WWF

REPORT

2017

# REVIVING THE ECONOMY OF THE MEDITERRANEAN SEA

## Actions for a Sustainable Future

in association with BCG The Boston Consulting Group

**Front cover**
View of Ustica from a fishing boat returning to the harbour
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“ *The sea, the great unifier,*
*is man’s only hope.*
*Now, as never before,*
*the old phrase has*
*a literal meaning:*
*we are all in the same boat.* ”

*Jaques Yves Cousteau*

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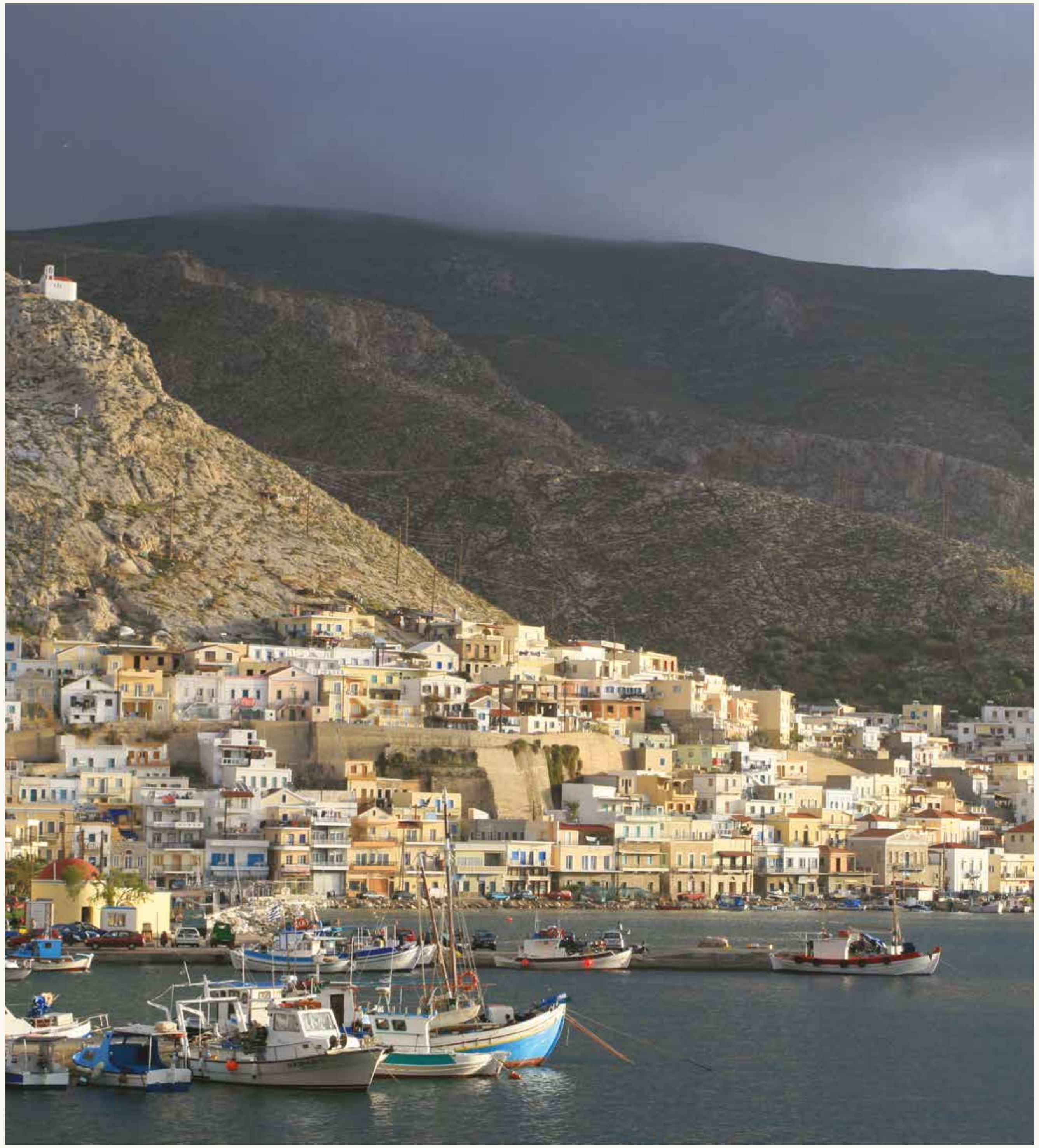

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# FOREWORD

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The Mediterranean Sea is deeply embedded in the cultures, livelihoods and social structure of the nations that surround it. Some of my earliest memories growing up in Malta are of the central role the Mediterranean Sea played for our family and society. Even in my lifetime however, I have seen the pressures on this environment increase enormously so it is clear to me that we must turn our minds with new urgency to the future of this remarkable and much-loved place.

Developing the Blue Economy of the Mediterranean has often been seen as having infinite possibilities to resolve many of the challenges and to improve livelihoods of Mediterranean communities. However, we know this not to be the case and scientific evidence has shown us the very real limitations of the ocean and the resulting degradation of ecosystems due to ineffective governance. This new report from WWF demonstrates that the Mediterranean Sea is a major contributor to the regional GDP and that its natural resources represent a huge asset for the Blue Economy not only for the region but also globally.

The report also demonstrates that developing a strong and sustainable Blue Economy for the Mediterranean region will greatly depend on keeping our sea, coastlines, and marine ecosystems healthy, and where possible to restore degraded ecosystems. We cannot continue to erode the very assets that Mediterranean communities and economies depend on.

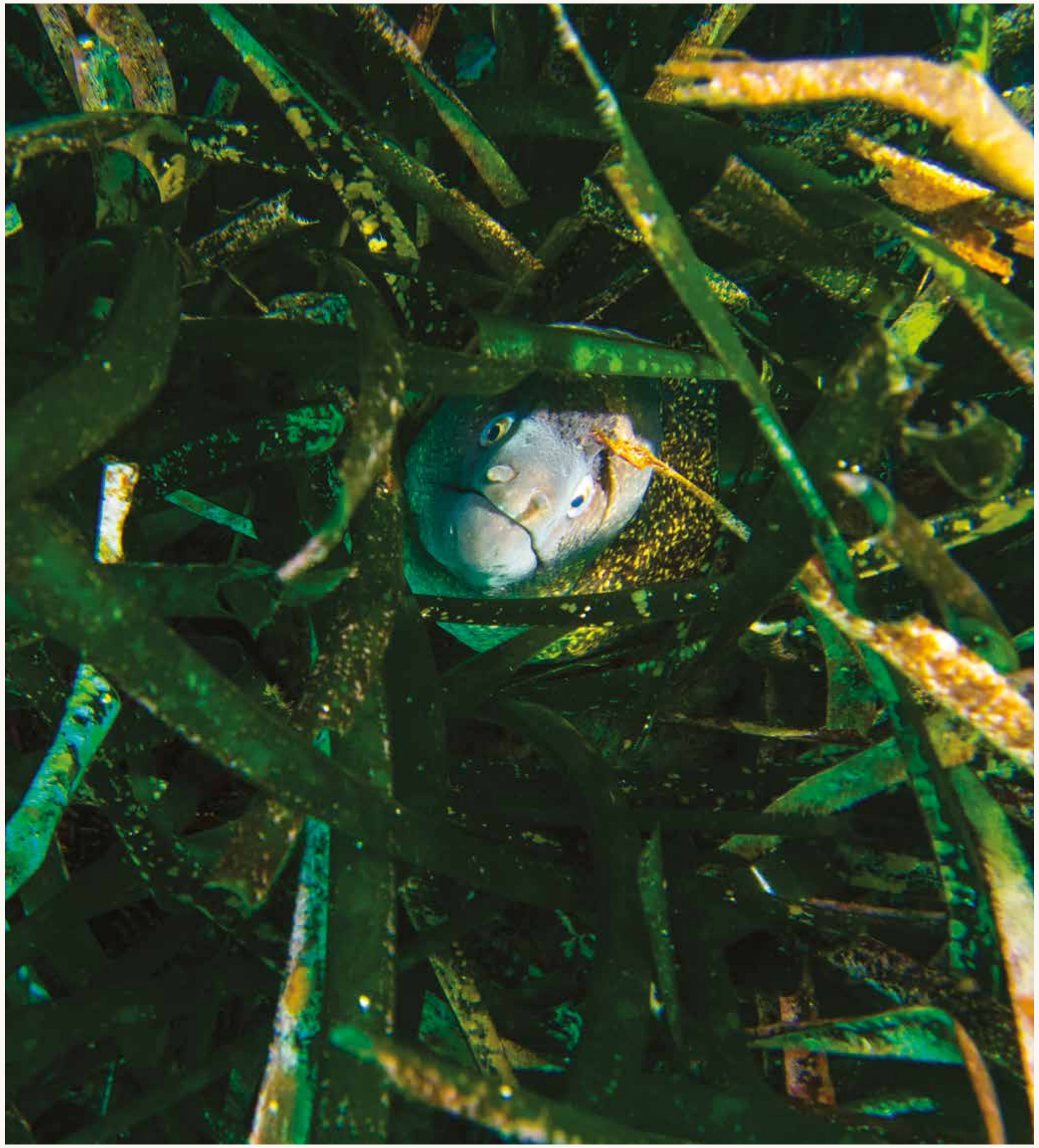
Sustainable Blue Growth and effective ocean governance go hand in hand. Economic opportunities should be integrated with environmental responsibilities. Sound ocean management is based on conserving and sustainably using our marine resources with the aim of maintaining our ocean and seas for future generations. The ocean has a key role as climate regulator, as a source of food, and as an engine for economic growth. Better ocean governance and management are not only crucial to make sure our maritime resources are healthy and safe, they also make economic sense.

Keeping our oceans healthy and creating the enabling conditions for a sustainable Blue Economy are shared tasks that cross borders in the Mediterranean, and they are not confined to the EU and its Member States. World leaders decided in 2015 through the United Nations to put the conservation and sustainable use of the oceans high on the political agenda. For the first time, there is an internationally-agreed political commitment for the ocean: Sustainable Development Goal 14 - Life Below Water. The European Commission is determined to turn these commitments into action. That is why the Commission launched a joint communication on international ocean governance where we proposed 50 actions to improve ocean management, reduce human pressure on the marine environment, and invest in ocean research and data sharing.

This report must motivate governments and business to end the status quo of resource exploitation and the attempts to manage fast-dwindling resources, and instead shift to a sustainable approach. This vision will build on our best experiences to scale-up the preservation of Mediterranean species and habitats and thereby increase economic security and improve livelihoods for future generations.

Achieving a truly sustainable Blue Economy will not be an easy task but this report shows why the moment has come for action on a scale unprecedented in our history. The Mediterranean is at a turning point and I urge all of us to grasp the opportunity now to set course towards a healthy, sustainable future.

Karmenu Vella,
European Commissioner for Environment, Maritime Affairs and Fisheries



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# EXECUTIVE SUMMARY

After decades of excessive and often unregulated economic activity, the health of the Mediterranean Sea is in steep decline. Ecosystems and the services they provide have been degraded rapidly, putting at risk the economy and livelihoods of those that depend on the sea.

In this report we have used two key concepts 1) 'gross marine product' (GMP), which can be compared to a country's annual gross domestic product (GDP), and 2) 'shared wealth fund' which represents the total "asset" base of the ocean, to illustrate the economic value of the Mediterranean Sea which directly relies on healthy ocean assets.

**US$ 5.6TN**

**THE VALUE OF THE TOTAL OCEAN ASSET BASE OF THE MEDITERANEAN SEA IS AT LEAST US$5.6 TRILLION**

Our analysis demonstrates that ocean-related activities in the Mediterranean Sea generate an annual economic value of US$450 billion, which compared to the regional GDPs, makes it the fifth largest economy in the region after France, Italy, Spain and Turkey. This value represents about 20% of the world's annual GMP,[1] in an area which makes up only 1% of the world's ocean. Furthermore the economic assets of the Mediterranean Sea are conservatively valued at a staggering US$5.6 trillion. Although these figures are impressive, they only partially demonstrate the significance of the Mediterranean Sea, as the intrinsic value of biodiversity and the numerous intangible benefits of a healthy sea cannot be adequately reflected in economic terms.

The population in the region is expected to grow, as will most of the economic activities. We must therefore take advantage of the window of opportunity still open to us today to reset the agenda, before the shared wealth fund of the Mediterranean Sea is driven to collapse by unsustainable development. To this end, urgent action and strong leadership at local, national and regional levels are needed to mitigate the impact of decades of heedless human activity.

We propose six strategic priorities to achieve a sustainable economic model in the Mediterranean, all of which build upon the United Nations' Sustainable Development Goals (SDGs):

1. **Implement integrated and ecosystem-based ocean planning and management**
2. **Adopt a sustainable Blue Economy approach**
3. **Achieve climate-resilient and carbon-neutral economies**
4. **Unlock the sustainable productive potential of natural assets through public and private financing**
5. **Reduce the footprint of mass tourism and pursue more sustainable tourism models**
6. **Ensure sustainability of the fishing sector**

[1] Hoegh-Guldberg, O. et al. (2015) *Reviving the Ocean Economy: The Case for Action - 2015.* WWF International, Gland, Switzerland., Geneva, 60 pp.

In addition to these priorities, we explored in depth two key sectors, due to their importance for the Mediterranean: tourism and fisheries. Of all sea-related sectors, tourism is the number one contributor to the region's economies, accounting for 11% of Mediterranean countries' cumulative gross domestic product (GDP). However, the current mass tourism model – which often involves aggressive coastal development, excessive water and energy consumption and unsustainable management of solid waste and sewage, among other things – has degraded both the marine and the coastal environment. Furthermore, the current tourism model, along with rapidly emerging consumer trends, endanger the long-term economic sustainability of tourism in the Mediterranean; the willingness to pay and the average spending per tourist is expected to further decrease, even if the total number of arrivals does not decline in the short run.

