

“Support to the Marine Sediments Monitoring in Montenegro Coastal Area, to supervise and train the research personnel about activities for sediments study”

Project description

The project, funded by the Italian Ministry for the Environment, Land and Sea, aims at providing assistance to the Ministry of Tourism and Environment of Montenegro in marine water and sediment monitoring. The objectives of the monitoring activities implemented as part of MED POL Phase III are:

- to present periodical assessments of the state of the environment in hot spots and coastal areas (needed to provide information for decision makers on the basic environmental status of the areas which are under anthropogenic pressures);
- to determine temporal trends of some selected contaminants in order to assess the effectiveness of actions and policy measures;
- to enhance the control of pollution by means of compliance to national/international regulatory limits.

The sediment monitoring plan, integrated with water data, aims to monitor the overall state of the environment. The Monitoring Plan has carried out three oceanographic cruises finalized to collection of sediment samples in stations located in “hot spots” and “sensitive areas” as defined by historical data of Montenegrin researcher. The samples collected during the oceanographic cruises were delivered to the Montenegro Staff which is responsible of TPH, heavy metals, etc. analyses as expected in the Directives of the III Phase of the MEDPOL (MEDiterranean POLLution) programme.

The planning of the water monitoring aims in particular on studies of eutrophication in the Montenegrin coastal area. Four oceanographic cruises were conducted in order to monitoring the eutrophication and pollution conditions of the Montenegrin coastal areas and the Bokakotorska Bay. In all the stations temperature, salinity, fluorescence and turbidity (suspended matter measure) were recorded along the water column, using a multi probe CTD (Conductivity-Temperature-Depth) equipped with standard sensors of temperature and conductivity and pump in two pairs, with a fluorimeter and turbidimeter, Turner – SCUFA, for measuring the chlorophyll in terms of concentration and the suspended matter (TSM: total suspended matter), an oxygen sensor for measuring the dissolved oxygen concentration and an altimeter to measure the depth. Furthermore, in most of the stations water samples were collected for different types of analysis using Niskin bottles at the surface, on the bottom and at intermediate depths selected on the basis of sea depth.

The project also includes actions of training/updating: the research updating in both theory and practical activity was performed through lessons, seminars and field work but also during monitoring sampling and measures carried out in the sea. Several seminars/lectures and training activities was conducted in Montenegro and during oceanographic cruises with theoretic and practice purpose about thematic regarding the monitoring of waters and sediments. It has been possible to perform some experience on the field to improve:

- the CTD data acquisition system (sensors, connections, and instruments calibration), sampling, treatment and chemical analysis methods of sea water samples
- Instrumentation and sediment sampling methods: use and operation of the VanVeen grab, box-corer, Gravity corer, Sediment Water Corer ecc..
- Storage Methodology, sub-sampling, pre-analytical treatment of the marine bottom sediments samples.
- Preliminary information on the CHIRP-SBP and Multibeam technology for the acquisition of bathymetry data and sub-surficial features of the bottom sediment and for the preparation and updating of bathymetric maps.

Project Status

The project started in October 2008 and finished in January 2010. The activities were developed throughout 2008-2009 and the Final Report was delivered on March 2010.