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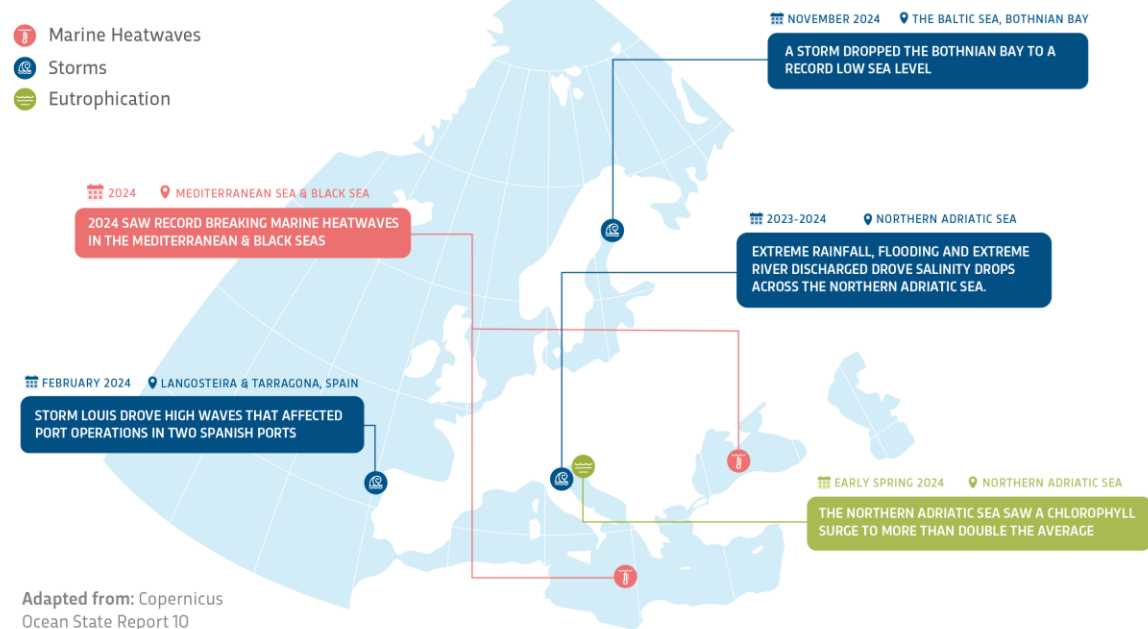
Press Release Embargoed till Wednesday 30 Sept. 8:00 AM CEST / 7:00 AM BST / 2:00 AM EDT

10th Copernicus Ocean State Report shows ocean transformed and coastal communities on frontline

10th edition shows how a decade of sustained monitoring turns long-term observations into evidence for adaptation and action

EUROPEAN SEAS UNDER PRESSURE

Extreme events, including marine heatwaves and storms are affecting marine ecosystems and coastal communities across European regional seas



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Ocean extremes in European regional seas in 2024. "Understanding what happened and why" Adapted from the Copernicus Ocean State Report 10 Summary.

Toulouse, France, 30 September 2026: The 10th Copernicus Ocean State Report (OSR10), released today, delivers its starkest warning yet of the profound changes sweeping across the ocean, as a likely unprecedented El Niño takes shape in the Pacific. Produced by Mercator Ocean

International, the European Commission's entrusted entity for implementing the Copernicus Marine Service, with contributions from 125 scientists from Europe and worldwide, the anniversary edition draws on the latest satellite, in situ and modelling data to reveal an ocean warming at an alarming pace, with far-reaching consequences for marine life, coastlines and communities worldwide.

"The tenth Copernicus Ocean State Report shows why sustained, operational observation matters, and demonstrates the value of translating data into trusted intelligence that governments and communities can use to prepare for what lies ahead," said Pierre Bahurel, Director General of Mercator Ocean International. "The ocean is transforming before our eyes: warming, rising seas and ecosystem degradation are interconnected signs of significant and long-term change. It is our responsibility to build the permanent capacity to anticipate this transformation."