The Mediterranean fisheries sector, another key contributor to the region's economy, has been in a deepening crisis in recent years. It still has an estimated collective worth of over US$3 billion[2] and directly employs more than 180,000 people.[3] But overfishing and other human factors (e.g., pollution, habitat destruction) have dramatically affected the industry, and more than 80% of the assessed fish stocks in the Mediterranean are overfished.[4]

For each of these two sectors, we offer a series of recommendations for policy makers, investors and developers. These recommendations are intended to improve the sustainability of the tourism and fisheries sectors and to shift towards a "Blue Economy" development model that will sustain ocean assets and contribute to the region's prosperity at the same time.




[2] GFCM (2016) *The State of Mediterranean and Black Sea Fisheries*. FAO.
[3] Ibid.
[4] GFCM (2017) Scientific Advisory Committee on Fisheries (SAC) - 19th session. May 16 - May 19, 2017 Ljubljana, Slovenia.

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## PART ONE

# THE IMPORTANCE OF OCEAN ASSETS FOR COASTAL ECONOMIES AND COMMUNITIES

Oceans are fundamental for life on Earth. They produce more than half of the oxygen that we breathe and they absorb around a third of the $CO_2$ produced by human activities. They also provide trillions of dollars[5] in goods and services, food, countless jobs[6] and transport for millions of people, they are an important renewable energy source, they hold fundamental cultural and spiritual values, and myriad intangible benefits.[7] Equally importantly, healthy marine and coastal ecosystems support our fight against poverty, provide nutrition, and bolster health and employment.

Hence, it is no surprise that the United Nations' Sustainable Development Goals recognise the oceans' importance. Goal[8] 14 focuses specifically on the ocean, namely to "conserve and sustainably use the oceans, seas and marine resources for sustainable development" – and an additional 9 out of 17 goals touch upon the ocean as well. The role of oceans in the climate balance was also officially recognized for the first time by the Paris Agreement, thus paving the way for greater consideration of the marine environment in political decisions on climate and other areas.

**THE MEDITERRANEAN IS ONE OF THE MOST HIGHLY VALUED SEAS IN THE WORLD, AND ACCOUNTS FOR ABOUT ONE-THIRD OF GLOBAL TOURISM**

The Mediterranean is one of the most highly valued seas in the world, and it includes a vast set of coastal and marine ecosystems that deliver valuable benefits for its inhabitants. It is one of the world's major centers of marine and coastal biodiversity; 28% of species are endemic,[9] and there are many areas (particularly in protected sites) where clean, crystal-clear blue waters and pristine landscapes can be found. The Mediterranean Sea attracts millions of visitors every year. It accounts for about one-third of all global tourism, and several countries, such as Spain, Italy, Greece and Turkey, rely on tourists for a large part of their income. Other key economic sectors include fisheries, aquaculture, maritime transport, and oil and gas extraction.

However, the Mediterranean is no exception to the alarming global findings of ocean decline. Its marine environment has been declining rapidly for decades due to intensive coastal development, poorly planned tourism, unsustainable fishing practices and pollution—factors amplified by the global pressures of ocean warming and acidification. It is also important to note that the ability to effectively address these challenges is hindered by the socio-political complexity of the basin; 23 countries border this heavily used sea[10] in a fragile and often conflicting environment, where economic and political values are strongly interrelated and where social imbalances and economic inequalities are significant.[11]

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5 Conservatively estimated to be at least US$24 trillion. See: Hoegh-Guldberg, O. et al. (2015) *Reviving the Ocean Economy: The Case for Action - 2015*. WWF International, Gland, Switzerland., Geneva, 60 pp.
6 Ibid.
7 Ibid.
8 The 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development have been adopted by world leaders in September 2015 and officially came into force on January 1, 2016. SDGs include a set of goals to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years. (http://www.un.org/sustainabledevelopment/sustainable-development-goals/#)
9 http://www.rac-spa.org/biodiversity
10 UNEP/MAP (2012) *State of the Mediterranean Marine and Coastal Environment*, UNEP/MAP – Barcelona Convention, Athens.
11 Daniele, V. (2016) *Trends in Mediterranean Inequalities* (1950-2015). MPRA Paper.



**THE ECONOMIC VALUE OF THE MEDITERRANEAN SEA IS CLOSELY TIED TO ASSETS THAT ARE RAPIDLY DEGRADING**

In this report, we aim to assess the economic value of the Mediterranean Sea (although the sectors that directly rely on healthy ocean assets have been taken into account in our model) and analyze its two most important economic sectors: tourism and fisheries. Tourism accounts for 92% of the Mediterranean's economic production, but has also played a critical role in the decline of the region's marine environment. Meanwhile, the fisheries sector is worth over $3 billion, and it carries immense cultural value within the region, but 80% of assessed fish stocks are currently threatened.[12] In short, the Mediterranean Sea's economic value is closely tied to assets that are rapidly degrading.

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12 GFCM (2017) Scientific Advisory Committee on Fisheries (SAC) - 19th session. May 16 - May 19, 2017 Ljubljana, Slovenia.

## 1.1 THE ECONOMIC VALUE OF THE MEDITERRANEAN SEA

We use two concepts to illustrate the economic value of the Mediterranean Sea: the 'gross marine product' (GMP) and the 'shared wealth fund.' The GMP is the annual economic output of all sectors related to the sea,[13,14] while the shared wealth fund includes the total productive biodiversity and ecosystem assets of the ocean, such as coastlines, fisheries and seagrass.

### 1.1.1 The gross marine product of the Mediterranean Sea

**US$450 BN**

**THE ECONOMY OF THE MEDITERRANEAN, WORTH AT LEAST US$450BN, IS THE 5TH LARGEST ECONOMY IN THE REGION**

The economic value of ocean-related activities in the Mediterranean Sea, the 'gross marine product,' is estimated to be US$450 billion annually. Although the Mediterranean Sea represents just 1% of the world's total ocean area, it comprises 20% of the world's GMP. Italy contributes the most to the GMP, followed by Spain, France and Turkey.

The vast majority of the Mediterranean's GMP (92%) derives from tourism.[15] Coastal tourism alone[16] generates US$300 billion annually, followed by marine tourism[17] at US$110 billion. Fisheries and aquaculture account for roughly 2% of GMP, generating approximately US$8 billion annually, but their regional importance varies widely from country to country.

### 1.1.2 The shared wealth fund of the Mediterranean Sea

**83%**

**PRODUCTIVE COASTLINES REPRESENT 83% OF THE SHARED WEALTH FUND**

The 'shared wealth fund' can be understood as the total asset base of the ocean, from which annual economic production (i.e., the GMP) is drawn. The Mediterranean Sea's shared wealth fund is valued at US$5.6 trillion. Productive coastlines account for the majority of assets (83%), followed by seagrass at 13%.

We need to keep in mind the numerous intangible benefits the Mediterranean provides. The sea brings security (supporting livelihoods, providing food, etc.), spiritual and cultural enrichment, coastal protection, climate regulation and recreational value —though these factors cannot yet be effectively captured in classical economic analysis. The sea also shares strong interdependencies with other industries that draw from it, such as fish processing, transportation, and cultural tourism. Although this report addresses the economic or instrumental value of the Mediterranean Sea, it is equally important to consider its intrinsic value or its 'inherent worth.' The sea has a value in and of itself and it would be wrong to assess it purely for the services it provides to people. The intrinsic value of the sea should also taken into account in policy decisions, and should remind us of the moral imperative to act now to save all oceans.

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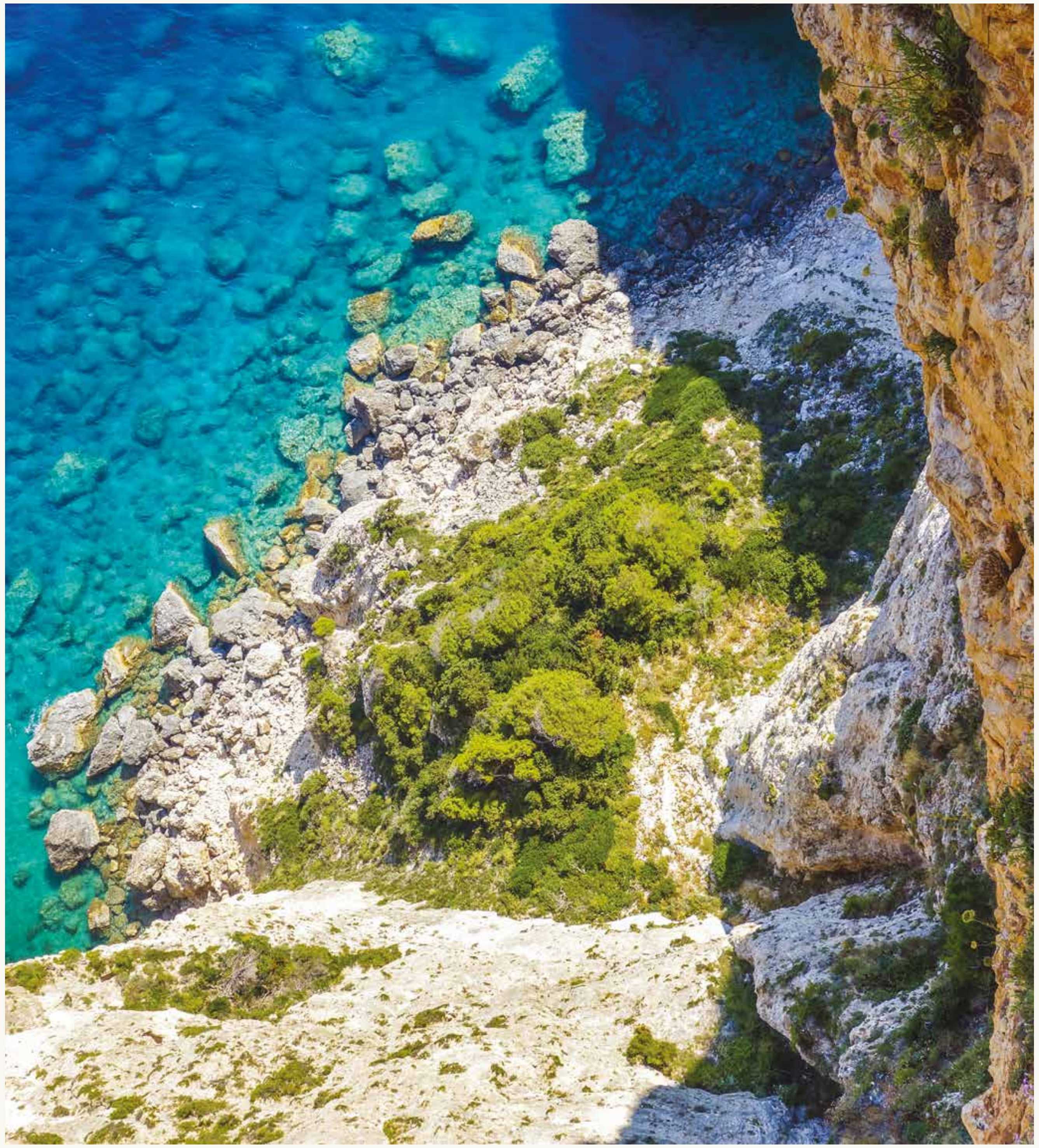
13 Shipping and oil-related industries are not included, since they do not depend upon a functional ecosystems.
14 The numbers presented in the report do not represent net value as they do not exclude costs.
15 Due to lack of relevant literature and statistics, the totality of marine and coastal tourism is assumed to be dependent on a healthy sea.
16 Total marine and coastal tourism is calculated by applying the percentage of tourism attributable to marine ecosystems to total tourism receipts.
17 Marine tourism includes all activities that take place directly at sea (e.g., SCUBA diving, snorkelling, yachting, bathing).



## FIGURE 1 WHAT IS THE ECONOMIC VALUE OF THE MEDITERRANEAN SEA?

### OCEAN ASSET VALUE OF THE MEDITERRANEAN SEA - SHARED WEALTH FUND

Marine assets in the Mediterranean Sea generate much more value than we are aware of and could provide even more if well managed.

**US$5.6 tn** TOTAL SHARED WEALTH FUND ASSET BASE


### THE SHARED WEALTH FUND

is the total sum of the ocean's assets - such as coastlines, fisheries, seagrass - from which annual economic production (the Gross Marine Product) is drawn.

**PRIMARY ASSETS**

| | |
|---|---|
| Marine fisheries | US$ **39.0** bn |
| Seagrass | US$ **716.9** bn |

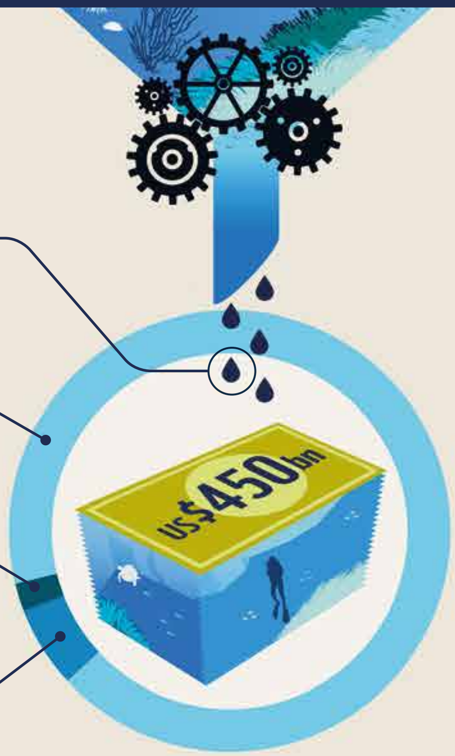
**ADJACENT ASSETS**

| | |
|---|---|
| Productive coastline | US$ **4,650.6** bn |
| Carbon absorption | US$ **173.5** bn |

### MEDITERRANEAN SEA GROSS MARINE PRODUCT (GMP)

(data from 2015-2016)

Gross Marine Product (GMP) is the ocean's annual economic value.




