Activities carried out

Assessment of key aspects of physical and ecological dynamics in the open ocean as well as issues around implementation and governance, all directed toward the effective definition and application of operational criteria for the site selection process, have been addressed in the following five main activities:

- **Overview of scientific findings and criteria relevant to identifying SPAMIs in the Mediterranean open seas, including the deep seas**

- **Study on fisheries conservation and vulnerable ecosystems in the Mediterranean open seas, including the deep seas**

- **Study on bird important areas in open seas**

- **Development of a Geographical Information System for Mediterranean Open Seas with corresponding description, results and applications to the implementation of the action**

- **Description of international legal instruments applied to the conservation of marine biodiversity in the Mediterranean region**
Overview of scientific findings and criteria relevant to identifying SPAMIs in the Mediterranean open seas, including the deep seas

This study was carried out implementing a strategic and hierarchical process of using existing databases and analyses to delineate areas of conservation importance, using the SPAMI criteria harmonized with criteria from other site selection methodologies.

The first step in this hierarchical process was the assessment of subregions within the Mediterranean Basin. In this way, the Mediterranean was subdivided into eight sub-regions, to ensure that all portions of the region would receive equal attention, thus facilitating regional representativeness.
Subdivision of the Mediterranean into eight sub-regions (1 – Sea of Alboran; 2 – Algerian-Provençal basin; 3 – Tyrrhenian Sea; 4 – Adriatic Sea; 5 – Tunisian Plateau/Gulf of Sirte; 7 – Aegean Sea; 8 – Levantine Sea)

Then, Ecologically or Biologically Significant Areas (EBSA) were identified in the Mediterranean on the basis of the criteria developed by the CBD and the SPAMI criteria. To do that, recognizing that the state of the art on Mediterranean ecology is insufficient as a baseline to develop effective representative networks of MPAs in the open seas, including the deep seas, in order to delineate EBSAs and to identify high priority areas, the existing regional databases were supplemented with locally derived indicators as proxies of marine biodiversity hotspots, and expert opinions. A survey was therefore conducted by soliciting input from various experts of Mediterranean marine ecology, biodiversity, oceanography, and geomorphology. The survey generated 86 polygons in all eight subregions, thereby allowing the identification of 10 EBSAs.

The study warned that certain areas of the Mediterranean are underrepresented and thus should be given first priority in work to establish SPAMI sites; for example, there is an outstanding dearth of proposed EBSAs in the south-eastern portion of the Mediterranean, more likely caused by lack of information than by a real scarcity of biodiversity features deserving protection; therefore, it was recommended that adequate investigation effort be devoted in those areas as soon as possible.
Activities carried out

Marine Ecologically or Biologically Significant Areas in the Mediterranean identified on the basis of the available data

(A – Alboran Sea; B - Balearic Islands area; C - Gulf of Lions area; D – Pelagos Sanctuary (included in the SPAMI List in 2001); E - Tyrrhenian Sea; F - Tunisian Plateau; G - Adriatic Sea; H - Ionian Sea; I - Aegean Sea; J - Levantine Sea; K - Nile Delta Region)

Fisheries conservation and vulnerable ecosystems in the Mediterranean open seas, including the deep seas

Thirteen areas were proposed as priority for conservation regarding fishing impacts through the study.

The Mediterranean open and deep seas encompass a broad diversity of habitats, both pelagic and demersal, including many Essential Fish Habitats (EFH) and Sensitive Habitats (SH), e.g. coraligenous biocenosis, seamounts, canyons, productive banks, hydrothermal vents, and oceanographic features for pelagic species, like upwellings and fronts. These features might be vulnerable to fishing as they are hotspots of diversity and critical habitats for reproduction and feeding of many species.

Demersal fisheries operating in Mediterranean open seas, including the deep seas, can be summarized as bottom trawling, bottom long line, and gillnet, whereas the main fishing gears for pelagic fish are purse seines and pelagic longlines.
Through this study, thirteen sites are considered as priority conservation areas considering the impacts of fisheries in the open seas, including the deep seas in order to protect ecosystems from fishing disturbance: Gulf of Lions slope; Alboran Sea Seamounts; Adventure and Malta Banks in the south of Sicily; Cold coral reefs off Cape Santa Maria di Leuca; Jabuka Pit in Central Adriatic, Strymonikos Gulf and Samotraki plateau in the Thracian Sea; Eratosthenes Seamount and Nile Hydrocarbon cold seep in the eastern Mediterranean basin; bottoms beyond 1000m. Potential pelagic areas are the south of the Balearic Islands, Strait of Gibraltar and Alboran Sea, North of Levantine Sea, and Strait of Sicily.
Georeferenced compilation on bird important areas in the Mediterranean open seas

Based on seven out of the fifteen bird species listed in Annex II to the SPA/BD Protocol, this study enabled the mapping of the distribution of these threatened or endangered pelagic marine bird species.

This constitutes a major contribution to the methodologies applied to the selection of MPAs in the Mediterranean Sea. The results of the selection process (geographical location, surface measure and ranked priority) for the whole Mediterranean basin and the particular results for each one of the seven resultant regions as visual sheets were presented. In addition, it were displayed a global map of the results for the entire Mediterranean basin and a graphic showing the proportion in surface for each of the ranked values. Specific maps for each of the seven selected areas were displayed, discussed and accepted.

This study underlines the heterogeneity of the Mediterranean Sea and the small amount, given the available data, of wide open sea areas, especially in the eastern basin of the Mediterranean. Also, generally speaking, the deep-water areas are poorer in the presence of pelagic birds.

The distribution of the lightest shade priority areas (categories 2 to 4) highlights the influence of large-scale oceanographic features (higher production, mixture of waters, influence of bathymetry) and may be seen as a general indicator of the areas of conservation interest for sea birds. The darkest priority areas (categories 5 to 7) always lie within the boundaries of the lighter priority areas, on the continental plateau, around nesting islands or near key oceanographic elements (fronts, upwelling).
This study provides a methodological approach to the implementation of a georeferenced information system for the identification of possible SPAMIs in the Mediterranean open seas, including the deep seas. Specific open-source geographical software was presented. This is compatible and easily complemented with popular tools such as GoogleEarth files, ideally fitted with environmental information. After a methodological discussion of the dataset -criteria; selection of information; suitable projections-, a set of prepared layouts compiled different layers about boundaries, areas, submerged features, grids, SST and Chlo-a concentration were discussed.
Jurisdictional issues of the Mediterranean Sea

This study describes the international and regional legal instruments applied to the conservation of marine biodiversity in the Mediterranean region and the actors responsible for their implementation.

Read about the achievements of the first phase ➤➤;