Multiple pressures and their combined effects in the Strait of Sicily

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The assessment of the cumulative effects of all anthropogenic pressures at sea is a requirement of the Marine Strategy Framework Directive (MSFD; 2008/56/EU) and is essential for managing human activities in the marine environment and achieving the MSFD “good environmental status” goal. This knowledge is also needed by decision-makers and governance bodies to enact effective spatial planning of human uses at sea within the framework of the EU’s Marine Spatial Planning Directive (MSPD, 2014/89/EU).

In this study, we used a Cumulative Effects Assessment (CEA) approach to assess the combined effects of multiple human pressures on the Strait of Sicily (Central Mediterranean Sea). We integrated spatially explicit data on key human activities, primarily fishing, and recently updated information regarding environmental components, particularly essential fish habitats and broad-scale seabed habitat (EUSeaMap, 2023), into the Tools4MSP Geoplatform. This allowed us to model and map the interactions between human activities and their cumulative impacts on marine ecosystems.These findings will inform the development of management strategies and spatial plans to mitigate cumulative impacts and balance conservation needs with sustainable use of marine resources in the Strait of Sicily.