The signals are evident: ocean heat content has accelerated since 1960, absorbing a record additional 23 zettajoules in 2025 (roughly 40 times the energy the entire world consumed in 2025); global mean sea level rose by 3.8 ± 0.3 mm each year between 1999 and 2025, increasing to 4.2 ± 0.3 mm per year between 2012 and 2025; and the ocean became roughly 17% more acidic between 1985 and 2025.

The report's findings, brought by a wide community of scientists globally, reveal the scale and pace of change now underway in the ocean. Long-term records make this visible, allowing scientists to distinguish isolated events from broader trends and build an increasingly detailed picture of what is happening, where impacts are emerging and where governments and communities may need to prepare.

Turning Ocean Data into Real-World Preparedness for European regional Seas

As the ocean absorbs more heat, the effects ripple through the entire marine system. Warmer waters fuel marine heatwaves and can intensify storms, disrupt ecosystems and contribute to sea-level rise through thermal expansion and the melting of land ice. These are not isolated trends, but interconnected consequences of a warming ocean that are increasingly visible in regional seas and coastal communities around the world.

In Europe, regional seas are particularly under intense pressure, with some regions changing faster than others.

In 2024, the Mediterranean and Black Seas experienced record-breaking marine heatwaves, with some lasting more than 30 days and temperatures exceeding average conditions by more than 4.6°C. By combining surface observations with measurements of ocean heat content down to 40 metres, researchers found that significant heat can persist below the surface, revealing impacts that surface temperatures alone can miss and providing a fuller picture of the risks to marine ecosystems.

At the same time, ocean extremes are having immediate consequences for people and infrastructure. Storm Louis drove waves exceeding eight meters along parts of Spain's Atlantic coast in February 2024, causing major transport disruptions, widespread power outages and one fatality, compromising maritime operations at two Spanish harbours. Nine months later, prolonged north-easterly winds pushed water away from the Finnish coast, causing sea level in the Bothnian Bay to plunge by a record 153 centimeters and suspending ferry services for 18 hours.

These events also show how sustained observation can translate into practical preparedness. Forecasting systems predicted the exceptionally low water levels in the Bothnian Bay three to four days in advance, giving ports, ferries and coastal authorities valuable time to prepare.

"The Ocean State Report once again highlights the scale and urgency of the challenges facing our ocean, as climate change continues to transform marine ecosystems and ocean circulation," said Andrius Kubilius, Commissioner for Defence and Space, European Commission. "These changes demand stronger knowledge, international cooperation and action. As we strengthen ocean observation through the OceanEye initiative, Copernicus confirms its role as a strategic European asset. Indeed, it offers a unique long-term commitment for space-based infrastructure and services, which coupled with in situ observations and digital models, constitutes the backbone for observing, understanding and anticipating these changes."

Critical environments on the frontline

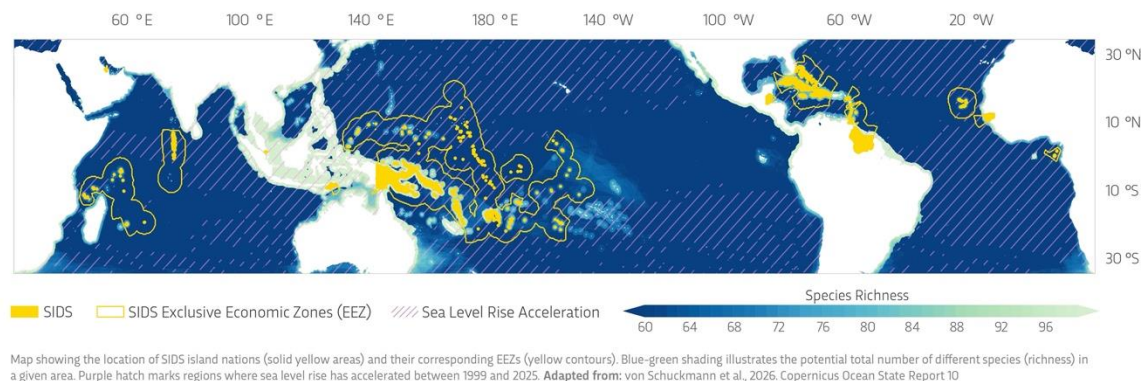
Perhaps nowhere is the connection between ocean change and human vulnerability clearer than in Small Island Developing States (SIDS)*, where economies, infrastructure and livelihoods are closely tied to the sea.

