



### Persistent Organic Pollutants in the Mediterranean Sea

Spanish researches have recently assessed the contamination of the Mediterranean Sea by certain Persistent Organic Pollutants using sediment concentrations as environmental indicators. The results show a decreasing temporal trend in concentrations and that chemical contamination mainly originates from land-based sources. Hot spots are usually located along the northern coast-line. The authors also highlight important gaps of knowledge and the need for more monitoring programmes to be set up in many riparian countries.

The Mediterranean Sea presents certain hydrographical characteristics that make it a marine region of special concern from an environmental point of view. The Barcelona Convention for the protection of the Mediterranean Sea was adopted by the riparian countries in 1975. This included the Mediterranean Action Plan (MAP) and the Mediterranean Marine Pollution Monitoring and Research Programme (MED POL). The aim of the latter is to gather information about sources, environmental concentrations, and effects of pollutants in the region. However, despite the efforts made during the last 30 years, there is still a scarcity of data for many pollutants and geographical areas.

Persistent organic pollutants (POPs) are a group of organic compounds of special concern due to their toxicity, persistence, long-range transportation and bio-accumulative potential. The Stockholm Convention on Persistent Organic Pollutants is a global treaty aiming to protect human health and the environment from POPs. Twelve of these substances were included in this treaty. Despite the fact that the production and use of these chemicals is nowadays banned in most countries, their high persistence and toxicity still make their study relevant for the scientific community and environmental policy makers and managers.

As a part of the EU-funded ELME project<sup>1</sup>, Spanish researchers have investigated the pollution of Mediterranean sediments by certain POPs, namely polychlorinated biphenyls (PCBs), dichlorodiphenyltrichloroethane and its degradation products (DDTs) and hexachlorobenzene (HCB) in order to assess their main drivers and pressures in the environment. To this end, they collected data published from 1971 to 2005, and applied mapping tools (GIS) and statistical methods to determine the temporal and geographical trends.

The results show that:

- Chemical contamination by POPs in the Mediterranean area is more a local problem, mainly associated with urban/industrial and river discharges, as well as coastal enclosures (harbours and coastal lagoons), rather than a widespread issue.
- The Northern coast is the area of most concern regarding POP pollution.
- A general decline in POPs is observed over time, more evident for DDTs than for PCBs. This could indicate a steady input of the latter, which in turn highlights the need for an improved management of the potential sources.

The researchers also highlight that a substantial amount of information regarding POPs in marine ecosystems exists but mainly as a result of site-specific research studies rather than the existence of monitoring networks. Moreover, some gaps in data were identified in the southern and eastern part of the Mediterranean Sea. The researchers also highlight the lack of standardised measurement methodologies, which make it more difficult to compare data in a regional context. They conclude that it is necessary to establish monitoring programmes in many different countries in order to be able to fill the geographical data gaps and to ensure the continuation of the existing temporal data trend.

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