



The CADEAU directive-oriented downstream coastal service: integration of the Italian water quality dataset and a model downscaling of the Mediterranean CMEMS

Cecilia Silvestri (1), Giorgio Bolzon (2), Antonello Bruschi (1), Nicoletta Calace (1), Alessio Capriolo (1), Gianpiero Cossarini (2), Roberta De Angelis (1), Valeria Di Biagio (2), Giordano Giorgi (1), Nicolò Giua (1), Rosanna Mascolo (1), Massimo Peleggi (1), Stefano Querin (2), Flavia Saccomandi (1), Stefano Salon (2), Cosimo Solidoro (2), Emanuela Spada (1), Anna Teruzzi (2), and Saverio Venturelli (1)

(1) ISPRA - Italian National Institute for Environmental Protection and Research, Italy, (2) OGS - National Institute of Oceanography and Applied Geophysics, Italy

EU countries are requested to comply with many Directives with respect to coastal and marine environment (e.g., WFD, UWWTD, BWD, MSFD). Such Directives either specify threshold values to comply with, or prescribe environmental assessment procedures and actions to reach specific targets. CADEAU is a downstream coastal service that aims to routinely produce an annual environmental bulletin based on an integrated model downscaling of the regional Mediterranean Copernicus Marine Environment Monitoring Service (CMEMS). The service is applied to the Northern Adriatic Sea, since it is one of the most sensitive areas along the Italian coastline where eutrophication and marine resources exploitation both influence and depend on the quality of the marine ecosystem. CADEAU focuses on nutrient dynamics, eutrophication and bathing water quality in coastal areas in support of the application of the EU Directives. In particular, the products (publicly delivered through a dedicated web-portal) are designed to provide information on the space-time distributions of the major parameters related to water quality (nitrogen and phosphorus concentration, chlorophyll, dissolved oxygen). The Italian coastal monitoring dataset managed by ISPRA has been processed and integrated into a high-resolution downscaling of CMEMS, based on the coupled MITgcm-BFM modeling system. The integrated results are used to assess the impact of urban wastewater treatment plants (with discharge points in or near the sea and rivers), the biogeochemical conditions and the evaluation of Good Environmental Status in the Adriatic Sea to meet the WFD/UWWTD/BWD/MSFD requirements. The downstream service and the coastal derived products aim to make a contribution both at the local scale, for bathing water quality assessment, and at a larger scale, for fishing and aquaculture management.