18. Sandifer, P.A., Sutton-Grier, A.E. & Ward, B.P. (2015). Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation. *Ecosystem Services*, 12, 1–15 <https://doi.org/10.1016/j.ecoser.2014.12.007>
19. Biodiversity Information System for Europe (n.d.). Islands. <https://biodiversity.europa.eu/ecosystems/ecosystem-types/islands>.
20. International Union for Conservation of Nature (IUCN) (2008). Red List: The Mediterranean: a biodiversity hotspot under threat. <https://www.iucnmed.org/newsletter/documents/the-mediterranean-a-biodiversity-hotspot-under-threat-factsheet-en.pdf>
21. Soye, Y. de (2011). Charter on the Conservation and Sustainable Use of Biological Diversity on European Islands. <https://rm.coe.int/1680746b90>
22. United Nations Environment Programme – Mediterranean Action Plan (UNEP-MAP) (n.d.). Biological diversity in the Mediterranean. [https://www.unep.org/unepmap/resources/factsheets/biological-diversity#:~:text=The%20Mediterranean%20is%20home%20to,the%20world%27s%20known%20marine%20species\).](https://www.unep.org/unepmap/resources/factsheets/biological-diversity#:~:text=The%20Mediterranean%20is%20home%20to,the%20world%27s%20known%20marine%20species).)
23. Ferreira, C.S.S., Seifollahi-Aghmiuni, S., Destouni, G., Ghajarnia, N. & Kalantari, Z. (2022). Soil degradation in the European Mediterranean region: Processes, status and consequences. *Science of the Total Environment*, 805, 150106. <https://doi.org/10.1016/j.scitotenv.2021.150106>
24. Samela, C., Imbrenda, V., Coluzzi, R., Pace, L., Simoniello, T., & Lanfredi, M. (2022). Multi-Decadal Assessment of Soil Loss in a Mediterranean Region Characterized by Contrasting Local Climates. *Land*, 11(7), 1010. <https://doi.org/10.3390/land11071010>
25. Kourantidou, M., Cuthbert, R.N., Haubrock, P.J., Novoa, A., Taylor, N.G., Leroy, B., Capinha, C., Renault, D., Angulo, E., Diagne, C., & Courchamp, F. (2021). Economic costs of invasive alien species in the Mediterranean basin. *NeoBiota*, 67, 427–458. <https://doi.org/10.3897/neobiota.67.58926>
26. WWF-Mediterranean Marine Initiative (2021). *The climate change effect in the Mediterranean. Six stories from an overheating sea*. Rome, Italy.
27. Mycoo, M., M., M. Wairiu, D. Campbell, V. Duvat, Y. Golbuu, S. Maharaj, J. Nalau, P. Nunn, J. Pinnegar, & O.Warrick (2022). Small Islands. *Climate Change 2022: Impacts, Adaptation and Vulnerability*. In: Pörtner, H.-O., D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.), *Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 2043–2121. Cambridge, UK and New York, NY, USA: Cambridge University Press. <https://doi.org/10.1017/9781009325844.017>.
28. Otero, M., Garrabou, J. & Vargas, M. (2013). *Mediterranean Marine Protected Areas and climate change: A guide to regional monitoring and adaptation opportunities*. Málaga, Spain: IUCN. 52 pages <https://portals.iucn.org/library/node/10410>
29. Critical Ecosystem Partnership Fund (2017). *Ecosystem Profile. Mediterranean Basin Biodiversity Hotspot. Extended Technical Summary*. <https://www.cepf.net/sites/default/files/mediterranean-basin-2017-ecosystem-profile-summary-english.pdf>
30. Escobar-Camacho, D., Rosero, P., Castrejón, M., Mena, C. F. & Cuesta, F. (2021) Oceanic islands and climate: using a multi-criteria model of drivers of change to select key conservation areas in Galapagos. *Regional Environmental Change*, 21(2). <https://doi.org/10.1007/s10113-021-01768-0>
31. Garrabou, J., Gómez-Gras, D., Medrano, A., Cerrano, C., Ponti, M., Schlegel, R., Bensoussan, N., Turicchia, E., Sini, M., Gerovasileiou, V., Teixido, N., Mirasole, A., Tamburello, L., Cebrian, E., Rilov, G., Ledoux, J., Souissi, J. B., Khamassi, F., Ghanem, R., Benabdi, M., Grimes, S., Ocaña, O., Bazairi, H., Hereu, B., Linares, C., Kurt, D., la Rovira, G., Ortega, J. Casals, D., Pagès-Escola, M., Margarit, N., Capdevila, P., Verdura, J., Ramos, A., Izquierdo, A., Barbera, C., Rubio-Portillo, E., Anton, I., López-Sendino, I., Díaz, D., Vázquez-Luis, M., Duarte, C., Marbà, N., Aspillaga, E., Espinosa, F., Greech, D., Guala, I., Azzurro, E., Farina, S., Gambi, M.C., Chimienti, G., Montefalcone, M., Azzola, A., Pulido Mantas, T., Frascchetti, S., Ceccherelli, G., Kipson, S., Bakran-Petricioli, T., Petricioli, D., Jiménez, C., Katsanevakis, S., Kizilkaya, I.T., Kizilkaya, Z., Sartoretto, S., Elodie, R., Ruitton, S., Comeau, Steeve., Gattuso, J-P. & Harmelin, J-G. (2022) Marine heatwaves drive recurrent mass mortalities in the Mediterranean Sea. *Global Change Biology*, 28(19), 5708–5725. <https://doi.org/10.1111/gcb.16301>

32. European Environment Agency (2021). *Europe's marine biodiversity remains under pressure*. <https://www.eea.europa.eu/publications/europes-marine-biodiversity-remains-under-pressure>.
