

# Analytical Chemistry in Support of River–Sea Research within DANUBIUS-RI

**Simona Carmen Lițescu Filipescu** <sup>1,2,\*</sup>

<sup>1</sup> National Institute of Research and Development for Biological Sciences

<sup>2</sup> Romanian Society of Bioengineering and Biotechnology

\* Correspondence: [simona.litescu@incdsb.ro](mailto:simona.litescu@incdsb.ro);

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**Abstract:** This presentation explores the contribution of analytical chemistry to the integrated study of river–sea systems, with reference to current developments within DANUBIUS-RI. Analytical chemistry offers essential tools for characterizing water, sediment, and biota, supporting efforts to monitor environmental quality and detect emerging pollutants. Techniques such as chromatography, mass spectrometry, voltammetry, etc. enable the rapid and sensitive detection of nutrients, trace metals, and organic compounds -and their metabolites- across diverse aquatic interfaces. Within the DANUBIUS-RI framework, these methods help generate harmonized, high-resolution data for cross-disciplinary research and policy support. The talk will highlight examples of analytical approaches applied to Danube–Delta–Black Sea case studies and discuss their integration into broader monitoring strategies. Emphasis will be placed on methodological standardization, data interoperability, and the potential for supporting transboundary environmental management through robust chemical evidence.

**Keywords:** Analytical Chemistry; River–Sea Systems; Emerging Pollutants; Harmonized Monitoring; DANUBIUS-RI Integration

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