Tropicalization of the Mediterranean Sea

Project management
CIESM (the Mediterranean Science Commission)

Geographical location
Mediterranean Sea

Background and issues at stake
In the Mediterranean Sea, where changes in biodiversity are occurring at an unprecedented rate and where some 30% of the species are endemic, the importance of investigating causes and patterns for these changes is a matter of urgency. The Mediterranean Basin, with its location at the cross-road between the Atlantic and Indo-Pacific oceans, the peculiar climatic and hydrological regime, and the rich variety of species and habitats, represents a remarkable case study to investigate the influence of climate change on marine biodiversity. The warming of waters are accelerating the establishment of tropical species and the retreat of cold-temperate species towards northern, colder areas of the Basin. This ongoing process of Mediterranean “tropicalization” remains poorly understood, based on fragmented, occasional, usually local observations.

Project description
Duration: 5 years, 2008 - 2012
The overall aim of this international project, which involves more than 20 research teams from several Mediterranean countries, is to track and evaluate the effects of tropicalization of the Mediterranean Sea using reliable and representative biological macrodescriptors of climate warming. The project implements a systematic, long-term field monitoring of carefully selected species sensitive to temperature changes; the expansion of indigenous and exotic “warm-water” species, the retreat and decline of “cold-water” species, as well as mass mortalities of marine organisms are monitored at basin-scale. Such changes will be related to satellite data and in-situ sea temperature measurements recorded by special loggers deployed in several key areas across the Basin.

Support from the Foundation will enable CIESM, through this project, to unearth new insights on the diversity and dynamics of Mediterranean species and to set up the basis for a long-term international monitoring network and a warning system to detect the modifications of Mediterranean marine biodiversity in response to climatic changes.

Partner Organisations
Al Fateh University, Libya, University of Algarve, Portugal, Aristotle University of Thessaloniki, Greece, High Institute for Environmental Protection and Research, Italy, Scientific Institute, Morocco, Centre for Advanced Studies of Blanes, Spain, National Agronomical Institute of Tunisia, University of Salento, Italy, Israel Oceanographic and Limnological Research, Anton Dohrn Zoological Station/ University of Naples, Italy, Institute of Marine Sciences, Spain, Institute of Oceanography and Fisheries, Croatia, Oceanographic Centre of Marseille, France, University of Pavia, Italy, University of Istanbul, Turkey, University of Alicante, Spain, University of Sciences and Technology Houari Boumédiene, Algeria, University of Cyprus, University of Malta, University of Suez Canal, Egypt.