



State of the Environment and
Development in the Mediterranean

Summary for Decision Makers



Mediterranean
Action Plan
Barcelona
Convention





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Introduction



Over the last decades, human-induced pressures have increasingly affected the Mediterranean region. Population growth and unsustainable production and consumption patterns have led to environmental degradation. Despite some progress, economic growth continues to increase resource consumption and carbon emissions. Land- and sea-use change, in particular on the coast, are detrimental to the environment. Exploitation of resources and organisms, pollution and climate change are projected to exacerbate pre-existing fragilities in the Mediterranean, leading to “multiple stresses and systemic failures” (IPCC, 2014¹), putting health and livelihoods at risk.

Progress has been achieved in policy responses and actions to manage the Mediterranean more sustainably. Results are positive compared to scenarios with no intervention. However, these results have not been sufficient to reduce the most significant pressures on the environment and to safeguard the Mediterranean for present and future generations while meeting human development needs. Current trends do not allow achievement of Good Environmental Status (GES) of the Mediterranean Sea by 2020. In line with worldwide trends, “global goals for 2030 and beyond may only be achieved through transformative changes across economic, social, political and technological factors” (IPBES, 2019²).

Urgent and collective efforts for transformative change are required to safeguard the Mediterranean environment, while simultaneously fostering human development, taking into account differences between Mediterranean countries. Mediterranean countries have committed to achieve GES of the Mediterranean Sea and coast and more largely the Sustainable Development Goals (SDGs) under the United Nations 2030 Agenda. A fundamental reorganization of economic and social systems, including changes in paradigms and values, is required to achieve these commitments.

¹ Intergovernmental Panel on Climate Change. (2014). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*

² Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2019). *Summary for policymakers of the global assessment report on biodiversity and ecosystem services.*



Socioeconomic, political and institutional drivers and trends

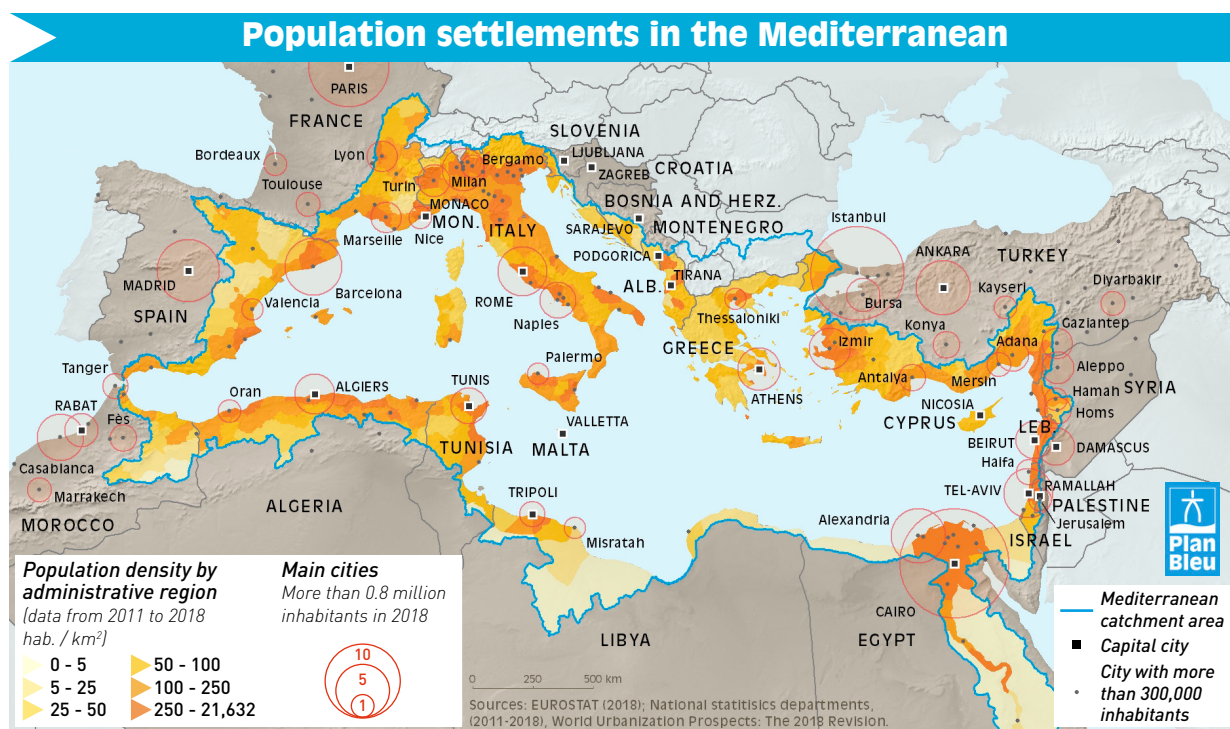


Figure 1

Population density by administrative region and main cities in the Mediterranean catchment area. (Source: EUROSTAT, 2018; National statistics departments, 2011-2018; UNDESA, World Urbanization Prospects: The 2018 Revision)

Despite their differences, Mediterranean countries remain strongly connected. Countries around the Mediterranean Sea share a common heritage, similarities in lifestyle and values, exposure to climate and environmental risks and impacts, urbanization and coastal erosion, and an increasing tourism pressure. The contrasts are also significant: throughout the past decade, a gap has persisted between Northern Mediterranean Countries (NMCs) and Southern and Eastern Mediterranean Countries (SEMCs) in human development, demographic dynamics, access to natural resources and environmental protection. These differences lead to large inequalities in resilience and adaptive capacity to deal with current and projected environmental and climate changes. While facing contrasted situations, countries in the region remain connected through intense flows of people (migration and tourism), goods and energy products (especially via maritime transport), financial resources (foreign investment), information and social interaction (increase in mobile phone subscriptions and number of people using the Internet and social media), as well as via environmental flows (river flows and marine currents).

The population of Mediterranean countries is driving environmental change. Its total number increased from approximately 475 million inhabitants in 2010 to 512 million inhabitants in 2018, representing 6.7% of the world population. Almost one third of the Mediterranean population lives in the coastal area and more than 70% in cities. Migration from rural to urban areas continues. The regional demographic context is very diverse on the northern and southern shores. NMCs are characterized by a low fertility rate, an aging population, and a relatively low share of active population. SEMCs are in a phase of demographic transition, with relatively higher population growth, an overall younger population, and subsequently, a higher share of active population.

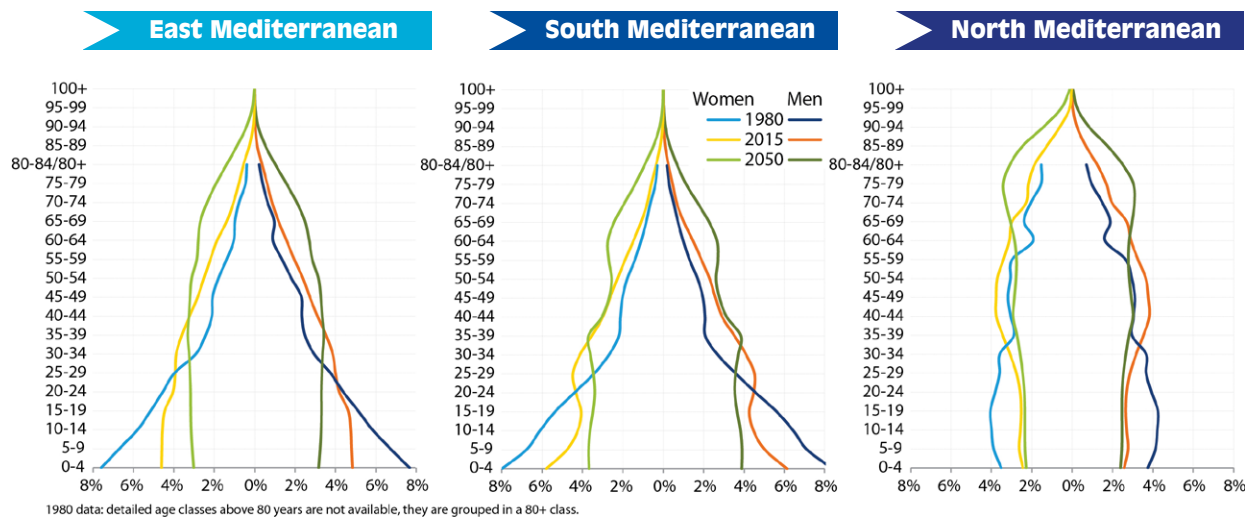


Figure 2

Age distribution of the population in the East Mediterranean, South Mediterranean and North Mediterranean, 1980, 2015 and 2050 forecast. (Source: UNDESA, World Population Prospects, 2017)

The region has always been a crossroads for the migration of people and communities. Migration only within non-EU Mediterranean countries involved around 7.5 million people, while migration from non-EU to EU Mediterranean countries involved around 5.7 million people. The number of refugees originating from Mediterranean States is particularly high, coming mainly from the State of Palestine and the Syrian Arab Republic. The number of refugees hosted in Mediterranean countries is also high, both in terms of absolute numbers and the proportion of refugees compared to the host country population, in particular in Lebanon, Malta and Turkey. The most significant root causes of migration include war, lack of economic prospects, and climate and environmental changes.

In spite of these demographic and geopolitical difficulties, human development, as measured by the Human Development Index, has experienced a general upward trend in the last decade. Gaps between the northern and the southern and eastern shores have reduced but persist. Basic education, in SEMCs in particular, has considerably improved throughout the last decade. Girls' education has reached levels equivalent to boys in primary and secondary education and female enrolment rates in tertiary education exceed male rates in almost all Mediterranean countries. However, the share of women in the active population is still low for most of the region, mainly due to a lack of work-life balance, gender discrimination and sociocultural norms, as well as practical issues such as lack of transport to workplace. Youth unemployment is also a major issue in most parts of the basin, with rates up to three times the national unemployment level.

GDP growth rates in SEMCs are slightly higher than in the EU Mediterranean countries, but do not currently allow for a rapid catch-up. In the last twenty years, the share of agricultural and industrial value added in national GDP has decreased in the majority of Mediterranean countries, in favour of services, which generally account for close to or above half of national GDP. Mediterranean economies continue to rely on unsustainable material consumption and carbon emissions to produce added value, even if improvements have been achieved in many Mediterranean countries.

The regional economic context is generally characterized by a high economic dependency on imports, particularly for fossil fuels and cereals. In SEMCs, in particular, the general trade deficit, coupled with non-diversified economic structures and a budget deficit, reflect and reinforce the difficulty of national economies to enhance their resilience to internal and external conditions and shocks. In parallel, over the last decade, government debt, as a percentage of national GDP, has increased in most countries, reaching close to or above 100% of national GDP in one third of Mediterranean countries. High and increasing debt ratios can be a risk for financial sustainability and may hinder required public investments in the environment sector. The presence of a significant informal sector is another characteristic of many Mediterranean economies.