**92%**
Marine & coastal tourism

**2%**
Fisheries & aquaculture

**6%**
Direct services enabled by the ocean

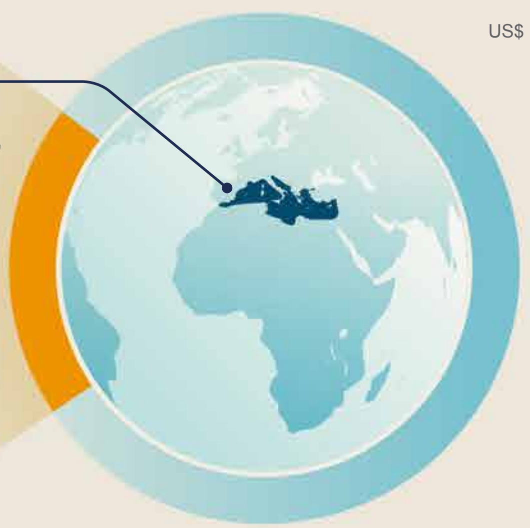
THE MEDITERRANEAN SEA REPRESENTS JUST

**1%**

OF THE TOTAL OCEAN, BUT COMPRISES

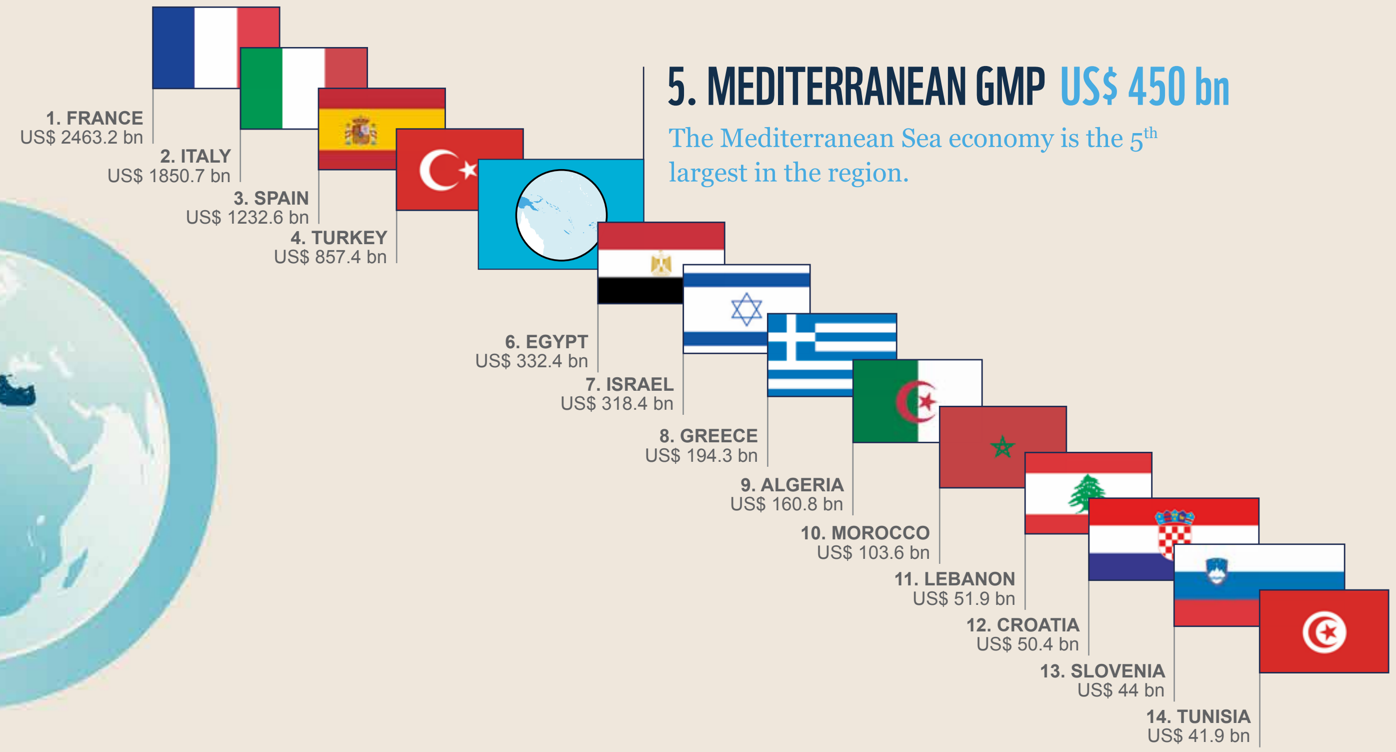
**20%**

OF THE GLOBAL GMP



### HOW DOES THE MEDITERRANEAN SEA'S GROSS MARINE PRODUCT COMPARE TO REGIONAL GDPs?

* Countries with GDP below US$ 40 bn are not displayed



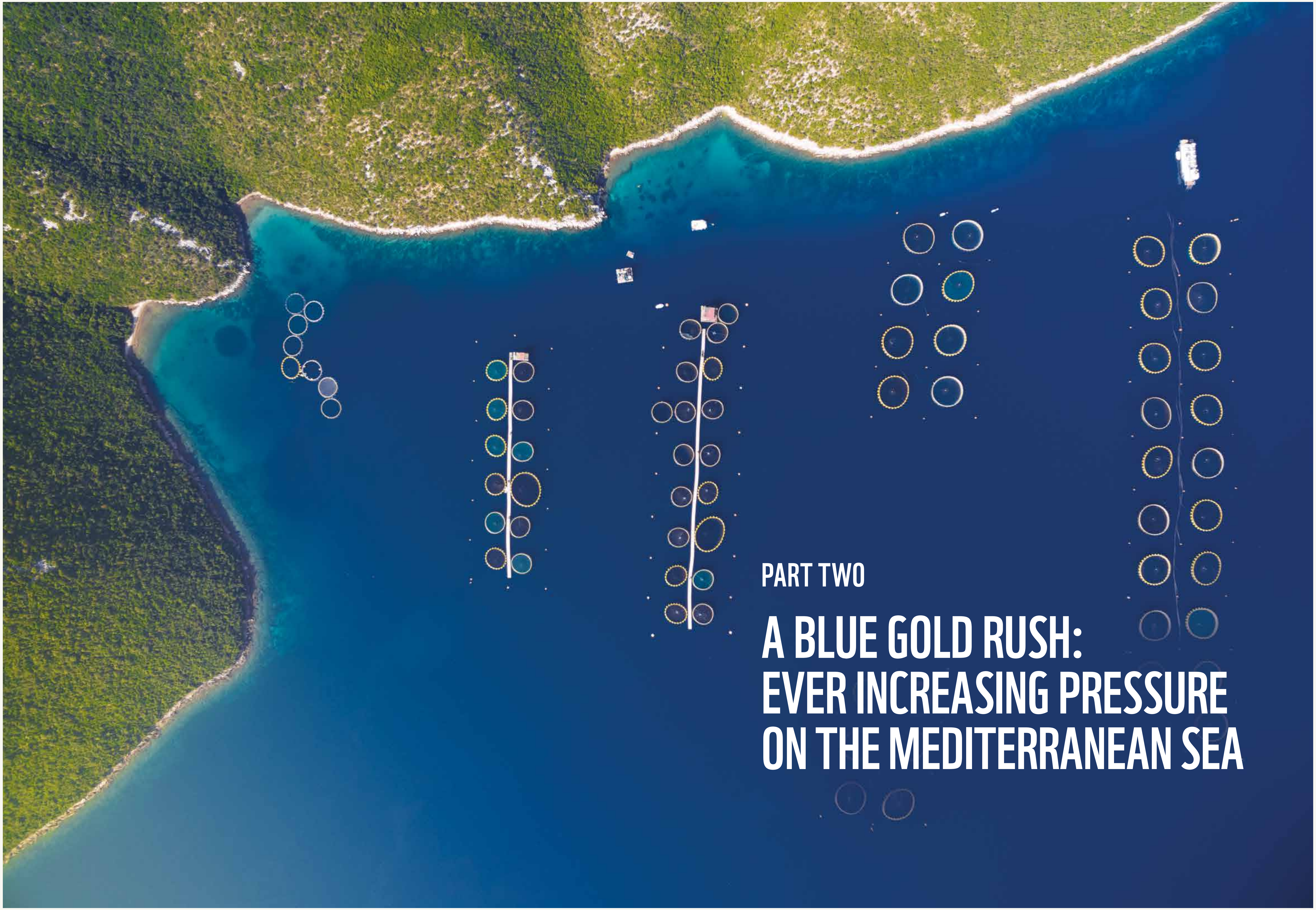

**5. MEDITERRANEAN GMP US$ 450 bn**

The Mediterranean Sea economy is the 5th largest in the region.

Analysis for this section is provided by: BCG The Boston Consulting Group



**SOURCES:**
IMF World Economic Outlook 2016.



PART TWO

# A BLUE GOLD RUSH: EVER INCREASING PRESSURE ON THE MEDITERRANEAN SEA

The Mediterranean is the largest enclosed sea in the world. It sits at the crossroads of Europe, Africa and Asia, and for centuries it has been a hub for transport, trade and tourism. Our analysis clearly demonstrates the importance of the economic contribution of the Mediterranean to the economies of the surrounding countries (Figure 1). However, decades of excessive and often unregulated economic activity have taken their toll – and the Mediterranean's health is in steep decline.

## 2.1 ALARMING GROWTH TRENDS

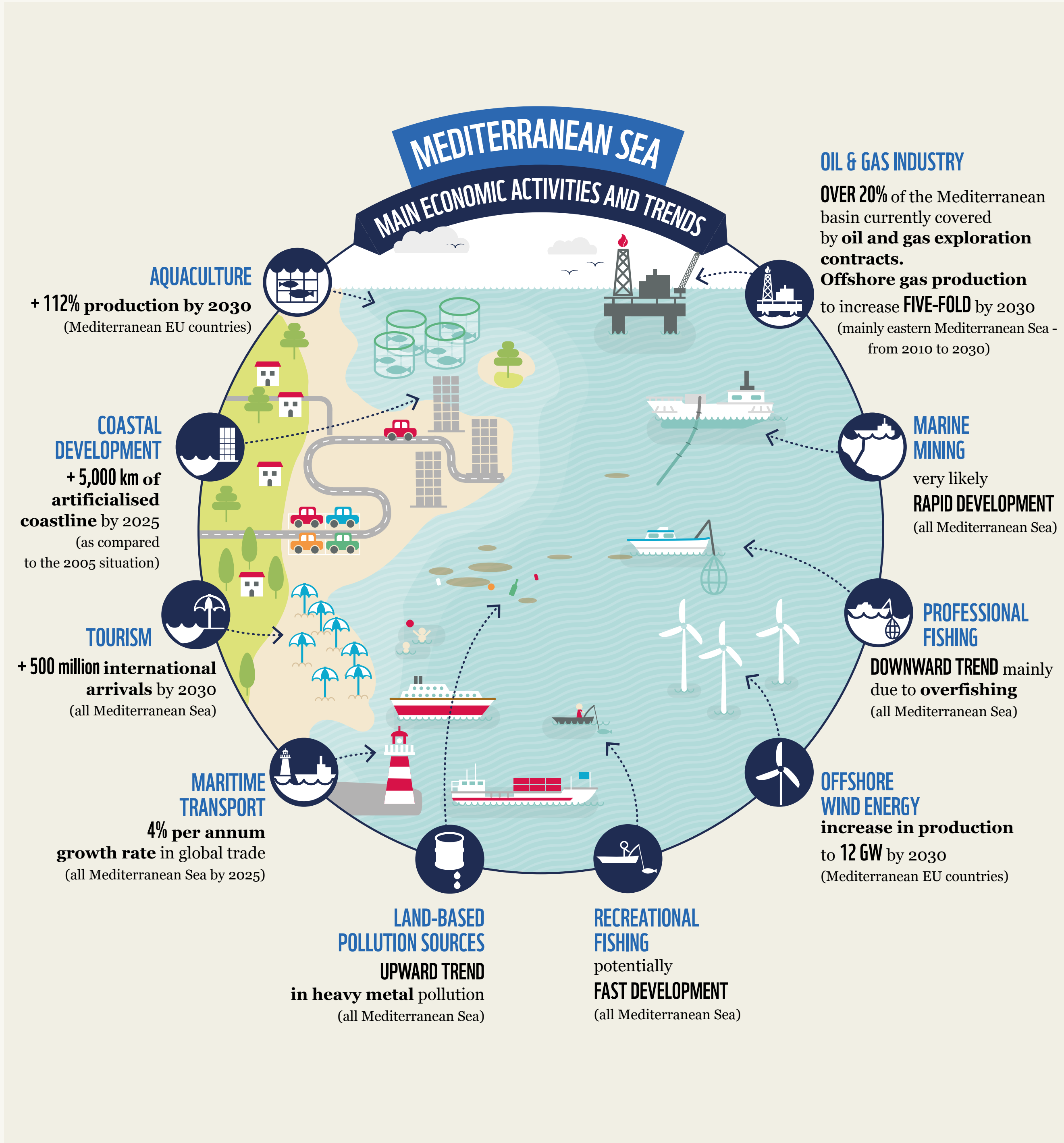
**ALMOST ALL MARITIME INDUSTRIES ARE EXPECTED TO DEVELOP, CAUSING POTENTIAL CONFLICTS OVER SPACE AND OTHER RESOURCES**

Given the economic importance of the Mediterranean, its positive future is critical for the sustainability of coastal economies. The MedTrends report,[18] published by WWF in 2015, shows us how the sea may look in 15 to 20 years. It depicts a potential 'blue gold rush' for the region, where almost all maritime industries will continue to develop. The region is expected to see an increase in maritime traffic, partly driven by the increasing trade between Europe and Asia. Oil transport is also set to rise to 750 million tonnes by 2025 (in 2006 it was around 500 million tonnes), involving 6,700 tankers each year. Regional energy demand continues to grow; offshore oil and gas exploration contracts currently cover more than 20% of the Mediterranean Sea, and potential new contracts cover another 20% of the basin. Aquaculture production is expected to expand from 280,000 to 600,000 tonnes a year, with an increase of 112% (Figure 2). This level of development will inevitably result in conflicts over space and other resources.

