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MINISTRY OF REGIONAL DEVELOPMENT  
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## Joint Operational Programme “Black Sea Basin 2007-2013” - Our Projects -



### Research networking for the environmental monitoring and mitigation of adverse ecological effects in the Black Sea Basin

Priority 2 - Sharing resources and competencies for environmental protection and conservation

Measure 2.1 - Strengthening the joint knowledge and information base needed to address common challenges in the environmental protection of river and maritime systems



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**About the project:**

Duration: 24 months

Total Project Budget: 576,004.16 Euro

Total Grant ENPI: 447,330.74 Euro

Total Grant IPA: 71,073.00 Euro

Start / End Dates: 05.07.2013 - 04.07.2015

**Overall Objective:**

The project is aiming to improve the ability of the Black Sea Basin national and coastal authorities to respond timely and effectively to water pollution and strengthen the joint knowledge and information base needed among partners, target groups and final beneficiaries on addressing the common challenges of water pollution in BS Basin marine and river environment.



**Specific Objectives:**

1. Stronger integration of monitoring and research trans-border activities in the area of the Black Sea hydrographic basins.
2. Characterization of the river and underground water with potential quantification of relationships of pollution in surface and groundwater.
3. Assessment of current state of biological diversity in the marine and river ecological systems of the BS Basin, exchange of available research data and estimation of impact of anthropogenic activities for further stability and better functioning of ecosystems.
4. Improvement of existing technologies of water conditioning and purification by means of efficient selective sorbents on base of widespread mineral raw materials, exchange of experiences and available research data in order to assure a better health status of population.
5. Development of methods and instruments for the real time observation of laser induced fluorescence and spectral features of natural waters, pilot application of fiber optic laser fluorometer instrument for detection of organic pollutants and estimation of the phytoplankton community status in aquatic environment.
6. Exchange of experiences, good practices and available research data on techniques and tools for the monitoring and mitigation of marine oil pollution.
7. Increase awareness of academic and research people as well as of public, governmental and nongovernmental structures and population in order to assure a better environmental protection in the Black Sea Basin region.

### **Main Activities:**

- Monitoring of surface, underground and waste waters from the area of the Black Sea Basin under study including: analysis of distribution and variation of water quality chemical indicators in the area; inorganic pollutants, especially nutrients affecting drinking water quality; organic pollutants with potential identifications of sources; potential quantification of relationships of pollution in surface and underground water.
- Research of laser induced fluorescence and spectral features of natural waters and development of a fiber-optic laser fluorometer instrument, appropriate to measurements in aquatic media for the real-time detection of organic pollutants, dissolved organic matter of natural origin and phytoplankton.
- Research and development of efficient sorbents with improved selectivity on base of specifically modified diatomite for defluorination of underground drinking water and potential oil pollution removal.
- Development of the 3-D oil spill transport and fate model coupled with appropriate operational forecasting systems for optimization of the necessary organizational and response actions by the oil pollution combating authorities.
- Research of current state of biodiversity in coastal waters of the east part of Crimea and in rivers and inland waters of Eastern Black Sea region of Turkey for assessment of water pollution impact on stability and functioning of ecosystems.

### **Expected results:**

- Up to date report on main pollutants in underground and surface waters in the area of Lower Danube, Lower Prut and Dniester. Potential quantification of relationships of pollution in surface and underground water.
- Report on development of specially modified diatomite based sorbents for defluorination of drinking water from underground sources and trial application of modified diatomite for the oil pollution removal.
- Report on laser induced fluorescence properties and spectral features of natural waters and pilot application of the developed fiber optic laser fluorometer instrument for the organic pollutants detection and water quality monitoring and characterization of the phytoplankton community status in aquatic environment.
- Report on structural and functional characteristics, ecological and biological assessment of the state of the coastal ichthyocenes along the Black Sea shoreline of the Crimea Peninsula and adjacent water areas of the Kerch Strait that is a specific zone of transit and exchange between ecosystems of the Black and Azov Seas and elaborated measures for preservation of specially protected regional nature reserves in ecosystems.
- Report on current fauna and flora state of valley rivers of the Black Sea east coast of Turkey (Caglayan, Firtina and Ikizdere and others), the area for important endemic species populations, pollution mapping in river systems most affected by the agricultural and human activities for assessment of anthropogenic impact.
- An oil spill dispersion forecasting system based on wind, wave and ocean circulation forecasting models. An algorithm which comprises the use of genetic algorithms and oil spill simulation, in terms of a decision support system, for optimizing the performance of oil slick combating stations -networks.
- Pilot applications of the oil spill dispersion forecasting system and of the algorithm for its optimizing.