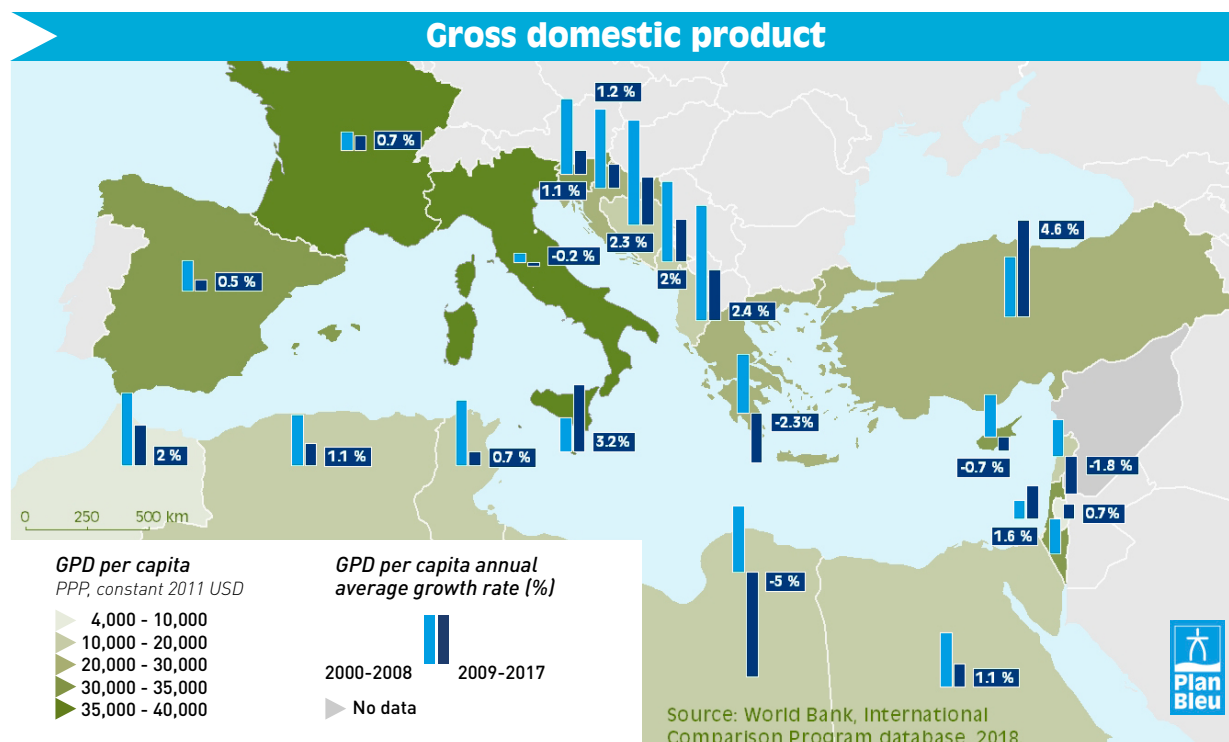


Figure 3

Gross Domestic Product in Mediterranean countries, 2017. (Source: World Bank, International Comparison Program database, 2018)

Throughout the past decade, cooperation frameworks and integration schemes in Euro-Mediterranean relations have not achieved shared prosperity. Political integration has relied on thematic ministerial conferences and parliamentary meetings, and cooperation on security issues. Economic integration has progressed with tariff dismantling under free trade agreements, in particular between the EU and accession candidates. However, economic trade within the region is limited.

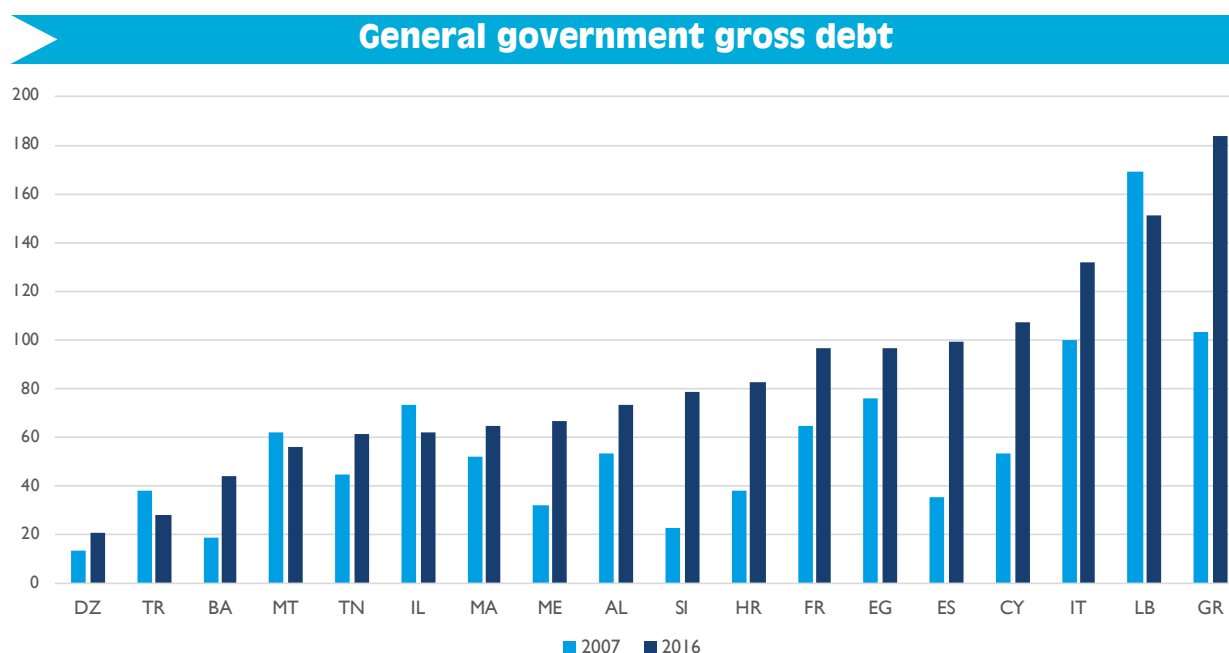


Figure 4

General Government Gross Debt, as a percentage of GDP, 2007 and 2016. (Source: IMF World Economic Outlook)



Climate change

The Mediterranean basin is already experiencing climate change, at rates that exceed global averages. The Intergovernmental Panel on Climate Change (IPCC) considers the Mediterranean Region to be “highly vulnerable to climate change” due to the influence of multiple stressors and the projected associated “systemic failures” (IPCC, 2014) through the exacerbation of pre-existing fragilities, including high coastal urbanization and the limited adaptive capacity of coastal countries, especially in SEMCs.

The air temperature in the Mediterranean basin is moving towards +1.54°C above pre-industrial values, well above the global average, and future forecasts indicate a warming of around +2.2°C when the global average will exceed the + 1.5°C threshold. Warming will be more evident during the summer months, and heatwaves are expected to occur more frequently than in the past, especially in the East, with further amplification in cities due to the “urban heat island” effect. The frequency and intensity of both droughts and heavy precipitation events have already increased since 1950 and are expected to continue to grow. Global warming of 2°C will likely be accompanied by a reduction in summer precipitation of around 10 to 15% in some areas, while an increase of 2 to 4°C would imply a reduction of precipitation of up to 30% in Southern Europe, especially in spring and summer. Heavy rainfall events are likely to intensify by 10 to 20% in all seasons except summer. The Mediterranean water temperature is also expected to rise between +1.8°C and +3.5°C by 2100, with hotspots expected in the East of Spain and in the Eastern Mediterranean Sea. In addition, the sea level is expected to rise at approximately 3 centimetres per decade; a sharp increase compared to the 1945 to 2000 period (0.7 millimetres per year) and similar to the global sea level increase. Finally, the Mediterranean Sea is subject to ocean acidification³.

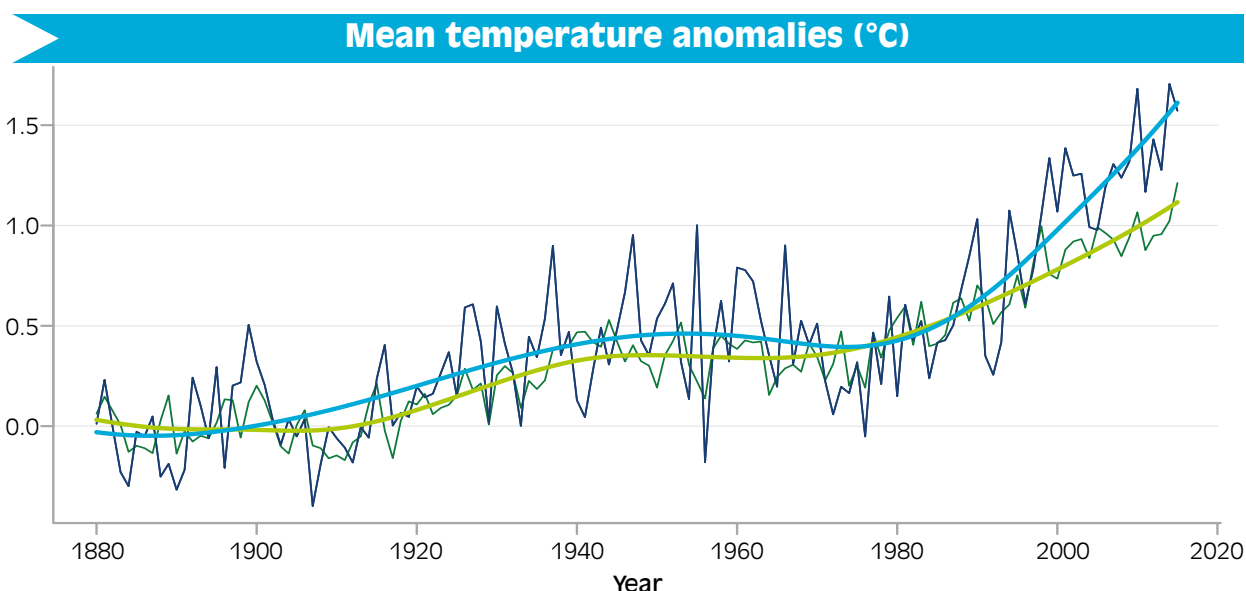


Figure 5

Historic warming of the atmosphere, globally and in the Mediterranean Basin. Annual mean air temperature anomalies are shown with respect to the period 1880-1899, with the Mediterranean Basin (blue) and the planet (green) presented with and without smoothing. (Source: Data from Berkeley Earth cited in Cramer et al, 2018⁴)

³ Decrease of water pH due to the absorption of the CO₂ emitted by human activities.

⁴ Cramer, W., Guiot, J., Fader, M., Garrahou, J., Gattuso, J.-P., Iglesias, A., Lange, M.A., Lionello, P., Llasat, M.C., Paz, S., Peñuelas, J., Snoussi, M., Toreti, A., Tsimplis, M.N., & Xoplaki, E. (2018). Climate change and interconnected risks to sustainable development in the Mediterranean. *Nature Climate Change*, 8, 972-980.

Sea surface temperature anomalies

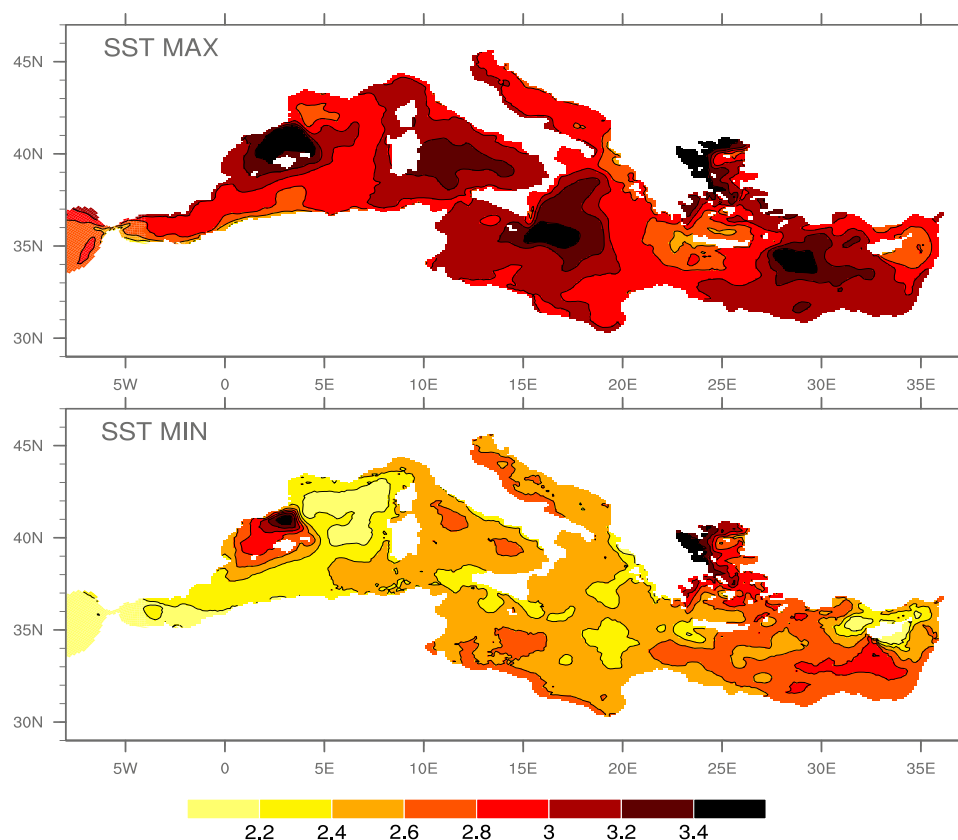


Figure 6

Sea surface temperature anomalies (maximum (top) and minimum (bottom)) for the 2070–2099 period (vs. 1961–1990), in °C. [Source: Adloff et al., 2015⁵]

Climate change is expected to have significant impacts on the terrestrial, coastal and marine environment of the Mediterranean region. These include an expected increase in aridity, due to reduced precipitation and warming; an increased risk of more frequent and severe fires with projected increases of the burned area between 40 and 100%; and, negative impacts on the wildlife of inland wetlands and freshwater ecosystems due to falling water levels and reduced water quality. The expected decrease in ecosystem integrity, biodiversity, and carbon storage capacity will lead to soil erosion, soil fertility loss, and desertification. Overall crop productivity is expected to fall by over 20% in 2080 in Mediterranean countries, with peaks of an almost 40% decrease in Algeria and Morocco, threatening the already challenging food security of a population that is expected to grow.