[18] Piante C., Ody D. (2015) *Blue Growth in the Mediterranean Sea: The Challenge of Good Environmental Status. MedTrends Project.* WWF-France. 189 pp.



## FIGURE 2 MAIN ECONOMIC ACTIVITIES/TRENDS IN THE MEDITERRANEAN SEA

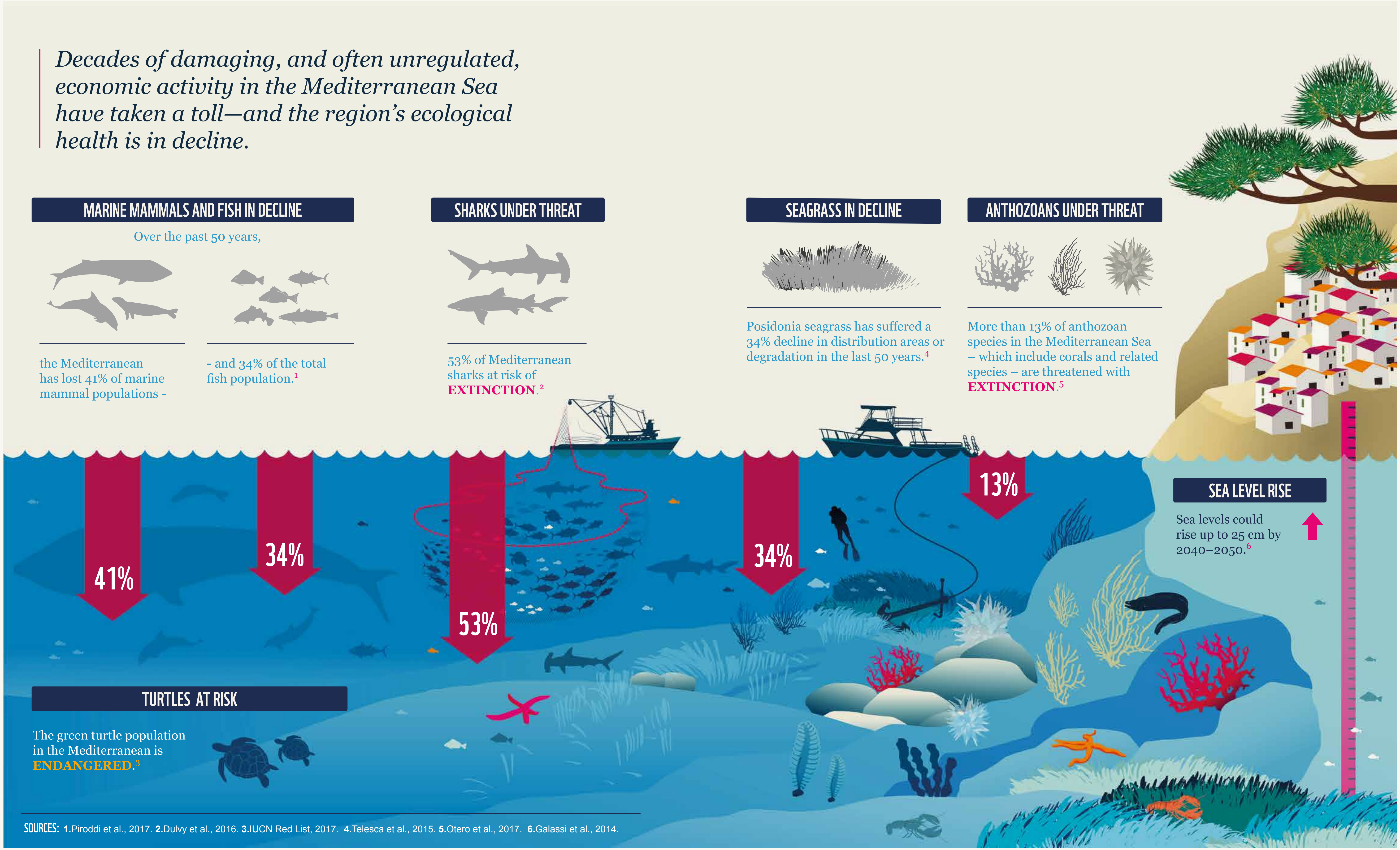



Infographic provided by:
Bianco Tangerine snc

**SOURCES**

Piante C., Ody D. (2015) *Blue Growth in the Mediterranean Sea: The Challenge of Good Environmental Status. MedTrends Project.* WWF-France. 189 pp.

## FIGURE 3 STATE OF MARINE ASSETS IN THE MEDITERRANEAN SEA



The Mediterranean faces unprecedented challenges in its journey towards a sustainable future. Mediterranean marine assets offer a classic example of the 'tragedy of the commons,' whereby individual actors tend to act in their own self-interest, exploiting precious and limited resources, even when it harms the system as a whole. Climate change only compounds the challenges owing to rising sea levels, sea warming and acidification, heavier storms and the associated losses of productive habitat. External events – such as the global financial crisis, the refugee crisis and political turmoil – gravely impair the ability of governments to define long-term priorities and effectively address sustainability challenges. But strong leadership – at both the local and national level – can mitigate the impacts of these destructive forces.

Today, we have a critical window of opportunity to reset the agenda, before the shared wealth fund of the Mediterranean Sea is driven to collapse by unsustainable development. The only way to ensure that the Mediterranean Sea will continue to support regional economies and to create jobs is to put in place a strong mechanism to shape a new sustainable path, especially as the cumulative impact of increasing development is likely to grow and existing efforts to mitigate the effects on marine ecosystems are not sufficient to cope with this growth. Industries, governments, civil society and all stakeholders must build an ambitious vision that drives economic growth while protecting ocean assets—and act boldly to restore them.

## PART THREE

# STRATEGIC PRIORITIES FOR A SUSTAINABLE FUTURE

We propose six Priority Actions - to be implemented both at the regional and national level - that would enable a transformational change towards a sustainable economic model for the Mediterranean Sea.

## STRATEGIC PRIORITY 1 Implement integrated and ecosystem-based ocean planning and management

**THE MANAGEMENT OF A NATURAL RESOURCE SYSTEM AS COMPLEX AS THE MEDITERRANEAN SEA REQUIRES AN INTEGRATED AND ECOSYSTEM-BASED APPROACH**

The management of a natural resource system as complex as the Mediterranean Sea requires an integrated approach. Integrated ocean planning and management, including integrated coastal zone management (ICZM) and maritime spatial planning (MSP), should be an ecosystem-based process, supporting nature conservation and leading to a sustainable Blue Economy. The ecosystem-based approach considers the needs and interactions of the entire ecosystem, including human activities ensuring that ecological processes and functions are maintained. Instead of separately managing individual components or uses, it considers all the elements that are integral to the functioning and capacity of ecosystems, and accounts for economic and social benefits, as well as environmental stewardship concerns.

The concept of an ecosystem-based approach is underpinned by sound science, a precautionary approach and a commitment to adaptive management as changing information or conditions present new challenges and opportunities. WWF has long supported ecosystem-based integrated ocean management (IOM) around the world as a way to promote environmental protection and sustainable provision of important ecosystem goods and services; it helps to identify the most efficient, effective, and equitable ways to plan and manage the use of our seas and coasts.

The Mediterranean region was the first in the world with a regional ICZM Protocol (adopted by the Barcelona Convention[19]), and this has been ratified by 10 countries. In addition, an MSP Directive is being implemented in EU states. This is a unique opportunity to make the implementation of these policies more effective and to take a truly ecosystem-based approach to IOM, which should also allow for a better integration of MSP and ICZM approaches.

## STRATEGIC PRIORITY 2 Adopt a sustainable Blue Economy approach

**WE NEED TO ENSURE THAT ECONOMIC ACTIVITY DOES NOT HAVE A NEGATIVE IMPACT ON THE MARINE ECOSYSTEM**

The Blue Economy is often seen as the new frontier for the ocean. It is growing rapidly, as investors and policymakers increasingly turn to the sea for economic opportunities, resources and prosperity. However, environmental damage and losses in natural capital, driven by unsustainable economic activity, are continuing to erode the resource base on which the marine economy depends for its long term sustainability.

We need to ensure that economic activity in the Blue Economy does not have a negative impact on the marine ecosystem, efforts to reduce carbon emissions, the revenue streams of ocean-based businesses or the way of life of people who depend on them. Principles underpinning a sustainable Blue Economy (Box 1), as defined by WWF and others, should become standard for all relevant marine industry development, activity, and investment, including terrestrial industries with a significant impact on ocean ecosystems.

From the outset, Blue Economy investment and development must aim to achieve a zero net emissions world, building a circular economy and taking into consideration the needs of the most vulnerable. Without this approach there is little chance that the Blue Economy will achieve its maximum economic potential and no chance at all that it will be sustainable in environmental terms.

More active leadership is needed in the Mediterranean to steer the current 'Blue Growth' approach, clearly focusing on development towards a truly sustainable Blue Economy.

[19] The Barcelona Convention EcAP process also aims at extending the Good Environmental Status Target from the EU's Marine Strategy Framework Directive to non-EU countries.

### BOX 1. WWF PRINCIPLES FOR A SUSTAINABLE BLUE ECONOMY

Despite the high-level adoption of the Blue Economy as a goal of policymaking and investment, there is still no widely accepted definition of the term. To fill this gap, WWF has developed a set of principles for a sustainable Blue Economy. They offer a clear definition of what it means, and they provide guidance on how to manage efforts to achieve it. They also outline a set of actions that stakeholders can take to get there.

Truly integrated maritime policies, adequate economic and legislative incentives, supportive public and private investment and the successful implementation of ecosystem-based MSPs are all important ingredients in the mix.

The Blue Economy can only be sustainable if we also create a sustainable economy on land; that is, an economy that restores, protects and maintains diverse, productive and resilient ecosystems, and that is based on clean technologies, renewable energy, and circular material flows.

WWF urges public, private and civil society actors to use the Principles for a Sustainable Blue Economy[20] as a lens through which to define a sustainable Blue Economy in the Mediterranean Sea region, assess whether our actions are taking us in the right direction, and set sail for a more prosperous future, for people and nature alike.

[1] http://wwf.panda.org/?247477/Principles-for-a-Sustainable-Blue-Economy

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## STRATEGIC PRIORITY 3 Achieve climate-resilient and carbon-neutral economies

HUMAN-INDUCED CLIMATE CHANGE WILL ALTER THE MEDITERRANEAN ECOSYSTEM MORE IN THE NEXT TEN YEARS THAN NATURAL PROCESSES HAVE IN THE PAST 10.000 YEARS

The Paris Agreement ratified by 160 countries entered into force in November 2016.[20] It aims "to hold the increase in the global average temperature to below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels." A recent study showed that in about a century, anthropogenic climate change is likely to alter Mediterranean ecosystems in a way that nature has not been able to do in 10 millennia. It is crucial to limit atmospheric $CO_2$ concentration to 440 ppmv[21] before 2040 and limit the temperature increase to 1.5°C above pre-industrial levels, which allows biome shifts to remain under the limits experienced during the Holocene.[22]

Countries should therefore invest in carbon-neutral policies to enhance their development potential. Furthermore, carbon finance mechanisms can enhance the value of living natural capital assets, such as the Payment for Ecosystem Services[23] schemes for coastal habitats that sequester carbon. Mediterranean seagrass beds, for instance, are among the most efficient ecosystems for sequestering carbon, and are therefore a clear example of an investment priority for all Mediterranean countries.

## STRATEGIC PRIORITY 4 Unlock the productive potential of natural assets through public and private financing

FINANCING MECHANISMS ARE NEEDED TO DRIVE SUSTAINABILITY STANDARDS

Public and private sector financing can be a valuable tool to generate income from natural assets and to support development. It is particularly important to introduce financing mechanisms that drive sustainability standards in the Mediterranean. Sustainable development guidelines for investment should be adopted and implemented regionally. Governments should promote investments in sustainable business models to encourage their adoption at a regional level.

## STRATEGIC PRIORITY 5 Reduce the footprint of mass tourism and pursue more sustainable tourism models

THE ENVIRONMENTAL AND SOCIAL IMPACTS OF TOURISM NEED TO BE ADDRESSED

To ensure that tourism continues to benefit the Mediterranean economy, steps need to be taken to address its environmental and social impacts. The traditional model geared to mass tourism and large, all-inclusive coastal developments needs to change. For existing developments, sustainable retrofitting and sustainable operations need to become the norm. For less developed destinations, a comprehensive sustainable tourism model needs to be implemented based on current and growing tourism trends. Governance and regulation need to address the issue, and efforts to create new models need to be coordinated across the region. From consumers through to tour operators and service providers, a paradigm shift is needed.

20 http://unfccc.int/paris_agreement/items/9444.php
21 Parts Per Million by Volume
22 Guiot, J., Cramer, W. Climate change: The 2015 Paris Agreement thresholds and Mediterranean basin ecosystems. *Science* 28 Oct 2016: 354 (6311): pp. 465-468.
23 Payments for ecosystem services (PES) occur when a beneficiary or user of an ecosystem service makes a direct or indirect payment to the provider of that service. The idea is that whoever preserves or maintains an ecosystem service should be paid for doing so.





