RESET - Resilience Estimation to SET management goals in marine ecosystems

In the Anthropocene, global and local cumulative human pressures are heavily impacting ecosystems and threatening societies. Maintaining resilience, i.e. avoiding irrevocable system changes, is the only way to maintain the critical services that an ecosystem provides, and should be an objective of management. Recently, resilience has been deeply studied theoretically sparking interest in the whole scientific community. However, its integration into management practices is still rare due to methodological limitations. Standardised and applicable methods to estimate resilience empirically in natural systems are lacking. RESET will develop a framework to concretely estimate resilience in marine ecosystems and integrate it into management. The framework will be built on high-quality and innovative statistical methods and on the Local Ecological Knowledge (LEK) of fishers. The work will be carried out in Chioggia, a city hosting a major Mediterranean fishery and a perfect location where Universities, research institutes, fishers and management bodies have a long story of collaborations. Using long-term time series of the Northern Adriatic Sea, an ecosystem hotspot of global changes and human pressures in the Mediterranean Sea, RESET will apply a three-step modelling approach to estimate resilience. The knowledge deriving from the modelling approach will be complemented with the LEK of fishers synthesised through structured interviews and participatory meetings. The inclusion of fishers in the process will favour a more proactive management approach. Finally, RESET will readily transfer the new methodologies and knowledge into management by cooperating with ISPRA, the Italian Public Body responsible for the application of the Marine Strategy Framework Directive, the ecosystem-based management approach of the EU. The realisation of these three objectives will favor the integration of different approaches which is fundamental in order to sustainably exploit our resources.

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