The particularly high density of the coastal population and infrastructure on the shoreline, linked to a limited tidal range, make the Mediterranean coast particularly vulnerable to changes in climate and sea level. Extreme rainfall and droughts, combined with sea level rise, will contribute to higher risks of coastal flooding and erosion, with increasing damage to key infrastructure and highly-populated and growing cities, which are primarily located in the coastal area. In particular, the effects of sea level rise are expected to be high for most low-lying coasts of the Mediterranean basin.

These risks may be even higher along the southern and eastern shores, where monitoring systems are limited and the adaptive capacity is generally lower than in the north. Coastal erosion and flooding will generate a

⁵ Adloff, F., Somot, S., Sevault, F., Jordà, G., Aznar, R., Déqué, M., Herrmann, M., Marcos, M., Dubois, C., Padorno, E., Alvarez-Fanjul, E., & Gomis, D. (2015). Mediterranean Sea response to climate change in an ensemble of twenty first century scenarios. *Climate Dynamics*, 45(9–10), 2775–2802.

loss of coastal land where important cultural heritage sites are located, with 85% of the 48 low-lying World Cultural Heritage sites at risk of flooding and 75% at risk of coastal erosion.

Sea warming and ocean acidification are expected to have negative impacts on marine biodiversity and dependent human activities, while wave and storm surge activity will likely decrease in a warmer future. Increased water temperatures will: lead to a rise in mass mortality events for sensitive species (especially coralligenous, sponges, and molluscs), favour warm-water affinity species including non-indigenous species at the expense of cold-water affinity ones, and cause increased hypoxia or anoxia in large coastal areas. Ocean acidification will impact organisms producing carbonate shells and skeletons, such as calcifying plankton organisms, and other pelagic and benthic organisms with calcareous body parts, such as corals, mussels, and sponges, affecting tourism and aquaculture.

Mediterranean countries are designing national frameworks to mitigate and adapt to climate change. These efforts need to be urgently implemented, effectively enforced and their ambition strengthened in a multi-stakeholder context.





Biodiversity and ecosystem services

The Mediterranean is a semi-enclosed sea with multiple types of coastline, including deltas, coastal plains, high cliffs, and mountainous areas, providing various natural and anthropogenic landscapes, and multiple types of seabed hosting diverse ecosystems and habitats. It is home to more than 17,000 marine species (4 to 18% of the world's known marine species), while only representing around 1% of global ocean volume. The Mediterranean also holds the highest rate of endemism at a global level (20 to 30% of species are endemic). It is considered a biodiversity hotspot.

Mediterranean coastal ecosystems include wetlands, coastal aquifers, forests, agricultural land and soft and rocky shores. Mediterranean wetlands are characterized by rich endemism, and host tens of millions of migratory, wintering, and breeding waterbirds. Wetlands provide several ecosystem services, including the capacity to mitigate the impacts of floods, freshwater provision, carbon capture and recreational services. However, wetlands are experiencing habitat loss (-48% since 1970) due to pressures such as the conversion of wetlands to agricultural and urban areas, water pollution, alteration of the hydrological functioning, overfishing, coastline retreat, and sea level rise. In the framework of the Ramsar Convention, 397 Mediterranean Wetlands of National Importance have been designated (of which 113 sites are mainly coastal and marine), 44% of which have developed a management plan.

Coastal aquifers are an essential source of water supply in the Mediterranean catchment but are limited and unevenly distributed. They support many ecosystems and provide essential ecosystem services, including water purification and storage, biodegradation of contaminants, nutrient recycling, and mitigation of floods and droughts. Current pressures on water resources are derived from increasing water demand linked to population dynamics, economic and social development, technological trends, and the increment of climate change. These pressures often lead to groundwater pollution, level depletion and seawater intrusion, which causes the salinization of soil and underground resources. It is therefore essential to manage groundwater using the Integrated Water Resources Management (IWRM) approach, in combination with Integrated Coastal Zone Management (ICZM).

Forests are steadily increasing in Mediterranean countries, from 68 million hectares in 1990 to 82 million hectares in 2015. However, forest dynamics are uneven across the basin and forest growth is limited in the Mediterranean biome. Forests are particularly important because they represent both a regional identity, a source of economic wealth, and a key element to sustainably manage watersheds in a region prone to erosion issues. They provide important goods and services, such as timber and non-timber products, primary production, nutrient recycling, air quality, climate and hydrology regulation, soil protection from erosion, and cultural and recreational services. These ecosystem services are particularly important close to urban areas, and in southern countries, which is also where they experience the highest pressures. In NMCs, forest fires are larger today than half a century ago due to increased fire risk from biomass accumulation linked to land abandonment; while, in SEMCs, considerable degradation exists due to intensive fuelwood extraction and grazing. Climate change and the associated increased and prolonged drought and fire risk are further challenging forest dynamics. Recognizing the importance of protecting forests, eight Mediterranean countries (Algeria, France, Israel, Lebanon, Morocco, Spain, Tunisia, and Turkey), in addition to Iran and Portugal, endorsed the Agadir Commitment that compels them to restore at least eight million hectares of degraded forest ecosystems by 2030.

Major Mediterranean agroecosystems are based on irrigated crop farming (large-scale and small-scale, traditional and commercial), pastoral/livestock and rainfed agricultural systems. Fertile areas with large-

scale irrigated and rainfed systems contrast with marginal zones in mountainous areas or semi-arid non-irrigated fields where agriculture interferes with pastoralism. Typical crops that can withstand dry and hot summer months include: olive trees, grapes, citrus, nuts, fresh vegetables, leguminous plants and wheat. Traditional systems combine cereal or legume crops with trees (olive/almond trees, etc.) and are important models for their productivity, resource efficiency and resilience. However, the role of traditional systems in agricultural production and other ecosystem services, such as carbon sequestration, biodiversity and soil conservation, water regulation, pollination and cultural services, is challenged by modernization and intensification. Small-scale family farming systems contribute significantly to ensuring food supply to rural households, providing products that are adapted to local needs and purchasing powers, thereby supporting food security in the Mediterranean region.

Mediterranean coastal environments (soft sediment coasts, muddy environments, rocky and soft shores and cliffs) provide important ecosystem services, such as shoreline stabilization and buffering, coastal defence, groundwater storage, and water purification. Coastal environments are suffering from accelerated erosion rates and substratum loss on rocky shores due to urbanization and coastal infrastructure expansion, sea level rise, and reduced river sediment inputs. Around 1,238 coastal terrestrial species have been identified by IUCN as threatened with extinction. Major drivers of species extinction include tourism and recreational activities, urbanization, agriculture, livestock, and invasive species.

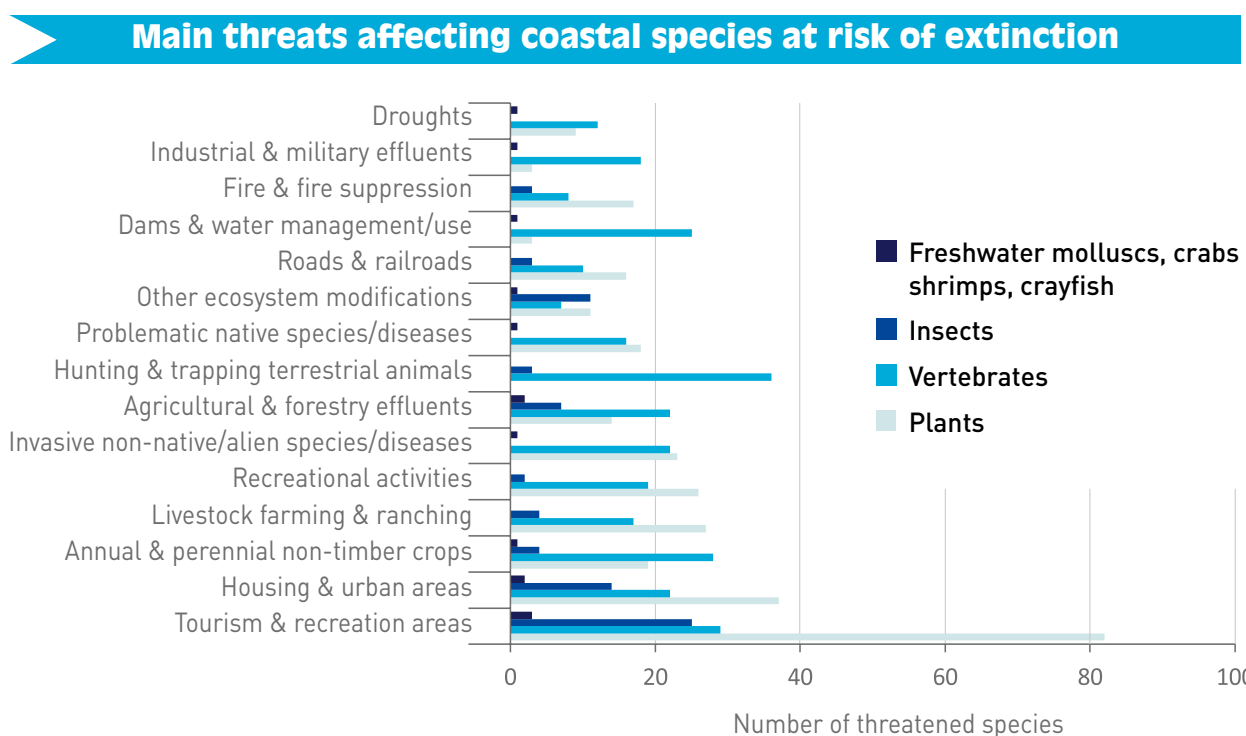


Figure 7
Main threats affecting coastal species at risk of extinction (IUCN Red List Categories: Critically Endangered, Endangered and Vulnerable) in the Mediterranean region. (Source: IUCN)

Seagrass meadows, coralligenous assemblages and dark ecosystems are the most representative marine ecosystems particular to the Mediterranean Sea. Seagrass meadows, especially the endemic species *Posidonia oceanica*, are showing signs of regression due to both natural and anthropogenic pressures. Coralligenous ecosystems cover around 2,760 square kilometres; they contribute to climate change resilience and generate remarkable natural productivity that contributes to the maintenance and development of fisheries resources, while also being attractive for tourists and scuba divers. Destructive fishing gear, boat anchoring, invasive species, pollution, and climate change are the main threats to coralligenous habitats and the species they host, with reported cases of mass mortality events and slower growing rates. Dark habitats, on which aphotic ecosystems rely, are among the most fragile and unknown components of Mediterranean marine

biodiversity. They support commercial fishing resources and play an important role in the biogeochemical cycles sustaining the balance of the marine trophic chain. They are threatened by land-based nutrients, waste discharge (including litter) and oil and gas activities. There is a growing awareness of the need to preserve dark habitats; in 2005, the FAO General Fisheries Commission for the Mediterranean (GFCM) adopted a ban on the use of towed fishing gear in depths beyond 1,000 metres. Current knowledge of these particular ecosystems still needs to be improved, promoting capacity building for habitat mapping and information sharing among coastal countries. At least 78 marine species assessed by IUCN are threatened with extinction, especially cartilaginous fish, marine mammals, reptiles and corals, due to interaction with fisheries, overfishing and other anthropogenic pressures. From 1950-2011, the Mediterranean lost 41% of top predators, including marine mammals. Projections suggest that more than 30 endemic species will become extinct by the end of the century.