## STRATEGIC PRIORITY 6 Ensure the sustainability of the fishing sector

THE COMPLEX DYNAMICS OF THE MEDITERRANEAN FISHERIES SECTOR, REQUIRE A HOLISTIC APPROACH

Serious and urgent action is required if we want to ensure that there will be a future for commercial fishing in the Mediterranean. With such complex dynamics, a holistic approach is needed. Habitat protection and fisheries management must go hand in hand, and cross-border cooperation must be facilitated. The needs of small-scale fishers must be considered alongside the semi-industrial and industrial fleets. Consumers need to be increasingly conscious of the impact their purchasing decisions have on the marine environment. Above all, stakeholders need to work together and have a plan for the whole region.


PART FOUR
FOCUS ON TOURISM AND FISHERIES: POTENTIAL DRIVERS OF A SUSTAINABLE BLUE ECONOMY

## 4.1 THE IMPERATIVE OF A SUSTAINABLE TOURISM MODEL FOR THE MEDITERRANEAN SEA

Tourism is one of Mediterranean's fastest-growing industries and contributes more than US$420 billion annually to the regional economy. However, uncontrolled tourism development threatens important ecosystems, underlining the need for sustainable models that recognize the value of the services of marine and coastal areas and protects them effectively.

**2.9%**

**TOURISM IS EXPECTED TO GROW BY AROUND 2.9% PER ANNUM OVER THE NEXT DECADE**

Since the 1970s, Mediterranean nations have been exceptionally popular tourist destinations. This has led to unprecedented development, especially in coastal areas. Tourism is expected to grow by around 2.9% per annum over the next decade, and related employment is expected to grow along with it at 2.8% per annum[24]. This continued rapid growth, however, has come at a high cost. In all three sustainability dimensions – the economy, environment and people – the Mediterranean is under significant stress.

### 4.1.1 Impacts of tourism

**Economic impact**

Of all the sea-related sectors, tourism is the number-one contributor to the economies of the region. Its annual worth is now estimated at 4.8% of cumulative regional GDP. The indirect contribution is even more notable, estimated to equate to more than 11% of cumulative regional GDP. Tourism also creates employment. In 2015, it directly supported some 7.8 million jobs (4.5% of total employment), and indirectly contributed to 20 million others (11.5% of total employment)[25].

The value of tourism varies from one Mediterranean country to the next, and, in several, it makes a significant contribution to GDP. Countries like Italy, Spain, France, Greece and Turkey have traditionally been popular destinations for European travellers, and these countries are increasingly attracting Asian and Russian tourists as well. The infrastructure of the older resorts was developed to attract high volumes of tourists, with little regard for the environmental impact or the economic leakage, which limits benefits for the local populations. Antalya (Turkey) and Mallorca (Spain) are typical examples of destinations that have been heavily developed in the past. However, emerging destinations like Croatia, Montenegro and Albania are seeking to develop more sustainable tourism models.

**Environmental impact**

**ENVIRONMENTAL IMPACTS MAKE DESTINATIONS LESS ATTRACTIVE AND THREATEN THE QUALITY OF LIFE FOR LOCAL COMMUNITIES**

Given the large inflow of tourists to the most popular areas, where ecosystems are already under pressure, the fast-paced degradation of the environment comes as no surprise. Aggressive coastal development, coastal erosion, excessive consumption of energy and water, and unsustainable management of solid waste and sewage are just some of the problems that come with mass tourism. These environmental issues not only end up making destinations less attractive to tourists, but also threaten quality of life for local communities.

[24] WTTC (2016) *Travel & Tourism: Economic Impact 2016, Mediterranean.*
[25] Ibid.

## BOX 2. THE IMPACTS OF POOR ENVIRONMENTAL PRACTICES ON A MASS TOURISM DESTINATION: THE CASE OF RIMINI, ITALY

Rimini is a traditional beach destination on the northern Adriatic coast of Italy. It registered 6.9 million overnights in 2015, making it the fifth-most visited location in Italy[1]. It also has the nation's highest density of hotels per square kilometre[2]. The mass tourism model showed its limitations in 1989 when, at the beginning of the season, an unexpected environmental crisis involving large-scale mucilage growth, struck Rimini's beaches and prevented millions of tourists from bathing in its waters. The crisis resulted in a 35% drop in overnights that year, and exposed how mass tourism can be particularly vulnerable to natural conditions[3].

Local authorities and private actors attempted to reduce Rimini's exposure to variable environmental conditions, as well as the growing competition from other Mediterranean coastal destinations, by promoting leisure parks and conference tourism as an alternative to the traditional Riviera appeal of beach and sun. Their efforts proved successful, and over the following years the city was able to attract high numbers of tourists despite a relatively poor environmental situation. The region's tourism has remained strong ever since, but Rimini's brand and status has nevertheless seen a significant deterioration and patterns of demand have changed[4].

About 10 years ago, the city launched a new effort to reinvent its tourism model by bringing together numerous local actors to create a shared long-term vision. The strategic master plan places environmental sustainability and the quality of life of the local population at the heart of long-term economic development. Projects aim to roll back 15 kilometres of waterfront artificialization and create a linear park to integrate the beach with the historic centre. A new transport matrix will focus on sustainable options, restricting cars in areas with higher pedestrian density. More than €150 million is being invested to eliminate wastewater discharge into the sea by 2020[5].

With these efforts, Rimini is aiming to refocus its tourist offering, putting environmental quality at the core of its value proposition.



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[1] https://www.istat.it/en/

[2] DATATUR 2016 FINALE compressed per web.pdf - Rimini first on the list pg 29-30

[3] Mariotti, Alessia, and F. Zirulia. (2012) Getting out of the quagmire: Public and private strategies in Rimini after the 1989 mucilage crisis. Working Paper 2012/02, University of Bologna Italy.

[4] Ibid

[5] Comune di Rimini. Masterplan Strategico. Available at: http://www.comune.rimini.it/comune-e-citta/citta/arengo/masterplan-strategico-del-comune-di-rimini

**Social impact**

The growth of tourism also affects people's way of life. In many regions, tourism has become the dominant industry. Other sectors, like farming and fishing, have been marginalized and replaced with seasonal jobs. Most coastal communities experience intense economic activity during the high season, but extremely limited economic activity during the low season. Consequently, the everyday life of local residents has changed dramatically. The localities' unique colour, which used to follow the needs and yearly cycle of traditional economic activities, is now practically extinct and coastal communities have become largely homogenized.

These effects aren't just problematic in and of themselves. They actually have the potential to undermine the very industry they serve. A comprehensive analysis of emerging trends raises the question: is the growth of tourism sustainable in the Mediterranean?

### 4.1.2 Tourism trends in the Mediterranean Sea

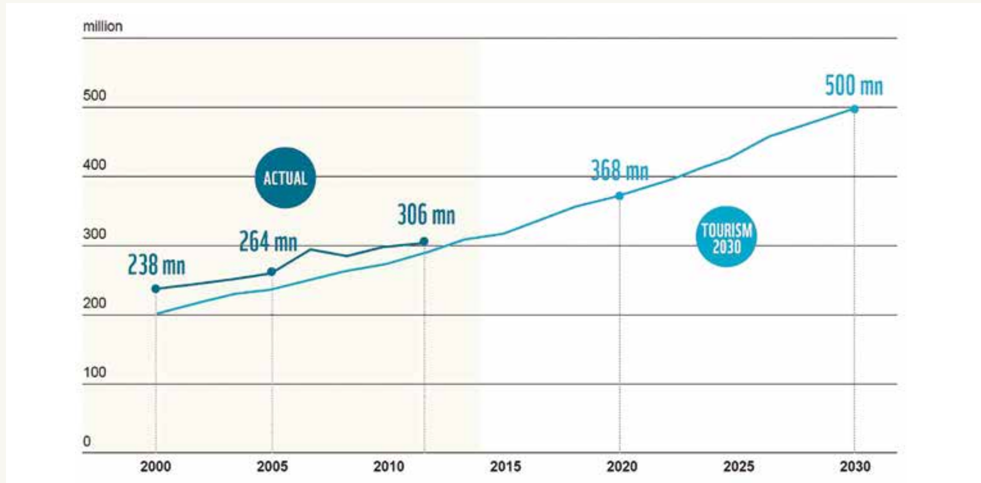
Travel and tourism has changed dramatically in the last 10 years, driven mostly by increased demand from new markets, new emerging destinations, accessible and affordable flights, e-tourism, and an increasing emphasis on creating a unique experience for travellers.

Several factors have influenced recent travel trends, from socio-political and environmental conditions to new patterns of supply and demand and emerging consumer behaviours.

- **Global tourism is rapidly growing:**

  Population growth, increased global GDP and a rising middle class are driving increased spending on travel and leisure. In addition, low-cost, connected transport creates more destination options for travellers. The growth of international tourism in the Mediterranean illustrates this trend (Figure 4).

**FIGURE 4 EXPECTED TRENDS OF INTERNATIONAL TOURISTS ARRIVALS IN THE MEDITERRANEAN REGION, IN MILLION**




**SOURCES**

UNWTO 2016. *Tourism Trends Snapshot: Tourism in the Mediterranean*, 2015 edition.

- **Increased insecurity and natural events create instability in demand:**

Demand has varied significantly in recent years, with some destinations experiencing plummeting demand, while others enjoy exceptionally high numbers of tourists. On the negative side, some areas in the Mediterranean have been affected by political insecurity and terrorism, which have given rise to more travel alerts in important markets and sharply decreased the inflow of tourists. While this demand has partly migrated to other Mediterranean destinations, not all tourists have opted for a different destination within the Mediterranean. Also, events driven by climate change, natural disasters (e.g., forest fires) and extreme climatic events (e.g., prolonged heat waves) have had a noticeable negative impact on tourism in the region.[26]

- **Consumers are becoming increasingly sophisticated and seek unique experiences.**

Today's tourists are looking for destinations that offer authentic experiences, well preserved landscapes, local colour and locally sourced goods. After decades of development and mass tourism, many of the unique characteristics of the Mediterranean region have already been compromised.

- **Consumers are mindful of sustainability.**

Visitors are paying more attention to health and wellness, and seek opportunities to escape urban living while minimizing their environmental footprint. Sustainable tourism is one of the fastest growing niche markets. This pressure from consumers has led tour operators and agencies to put a greater emphasis on sustainability.[27]

- **Consumers are willing to pay more for products and services they value.**

Consumers will readily trade up and pay more for personalized travel and authentic products and services, but they choose to pay less than ever for destinations they perceive as mainstream and homogenized. Mediterranean destinations have already started to experience the impact of this trend. Average expenditure per night has been decreasing since the mid-2000s and the impact is felt strongly, especially by coastal communities, as their economies are dominated by micro, small and medium-sized enterprises.[28]

All of these trends point to important opportunities and challenges for tourism in the Mediterranean. Demand for tourism is expected to change but also continue to show strong growth globally. At the same time, the Mediterranean is not well-positioned to take advantage of these opportunities.

[26] Perry, A. (2000) *Impacts of Climate Change on Tourism in the Mediterranean: Adaptive Responses.* Fondazione Eni Enrico Mattei – Working Paper, No. 35.

[27] Operators like Thomas Cook, DER and TUI have made commitments to transform their supply chains by sourcing sustainable accommodations and providers. Royal Caribbean recently announced its commitment to have 1,000 of its destination tours come from operators certified as environmentally, socially and culturally sustainable practitioners by 2020 (http://www.rclcorporate.com/rcl-wants-tour-operators-with-a-sustainable-seal-of-approval).

[28] EC (2014) Communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of Regions. A European Strategy for more Growth and jobs in coastal and maritime tourism. COM(2014) 86 final.



AFTER DECADES OF GROWTH IN MASS TOURISM, MANY OF THE UNIQUE CHARACTERISTICS OF LOCALITIES HAVE ALREADY BEEN COMPROMISED

After decades of growth in mass tourism, many of the unique characteristics of localities have already been compromised. The number of pristine, unspoiled areas has diminished; local communities have abandoned activities that make them unique; and environmental degradation further endangers the health and image of the sea and coast. In an era when consumers demand more and more unique experiences based on local specificities, such a homogenized landscape risks dissuading visitors that seek personalization and authenticity. Critically, these are also the visitors who are willing to trade-up and pay more. In other words, unless the Mediterranean destinations quickly and effectively adapt to the rapidly emerging consumer trends, they risk seeing the willingness to pay and the average spending of their tourists further decrease, even if the total number of arrivals does not decline in the short run.

Within this framework, the sustainability of tourism's economic contribution in the Mediterranean seems questionable. With so many cookie-cutter destinations around the world for tourists to choose from, price becomes a key differentiator. Mediterranean destinations are unlikely to compete on price, but even if they could, it would lead to a vicious cycle. Coastal areas would need to attract ever greater numbers of low-margin, high-leakage tourists to maintain sufficient revenue. But this model would reinforce the mainstream, homogenized model, which further degrades the environment and devalues the destination. A premium model, on the other hand, preserves the area's unique character and draws higher-value tourists who are willing to pay handsomely to experience its cultural, historical and natural richness.

### 4.1.3 RECOMMENDATIONS FOR A SUSTAINABLE TOURISM SECTOR

**RECOMMENDATION 1** Develop comprehensive national strategic frameworks for sustainable tourism

A coordinated approach is needed from government, industry and civil society to create a shared management model for tourism, with multi-year and multi-stakeholder strategies to address planning, monitoring and financial support. National strategic frameworks should incorporate all types of tourism that can effectively decrease the overall footprint of tourism in each country. Strategic frameworks need to integrate all sustainable types of tourism into a premium sustainable offering, building on the desire for unique experiences from an important and growing market segment composed of nature, adventure, wellness and cultural travellers. At the same time it should ensure that the ecological impact of mass tourism is effectively addressed. The process should also ensure that all stakeholders are involved and that the well-being of local communities is put at the heart of the strategy. It should address retention of youth in destination communities, engaging them in sustainably managing resources and reviving local culture.

