

Destressing the Mediterranean Sea from chemical pollution



The Mediterranean Sea is a semi-enclosed basin, with approximately 250 million inhabitants living along its coast, augmented by the third of the world's tourists annually (400 million in 2019¹). The Mediterranean region experience high levels of industrial and shipping activities, and intense maritime traffic. Its unique geography and oceanography create a trap for pollutants, which along with its high population density, heavy industry and inefficient waste management result in significant marine pollution. Pollution is also affected

by climate change (e.g. increasing sea water temperature and heatwaves, acidification and sea-level rise), unsustainable land- and sea-use practices and non-indigenous species.

The main polluting activities in the Mediterranean Sea are wastewater treatment plants, metal production and processing, energy production, the chemical industry, pre-treatment or dyeing of fibres or textiles, and ship building, painting or paint removal. To prevent and eliminate pollution from the Mediterranean Sea, the European Union (EU) launched the “Mediterranean Lighthouse” in 2021, under the EU Mission to "Restore our Ocean and Waters by 2030"². The EU Mission 'Restore our Ocean and Waters' aims to restore by 2030 the health of our ocean and waters by protecting and restoring marine and freshwater biodiversity and ecosystems, eliminating pollution, and making the blue economy carbon-neutral and circular. The area-based “Lighthouses” are hubs to pilot, demonstrate, develop and deploy Mission activities across EU seas and river basins, to support implementation, regional engagement and cooperation. The Horizon Europe RHE-MEDiation project supports the “Mediterranean Lighthouse” in preventing, minimizing and controlling pollution and eliminating and remediating existing pollution hotspots in the Mediterranean.

The EU is a Contracting Party to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention³), with the other nations around the Mediterranean Sea. Under the Barcelona Convention and its seven Protocols, adopted in the framework of the Mediterranean Action Plan initiated by the United Nations Environment Program, the Contracting Parties pledged to take appropriate measures to prevent, abate, combat to the fullest possible extent, and eliminate pollution in the Mediterranean Sea, and to protect and enhance the marine environment to contribute towards its sustainable development. The “Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities” aims to reduce and phase out substances that are toxic, persistent and liable to bioaccumulate, such as Persistent Organic Pollutants (POPs), marine litter and mercury.

¹ Plan Bleu (2022). State of Play of Tourism in the Mediterranean, Interreg Med Sustainable Tourism Community project.

https://planbleu.org/wp-content/uploads/2022/11/EN_VF_stateoftourism_PLANBLEU.pdf

² https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/restore-our-ocean-and-waters_en

³ <https://www.unep.org/unepmap/who-we-are/barcelona-convention-and-protocols>

Several EU policies are designed to reduce pollution in marine ecosystems. Legislative instruments regulate the concentrations of a wide range of chemical compounds permitted in the coastal and marine environment and frame the treatment process of wastewater. However, due to chemical pollution, 80% of the assessed European marine ecosystems are designated as ‘problem areas’⁴: i.e. marine ecosystems are disturbed by contaminants.

The Water Framework Directive (WFD)⁵ set out the strategy to assess the chemical status of waterbodies by applying Environmental Quality Standards. A list of Priority Substances and Priority Hazardous Substances allow targeted EU-wide monitoring of substances of possible concern. The WFD aims to achieve good physicochemical and biological water quality and quantity. It highlights actions required to prevent eutrophication caused by nutrients, to eliminate and/or minimize the impact of micropollutants and forever chemicals, and to maintain good water quality.

The Marine Strategy Framework Directive (MSFD)⁶ aims to achieve Good Environmental Status for European marine waters and protect the marine resources. It provides thresholds and assessment criteria to monitor the marine environment and to ensure that heavy metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and pesticides do not impact this status.

The EU moved towards a circular economy of water and waste treatment and augmented the WFD and MSFD with the Water Reuse Regulation⁷ to incentivise the use of reclaimed water in crop irrigation and industrial activities while reducing the application of synthetic fertilisers and demand for freshwater. In addition, the revised Urban Wastewater Treatment Directive (UWWTD)⁸ governs the treatment of urban wastewater, and the actions to better monitor, track and reduce pollution at source.

The challenge in managing water pollution in the Mediterranean is not in a lack of information and policies, but in their implementation, and the varying levels of economic development among the Mediterranean nations, where 21% of wastewater undergoes only basic treatment, and less than 8% undergoes tertiary treatment⁹. In addition, even though the UWWTD mandates 80% removal of pollutants such as PFAS, pharmaceuticals, microplastics and personal care products, it lacks specific, enforceable targets for many of them.

Although wastewater treatment plants, are increasing their capacity to treat or eliminate certain substances, it is likely that there will never be the technology or financial resources to treat 100% of pollution. Therefore, pollution prevention must be a priority, including the reduction and phasing-out of known harmful substances, mandatory and strongly enforced environmental and social (including health) impact assessments of new substances, and preparedness and responsiveness for accidental pollution, among other.

⁴ EEA, 2019, Marine messages II — navigating the course towards clean, healthy and productive seas through implementation of an ecosystem-based approach, EEA Report No 17/2019, European Environment Agency <https://www.eea.europa.eu/publications/marine-messages-2/file>

⁵ Directive 2000/60/EC: <https://eur-lex.europa.eu/eli/dir/2000/60/oj>

⁶ Directive 2008/56/EC: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0056>

⁷ Regulation (EU) 2020/741 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0741&from=EN>

⁸ Directive 2024/3019 <https://eur-lex.europa.eu/eli/dir/2024/3019/oj>

⁹ Plan Bleu (2022). State of Play of Tourism in the Mediterranean, Interreg Med Sustainable Tourism Community project. https://planbleu.org/wp-content/uploads/2022/11/EN_VF_stateoftourism_PLANBLEU.pdf