OOS2025-710, updated on 06 Jun 2025
https://doi.org/10.5194/oos2025-710
One Ocean Science Congress 2025

A new assessment of climate and environmental coastal risks in the Mediterranean

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The Mediterranean Experts on Climate and Environmental Change — MedECC —is an independent scientific network focused on assessing available scientific knowledge on climate and environmental change and its associated risks in the Mediterranean basin. MedECC is a unique science-policy interface in the Mediterranean that aims to provides essential, region-specific information to stakeholders, governments, and citizens, enabling to make effective, informed decisions. In 2024, MedECC published the Special Report on Climate and environmental coastal risks in the Mediterranean basin, which assesses 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.

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.

Risks of water scarcity in the coastal areas of the Mediterranean are expected to increase in the future. They are caused by the overall drying trend affecting the region, salinisation of coastal aquifers, increasing demand associated with population growth, irrigation, tourist use, industry and the energy sector. Adaptation options consist in increasing water supply, improving water quality, supporting measures and governance, and to a lesser extent, reducing water demand.

Recent past mass mortalities in coastal waters and the decline of coastal wetlands have been already partially attributed to marine heat waves and are expected to increase in the future. The efficiency of the conservation measures strongly depends on the success of climate change mitigation and an increasing number of hard limits will be reached for every increment of global warming.

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 (SDG's) and transformative actions across all sectors, systems, and scales are required to meet the SDG's will not be met. These 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. A mix of legal, policy and economic instruments, and behavioural nudges are available at local, national, and regional level to promote effective and resilient development pathways in the Mediterranean coastal zone.