**Specific actions:**

- Identify the natural landscapes and cultural features that need to be protected
- Develop strategic frameworks at the national level for sustainable tourism, focusing on each country's key differentiators
- Identify funding sources and mobilize sufficient financial investments to ensure the effective implementation of national strategic frameworks
- Destinations adopt a unique and sustainable destination management approach within the broader national strategic framework (see Box 2 and Box 3 for a successful examples)

## RECOMMENDATION 2 Put in place adequate governance structures at local, national and regional levels

In addition to improving coordination on local and national levels, there is a need for a stronger transnational tourism governance structure across the Mediterranean. Activities should be coordinated at the regional level through strategic planning efforts, with the production of thematic and sectoral guides.

**Specific actions:**

- Establish and empower governance structures on sustainable tourism at the local and national levels
- EU to promote the sustainable tourism agenda across the Mediterranean by linking specific sustainability targets to the broader framework of bilateral Euro-Mediterranean Association Agreements and partnerships

## RECOMMENDATION 3 Improve incentives and disincentives related to tourism sustainability

Incentives and disincentives can be key in decreasing the ecological footprint of tourism in the Mediterranean. Fiscal and funding incentives can facilitate the development and implementation of innovative solutions in both sustainable and mass tourism. At the same time, the violation of regulations such as excessive water consumption, construction and sewage dumping into the sea needs to be met with strict penalties to improve compliance.

**Specific actions:**

- Enhance national fiscal and funding incentives to promote sustainable tourism practices by the private sector
- Strengthen the regulatory framework and associated penalties to curtail unsustainable practices
- Improve regional incentives to promote innovation in the development of sustainable solutions for the tourism sector

## RECOMMENDATION 4 Adopt standards and implement best practices

Sustainability in the tourism sector can be addressed through the implementation of standards and best practices: new construction plans and operations should be reviewed, and guidance provided on reducing environmental footprint and increasing socio-economic benefits. We recommend a Mediterranean-wide approach to standards, with initiatives like European Tourism Indicators System (ETIS) and Europarks leading the way.

**Specific actions:**

- Adopt standards and best practices (such as the Global Sustainable Tourism Council standards) in mass tourism businesses
- Disseminate and encourage the adoption of best practices for sustainable destination management



## RECOMMENDATION 5 Protect environmental assets and use smart coastal planning and zoning

The challenge faced by decision-makers is how best to move forward with tourism development while maintaining healthy, functional ecosystems that support the tourism industry, sustain livelihoods and provide resilience to climate change.

The introduction of sustainability requirements for development financing, the adoption of better development practices, and climate-smart planning and zoning will increase the resilience of coastal communities and reduce the pressure on marine and coastal ecosystems.

**Specific actions:**

- Balance planning of tourism developments with initiatives to integrate and improve nature protection (including marine protected areas)
- Protect open spaces and encourage the adoption of climate-smart coastal planning and zoning, including the creation of buffer zones around important conservation areas to anticipate the impacts of climate change

## RECOMMENDATION 6 Leverage research and innovation

Lack of innovation and limited understanding of the economic value of sustainable tourism makes it difficult to spur change. Efforts should be made to capture better data to demonstrate the economic benefits of a new tourism model compared to the increasing costs of a failing mass tourism approach. Innovation initiatives can support new services that promote sustainable tourism and help decrease the footprint of mass tourism (through more efficient energy consumption, for example).

**Specific actions:**

- Utilize existing and future innovation framework programs to identify and develop tourism-related tools and services that are both innovative and sustainable
- Improve data collection at the regional level to assess the ecological and environmental impact of the tourism sector
- Conduct economic valuations and comparative analyses aimed at demonstrating the advantages of a more sustainable approach and highlighting the problems of the existing tourism model

These actions can drive a much-needed shift towards sustainable tourism in the Mediterranean, enabling communities to protect the environment and safeguard their local identities. For tourism to continue to thrive, it is critical to ensure the health of the assets it depends upon. With these actions, Mediterranean destinations can build on their assets in a sustainable way, continue to differentiate themselves from other destinations, and provide premium offerings for tourists seeking unspoiled destinations.

## BOX 3. BARCELONA: THE FIRST CITY IN THE WORLD TO BE CERTIFIED AS SUSTAINABLE

In preparation for the 1992 Olympic Games, Barcelona was completely transformed, with significant infrastructure investments in ports, airports and high-speed trains. Today, Barcelona's airport handles 40 million passengers each year, and the Barcelona Cruise Port has 2.5 million passengers per year, making it the leading passenger port in Europe and the fourth-busiest in the world. The following year, the Turisme de Barcelona Consortium, a joint public-private partnership, was established[1]. Following an extensive multi-stakeholder consultation process, a 20-year sustainable tourism plan – Barcelona Strategic Tourism Plan 2020 – was developed. The Plan takes a smart approach to the management of tourist flows in the city and territory. It also aims at reducing the negative impacts of tourism in the city, while defining a new tourism governance and funding model. Barcelona's goal is to boost its identity and uniqueness as a sustainable, competitive destination of excellence, while distributing the benefits of tourism more fairly and encouraging public involvement. In November 2011, Barcelona became the first city in the world to receive the Biosphere World Class Destination certification, sponsored by COP21, UNESCO, UNWTO and UNEP and recognized by Global Sustainable Tourism Council[2].



[1] Barcelona Tourisme 2017. Press kit. Available at: http://professional.barcelonaturisme.com/files/8684-453-pdf/DOSSIER_DE_PREMSA_17_EN.pdf
[2] https://www.biospheretourism.com/en/biosphere-destination-standard/23

## BOX 4. TOURISM AND ENVIRONMENTAL SUSTAINABILITY: THE CASE OF CALVIÀ, SPAIN

During the 1960s, Calvià, located in the Balearic Islands, saw a sudden growth of mass tourism based on rapid development of the coast, with little regard for the local environment and natural resources. However, by the late 1980s – with the saturation of the tourist areas, the deterioration of the environment and the aging of the leisure accommodations – Calvià's tourist numbers fell by almost 20%[1].

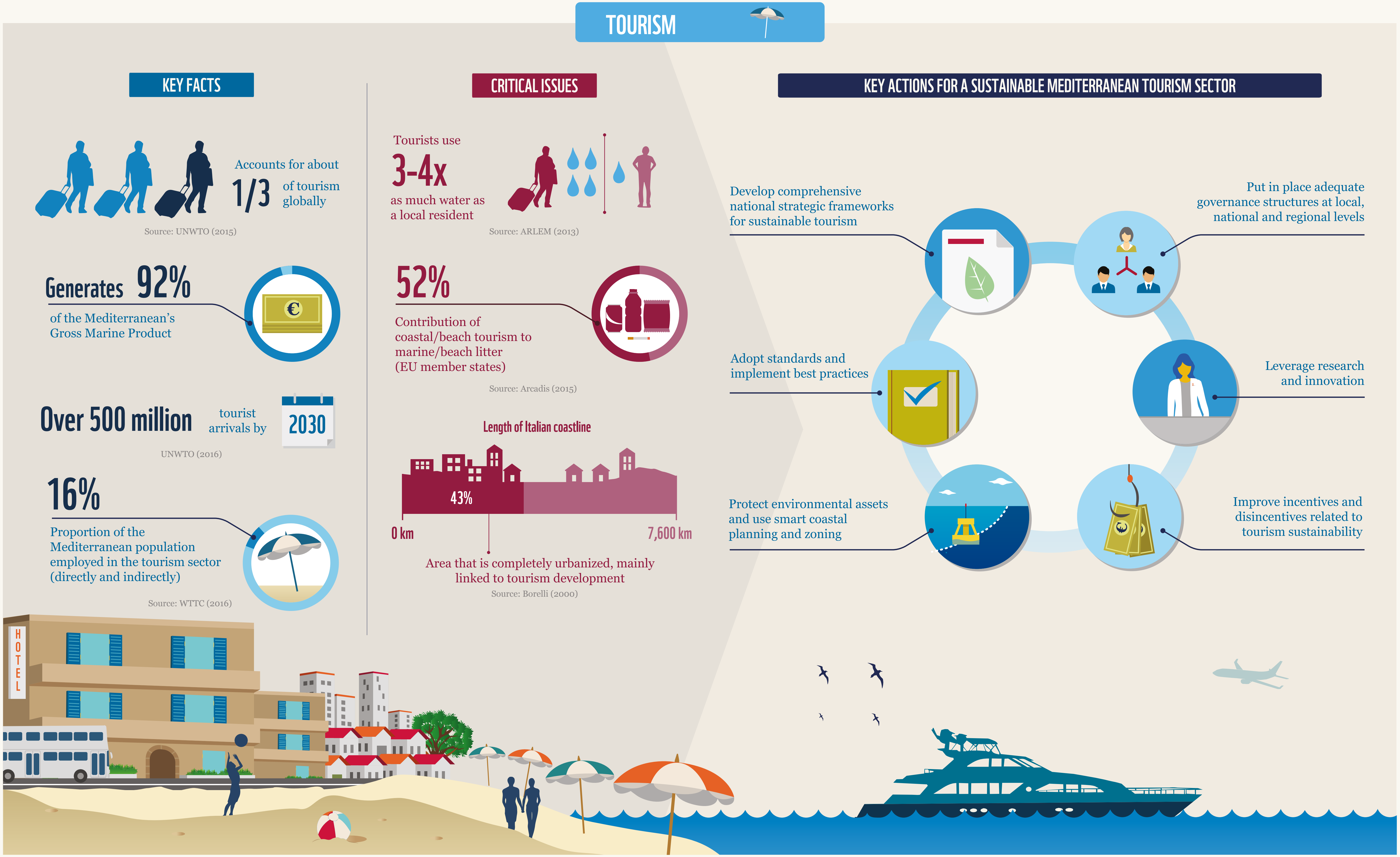
During the 1990s, in an effort to combat the decline, the local municipality implemented a strategy strongly focused on more sustainable development. It approved the clearance of some 30 buildings and purchased the urban plots to prevent further construction. Additionally, it introduced urban waste reduction plans and began recycling 60% of local wastewater for gardens and agricultural activities. It also established marine and terrestrial parks that further protected the surrounding ecosystems. Furthermore, the municipality introduced an eco-tax to finance rehabilitation and regeneration projects, while also implementing a public-private initiative that applies an environmental management system and an eco-label for hotels and apartments to raise their sustainability standards[2].

Calvià has managed to transform its image from one of environmental degradation to one of environmental sustainability, where nature conservation is now seen as a socio-economic development opportunity for the local community. The change is clearly paying off: there has been a steady increase in the number of tourists visiting the area – from 1.3 million visitors in 2009 to 1.4 million visitors in 2016 – accompanied by a sizeable increase in average daily hotel and accommodation rates, from €62.60 to €93.30[3].



[1] UNEP 2003 Tourism and Local Agenda 21. The role of Local Authorities in Sustainable Tourism.
[2] EC 2010. Local Agenda 21 initiatives to advance sustainability in a heavily developed tourist centre, Calvià – ES. Available at: http://ec.europa.eu/ourcoast/index.cfm?menuID=7&articleID=107
[3] http://www.ibestat.es/ibestat/estadistiques/municipi-xifres/07011/Calvi%C3%A0

FIGURE 5 MEDITERRANEAN TOURISM: STATE AND RECOMMENDATIONS



## 4.2 THE MEDITERRANEAN FISHERIES SECTOR: LAST CALL FOR ACTION

Seafood has been central to Mediterranean cultures for thousands of years, providing food, employment and income for millions. Today, however, around 80% of all assessed fish stocks in the region are threatened by overfishing.[29] This means that if current practices continue, they will be unable to recover and populations will crash. This would be a disaster for the economies of many local communities, from Europe to North Africa, not to mention the detrimental impact it would have on the marine ecosystem.

**THE MEDITERRANEAN FISHERIES SECTOR PROVIDES EMPLOYMENT FOR ≈360,000 PEOPLE**

The fisheries sector comprises a wide range of stakeholders, from major industrial operations to small-scale artisans, fishing with a variety of gear for all kinds of species. More than 80,000 vessels operate in the region, providing direct employment for over 180,000 people.[30] The shore-side sector – processing, marketing, retail, boat-building, etc. – employs about the same number again. Eighty percent of the fishing fleet is classed as small-scale.

The contribution of the fisheries sector to the regional economy is very important. In 2016, the General Fisheries Commission for the Mediterranean (GFCM) estimated that Mediterranean fisheries had a collective worth of US$3 billion, with recreational and subsistence fishing adding another US$200 million.

A closer look at the historical evolution of supply points to an alarming trend. Problems only began to emerge in the last 50 years. Before then, from octopus to bluefin tuna to deep-water prawns to swordfish, the Mediterranean had healthy populations of its iconic species, and it was home to many other fish species too, both commercial and non-commercial. But industrial fishing methods, poor monitoring and control, illegal, unregulated and unreported (IUU) fishing and environmental factors have taken an increasingly heavy toll on what used to be a thriving and productive marine resource.

Annual landings grew every year until the mid-1990s, peaking at more than a million tonnes in 1994. Then they started to fall. By 2013, the overall landing figure was down to 787,000 tonnes – not because efforts were being reduced, but because the fish were simply not there anymore. And still the fishing effort continues.

A collapse of the stocks will not just affect the underwater ecosystem but will also directly threaten food stability in the surrounding communities that depend upon the sea for sustenance. Additionally, it will entail unemployment for fishermen and harm adjacent industries that depend on fisheries, such as fish processing and tourism.

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[29] GFCM (2017) Scientific Advisory Committee on Fisheries (SAC) - 19th session. May 16 - May 19, 2017 Ljubljana, Slovenia.

