

Parallel Session 20: New Methods & Technology

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Mining discarded molecular data for HAB gold

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The northern Adriatic Sea is a shallow and dynamic marine ecosystem, characterized by steep spatiotemporal ecological gradients, strong anthropogenic pressures and expressed riverine freshwater influences. It is additionally characterized by the highest density of marine traffic in the Mediterranean. Ballast water related species introduction, in combination with long water body retention times render the area particularly prone to species introductions from all seas and oceans. Here, we present an effort to consolidate a multimethod approach to monitor the area for species introductions. The combination of methods based on morphological analyses with methods based on genetic sequences as well as with methods based on gene transcription analyses demonstrated significant improvements in taxonomic scope and resolution. The normally discarded ribosomal RNA sequences derived from metatranscriptomics studies proved particularly effective in monitoring water samples and net hauls for potentially harmful and/or invasive species across the tree of life. We describe the newly developed methodology for the analysis of molecular traces of so far hidden biodiversity and report a wide spectrum of species new to the Mediterranean and the Adriatic Sea.

Keywords: Multi-omics, phytoplankton, Invasive species

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