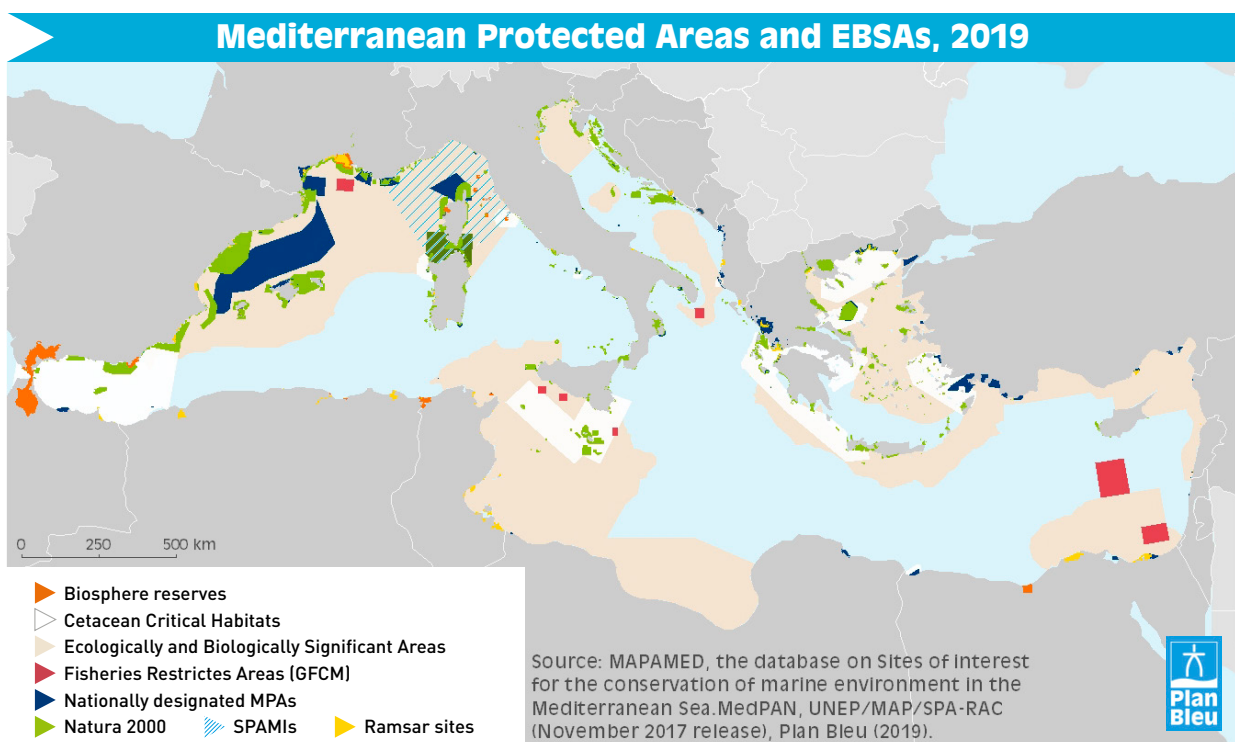


Figure 8

Marine Protected Areas, Fisheries Restricted Areas, Particularly Sensitive Sea Areas and priority areas for management (Ecologically and Biologically Significant Areas, Cetacean Critical Habitats), 2017. (Source: MAPAMED, 2017; Plan Bleu, 2019)

Finally, non-indigenous and invasive species are increasingly present in the Mediterranean region. By 2017, more than 1,000 non-indigenous marine species had been recorded in the Mediterranean Sea, with 618 species considered established. The main vectors for introduction are corridors and maritime transport (through ballast water and hull fouling). Non-indigenous and invasive species may have negative impacts on marine ecosystems and dependent economies and societies.

The building of a coherent, representative, and well-managed network of Marine Protected Areas (MPAs) is a priority in the Mediterranean region. To date, around 1,200 MPAs and other effective area-based conservation measures cover over 8.9% of the Mediterranean Sea, close to the global Aichi 11 and SDG 14 Target of 10% coverage. However, only about 10% of these sites properly implement management plans, due to the lack of financial resources and skilled staff, as well as legal and policy gaps.



Economic activities and their pressures

Production and consumption patterns in the Mediterranean region have undergone profound changes in recent decades, which, in combination with demographic growth, urbanization, and rising living standards, have led to an increase in resource consumption and environmental degradation. The increase in demand for processed, refined food, manufactured goods and coastal tourism go hand-in-hand with food loss and waste packaging overuse, and the associated loss of scarce resources such as water, land and energy. This adds to inefficient industrial processes and unsustainable waste management, putting further pressure on the natural resources on which Mediterranean economies depend.

Agriculture has always played an important role in socioeconomic development and is anchored in the Mediterranean identity. However, its importance has been gradually declining in the last decades, both in terms of its share in GDP, as well as in the number of farms and people employed. In NMCs, this is mainly due to agricultural modernization and the consequent rise in labour productivity. Agricultural modernization and a mass rural exodus have released land and surplus labour; this structural transition has not yet fully taken place in southern countries. The average quantities of fertilizers and pesticides used for agriculture in Mediterranean countries are above the global average, with an average 6.7 kg of pesticides per hectare compared to a global average of 2.1 kg; and 174 kg of fertilizers per hectare compared to a global average of 141 kg in 2016. The main environmental impacts of the agricultural sector include the run-off of nutrients and agro-chemicals into the sea, which leads to algal and phytoplankton blooms, eutrophication, and the bioaccumulation of chemical pollutants, as well as high resource consumption (water, soil, energy).

Fisheries play an important socioeconomic role across the Mediterranean region, in terms of food production (landings represented 850,000 tonnes in 2016), revenue (approximately USD 2.44 billion annually⁶) and employment (>227,000 direct jobs onboard fishing vessels, plus indirect job opportunities for fish processing). Turkey and Italy have the highest fishing capacity and production levels across the region. Capture fisheries are dominated by small pelagic fish (mainly the sardine and European anchovy). Polyvalent vessels represent 77.8% of the Mediterranean fishing fleet, indicating the predominance of small-scale, diversified fishing, providing significant employment. Trawlers are also common (8.6% of fleet), especially in the western basin and the Adriatic, and represent the highest revenue. However, fisheries are highly threatened by overfishing, pollution, habitat degradation, invasive species and climate change. 78% of Mediterranean and Black Sea stocks (for which validated assessments are available) are fished at biologically unsustainable levels, based on Ecological Objective indicators related to biomass, fishing mortality and total landings. The overexploitation index of most species identified as “priority species” has been decreasing since 2012 (except for the sardine and European anchovy). However, the prevailing overexploitation jeopardizes the sustainability of fisheries and their socioeconomic benefits. Discards represent a window for improvement in the fishing sector as 18% of total catches are currently discarded. Aquaculture creates additional pressures on fish stocks due to the use of wild fish for feed and the transfer of non-indigenous species.

The Mediterranean holds 4.6% of global natural gas reserves and 4.2% of global oil reserves, located almost entirely off the coast of Algeria, Libya, and Egypt. However, there are other production areas off the coast of Italy, Greece and Turkey, and recent discoveries of major gas reserves in the Levantine basin, and many areas holding hydrocarbon potential have not yet been explored. The main pressures posed by offshore exploration and drilling are resource depletion, underwater noise, and accidental discharges of oil and other substances.

⁶ First sale value

Underwater noise induces physical damage and behavioural changes in marine mammals. At the same time, oil spills lead to the reduction of plankton, and the physical damage and population decline of fish stocks, marine mammals, and birds. Finally, the spillage of other chemical substances exacerbates the impacts of pollution, such as the bioaccumulation and biomagnification of marine organisms.

Thanks to its unique combination of mild climate, rich history and cultural heritage, exceptional natural resources and proximity to major source markets, the Mediterranean region is the world's leading tourism destination. Mediterranean countries receive around 30% of the world's international tourists. The Mediterranean basin is also the world's second largest destination for cruise ships. Tourism contributes directly or indirectly to about 11% of the total economic wealth and jobs in the region. It is extensively developed in NMCs and has witnessed significant growth in SEMCs over the last twenty years, despite a slow-down of international arrivals in the South from 2011 onwards, showing the sector's volatility and poor resilience to shocks. In parallel, there has been a significant and rapid increase in cruise ship movements over the last decade; the number of individual cruise passengers in 2017 (24 million) was more than double that of 2006. The economic growth of tourism activities has often been to the detriment of environmental integrity and social equity. Mass tourism with high seasonality is a major consumer of natural resources, especially water, food and energy, and pollutes marine and freshwater environments. Tourism-related coastal human-made infrastructure may alter and damage landscapes.

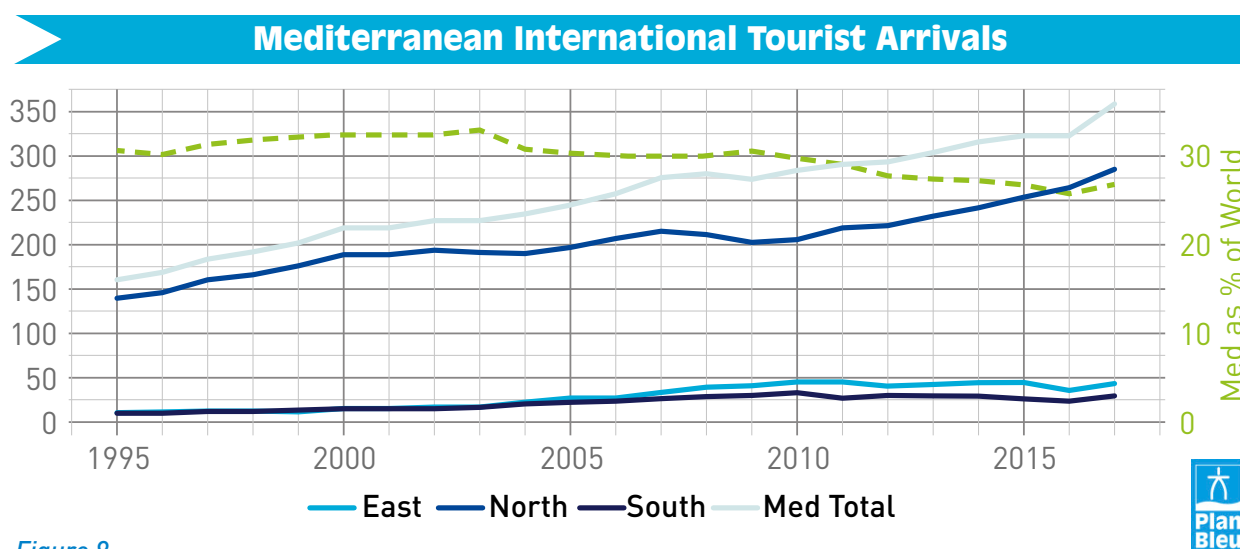


Figure 9

Mediterranean International Tourist Arrivals 1995-2017, in millions. (Source: Plan Bleu, 2019, based on UNWTO Data 2019)

Transport is the highest energy-consuming sector in the Mediterranean. Public transportation and train systems are developed on the northern shore, while they need further development on the southern and eastern shores. Road transport generates ambient air pollution, exposing people to hazardous emissions of air pollution, noise, and anthropogenic heat, with a high associated cost in terms of welfare loss. Investments in public transport and electrification, as well as urban planning measures, are needed to reduce these impacts. In parallel, commercial aviation continues to grow in the Mediterranean region, above 300 million passengers annually. Aviation is responsible for an estimated 4.9% of global anthropogenic greenhouse gas emissions and existing technological solutions to decarbonize aviation are not mature at this stage.

