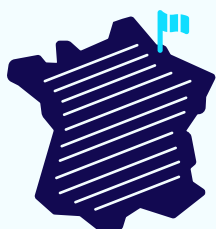


Protecting European coastal areas



Research reveals alarming trends in the ocean's response to global warming. Coasts are some of the most exposed and **vulnerable areas**, facing **increasing risk** due to rapid changes.

Coastal areas:



occupy
of the **13%**
European
Economic Area:
roughly the size of France.



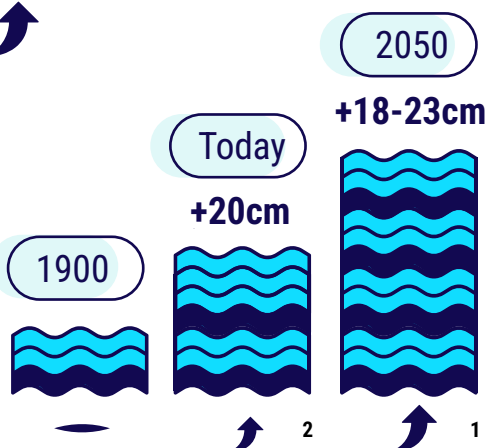
are home to over
40% of the EU's
population,
living within 50 kilometres
of the sea.



Sea level rise and **extreme weather events** pose major threats to these **densely populated** interface ecosystems.



Global mean sea level:



Sea level rise costs for EU and UK economies by 2100:



€ **872 bn**

2100

in a high emissions scenario, with no new coastal protection measures implemented after 2015.

Through an integrated, multidisciplinary, and innovative approach, CMCC research leverages advanced models and high-resolution climate data to identify coastal challenges, optimize adaptation strategies and develop cutting-edge tools and solutions for the European and global coasts.

CMCC - From science to policy and decisions



State-of-the-art coastal intelligence

- **We provide** key operational forecasts to the Copernicus Marine Service.
- **We harness** Earth Observation data, numerical models and Artificial Intelligence techniques to develop a Coastal Digital Twin.
- **We implement** advanced assessment methodologies for coastal at-risk infrastructure.
- **We design** prototype tools using Artificial Intelligence and Machine Learning to assess the impacts of extreme weather events on coastlines.
- **We investigate** the role of nature-based solutions in mitigating the impacts of coastal dynamics through the use of Digital Twin technology.



Climate services for coastal governance and restoration

- **We lead** the GlobalCoast initiative within the CoastPredict framework, a programme endorsed by the UN Ocean Decade, featuring several European pilot areas.
- **We strengthen** regional capabilities for climate change adaptation governance in the Mediterranean through co-design and local ownership.
- **We facilitate** the identification of adaptation priorities through multi-risk analysis of climate hazards.
- **We provide** decision-makers with knowledge and tools to address biodiversity loss and promote restoration in coastal areas.
- **We integrate** nature-based solutions with advanced water management strategies in river basins at the interface between land and sea.

**Further readings
on CMCC works
on climate
change adaptation**



**More information
on the
CMCC Foundation**



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Data references:

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2 - JPI Oceans, www.jpi-oceans.eu/en/sea-level-rise

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