

A new assessment of climate and environmental coastal risks in the Mediterranean elaborated by the Mediterranean Experts on Climate and environmental Change (MedECC)

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INTRODUCTION & BACKGROUND

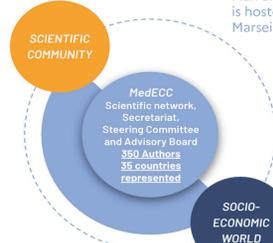
A third of the Mediterranean population – around 150 million people – lives close to the sea, relying on coastal infrastructure, economic activities and vital marine and coastal ecosystems. However, Mediterranean countries are not on track to achieve most Sustainable Development Goals (SDGs), and are particularly struggling with biodiversity protection (SDG 14 - Life Below Water) and climate action (SDG 13). The Mediterranean coastal zone is often narrow, densely populated, and over-pressured, and requires a tailored risk assessment that reflects its specific vulnerabilities and characteristics to inform effective adaptation pathways and support decision-making towards risk reduction and long-term sustainability in coastal governance, policies, and social perception.

In this context, the Mediterranean Experts on Climate and environmental Change – MedECC – has published the Special Report “Climate and environmental coastal risks in the Mediterranean basin” to provide an assessment of the scientific, technical and socio-economic literature on the multiple drivers of change affecting the Mediterranean (climate, pollution, biologic and socio-economic processes), their evolution, impacts on ecosystems and people, the risks that are posed and solutions to reduce them, together with pathways for sustainable development.

One mission: Contribute to the improvement of policies to ensure the well-being of current and future generations in the Mediterranean region.

MedECC is an open and independent international network of scientists focused on climate and environmental change and its associated risks in the Mediterranean basin. It acts as a Science Policy Interface and produces assessment reports based on available scientific knowledge, and engages in disseminating the findings with the objective to provide essential, region-specific information to stakeholders, governments, and citizens. MedECC reports aim to maintain neutrality regarding policy and to objectively address scientific, technical, and socio-economic factors relevant to the application of policies.

SCIENCE



MedECC is supported by the UfM, UNEP/MAP and Plan Bleu. The Secretariat is hosted by Plan Bleu in Marseille.

POLICY

International and national organisations, decision-makers, governments and citizens

Report background, methodology, and process

The report identifies and assesses environmental and climate change hazards in the coastal zone of the Mediterranean Basin, the related risks, adaptation options and solutions. It further assesses and provides information on actions to meet the United Nations SDGs. Adaptation plans are presented by placing the social and cultural values in context of the region, considering the need to protect communities and biodiversity, minimise impacts on the natural environment, and addressing ethical considerations important for socially-oriented adaptation policies.

The Special Report represents the collaborative efforts of a team of volunteer leading experts and scientists:	04/2021	Call for experts and scoping meeting
• 55 authors from 17 countries	12/2022	Scientific review
• 52% women 48% men	05-07/2023	External review and stakeholder consultation
More than 1200 scientific publications and reports assessed	11/2023	Plenary Consultation SPM Approved
More than 1300 review comments from 18 countries	12/2023	Endorsement at COP23 to the Barcelona Convention (Decision IG.26/13, Slovenia)
	11/2024	Presentation at UNFCCC COP29 in Baku



Sharing knowledge: Policy recognition

2020 NORTH-SOUTH PRIZE OF THE COUNCIL OF EUROPE AWARDS

for "Its efforts to address climate change and biodiversity conservation in the Mediterranean and in by first-ever scientific assessment on climate and environmental changes impacts the Mediterranean Basin".



SCIENTIFIC CONTRIBUTIONS

• State of the Environment and Development in the Mediterranean (Plan Bleu, SOE, 2020) by co-coordinating the chapter on climate change

INTERNATIONAL FRAMEWORKS

• MedECC is included in Programme of Work of UNEP/MAP

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FINDINGS

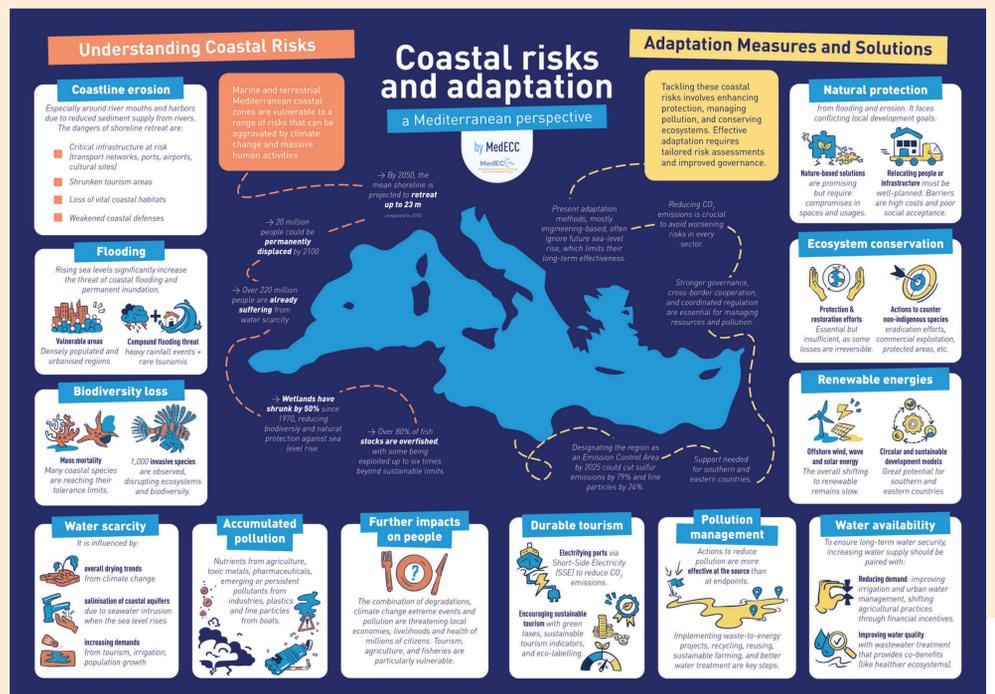
The Mediterranean is a 'hot spot' of climate and environmental change given the high exposure and vulnerability of human societies and ecosystems and interconnected risks in this region (MAR1 2020, IPCC 2022). A third of the Mediterranean population lives close to the sea and depends on infrastructure and economic activities in its immediate vicinity.