The Mediterranean Sea is at the crossroads of major global maritime routes, namely the Suez Canal, the Strait of Gibraltar, and the Bosphorus and Dardanelles Straits. Intra-Mediterranean traffic accounts for 58% of total traffic, with a steady increase over the last decade. Europe is the main shipping connection, receiving around 40 to 50% of total extra-Mediterranean traffic. Oil transport and cruise ship tourism are the two largest activities. The Mediterranean Sea hosts major oil transportation lanes; in total, the Suez Canal and the Turkish Straits accounted for about 13% of the world's seaborne oil trade in 2015. Major impacts of maritime transport include operational, accidental or intentional pollution from the release of oil, litter, and hazardous and noxious substances, including toxic gases and particulate matter such as sulphur oxides (SOx)

and nitrogen oxides (NO_x), as well as greenhouse gas emissions, the introduction of non-indigenous species through ballast waters and underwater noise.

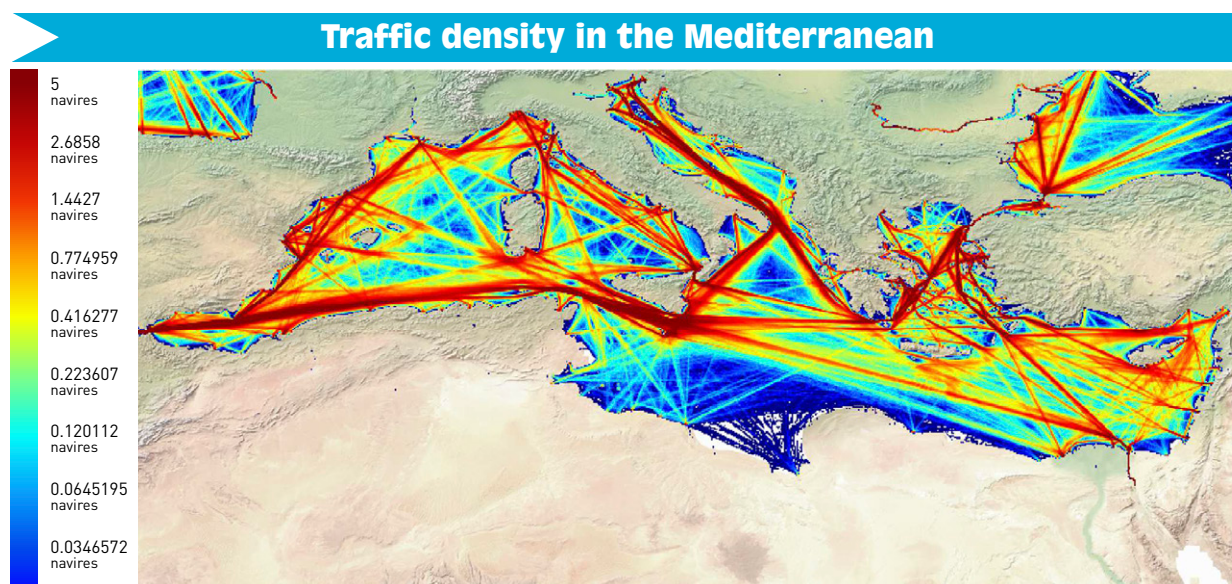


Figure 10

Mediterranean International Tourist Arrivals 1995-2017, in millions. (Source: Plan Bleu, 2019, based on UNWTO Data 2019)

Emerging sectors with potential for development include the marine biotechnology sector, i.e. the search for genes, molecules, and organisms with features that may be of benefit for society and have value for commercial development, and marine and seabed mining, i.e. the production, extraction and processing of non-living resources in the seabed or seawater. Currently, there are no deep-sea mining activities in the Mediterranean Sea, mainly because of the low resource potential of the region, as well as low technological development, and regulation of these activities is currently lacking. Deep-sea mining activities may adversely affect deep-sea ecosystems through physical alterations, the stirring-up of potentially toxic sediment plumes, the noise, vibration and light induced, or through inappropriate waste management.

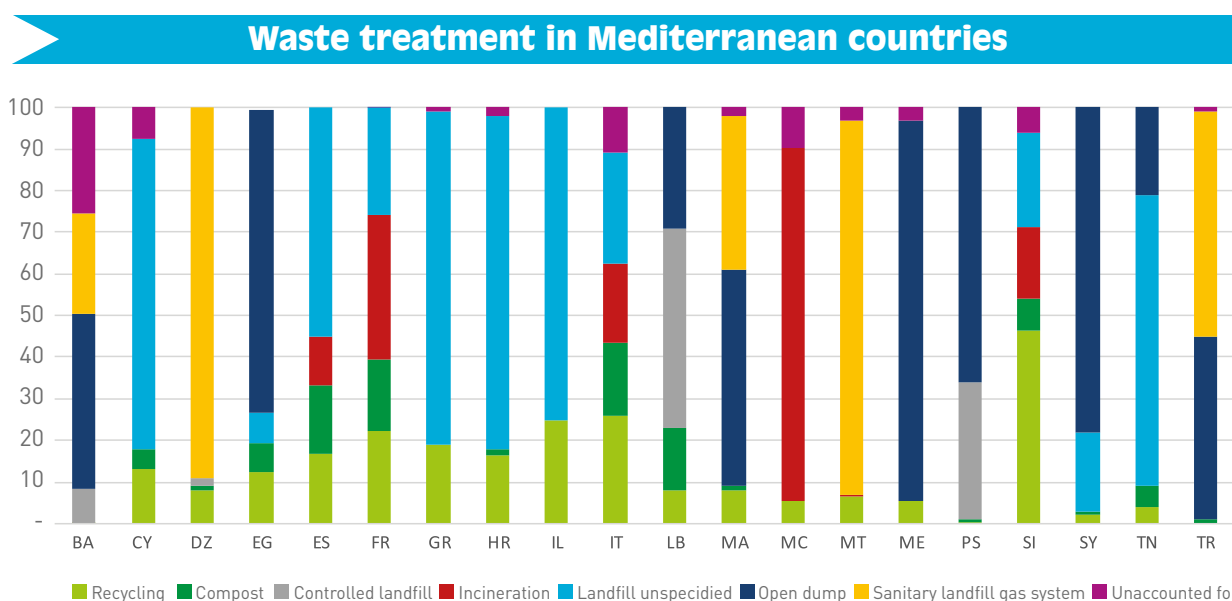
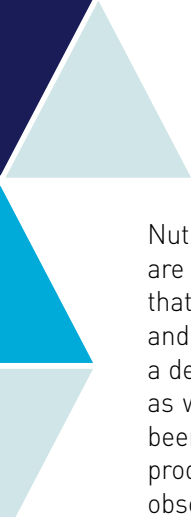


Figure 11

Waste treatment in Mediterranean countries, 2016. (Source: What a Waste Global Database, World Bank, 2018)



Nutrients, heavy metals, Persistent Organic Pollutants (POPs), pesticides, hydrocarbons, and marine litter are the main pollutants of the Mediterranean Sea. Eutrophication represents a major issue in coastal areas that are known to be influenced by natural and anthropogenic inputs of nutrients, such as the Gulfs of Lion and Gabès, the Adriatic Sea, the Northern Aegean, and the Nile-Levantine. Levels of major pollutants show a decreasing trend, even though important issues remain, especially for heavy metals in coastal sediments, as well as for known hotspots associated with urban and industrial coastal areas. A decreasing trend has been observed for aqueous effluents from specific industrial sectors, such as the food and beverage, metals production and processing, and paper and wood production sectors, while increasing trends have been observed for waste and wastewater management and the energy and chemical sectors. Emerging pollutants, such as plastic additives, cosmetics, plasticizers, nanoparticles and pharmaceuticals, represent an under-investigated threat to ecosystems and human health which deserves attention, especially because, to date, municipal treatment plants are unable to remove them. Underwater noise is also an issue of increasing concern due to its major impacts on cetaceans, especially in relation to identified noise hotspots overlapping important cetacean habitats such as the Pelagos Sanctuary and the Strait of Sicily.

The Mediterranean Sea is one of the most marine-litter affected areas in the world. More than 730 tonnes of plastic enter the Mediterranean Sea every day, and plastics account for up to 95 to 100% of total floating marine litter, and more than 50% of seabed litter. Single-use plastics represent more than 60% of the total recorded marine litter on Mediterranean beaches, which is typically generated from beach recreational activities. Major causes of plastic pollution include the increase of plastic use, unsustainable consumption patterns, and ineffective and inefficient waste management practices. Less than one third of the plastic produced each year in Mediterranean countries is recycled. Wastewater is also an important pathway through which marine litter enters the sea. To date, less than 8% of wastewater undergoes tertiary treatment. Other important sources of marine litter are fisheries, tourism, and shipping. Marine litter impacts marine organisms mainly through entanglement and ingestion, but also through colonization and rafting. It also has economic and social impacts through clean-up costs, as well as potential loss of income and jobs from tourism, residential property values, recreational activities, and fisheries.

In 2016, the Contracting Parties to the Barcelona Convention adopted the Regional Action Plan on Sustainable Consumption and Production (SCP) in the Mediterranean. The Action Plan recognizes that patterns of consumption and production need to be changed to decouple human development from degradation of the marine and coastal environment, and gives guidelines for a shift towards sustainable consumption and production patterns, long-term sustainability, a circular economy and new paradigms in the use of resources, while taking into account climate change and contributing to the United Nations 2030 Agenda. The SCP Action Plan is supplemented by a roadmap, and further efforts are required for its effective implementation.



Marine and coastal zone management

For Mediterranean economies and societies, the coastline has long been a concentrated area with increasingly high population density and related infrastructure, as well as tourist, commercial and industrial activities, many situated close to the shore. This intensification of coastal uses is at the origin of many impacts that alter the invaluable capital that is the Mediterranean, leading to increased fragmentation of landscapes and disrupting ecological continuity. It also makes coastal zones highly vulnerable to sea level rise, storm surges, flooding and erosion.

The built-up area in the Mediterranean coastal belt has continued to increase in all Mediterranean countries throughout the last decade. Between 1965 and 2015, three out of four Mediterranean countries doubled or more than doubled the built-up area in the coastal belt of 1 kilometre from the coastline. This leaves less space for natural coastal ecosystems, diminishing the services they provide, and increases coastal risks for the people living in the coastal zone. Article 8 of the Integrated Coastal Zone Management (ICZM) Protocol of the Barcelona Convention stipulates that the Contracting Parties shall establish a zone at least 100 metres wide⁷ in coastal zones where construction is prohibited. However, the built-up area within the first 150 metre-wide belt along the coastline is above 20% in almost half of Mediterranean countries (in 2015).

