



## **Ecological Evolution of the Black Sea from 1960s to 1990s: An integrity check**

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The Black Sea ecosystem had evolved significantly in the second half of the 20th century. From an quasi-pristine state in 1950s and early 1960s, it had become an exploited and degraded system during 1970s and 1980s by anthropogenic interventions such as overexploitation of fish stocks, eutrophication and introduction of alien species. In this work, the evolution of some important ecological indicators was investigated in the Black Sea from 1960s to 1990s based on the energy transfers and ecosystem organization via trophic network analysis.

Results show that the ecological health and integrity of the Black Sea ecosystem greatly deteriorated in time since 1960s. Respiratory flows increased and the flow recycling in the system increased with increasing biomass of trophic dead end species, i.e. jellyfish. This situation led to the decreased efficiency of energy transfers from primary producers to higher trophic levels; hence, decreased the resilience of the system to anthropogenic and natural stressors.