**Partnership:**

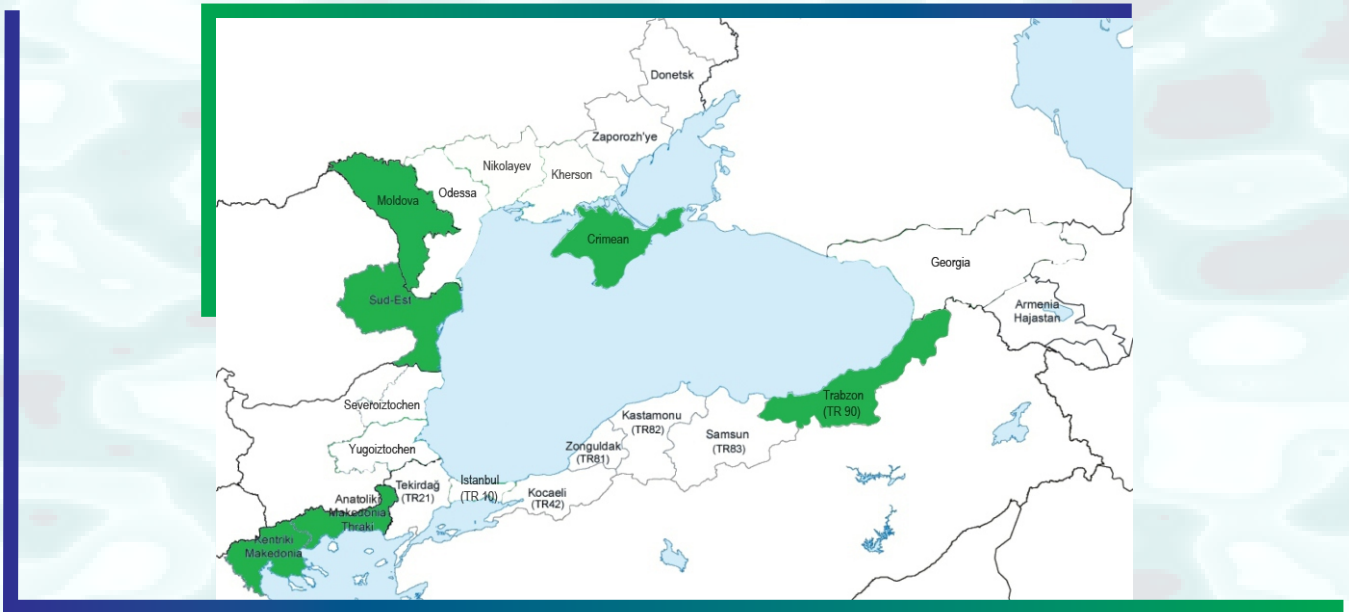
**Beneficiary:**

D. Ghitu Institute of Electronic Engineering and Nanotechnologies of the Academy of Sciences of Moldova

**Partners:**

- Danube Delta National Institute for Research and Development, Romania
- Aristotle University of Thessaloniki, Greece
- Institute of Ecology and Geography, Republic of Moldova
- Kerch State Marine Technological University, Ukraine
- Karadeniz Technical University, Turkey

**Regions of Implementation:**



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