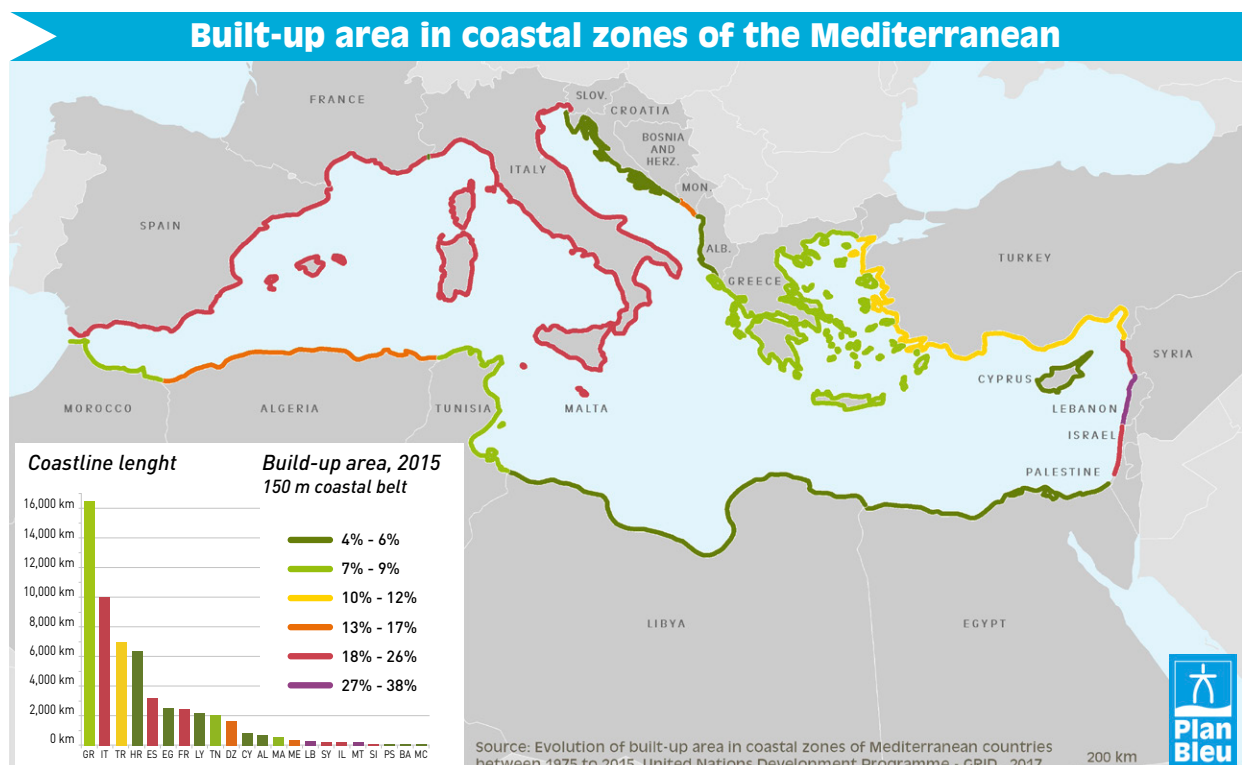


Figure 12

Built-up area in coastal zones of the Mediterranean countries (% within 150 metre coastal belt)

⁷ Data for the 100 metre belt not available.

Regional risk assessment map

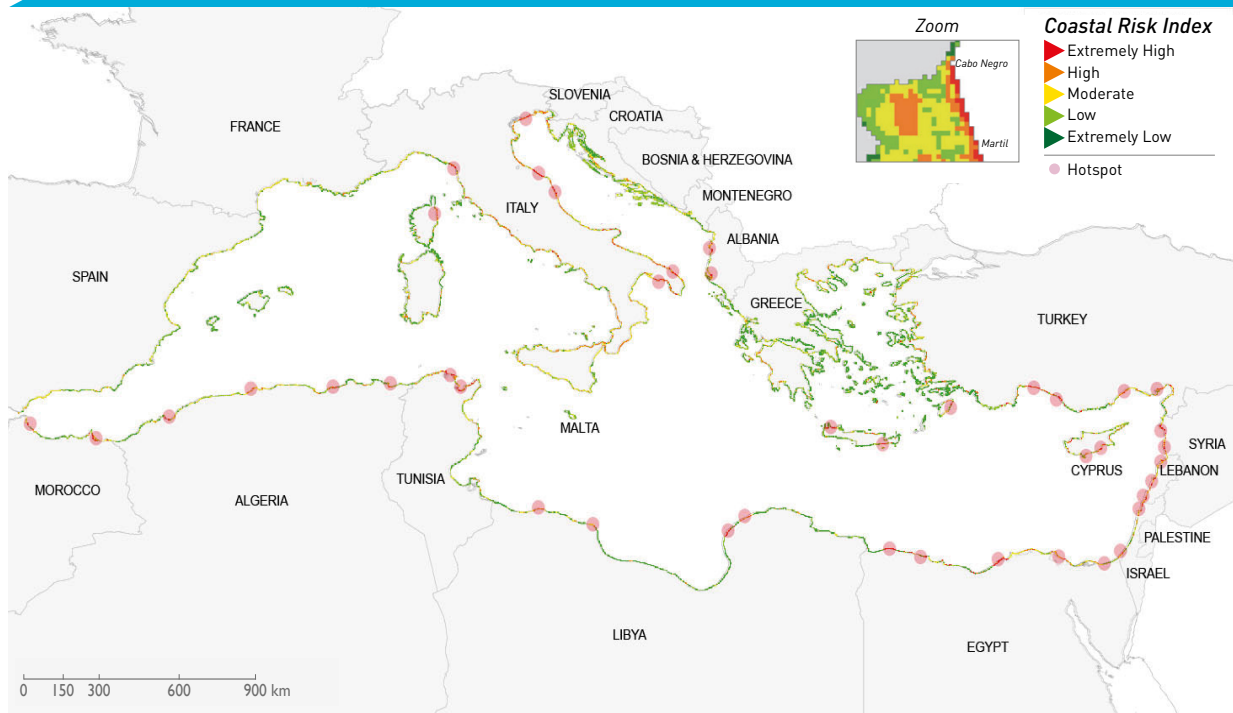


Figure 13

Regional risk assessment map for the Mediterranean based on the CRI-Med method. (Source: Satta et al., 2016)

The increasing attractiveness of coastal regions and cities comes with a decline in rural economic and population dynamics. Whereas in NMCs, the rural exodus is a longstanding reality, it is more recent in SEMCs, inverting population distribution to less than 50% of national populations living in rural areas in all but two Mediterranean countries today. Socioeconomic disparities between the rural and urban areas continue to persist with generally poorer households and more challenging access to basic services and infrastructure in rural areas.

Recently, new activities such as renewable marine energies or the extraction of marine minerals and organisms have emerged and coexist with other maritime activities, such as offshore oil and gas, maritime transport, and with Marine Protected Areas. This multiplication and intensification of sometimes conflicting maritime uses represents new challenges for achieving or maintaining Good Environmental Status of the Mediterranean.

Integrated Coastal Zone Management (ICZM) and Maritime Spatial Planning (MSP) offer coherent responses to current challenges facing Mediterranean coasts. The ICZM Protocol to the Barcelona Convention was supplemented by the Common Regional Framework for ICZM, adopted by the Barcelona Convention 21st Conference of the Parties (COP 21) in December 2019, to introduce MSP into the delivery of the ICZM Protocol. Both ICZM and MSP deal with land-sea interactions and address conflicts between human uses and coastal and marine ecosystems, and advocate for coherent policy mixes. Avoiding further degradation of Mediterranean coastal zones and, where possible, restoring ecosystems require urgent implementation, monitoring, and enforcement of ICZM and MSP measures.



Food and water security

Renewable water resources in the Mediterranean basin are concentrated mainly in northern countries (67%). In 2015, nearly 220 million people were in water scarcity or water stress situations in Mediterranean countries, mainly in SEMCs. Water scarcity has led to unsustainable consumption and the over-abstraction of surface and groundwater resources, which has contributed to further water shortages. Aquifers are being overexploited, leading to groundwater pollution and seawater intrusion in coastal areas. Irrigated agriculture is the most water-demanding sector (55% of total demand), followed by the energy and domestic sector, urban and rural drinking water supply, and tourist activities. Water demand varies significantly throughout the year and locally, with peaks in summer, especially for irrigation and tourism. Total water consumption lies well below the total available resources in NMCs, while in SEMCs, it exceeds available water resources. By 2050, water demands are projected to double or even triple, driven by population and economic growth, the expansion of irrigated areas, and increasing crop water needs resulting from warmer and drier conditions. Water-use efficiency is particularly low in agriculture, due to water losses that call for the modernization of irrigation systems. Around 10 million people, corresponding to 2% of the total Mediterranean population, do not have access to safe drinking water or sanitation, mostly in south-eastern areas, although significant improvements have been made.

Food security is obtained when people constantly have physical and economic access to enough food, which is healthy and nutritious and allows them to satisfy their energy needs and their food preferences, while leading a healthy and active life. Food production in Mediterranean countries exceeds consumption for fruit and vegetables, wine, and olive oil, but is chronically deficient in cereals. This deficit is essentially due to agro-

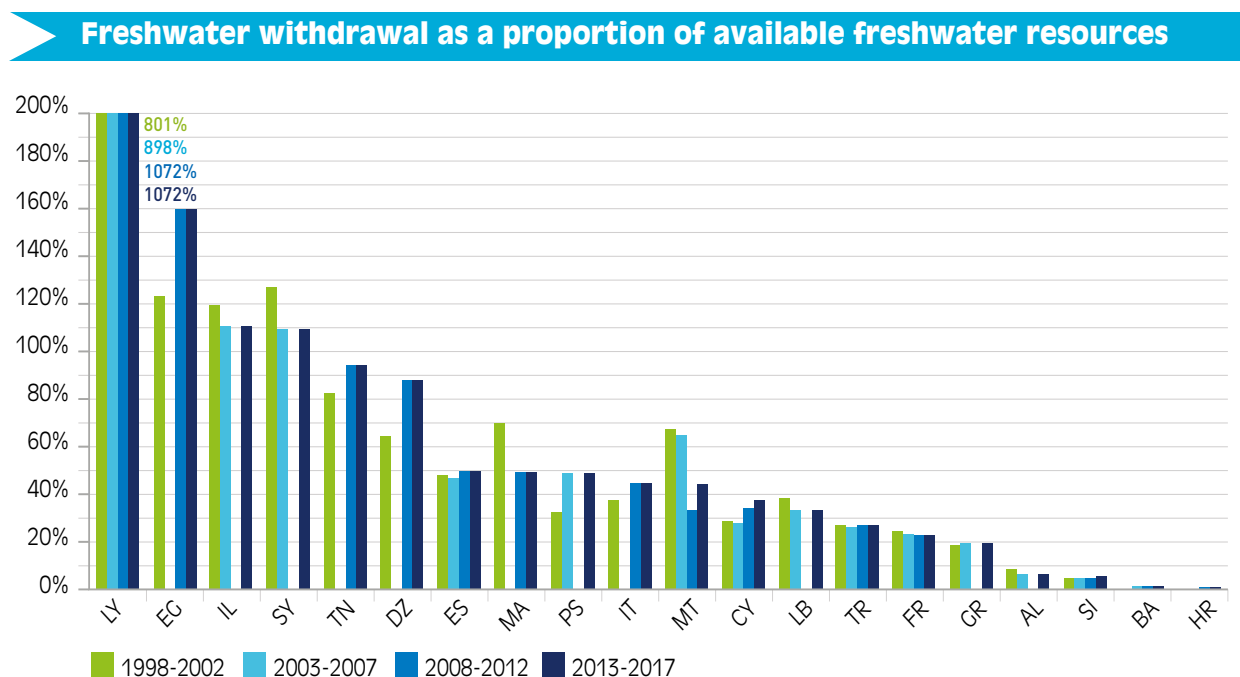


Figure 14

Freshwater withdrawal as a proportion of available freshwater resources, 1998-2017. [Source: FAO-AQUASTAT, UNSTATS, 2018]

climatic conditions and the generally low availability of both water and arable land. The intrinsic limitation of natural resources and current rates of population growth, especially in the South and East, has led to an increased dependence on food imports. Projections indicate that this situation will worsen in the coming decades, mainly under the pressure of climate change and population growth.

