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CONCLUSIONS OF THE INTERNATIONAL SYMPOSIUM "PROTECTION OF THE BLACK SEA ECOSYSTEM AND SUSTAINABLE MANAGEMENT OF MARITIME ACTIVITIES" PROMARE 2015

Tania Zaharia*

[1]NIMRD - National Institute for Marine Research and Development "Grigore Antipa", 300 Mamaia Blvd., 900581 Constanța, Romania,
** tzaharia@alpha.rmri.ro*

Back to back event marking the CELEBRATION OF THE INTERNATIONAL BLACK SEA DAY

CELEBRATION OF THE 45TH ANNIVERSARY OF THE ESTABLISHMENT OF THE ROMANIAN MARINE RESEARCH INSTITUTE and the Kick-Off meeting of the DG MARE Project on Maritime Spatial Planning (MARE/2014/22): Cross-Border MARitime Spatial PLANning in the Black Sea (MARSPLAN-BS)

Between 29-31 October 2011, in Constanța, Romania, at the headquarters of the National Institute for Marine Research and Development "Grigore Antipa", the proceedings of the International Symposium "PROTECTION OF THE BLACK SEA ECOSYSTEM AND SUSTAINABLE MANAGEMENT OF MARITIME ACTIVITIES ", VIIth edition, ***PROMARE 2015***, were carried out.

The event was organized by the National Institute for Marine Research and Development "Grigore Antipa" and the Balkan Environmental Association (B.EN.A.), with the support of the National Authority for Scientific Research and Innovation (ANCSI), the Romanian Black Sea Titleholders Association (RBSTA) and the Natural Sciences Museum Complex of Constanța. The event was attended by **169 participants** from Romania, Bulgaria, Greece and Turkey, with the participation of the president of

the National Authority for Scientific Research and Innovation (ANCSI), Prof. Dr. Tudor Prisecaru, who addressed the audience and emphasized the new directions Romanian marine research should follow.

During the Symposium were presented **76 scientifc papers** (oral or poster) with authors from Bulgaria, Denmark, Germany, Greece, Moldova, Norway, Romania, Russia, Spain, Turkey, Ukraine and United Kingdom.

The three-day event was divided as follows:

- on 29 October, Kick-Off meeting of the DG MARE Project on Maritime Spatial Planning (MARE/2014/22): Cross-Border MARitime Spatial PLANning in the Black Sea (MARSPLAN-BS);
- on 30-31 October, Plenary, oral and poster sessions covering the four sections: Oceanography and Marine Engineering, Marine Ecology and Environmental Protection, Sustainable Use of Marine Resources and Environmental Education and Awareness;
- On 31 October, the conclusions of the Symposium were discussed and adopted.

Parallel with the oral presentations, there was a poster session covering all four scientific sections. The posters were displayed throughout the two days of the event.

The Plenary Lectures revealed the following aspects:

- the continuity of marine research in Romania, through the activities conducted by NIMRD for 45 years, since its founding in 1970 and the presence of Romania at the Mediterranean Commission (CIESM), during the 90 years of fruitful interrelationships;
- the importance of the FP7 project Perseus by developing innovative tools to support policymakers;

- the significance of the International Day of the Black Sea, highlighted by the Commission for the Protection of Black Sea Against Pollution and the Ministry of Environment, Waters and Forests;
- concerns of youth on issues of protection and conservation of the Black Sea.

The special session stressed the following:

- the state and evolution trends of the Romanian Black Sea coastal environment continued to be monitored in 2014 from the physical, chemical and biological point of view, compared to the reference periods dating back in the early 1960s or in more recent years, depending on parameters. The slight improvement of the state of the marine ecosystem signaled at the end of the 1990s, beginning of 2000, continued to be proved by the decrease of phytoplankton densities/biomasses and related blooms; the resettling of *Cystoseira barbata* belts off Vama Veche; the increase of macrozoobenthic specific diversity etc. In 2014, there was a slight tendency towards qualitative balancing. The state of the marine and coastal environment in 2014 confirmed the general trend of slight improvement of the parameters, as well as the persistence of the recovery/convalescence state of the ecosystem;
- the presentations of the research departments of NIMRD revealed the achievements over time, but also the new ideas/priorities for the future.

Within the **Oceanography and Marine Engineering Section**, **19 papers** (8 oral presentations and 11 posters) were delivered, belonging to authors from Bulgaria and Romania. The main research areas concerned were the following:

- Ocean-Air-Land Interactions / Remote Sensing Applications;
- Coastal Area Morphodynamics;
- Physical-Chemical Characterization of Marine Waters;
- Oceanographic Data Management.

The scientific papers in the field of Oceanography and Marine Engineering mainly dealt with the knowledge of the marine environment, the chemical and physical characterization of Romanian and Bulgarian marine waters, the eutrophication phenomena, the monitoring of hazardous substances, of the land-ocean-air interactions, remote sensing and GIS applications for the knowledge and characterization of the coastal system. The presentations pointed out the importance of developing/applying new technologies and tools (AUV, remote sensing, GIS, modeling, risk assessment methods etc.) in the research of the aquatic environment, in understanding the ocean-land interaction, in Maritime Spatial Planning, in monitoring the geo-hydro-climatic changes of the coastal area and, etc. The national actions carried out by NIMRD (National Oceanographic Data Center) were also outlined, as activities of implementing the best international and European practices for using data and metadata standards within the Oceanographic and Environmental Data Management in Romania.