The coastal zone and drivers of environmental and climate change

CLIMATE DRIVERS*	Observed trend	Expected trend
Air temperature	▲	▲
Water temperature	▲	▲
Land heat waves	▲	▲
Marine heat waves	▲	▲
Droughts	▲	▲
Heavy rainfall	▲	▲
Sea level	▲	▲
pH of sea water*	▲	▲
Sea level extremes	▲	▲
Sediment supply	▲	▲
BIOLOGICAL DRIVERS		
Non-indigenous species	▲	▲
Frequency of jellyfish blooms	▲	▲
SOCIO-ECONOMIC DRIVERS		
Coastal population*	▲	▲
Tourism	▲	▲
Overexploitation of fish stocks	▲	▲
POLLUTION DRIVERS*		
Plastic	▲	▲
Nutrients	▲	▲
Emerging pollutants*	▲	▲
Toxic waste*	▲	▲
Persistent organic pollutants*	▲	▲

Drivers of change and their expected evolution in the Mediterranean coastal zone

Climate change is already affecting both the terrestrial and marine components of the Mediterranean coastal zone. Projections show an increase in surface air temperatures, frequency and intensity of hot extremes, sea level, evapotranspiration and a decrease of precipitation, which, depending on the level of future greenhouse gas emissions will pose serious risks for ecosystems and important economic sectors (summer beach tourism, agriculture, aquaculture and fisheries). Along the Mediterranean coastlines, rising sea levels will exacerbate the risks of coastal floods, permanent inundation of some areas, and coastal erosion, with impacts on ecosystems and coastal structures, such as airports, transport networks, ports, and cultural heritage sites. Growing urbanisation will further increase the risk posed by flash floods in some coastal areas.



Recent developments and sustainable development pathway

In the Mediterranean coastal zone, present actions towards solutions to environmental problems, adaptation to climate change and its mitigation are insufficient to attain the UN Sustainable Development Goals (SDGs), and transformative actions across all sectors, systems, and scales are required to meet the SDGs. This requires the proper identification of vulnerabilities related to human activities and climate change impacts, and assessment of options to reduce risks to the affected communities and ecosystems, as a mix of legal, policy and economic instruments, and behavioural nudges, are available for local, national, and regional authorities to promote effective climate resilient sustainable development pathways in the Mediterranean coastal zone.

ZOOM ON... SDG 14 There is a consistent potential for climate change mitigation and adaptation through effective conservation and restoration of blue carbon ecosystems including seagrass meadows, coastal wetlands, salt marshes and coastal terrestrial ecosystems (including coastal dunes). The carbon sequestration capacity of coastal wetlands is about 10 times that of terrestrial ecosystems, but they are not sufficiently protected. An effective implementation of the sustainable blue economy is a powerful way to protect and transform Mediterranean marine and coastal areas, fostering resources for local, inclusive, sustainable and resilient development. Ensuring continuous monitoring and assessment of coastal ecosystems and their valuable services can support the adoption of dynamic adaptive strategies. Actions towards reducing the overexploitation of fish stocks and the resulting negative impacts – particularly on small-scale fishers – include: their meaningful participation in the co-management of the sector, the implementation of best practices to maximise the value of catches, the establishment of vertically-integrated distribution channels especially at local level.

References

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Achieving sustainable development in the Mediterranean coastal zone requires a transformative approach that addresses environmental challenges while promoting social equity and economic stability. By integrating circular development models, investing in renewable energy, protecting blue carbon ecosystems and engaging all stakeholders in the decision making process, the Mediterranean region can move towards a more resilient and sustainable future.

This overview, providing a snapshot of risks and solutions for the Mediterranean coastline, is based on a comprehensive scientific and technical assessment by the MedECC. For more detailed information including the full report and further insights into the work of MedECC, please visit the website or scan this QR code. Alternatively, you can contact the Secretariat at contact@medecc.org



CONCLUSION