Current statistics show that access to food is generally lower in rural areas, due to physical reasons (e.g. absence of infrastructure and markets) or economic reasons (e.g. low purchasing power, rising prices), making the rural population particularly vulnerable to economic or climatic shocks. Food habits have gradually changed in the last decades, with the progressive abandonment of the traditional Mediterranean diet, towards a “Western” nutrition style, rich in proteins, fats, and refined cereals. Food security has improved in Mediterranean countries, often at the expense of nutritional quality, locally-produced, seasonal and diverse food, and traditional conservation know-how. These changes have growing environmental, economic, and human health impacts, including biodiversity loss and food waste, an even higher dependence on cereal imports, a higher vulnerability to the volatility of international prices, as well as the phenomena of both under- (e.g. anaemia) and over-nourishment. In the 2012 to 2016 period, obesity showed a rising trend, with an obesity rate above 20% in almost all Mediterranean countries and peaks of more than 30% in Egypt, Lebanon, Libya, Malta and Turkey in 2016.

The overexploitation of resources (water, soil) puts increasing pressures on food and water availability. Land-use changes and the intensification of agriculture in response to population growth (particularly in the South) or access to subsidies (EU countries) increase soil erosion, which affects agricultural productivity and increases pollution and eutrophication, with higher risks of flash floods, and reservoir siltation.

Soil pollution is mainly linked to the use of fertilizers and pesticides, which are used increasingly in the Mediterranean region, posing threats to both human and environmental health through diffuse water pollution, animal death, and soil contamination.

Climate change will amplify most of these pressures and impacts on water and food availability, quality, stability and access, thereby further threatening water and food security. Ensuring water and food security for Mediterranean populations is key for their sustainable development and requires an integrated approach that considers the interdependencies between the uses of resources.

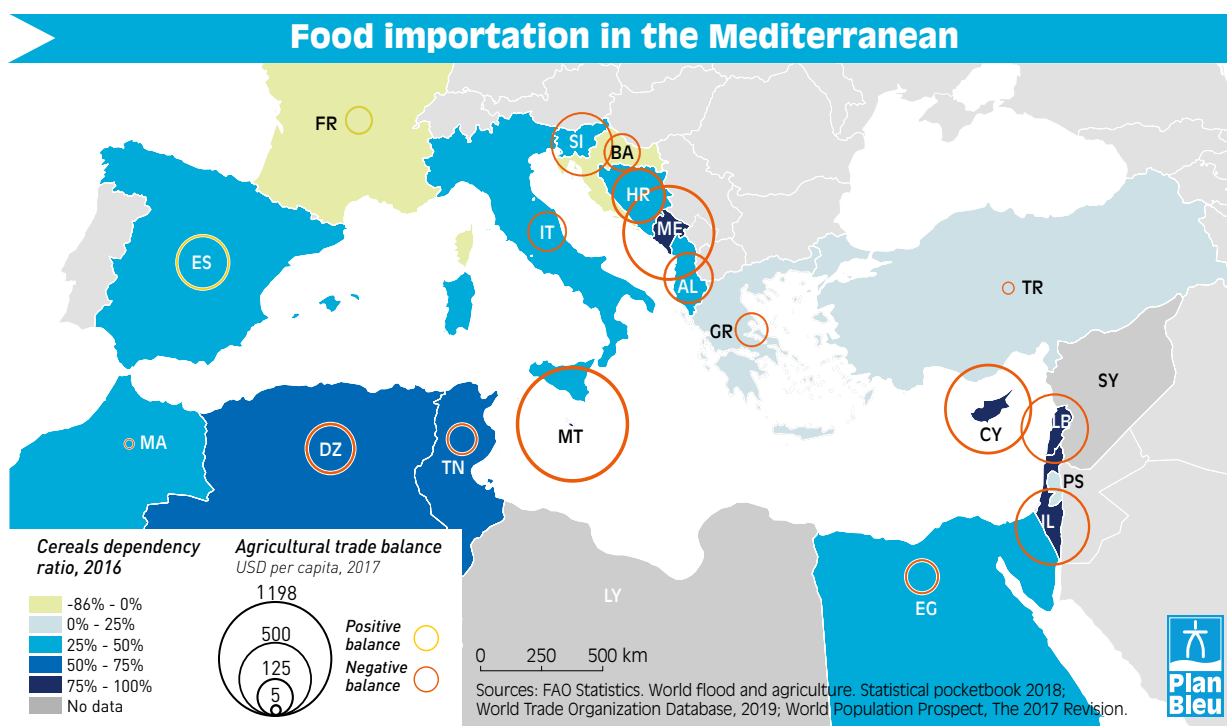


Figure 15

Cereals dependency ratio, 2018 and Agricultural trade balance in USD per capita, 2017. (Source: FAO, 2018)



Environment and health

The deep and complex relationship between environmental conditions and human health is recognized by the international community as a pressing issue of emerging concern. In Mediterranean countries, 15% of deaths are attributed to modifiable environmental factors, compared to 23% worldwide, with ranges from 8% to 27% depending on the country in 2012. Major risks to human health derive from ambient air pollution and some remaining instances of inadequate drinking water quality and sanitation services. Climate change is expected to exacerbate risks for human health: the expected increase in air temperatures, including a rise in the frequency and intensity of heatwaves, can seriously affect the health of the most vulnerable population groups, including the elderly in an aging population. There is high certainty that recently observed climate trends will contribute to the future transmission of vector-, food-, and water-borne diseases. Areas with high probability of catching the West Nile virus, linked to climate change, will likely expand and eventually include most Mediterranean countries. Extreme events, like floods, may lead to the spread of water-borne and vector-borne (e.g. mosquitoes) infectious diseases. Floods also cause personal injuries and enteric infections, increase mental health problems, and lead to potential contamination by toxic chemicals. An increase of allergies is also expected, due to modifications in the geographic distribution range of some plant species, the extension of the pollen season, and an increased production of pollen. The intrusion of saltwater into groundwater, caused by sea level rise, may deprive parts of the population of drinking water and increase the saline content of drinking water sources, which, in turn, may have serious health consequences.

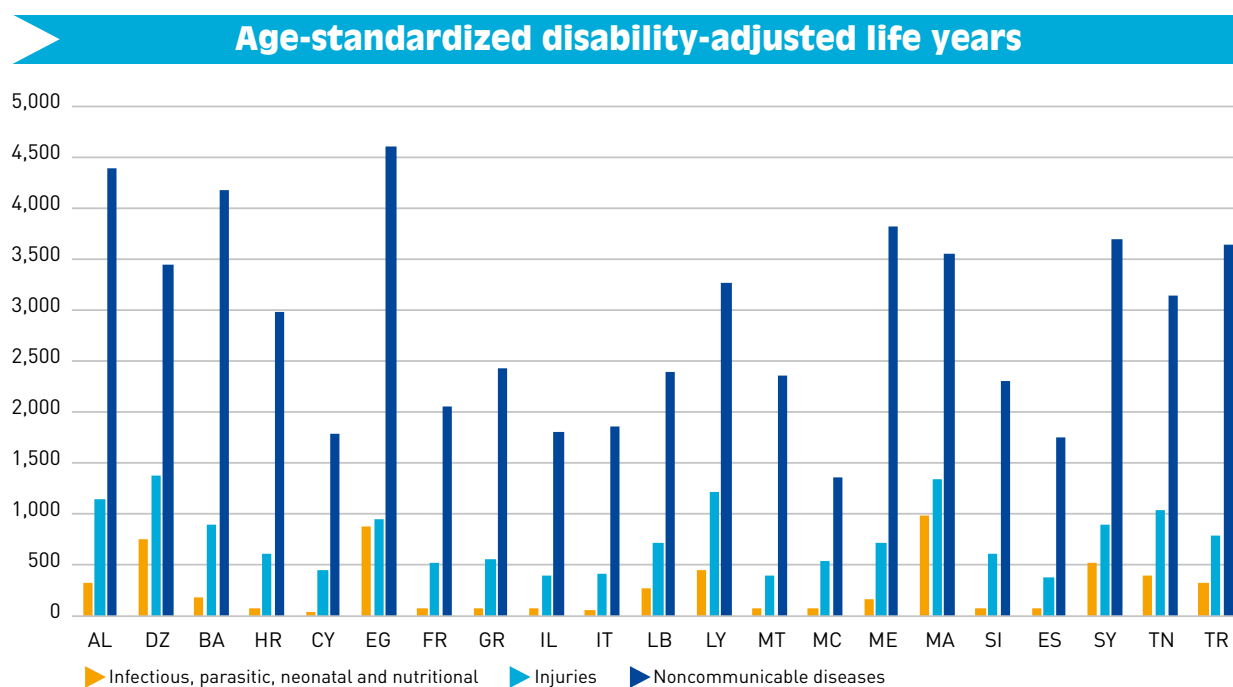


Figure 16

Age-standardized Disability-Adjusted Life Years (DALYs) attributable to the environment per 100,000 population in 2012. (Source: WHO, 2019)

In Mediterranean countries, it is estimated that more than 228,000 people died prematurely in 2016 because of exposure to ambient air pollution. The pollutants with the strongest evidence for public health concern include particulate matter (PM), ozone (O₃), nitrogen dioxide (NO₂) and sulphur dioxide (SO₂), most of which stems from transport and other fuel consumption. Air pollution has a high cost for countries; the World Bank

estimated the welfare losses due to PM_{2.5}, derived from transport, at 2.3% of GDP in the Middle East North Africa region and 7.4% in Europe and Central Asia. The case of Egypt is especially dangerous, where more than 85% of the population is exposed to ambient pollution beyond the WHO threshold⁸. NMCs generally show lower exposure levels, with between 25% and 42% of the population exposed. The general trend in NMCs keeps relatively constant, with exposure to particulate matter decreasing only slightly after a peak in 2011, whereas in SEMCs, particulate matter exposure has increased, except in Israel, where the situation has improved slightly.

Air pollution in the Mediterranean region

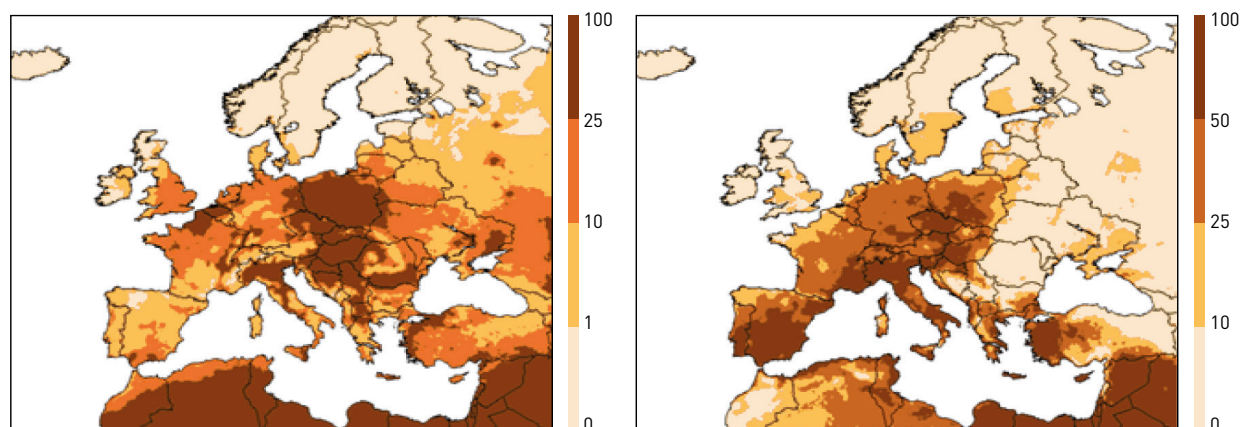


Figure 17

Left: Number of days on which the WHO recommended threshold of exposure to particulate matter (PM_{2.5}) of 25 µg/m³ was exceeded in 2016. Right: Number of days on which the WHO recommended threshold of exposure to ozone of 100 µg/m³ was exceeded in 2016. [Source: Copernicus Atmosphere, European Commission, 2019]

Human-made and natural disaster risks and emergencies are a reality in the Mediterranean region and have the potential to temporarily or permanently alter the inhabitants' access to safe environmental infrastructure and services. The Mediterranean is an area of relatively high seismic and volcanic activity, with a series of destructive earthquakes, volcanic eruptions and tsunamis on record, having displaced and killed thousands of Mediterranean inhabitants. In addition, human-made emergencies linked to political turbulence and war force large numbers of people to flee these situations and find new, often improvised, housing and means of living, including water and sanitation services. Providing healthy environments for people is therefore a particular challenge. The forced displacement of people can also cause environmental degradation, not only in the (destroyed) areas left behind, but also in the areas that receive mass population flows. Emergency and preparedness plans, integrating health and environment considerations, are key to disaster management in order to protect the health of humans and ecosystems.

