MONITORING MACRO-LITTER IN THE MARINE ENVIRONMENT: OVERVIEW OF APPLIED METHODS AND DATA IN THE ADRIATIC SEA

Th. Vlachogianni

Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE), Athens, Greece
vlachogianni@mio-ecsde.org

Monitoring is an intermittent (regular or irregular) series of observations in time, carried out to show the extent of compliance with a formulated standard or degree of deviation from an expected norm [1]. In line with this definition, marine litter monitoring is undertaken to assess whether a desired state of the marine environment, in terms of objectives or targets is being met. Within the Marine Strategy Framework Directive (MSFD) marine litter monitoring aims to assess: (i) whether Good Environmental Status (GES) has been achieved or maintained, and if environmental status is improving, stable or deteriorating; (ii) the progress towards achieving the environmental targets set [2]. More specifically, marine litter monitoring aims to provide information on the types, quantities, distribution and impacts of marine debris; to identify the sources of marine debris; and to assess the effectiveness of management measures to address the issue [3-4]. In recent years, research efforts have significantly increased the knowledge on the issue of marine litter however the field as a whole has not adopted standardized monitoring procedures [5]. Within the frameworks of the MSFD and the Regional Seas Conventions considerable work is being carried out towards defining and/or establishing monitoring programmes which are coordinated, compatible, coherent, consistent and comparable.

The IPA Adriatic funded DeFishGear project has taken up the challenge to address the lack of reliable scientific data on marine litter in the Adriatic sea, as this poses a serious bottleneck to undertaking and implementing effective measures to tackle marine litter in the region. The DeFishGear project has successfully launched coordinated marine litter monitoring surveys in the seven countries of the Adriatic Sea, namely Albania, Bosnia & Herzegovina, Croatia, Italy, Montenegro, Greece, Slovenia. Pilot surveys have been designed and are carried out in all environmental compartments (beach, sea surface, seafloor, biota) by deploying a harmonized monitoring approach. The main building blocks of this approach have been the “Guidance Document on Monitoring of Marine Litter in European Seas” developed in 2013 by the EU MSFD Technical Sub-Group on Marine Litter, and the UNEP/MAP MEDPOL draft Monitoring Guidance Document on Ecological Objective 10: Marine Litter (2014). The DeFishGear project serves as a pilot showcasing how marine litter coordinated monitoring programmes could be designed and implemented at EU and European Regional Seas level.

References

[1] J.M. Hellawell. Development of a rationale for monitoring, in: Monitoring for conservation and ecology, Goldsmith, FB (ed.), Chapman and Hall, NY, 1-14, (1991).
[2] F. Galgani, G. Hanke, S. Werner, L. Oosterbaan, P. Nilsson, D. Fleet, S. Kinsey, R.C. Thompson, J. Van Franeker, Th. Vlachogianni, M. Scoullos, J.M. Veiga, A. Palatinus, M. Matiddi, T. Maes, S. Korpinen, A. Budziak, H. Leslie, J. Gago, G. Liebezeit. Guidance on Monitoring of Marine Litter in European Seas. Scientific and Technical Research series, Luxembourg: Publications Office of the European Union, 15-16, (2013).
[3] G. Rees, K. Pond. Marine litter monitoring programmes—A review of methods with special reference to national surveys. Marine Pollution Bulletin, 30 (2): 103–108, (1995).
[4] P.R. Ryan, C.J. Moore, J.A. Van Franeker, C.L Moloney. Monitoring the abundance of plastic debris in the marine environment. Philos Trans R Soc Lond B Biol Sci, 364(1526): 1999–2012, (2009).
[5] S. Lippiatt, S. Opfer, C Arthur. Marine Debris Monitoring and Assessment. NOAA Technical Memorandum NOS-OR&R-46, (2013).
[6] Th. Vlachogianni, V. Kalampokis. Marine Litter Monitoring in the Adriatic. A review of available data and applied methods. DeFishGear/MIO-ECSDE, (2014).