[30] GFCM (2016) *The State of Mediterranean and Black Sea Fisheries.* FAO

## 4.2.1 Reviving the Mediterranean fisheries sector

Serious and urgent action is required if we want to ensure that there will be a future for commercial fishing in the Mediterranean – and we do believe it is still possible. The Malta 'MedFish4Ever' Declaration (2017) is a good start, providing a framework for change. The EC-led campaign commits signatories from both the north and south Mediterranean to a 10-year plan to save fish stocks and protect the region's ecological and economic wealth.

Mediterranean countries should take immediate and strategic action to build more resilient and secure food provision from the Mediterranean Sea. To achieve this vision, we propose the following recommendations.

## 4.2.2 RECOMMENDATIONS FOR A SUSTAINABLE FISHERIES SECTOR

### RECOMMENDATION 1 Ensure effective monitoring and control

We can't be sure how much Mediterranean seafood is illegally harvested and sold through unrecorded channels, but the EC estimates that the amount may be as high as 50% of the total catch. Meanwhile, 80% of landings come from data-deficient stocks. This makes it hard to produce robust data-driven stock management plans for the future, as we simply can't be sure of the numbers involved. Actors involved in IUU fishing also tend to ignore rules put in place for ecological reasons, like size limits and gear restrictions. As a result, their operations are particularly destructive.

Non-compliance is widespread primarily owing to a lack of basic infrastructure and resources to monitor fishing activity, insufficient knowledge of international fisheries governance structures (particularly in non-EU states), a lack of political will to tackle the problem, and, sometimes, corruption.

The large numbers of small boats in the Mediterranean fishing fleet make controlling vessels and their fishing activity increasingly difficult. Monitoring and controlling vessels in the Mediterranean Sea is further challenged by the overlap of fishing areas and fleets from different countries with different national obligations.

The solutions are not complicated, but they depend on action and commitment from everyone involved.

**Specific actions:**

- Harmonize international policies and constantly monitor and evaluate their effectiveness
- Adopt and enforce regulation of monitoring systems on fishing vessels
- Establish a regional control unit to supplement the national monitoring organizations and effectively monitor fishing activity in the overlapping fishing regions
- Promote mandatory reporting and a culture of compliance beyond self-certification, through GFCM and the International Commission for the Conservation of Atlantic Tunas (ICCAT)
- Adequate sanctions schemes must be in place and enforced to deter illegal activities

### RECOMMENDATION 2 Promote sustainable fishing techniques

As the Mediterranean fish stocks are largely overfished, the fishing industry continues to negatively impact habitats and species. Therefore, fisheries must apply modern and selective techniques that would curb bycatch and the wasteful practice of discarding non-commercial species. The European Union's Marine Strategy Framework Directive emphasizes a Mediterranean-wide balance between fleet capacity and fishing opportunities, the elimination of bycatch and discards, and minimizing the impact of fishing on the marine environment.

Priority actions to ensure more sustainable fishing techniques should include not only regulatory tightening and enforcement but should also encourage voluntary compliance.

**Specific actions:**

- Tighten regulations to deter the use of destructive types of fishing gear
- Promote best practices in the use of more selective and low-impact gear – with technical modifications like grids, panels, turtle exclusion devices, etc. – to reduce the damage caused to non-target populations
- Increase national and regional investments in better and more selective gear to reduce onboard sorting costs and create specialized manufacturing jobs

### RECOMMENDATION 3 Plan with a long-term regional focus

With more than 80% of assessed Mediterranean fish stocks threatened by overfishing,[31] pressure on existing populations is far too high. Scientists' recommendations on how much can safely be harvested are largely ignored. It is estimated that popular stocks, including hake, red mullet, anglerfish and blue whiting, are currently being fished at rates six times higher than a projected maximum sustainable yield[32] (MSY) and populations of many iconic species, like swordfish and bluefin tuna, have suffered precipitous declines in previous decades. Simply reducing the number of boats at sea has not improved the situation – fishing capacity has in some cases increased, while small-scale fishers and communities have suffered disproportionately.

The most effective mechanisms for achieving sustainable fisheries across the Mediterranean must take into account the whole ecosystem and have a long-term perspective.

**Specific actions:**

- Implement multi-annual plans (MAPs) for all assessed commercial shared stocks
- Use science-based stock management strategies, including several different conservation measures, to set maximum sustainable yield targets and timelines
- Reduce the current fishing effort and capacity, including the reduction of the number of vessels and time spent at sea
- Ensure the enforcement of MAP targets by individual fisheries

[31] GFCM (2017) Scientific Advisory Committee on Fisheries (SAC) - 19th session. May 16 - May 19, 2017 Ljubljana, Slovenia
[32] https://ec.europa.eu/fisheries/cfp/mediterranean_en

## BOX 5. THE MEDITERRANEAN BLUEFIN TUNA ECONOMY

Bluefin tuna has been fished in the Mediterranean Sea since ancient times. In the second century AD, the poet Oppian describes the Romans catching bluefin in "nets arranged like a city."[1] In imperial Rome, soldiers used dried tuna fillets and tuna eggs as a portable source of protein.

However, in recent decades, global demand has changed. Japan's appetite for sushi and sashimi skyrocketed, and bluefin tuna became one of the most highly prized dishes of all. In 2013, a single fish sold for US$1.7 million[2]. Although this was partly a publicity stunt at a prominent auction, it nevertheless gives an idea of the bluefin's value. An individual bluefin regularly fetches more than US$100,000.

Sadly for the Mediterranean bluefin population, the potential riches were too tempting; from the 1960s onwards they began to be targeted by industrial-scale fishing. With almost no management (the first quotas – widely ignored and wholly inadequate – were only introduced in 1998), the fishing effort became unsustainable, and stocks which once seemed inexhaustible plummeted by 85%. By the early 21st century, extinction looked like a real possibility.

But in 2006, following an unprecedented campaign by a coalition of governments, NGOs, fishers and other stakeholders, ICCAT adopted a science-based recovery plan with rigorous control measures. Ten years later, the population has made an exceptional recovery: the reproducing biomass has grown from 150,000 tonnes to 585,000, an increase of almost 400%[3].

Today a sustainable future for the Mediterranean bluefin tuna fishery is once again a possibility. The industry counts 660 fishing boats and 26 tuna traps, along with 61 licensed farms (not all are operational). Around 5,000 people are directly employed, along with others in supporting sectors. Total landings in 2014 were worth an impressive US$870 million[4] – an amazing amount for a fishery many believed was dead, and a perfect illustration of why science-based sustainability and effective control really matters. It is an example that can – and must – be followed in other fisheries across the Mediterranean and beyond.



[1] http://www.newyorker.com/magazine/2010/08/02/the-scales-fall
[2] https://www.theguardian.com/world/gallery/2013/jan/05/bluefin-tuna-auction-tokyo-japan
[3] https://www.iccat.int/en/vesselsrecord.asp
[4] Ibid.



The case of the now-recovering bluefin tuna – once on the verge of collapse in the Mediterranean – shows that it is possible to turn around failing fisheries if everyone is truly committed to doing so (Box 5). If carried out properly, measures will lead to long-term recovery for many other important commercial species, with obvious benefits for regional economies.

## RECOMMENDATION 4 Regulate recreational fisheries

Recreational fishing in the Mediterranean is a popular activity for locals and tourists alike – but it's largely unassessed. WWF analysis has shown that in some areas, total recreational catches can be as high as 10% to 50% of the total small-scale catch. While such a high level of activity may be good news for some individuals (charter boat skippers, for example), if it continues unregulated, then it could become a major threat to marine resources in the future.

**Specific actions:**

- Collect recreational catch data regularly in order to better evaluate its impact
- Include recreational fisheries in stock management plans, and adopt the same conservation rules as applied to professional fishers (spatial and temporal area closures, for example)
- Adopt and enforce new regulations on licensing and catch limits

## RECOMMENDATION 5 Empower small-scale fishers

Our vision for long-term sustainable fish stocks in the Mediterranean depends on science-based assessment and consensus among all stakeholders. It is particularly important that small-scale fishers are meaningfully involved, given that they make up 80% of the fleet. Their participation in the co-management[33] of fisheries must be actively promoted (Box 6). Without the support of small-scale fishers, recovery plans won't succeed.

In the longer term, the economic arguments for moving to a MSY model are clear, but the transition must be carefully handled, so that small-scale fishers don't suffer in the process.

**Specific actions:**

- Local authorities implement co-management initiatives to achieve sustainable fisheries management and compliance
- Support fishing communities by promoting alternative livelihoods that can diversify fishers' revenue streams
- Promote best practices to maximize the value of catch where fishery management plans include reduction in fishing (e.g., through marketing high-value products, creating vertically-integrated distribution models, reducing costs along the supply chain, or exploring public-private partnerships)

[33] Fisheries co-management is a flexible and cooperative management of the aquatic resources by the user groups, the government and the scientific community. The responsibility of the resource is shared and all parties are involved in the decision-making, implementation and enforcement processes.

## BOX 6. THE CATALONIA SAND EEL CO-MANAGEMENT INITIATIVE: A SUCCESSFUL SMALL-SCALE FISHERY USED AS A BENCHMARK

With Mediterranean fish stocks under unsustainable pressure, more than 180,000 jobs are at risk. But rather than attempting to regulate from above, WWF believes in the importance of working closely with fishers, and involving them directly in establishing processes and rules for co-management efforts. After all, they're the real experts on their own fisheries.

In Catalonia, Spain, WWF supported Europe's first co-management initiative for the sand eel. In 2011, the fishery was priced at €0.95/kg and gave a total landing value of €1.2 million. But thanks to a co-management plan established through consensus by fishers, government, scientists and civil society organizations, an ambitious improvement program was put in place. In 2012, the fishing effort was reduced by 50% through various technical and control measures, but fishers were allowed to manage their own fishery and to agree on a higher market price. By 2013, the sand eel was priced at €3.38/kg, with a total landing value of approximately €2.8 million – well over twice the previous value for a much reduced effort [1].

Today the co-management approach is still working smoothly, and the Catalonia sand eel fishery has become a benchmark for the whole Mediterranean.




[1] Benaiges F. Pulid, M and Abad A. (2015) *The catalan co-management experience: shrimp, sandeel and hake.* GAP2 international Symposium – Workshop on Fisheries Co-management, Barcelona, Spain.

## RECOMMENDATION 6 Use marine managed areas to protect key species and habitats

Officially designated protected areas – marine protected areas (MPAs), fisheries restricted areas (FRAs), etc. – are a central aspect of sustainable fisheries management; they provide key habitat for fish recruitment, habitat connectivity, and safeguard vulnerable ecosystems. When they are well-designed, well-managed and well-enforced, they not only bring environmental benefits, but they raise more revenue than they cost to run. A recent study of 10 Mediterranean MPAs showed that the income they generated was on average 2.3 times greater than their management costs. Fish, invertebrates and marine plants in marine managed areas (MMAs) are larger, more abundant and more diverse, and this is excellent news for stocks that have been pressured by overfishing. Italian fishers involved in the management of an MPA at Torre Guaceto report that large fish spawners produce 15 times more eggs and larvae within the protected area than outside it, and as a result catches outside the area have doubled since protection was established.

**Specific actions:**

- Regional and national authorities ensure that at least 10% of coastal and marine areas are conserved (in accordance with Aichi biodiversity targets) and that no take zones cover at least 2% of existing and future MPAs[34] by 2020
- Identify areas for temporal and geographical closures through the collaboration between local fishermen and relevant scientific institutions
- Adopt spatial and temporal closures, particularly for nursery areas, to allow populations to recover

## RECOMMENDATION 7 Consume responsibly

As a result of the decreasing stocks, imports have increased to cover the expanding gap in demand in Europe. For instance, in 2014, European Mediterranean countries spent €34.57 billion on fish and fishery products, with residents consuming 33.4 kg per capita. Not many people realize, though, that of the nearly 7.5 million tonnes of fish this represents, only 2.75 million tonnes come from domestic sources. This means almost twice as much fish is imported, mostly from the developing world.