33. United Nations Department of Economic and Social Affairs (2019). *World Population Prospects 2019*. <https://population.un.org/wpp/>.
34. Ambrosetti, E. (2020). Demographic challenges in the Mediterranean. *European Institute of the Mediterranean (IEMed) Mediterranean Yearbook 2020*, 300–304. <https://www.iemed.org/wp-content/uploads/2021/01/Demographic-Challenges-in-the-Mediterranean.pdf>
35. UNEP-MAP (2017). *Mediterranean 2017 Quality Status Report: Tourism*. <https://www.medqsr.org/tourism>.
36. Randone, M., Carlo, G.D. & Costantini, M. (2017). *Reviving the economy of the Mediterranean Sea: Actions for a Sustainable Future*. Mediterranean Marine Initiative, Rome, Italy. 64 pages [https://wwfeu.awsas-sets.panda.org/downloads/reviving\\_mediterranean\\_sea\\_economy\\_full\\_rep\\_lowres.pdf](https://wwfeu.awsas-sets.panda.org/downloads/reviving_mediterranean_sea_economy_full_rep_lowres.pdf).
37. European Council (2021). Report on establishing an EU strategy for sustainable tourism. *Report-A9-0033/2021*. <https://oeil.secure.europarl.europa.eu/oeil/popups/printficheglobal.pdf?id=711822&l=en>.
38. Conference of Peripheral Maritime Regions (CPMR) (2022). *Islands Commission Draft Action Plan (2022 - 2023)*. <https://cpmr-islands.org/download/islands-commission-action-plan-2022-2023/?wpdmdl=7896&ind=1653464886322>
39. Khodjet, L., Klarwein, S., Tode, L. (2021). Maritime transport in the Mediterranean: Status and Challenges. *Plan Bleu Notes*, 42(2021). [https://planbleu.org/wp-content/uploads/2021/12/MARITIME\\_TRANSPORT.pdf](https://planbleu.org/wp-content/uploads/2021/12/MARITIME_TRANSPORT.pdf)
40. Randone, M., Bocci, M., Castellani & Laurent, C. (2019) *Safeguarding Marine Protected Areas in the growing Mediterranean Blue Economy. Recommendations for Maritime Transport*. PHARAOSMPAS project. 64 pages. [https://maritime-spatial-planning.ec.europa.eu/sites/default/files/mt\\_recommendations\\_13june.pdf](https://maritime-spatial-planning.ec.europa.eu/sites/default/files/mt_recommendations_13june.pdf)
41. Food and Agriculture Organization of the United Nations (FAO) (2020). *The State of Mediterranean and Black Sea Fisheries 2020*. General Fisheries Commission for the Mediterranean. Rome, Italy. <https://doi.org/10.4060/cb2429en>
42. FAO (2020). *The State of World Fisheries and Aquaculture 2020. Sustainability in action*. Rome, Italy. <https://doi.org/10.4060/ca9229en>
43. Touzi, S. (2014). *Contribution à l'actualisation du plan de gestion intégrée des zones côtières de l'archipel de Kerkennah*. [https://planbleu.org/wp-content/uploads/2020/04/Rapport\\_Final\\_Climagine\\_1\\_Kerkennah.pdf](https://planbleu.org/wp-content/uploads/2020/04/Rapport_Final_Climagine_1_Kerkennah.pdf)
44. Fehri, N. (2011) La palmeraie des Îles Kerkennah (Tunisie), un paysage d'oasis maritime en dégradation : déterminisme naturel ou responsabilité anthropique ? *Physio-Géo*, 167-189. <https://doi.org/10.4000/physio-geo.2011>.
45. Convention on Biological Diversity (2012). *Island Biodiversity - Programme of Work*. <https://www.cbd.int/island/pow.shtml>
46. European Commission (2020). CEF support to Mediterranean Corridor. [https://ec.europa.eu/inea/sites/default/files/cefpub/cef\\_transport\\_2020-corridor-c\\_mediterranean\\_metadata.pdf](https://ec.europa.eu/inea/sites/default/files/cefpub/cef_transport_2020-corridor-c_mediterranean_metadata.pdf)
47. CPMR Intermediterranean Commission (2022). *CPMR-IMC Task Force on Culture and Sustainable Tourism*. <https://cpmr-intermed.org/projects/building-the-path-toward-sustainable-and-climate-friendly-tourism-a-new-meeting-for-the-cp-mr-icm-task-force-on-culture-and-sustainable-tour-ism/15042/>
48. DestiMED (n.d.). *DestiMED Plus Project: Developing ecotourism in Mediterranean protected areas*. Interreg Mediterranean. <https://destimed-plus.interreg-med.eu>
49. BestMed (n.d.). *Best Med Project: Beyond European sustainable tourism Med*. Interreg Mediterranean. <https://best-med.interreg-med.eu>
50. One Planet Network (2022). *Glasgow Declaration: Become a signatory*. <https://www.oneplanetnetwork.org/programmes/sustainable-tourism/glasgow-declaration/join>
51. Database of Island Invasive Species Eradications (DIISE) (n.d.). Database of Island Invasive Species Eradications <http://diise.islandconservation.org/?m-sclkid=69d0df50b1811ec-9c05aadaf51844b6>





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