Under the **Marine Ecology and Environmental Protection Section, 22 papers** (8 oral presentations and 14 posters) were delivered. The main issues covered by the papers were the following:

- Assessment of the conservation status of coastal habitats and coastal and marine species under Habitats and Birds Directives (Natura 2000);
- Western Black Sea eutrophication status according to Black Sea Eutrophication Assessment Tool;
- Utilization of artificial reefs to improve the quality of coastal waters (REEFS Project);
- Intercalibration of the Black Sea benthic invertebrate fauna ecological assessment methods under the Water Framework Directive;

Under the current conditions, of decrease of the nutrient and pollutant input of the Danube, indicators of a slight rehabilitation of the state of the main biotic components emerge, especially of the phytoplankton, which recorded a more reduced number of blooms and a high diversity. The poor conditions of the terrestrial habitats in the Romanian coastal area were recorded, as these habitats are mainly affected by human activities in the area (buildings in the littoral zone and increasing tourist activity). Considering the few aspects of ecology and marine environment protection outlined during the proceedings of the Symposium, indicators of improvement of the main marine ecosystem biotic components were reported. However, the evolution trends of aquatic ecosystems are strongly influenced by global climate changes and human pressures.

Consequently, the following resulted:

- The need to continue and diversify the research areas, with the view to understanding more clearly the operation mechanisms of marine ecosystems and not only;
- The continuous monitoring of marine biodiversity, identifying and promoting solutions for protecting endangered species and their habitats, the sustainable management of the coastal ecosystem;
- Developing cooperation at a regional level, achieving common projects for a better knowledge of the marine ecosystem, in order to elaborate valid solutions for the sustainable management of the marine ecosystem;
- Continuing to educate the younger generation, the "beneficiary" of the natural heritage represented here by the marine environment and its resources.

Within the **Sustainable Use of Marine Resources Section**, **25 papers** were delivered (8 oral presentations and 17 posters). The research areas covered were the following:

- Fishery resources; consumers trends / food safety / traceability;
- Ecosystem Approach of Fisheries Management (EAFM);
- Dolphin protection;
- Genetics in fish population study;
- Economic analysis in aquaculture;
- Complementary activities in fisheries.

Throughout the proceedings, research objectives for a better understanding of marine living resources were identified, as follows:

- Understanding the processes and consequences of changes in marine biodiversity, by emphasizing environmental components and their effects on biodiversity;
- Strengthening the connections between marine ecology, oceanography and marine living resources;
- Marine taxonomy developing using genetics.

The discussions held pointed out the importance of marine living resources, which provide humans with countless economic, environmental, aesthetic and cultural benefits. The general conclusion was that, for the Black Sea, fishery remains the main marine resource for the riparian countries that needs cooperation to be managing in a sustainable way.

Within the **Environmental Education and Awareness**, **10 papers** were delivered (4 oral presentations and 6 posters). The areas covered were the following:

- the vision of young researchers (high school students) concerning the scientific design of an artificial island built in the Romanian territorial area of the Black Sea;
- enhancing conservation and livelihood systems in Marine Protected Areas (MPAs) in the Danube Delta region;
- Ocean Literacy - strong engagement of the ocean and ocean literacy communities in co-building, co-testing and co-evaluating of the relationship between the ocean health and human activities (H2020 project - ResponSEAble);
- new tool for ecological education and awareness (Marine Litter Watch App);
- education example concerning the local community in Sfântu Gheorghe to map local plant species and habitats in order to raise awareness regarding their local biodiversity as an alternative sustainable resource to sturgeon and coastal fishing;
- increasing the awareness degree of agricultural workers on the use of pesticides in crop protection against diseases and pests, judicious use of fertilizers or other substances with the final impact on marine environment.

The development of our society, with increasing demands of all economic sectors, urbanization, tourism and others contributed to the increasing pressures on the coastal area and consequently on the marine environment. All presentations stressed the importance of ecological education to reduce human impact on the environment through environmental education, promotion and implementation of sustainable development principles.

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The Black Sea is the world's most isolated sea, connected to the Oceans via the Mediterranean Sea through the Bosphorus, Dardanelle and Gibraltar straits. Rich in wildlife and biodiversity, our sea is, sadly, on the way to becoming just that - a sea blackened by pollution, oil spills, overexploitation of fish stocks and other environmental threats. The unique ecosystem of the north-western shelf of the Black Sea is burdened by excessive loads of nutrients and hazardous substances from the coastal countries and the rivers that enter it - the most important of which is the Danube. The region is also vulnerable to climate change, which could add to the stress the region's natural systems are already under. Today, the Black Sea region is at an environmental crossroads. It can continue on the path of neglect or it can move towards a more sustainable future. Thus, the main goal of the Symposium was to identify all these threats and to find solutions for the protection and sustainable development of the entire Black Sea region.

As a general conclusion, all the presented papers (oral and poster) fulfilled successfully the goals of the Symposium and increased the visibility of the coastal and marine research activities at the European and international level. Additionally, the Symposium was also a forum to present and promote FP7 projects (PERSEUS, COCONET and CLEANSEA in the Black Sea and Mediterranean Sea, MAREFRAME in the North Sea, Black Sea and Mediterranean Sea), H2020 (ResponSEABle Ocean Literacy, MYOCEAN FOLOW-UP) and DG Mare and Environment prejects (MARSPLAN, MISIS, IRIS, SEA BASIN CHECKPOINTS, EMODNet).