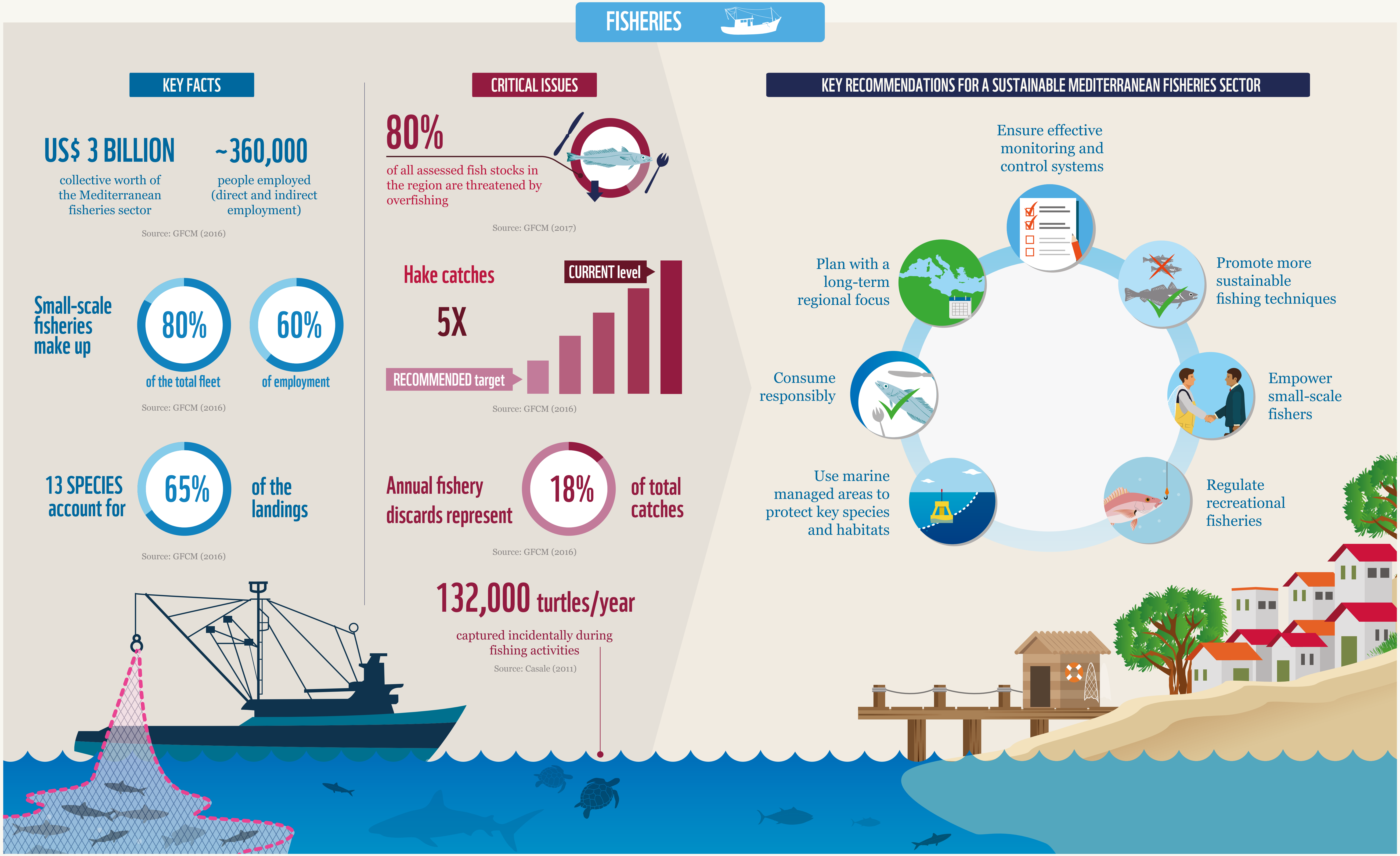
Informing consumers about their choices is fundamental to saving and restoring fish stocks in the Mediterranean. Shoppers are becoming increasingly conscious of the impact their buying decisions can have in the wider world, and support for sustainable production is growing all the time. This should be encouraged. WWF has produced a multilingual sustainable seafood guide, available in 12 European countries. The basic message is: check the label and try more diverse kinds of seafood. Based on detailed scientific data, the guide goes beyond general species-specific guidelines and is updated regularly to reflect what is happening in the oceans.

**Specific actions:**

- Business actors, civil society and national authorities increase consumers' awareness on sustainable fishing practices and encourage responsible choices
- Authorities and consumer associations promote the use of sustainable seafood guides to enable consumers to choose fish sourced from sustainable fisheries
- Support and promote certification schemes under the Marine Stewardship Council (MSC) or Aquaculture Stewardship Council (ASC) that confirm that seafood has been produced sustainably with minimal harm to the environment

[34] Mediterranean MPA Roadmap (http://www.medmpaforum.org/sites/default/files/mediterranean_mpa_roadmap.pdf)

FIGURE 6 MEDITERRANEAN FISHERIES: STATE AND RECOMMENDATIONS



# CONCLUSION

The Mediterranean Sea provides a direct and significant contribution to the region's economy. It is an integral part of people's culture and identity, and we closely depend on it for economic prosperity and a wealth of other benefits. However, unsustainable development and human pressures, including pollution, habitat destruction and overfishing have taken a heavy toll on the sea's health, causing substantial damage to its assets. Industries, governments, civil society and other stakeholders should act now to change the current development model and shift to a sustainable Blue Economy for the Mediterranean, based on healthy and productive ocean assets.

The UN's 2030 Agenda for Sustainable Development provides an important framework to move beyond the current economic model. The SDGs maintain an unprecedented focus on the natural, social and economic rights and governance dimensions of healthy societies. Mediterranean countries should therefore implement the SDGs at the national level, adapting policies and development plans where necessary to support their economies and citizens while preserving the environment. At the regional level, the Mediterranean Strategy for Sustainable Development (MSSD 2016-2025), adopted by the COP 19 of the Barcelona Convention in 2016, takes into account the UN SDGs, particularly in its Objective 1 (Ensuring sustainable development in marine and coastal areas) and Objective 5 (Transition towards a green and blue economy).

The challenges inherent in reviving the ocean economy are not trivial, but failing in our efforts to restore our oceans would imperil the lives and livelihoods of hundreds of millions of people. The strategic priorities and recommendations provided in this report are meant to underpin informed policy decisions to promote economic development, while preserving the ocean's underlying assets.

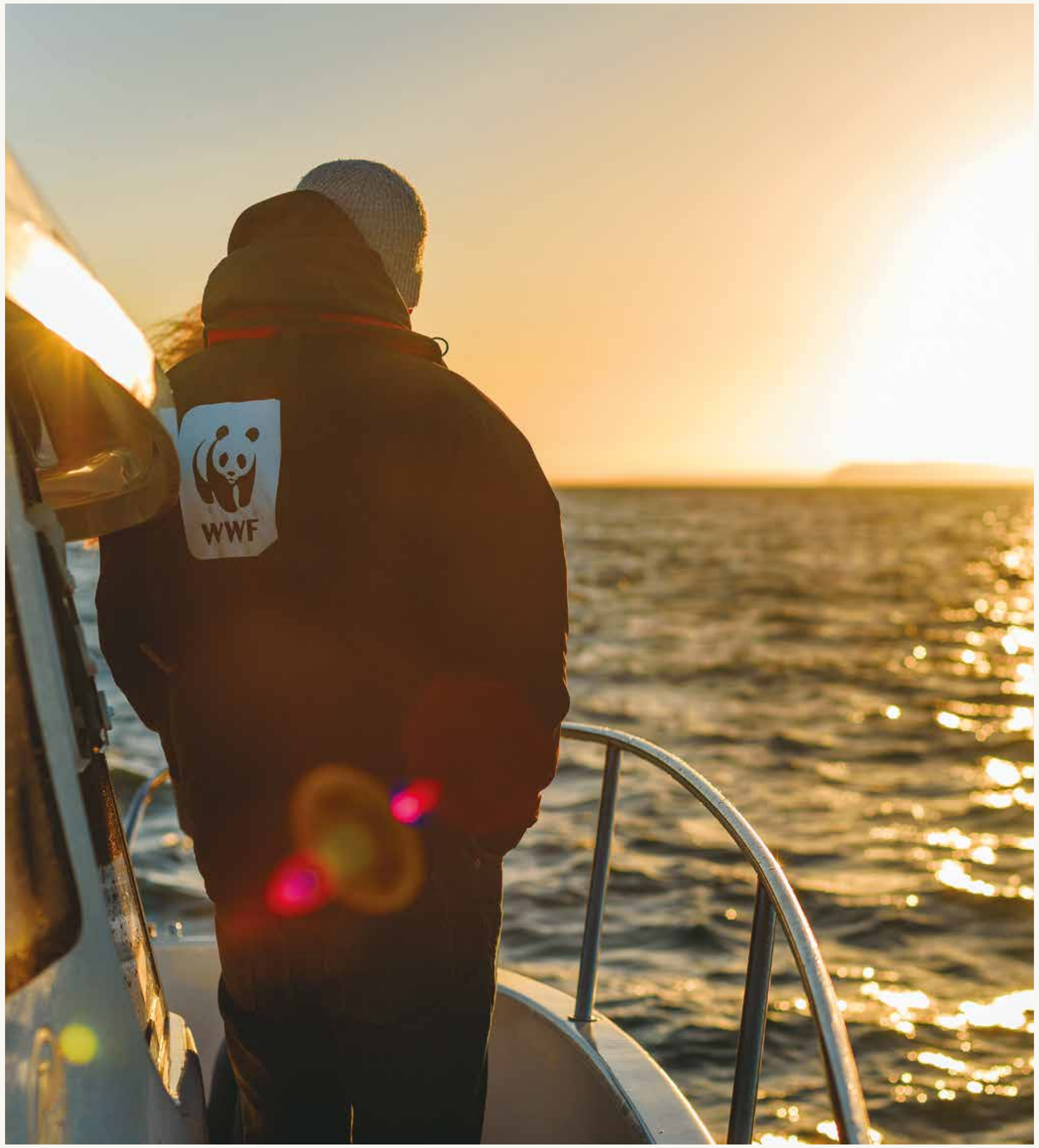


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**Figure 1**

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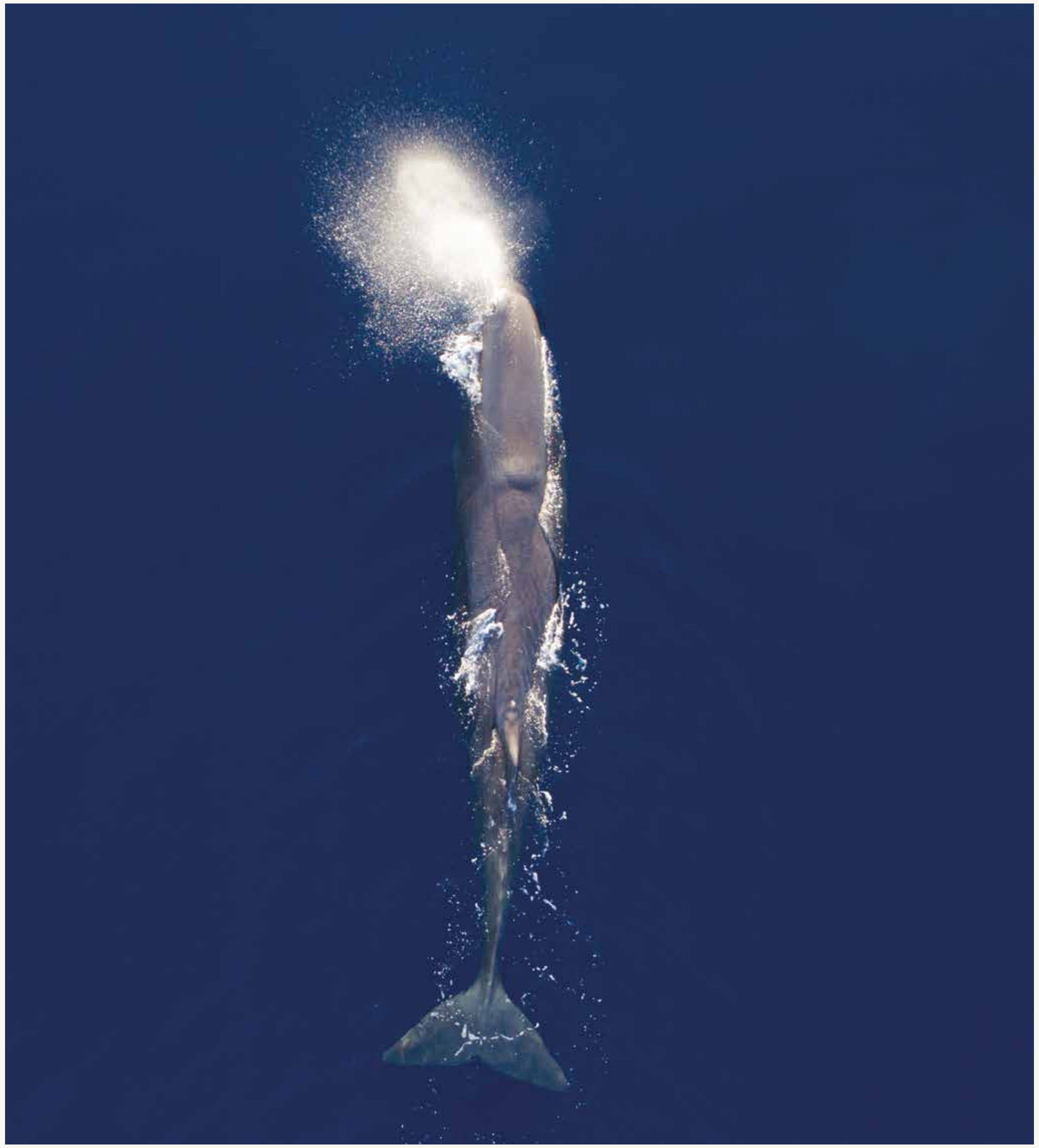
# ACRONYMS

| | |
|---|---|
| ASC | Aquaculture Stewardship Council |
| BCG | Boston Consulting Group |
| COP | Conference of Parties |
| EEA | European Environment Agency |
| EU | European Union |
| ETIS | European Tourism Indicators System |
| GDP | Gross Domestic Product |
| GFCM | General Fisheries Commission for the Mediterranean |
| GMP | Gross Marine Product |
| ICCAT | International Commission for the Conservation of Atlantic Tunas |
| ICZM | Integrated Coastal Zone Management |
| IOM | Integrated Ocean Management |
| IUU | Illegal Unregulated Unreported |
| IUCN | International Union for Conservation of Nature |
| MAP | Multi-Annual Plans |
| MMA | Marine Managed Area |
| MPA | Marine Protected Area |
| MSC | Marine Stewardship Council |
| MSY | Maximum Sustainable Yield |
| MSP | Maritime Spatial Planning |
| MSSD | Mediterranean Strategy for Sustainable Development |
| UNEP/MAP | United Nations Environment Programme – Mediterranean Action Plan |
| UNFCCC | United Nations Framework Convention on Climate Change |
| US | United States |
| US$ | United States Dollars |
| WEF | World Economic Forum |
| WTTC | World Travel & Tourism Council |
| WWF | World Wildlife Fund |



# The Mediterranean Sea in numbers

## ONLY 7.14%

of the Mediterranean Sea is under some form of protection

## US$5.6 tn

The overall value of ocean assets in the Mediterranean Sea is more than 5.6 trillion US$

## 5th

The economic output of the Mediterranean Sea makes it the fifth largest economy in the region

## 250 MILLION

About 250 million people (or 55% of the total population) resides in coastal hydrological basins

**Why we are here**

To stop the degration of the planet's natural environment and to build a future in which humans live in harmony with nature.

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