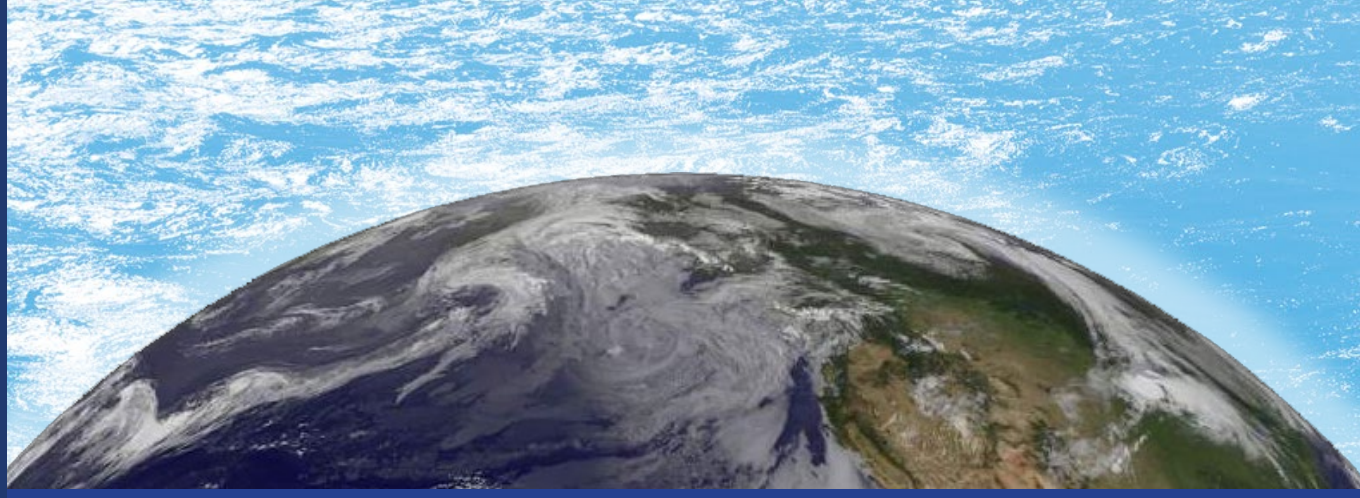
BOOK OF ABSTRACTS



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Effects of Climate Change on the World's Ocean

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(S3-16139 Oral)

Climate-driven responses of Mediterranean fisheries across geographic gradients and seasons

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An accelerating rate of warming along spatial gradients is leading to changes in climate velocity, (i.e., speed and direction of isotherm movements). Using climate velocity to assess the threat of climate change has enabled researchers to document global patterns of poleward changes in biodiversity. However, less is known about regional, sub-regional and seasonal responses of commercial marine species, which often represents the efficient scale of management. Using climate velocity as a metric of potential range shifts (1987-2021), we explore how seasons, shifts in fisheries landings (2007-2021), temperature preferences and life-history traits influence the distribution of commercial species in the Western Mediterranean Sea. We found spatial and seasonal differences in climate velocities and some changes in climatic areas (i.e., novel and vulnerable climate areas, climate refugia and climate corridors). The most captured commercial species exhibits a strong relationship with seasonal climate velocity. Shifts in landings also differ in relation to community temperature preferences and life-history traits. Our results suggest that climate velocity is a useful metric that can help to understand regional and sub-regional responses of commercial marine species in the Western Mediterranean Sea. This provides insights into climate-smart management, thereby contributing to the conservation of biodiversity and associated ecosystem services to avoid future maladaptation.

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Enlightening Climate Risk Assessments with local Participatory approaches

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Climate change is rapidly becoming one of the biggest threats to marine life, and its impacts have the potential to strongly affect fisheries upon which millions of people rely. This is particularly crucial for the Mediterranean Sea, which is one of the world's biodiversity hotspots, one of the world's most overfished regions, and where temperatures are rising 25% more than in the rest of the ocean on average. To have a better understanding of the current risk for its fisheries we calculated a vulnerability index for 100 species that compose 95% of the Mediterranean fisheries catches, following a trait-based approach. Through the Climate Risk Assessment methodology (CRA) we subsequently assessed all Mediterranean fisheries' risk to climate change based on their catch composition. This work allowed to contrast the southern and northern Mediterranean regions but has shown its limits by only relying on macro indicators, particularly when trying to quantify fisheries' adaptive capacity. Having an accurate understanding of local efforts in management and socio-economic assets is essential to reliably address the adaptive capacity of a community. To address these gaps in knowledge, participatory approaches can help to integrate local knowledge and co-construct adaptive responses while considering scientific