Human health and well-being are influenced by the goods and services provided by Mediterranean ecosystems. The relationship between human health and natural ecosystems is receiving increasing attention from researchers. In marine areas, overfishing and sea warming contribute to the depletion of some fish stocks, while microbial and chemical contamination, and toxins from harmful algal blooms are threatening the quality of seafood, which is an important component of the Mediterranean diet. Human activities, such as bottom trawling, and microbial and chemical contamination, are threatening the Mediterranean marine organisms that produce bioactive substances, which are used to develop new drugs to treat major human diseases, such as cancer. Contamination also negatively affects the recreational use of coastal and marine waters, and their

⁸ Natural sources of air pollution (desert dust and sea salt) are very active in SEMCs. Unfortunately, not many source apportionment studies have been carried out in these countries. The WHO database on source apportionment studies indicates that more than 50% of pollution from particles of 10 micrometers or less in diameter (PM₁₀) and of 2.5 micrometers or less in diameter (PM_{2.5}) comes from natural sources, which is a very important issue when talking about air quality management and when dealing with perceptions that natural air pollution is not as poisonous as pollution coming from other sources.

capacity to benefit users. The goods and services provided by the Mediterranean marine ecosystem need to be safeguarded to enhance health benefits and minimize health risks. Researchers, policymakers, healthcare providers and public health practitioners, together with the public, should further address the interactions and the value of Mediterranean ecosystems for human health and well-being.





Governance

The United Nations Convention on the Law of the Sea (UNCLOS, adopted in 1982) requires countries sharing an enclosed or semi-enclosed sea to cooperate with each other to coordinate the management, conservation, exploration and exploitation of the sea's living resources, and to protect and preserve the marine environment. Several agreements are in place in the Mediterranean region to protect the coastal and marine environment. The most important is the Convention for the Protection of the Mediterranean Sea against Pollution (the Barcelona Convention), signed in 1976 and revised in 1995 (Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean), administrated by the United Nations Environment Programme (UNEP), in order to prevent, abate, combat and, to the fullest extent possible, eliminate pollution of the sea, and to protect and enhance the marine and coastal environment so as to contribute to its sustainable development. Seven Protocols to the Convention are in place, covering aspects such as the protection of the sea against pollution from both land- and sea-based sources (including from hazardous waste, and from the exploration and exploitation of the continental shelf), for fostering cooperation in preventing and combating pollution from ships, promoting Specially Protected Areas, and Integrated Coastal Zone Management (ICZM).

The Mediterranean Commission on Sustainable Development (MCSd) is a multi-stakeholder advisory body established in 1995. It assists countries in integrating environmental issues into socioeconomic programmes and promotes sustainable development, giving a strong voice to all stakeholders working towards sustainability in the Mediterranean region. Other regional initiatives address environmental governance, including the Union for the Mediterranean (UfM), Arab Maghreb Union, League of Arab States, 5+5 Dialogue (a framework for intergovernmental cooperation in the Western Mediterranean), etc.

	CONTRACTING PARTIES	AL	DZ	BA	HR	CY	EU	EG	FR	GR	IL	IT	LB	LY	MT	MC	ME	MA	SI	ES	SY	TN	TR
LEGAL INSTRUMENTS																							
Barcelona Convention and Amendments																							
Dumping Protocol and Amendments																							
Emergency Protocol Prevention and Emergency P.																							
LBS Protocol and Amendments																							
SPA Protocol SPA and Biodiversity Protocol																							
Offshore Protocol																							
Hazardous Wastes Protocol																							
ICZM Protocol																							

► Instrument of ratification, adhesion approval or accession deposited, and Convention or Protocol entered into force.
 ► No instrument of ratification, adhesion, approval or accession deposited.
 ► Instrument of ratification, adhesion, approval or accession deposited, but Protocol has not yet entered into force.

Figure 18

Ratification of Barcelona Convention and Protocols by the individual Contracting Parties, December 2019

The multiplication of governance frameworks on the environment and sustainable development in the Mediterranean region calls for addressing sustainable development in an integrated way, in three main areas:

the integration of regional governance among existing bodies; the integration of different governance levels, from regional to national and local; and, the integration of both land and marine governance. This is in line with the Mediterranean Strategy for Sustainable Development (MSSD), adopted in 2016 by the Contracting Parties to the Barcelona Convention, as a strategic guiding document for all stakeholders to translate the 2030 Agenda for Sustainable Development at the regional, subregional and national levels.

Local planning approaches and decentralization are at differing stages of implementation in Mediterranean countries. It is at the local scale that concrete action for the conservation and management of natural resources for human well-being can be taken based on the best knowledge about specific local contexts. The challenge of adapting to environmental and climate change relies in particular on local planning and implementation. The local translation and implementation of national and international agreements, as well as coordination between local administrations and decentralized sectoral technical services, require further capacity building and implementation support.

Public and stakeholder engagement is central in sustainable development planning. Mediterranean countries have established a set of commitments to apply participatory processes for policy design, such as the Environmental Impact Assessment (EIA; all countries), and Strategic Environmental Assessment (SEA; about three quarters of countries have SEA legislation in place), following the approach established in the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. Informed participation in decision-making leads to better decisions, enhancing public confidence in governmental decisions and, ultimately, helps achieve political stability and sustainable economic development. So far, 12 of the 22 Mediterranean countries are Parties to the Aarhus Convention. New opportunities for access to information and public participation in the environmental debate are possible thanks to the strong increase of mobile phone subscriptions and people using the Internet and social media in Mediterranean countries.

Education, research, innovation, and capacity building are inherently interlinked and offer significant opportunities for developing Mediterranean natural and cultural assets, acting as drivers of economic and social development. There is an active North-South interface with a series of political and socioeconomic cooperation mechanisms, such as the capacity-building activities of the Mediterranean Action Plan (MAP), various EU-led initiatives, and the activities of the Union for the Mediterranean (UfM) for cooperation in higher education and research. The Mediterranean Strategy on Education for Sustainable Development (MSESD), adopted in 2014, was the first of its kind worldwide. These instruments should be further streamlined to address sustainable development issues and strengthen Mediterranean capacity to develop “fit-for-purpose” scientific information that can be communicated to decision makers via effective science-policy interfaces.



Synthesis of progress achieved, and persisting and remaining challenges

Throughout the last decade, significant progress in addressing sustainability issues in the Mediterranean has been achieved and the Barcelona Convention system has largely contributed to these achievements:

- ▶ Over the last ten years, Mediterranean countries have adopted global and regional common objectives and cooperation frameworks, setting a shared path towards sustainable development;
- ▶ Integration and system-based approaches are increasingly recognized as the most efficient way to address systemic factors, and combined pressures and impacts;
- ▶ Investments and collaborations have addressed and reduced some major pollution sources and health hazards;
- ▶ Common monitoring and assessment frameworks have been adopted to improve information-based decision-making; and
- ▶ The spread of stakeholder networks, inclusive approaches and technological development have improved opportunities for stakeholder participation and engagement.

In spite of these efforts and innovations, major challenges persist and are emerging:

- ▶ Despite achievements in designing and agreeing on common commitments, critical gaps remain in implementing and enforcing those decisions;
- ▶ The profile of environmental institutions and stakes, in local, national and regional systems, still needs to be raised for effective environmental integration;
- ▶ The movement from national and international engagements to concrete action at the local level remains challenging and requires further capacity building and support, while recognizing needs for local adaptations;
- ▶ The ambition of specific environmental regulations would benefit from being upgraded; scientific evidence has demonstrated, in particular, that declaring the Mediterranean an Emission Control Area would generate benefits that largely outweigh costs;
- ▶ Adopting efficient policy mixes, upscaling the use of economic tools, land tenure instruments, stakeholder awareness and involvement remain areas of needed improvement. Efficient policy mixes are, in particular, a key condition for ensuring a transition towards a blue, green and circular economy by scaling up promising technical and social innovations through a range of complementary funding mechanisms. Coordinated policy mixes are also required to efficiently prevent further land take and economic pressure on the coastal zone on both sides of the land-sea interface, as highlighted in the Common Regional Framework for ICZM adopted by the Barcelona Convention 21st Conference of the Parties (COP 21) in December 2019;
- ▶ Further efforts are required for developing permanent collaboration frameworks across specialized stakeholder networks and governance forums;
- ▶ Specific funding is needed for environmental and economic transitions; investments will, in particular, be required to adapt to climate change and develop water efficiency and reuse in water-scarce areas. The sustainable management of biodiversity protected areas is dependent on sustainable funding mechanisms to cover recurrent management, surveillance and enforcement costs;
- ▶ The transformation of coastal and marine areas, activities and landscapes needs to be further anticipated in policies and actions.

In a cross-cutting way, knowledge and understanding of all aspects of sustainability are key to support evidence-based action for transition. Ways to improve the effective use of knowledge include:

- ▶ Capitalizing, i.e. gathering, analysing, transferring and disseminating existing knowledge, best practices and local innovations;
- ▶ Conducting further research to communicate on the stakes of environmental degradation;
- ▶ Implementing, sustaining and expanding common monitoring frameworks; and
- ▶ Learning from experience by conducting ex post evaluation of policies for more effective decisions.





Conclusion



Progress has been achieved throughout the last decade. Sustainable development policies, strategic frameworks and action plans have been developed and improved. Knowledge on ecosystems and their role for human well-being has increased. However, these areas of progress have not been sufficient to reduce pressures on and degradation of the Mediterranean coastal and marine environment. They have not allowed Mediterranean coastal populations to adapt to current and projected environmental and climate change, and to increase their resilience. To reach commonly-set goals and objectives such as achievement of Good Environmental Status of the Mediterranean coast and sea, and more broadly the SDGs, and to avoid projected failures, current trajectories must urgently be corrected. The transition towards more sustainable pathways requires radical changes in behaviour at all levels and in all areas, as the main drivers for increasing pressures and degradations are our production and consumption patterns.

Transitions are required in all production and consumption systems, and cannot be brought about by policymakers alone. Changing development pathways is a responsibility shared by all stakeholders in civil society, the private sector including banking and insurance, the scientific community, judicial systems, etc. Fostering participation and taking advantage of stakeholder mobilization to engage in dialogue and coordinated action will improve policy outcomes at all levels. The current mobilization of youth for sustainable development must be seized as an opportunity for policymakers to take into account long-term goals, and translate them into short- and medium-term investments and reforms. Scientists are increasingly mobilized to produce policy-relevant assessments and collaborate in organized science-policy interfaces such as the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) or, at the Mediterranean level, the Mediterranean network of Experts on Climate and environmental Change (MedECC). Judicial systems increasingly deal with environmental and climate litigation and support the enforcement of sustainability regulations. The private sector's powerful role in funding and inventing sustainable lifestyles is increasingly acknowledged.

The Barcelona Convention system can play a major role in fostering sustainability transitions. However, this requires an urgent step up from planning, engagement and local innovation, to widespread implementation on the ground and effective enforcement, in collaboration with local authorities and relevant stakeholders, including relevant private sector and funding agencies. Implementation and enforcement are lagging behind the ambition of commonly-agreed objectives and measures, and risk discrediting their comprehensiveness and the major achievements in environmental diplomacy in the region. The imminent threat of severe and irreversible damage to ecosystems and subsequent human well-being calls for the urgent implementation and enforcement of agreed actions, capitalization, scaling-up and dissemination of a multitude of relevant innovations within a coherent approach, as well as adequate monitoring and evaluation to ensure that measures are leading to the desired effects, and necessary adjustments when achievements fall behind.





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