Since 1960, all SIDS' Exclusive Economic Zones have experienced ocean warming, while 65% of their combined EEZ area has been exposed to accelerating sea-level rise since 1999.

Nearly 28% of this area contains vulnerable, endangered or critically endangered coral reefs. These ecosystems underpin fisheries, tourism and coastal protection, and can account for more than 20% of GDP in some SIDS. Their vulnerability illustrates why rising temperatures and sea levels are not simply environmental concerns, but economic and sustainable development issues.

SMALL ISLAND DEVELOPING STATES

Small Island Developing States (SIDS) steward some of the world's richest marine ecosystems while navigating the front lines of the climate crisis



Map showing the location of SIDS nations (solid yellow) and their correspondent EEZs (yellow contours). Blue-green shading illustrates the potential total number of different species (richness) in a given area. Purple hatch marks regions where sea level rise has accelerated between 1999 and 2025. Adapted from von Schuckmann et al., 2026. Copernicus Ocean State Report 10.

For polar regions, the OSR10 reveals profound shifts in sea ice, ocean physics and ecosystems. Arctic sea ice is retreating as coastal erosion intensifies, while the Large Marine Ecosystem of the Barents Sea has lost 70% of its sea-ice extent since 1982. In the Antarctic, exceptionally low sea ice in 2022 has coincided with unprecedented large-scale breeding failure among Emperor Penguins.

OSR10 also demonstrates how ocean science can help societies respond. By combining near-real-time observations with forecasting and modelling, scientists can turn knowledge into practical tools for early warning, infrastructure planning, and adaptation.

*“Ten years on, the Copernicus Ocean State Report offers more than a series of annual snapshots, said **Karina von Schuckmann, Director of Copernicus Ocean State Report.** “It provides a growing scientific record of an ocean under intensifying pressure, while showing how sustained observation, modelling and forecasting, and scientific collaboration can help societies understand what is changing, where and why and anticipate the risks ahead and prepare for their consequences.”*

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[Link to the press package](#)

Notes to editors:

About the Copernicus Marine Service

The [Copernicus Marine Service](#) is one of the six services of Copernicus, the European Union's Earth Observation Programme. The service operates ocean analysis and forecasting and is funded by the European Union. The Copernicus Marine Service delivers regular and systematic reference information on the Blue (physical), White (sea ice) and Green (biogeochemical and biological) ocean at both global and European scales. Its data and products support key EU and international policies, contributing to efforts in pollution reduction, marine protection, maritime safety and routing, sustainable resource management, marine renewable energy, blue growth, climate monitoring, and weather forecasting. The service also seeks to raise public awareness by providing citizens in Europe and worldwide with accessible information on ocean issues.

About Mercator Ocean

[Mercator Ocean International](#) is one of the world's leading ocean prediction centres and a key pillar of Europe's digital ocean infrastructure. It is the entrusted entity of the European Commission for the Copernicus Marine Service, delivering free, open-access ocean data and forecasts as a public service to governments, authorities, scientists, and strategic users worldwide. Mercator Ocean also leads the development of the European Digital Twin Ocean, a flagship European initiative developed with partners under the leadership of the European Commission to support scenario-based ocean decision-making. In 2025, Mercator Ocean took a major step toward becoming an international organization, with twelve European countries endorsing the international convention establishing the Mercator International Centre for the Ocean.

*Small Island Developing States (SIDS) are a group of 40 countries and 20 associated members across the Caribbean, Pacific, and Atlantic, Indian Ocean, South China Sea regions that share unique social, economic and environmental vulnerabilities.

*A zettajoule is a unit of energy equal to one sextillion (10^{21}) joules, used to measure very large quantities of energy such as the heat absorbed by the world's ocean."



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