

## **Relationship between microbial communities and mercury species in the seawater of the Central Adriatic Sea**

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The structure of the microbial food web and its role in biogeochemical processes in marine ecosystems may vary noticeably and depend on environmental trophic status. Importance of picoplankton makes them an essential component for understanding the food web dynamics in marine systems. These small organisms dominate the photosynthetic biomass and primary production in oligotrophic waters like the Adriatic Sea. One of the hypotheses of research is that the factors that enable scavenging nutrients at low concentrations also promote accumulation of contaminants in the biomass of microorganisms. Biologically mediated reactions can transform mercury species and facilitate their entrance into the marine food web in which it bioaccumulates in the form of methylmercury (MeHg). In order to establish relationship between Hg and microbial species, we performed samplings in the Central Adriatic Sea. Samplings were conducted during oceanographic cruises aboard the research vessel *Bios Dva* from March 2014 to December 2015. Research was constrained to transect from the island of Vis to the Bay of Kastela. Non-filtered water samples were collected for determination of methylmercury (MeHg), total mercury (THg), dissolved gaseous mercury (DGM), and microbial species in Adriatic coastal and open waters. In the pristine environment of the island of Vis, THg concentrations are the lowest and range from 0.14-1.10 ng/L. Mercury contamination from chlor-alkali industrial waters in the Bay of Kastela is observed through the highest THg concentrations (up to 5.58 ng/L). DGM always shows higher values in more contaminated areas (31.8-351 pg/L) than in the pristine environment (22.1-245 pg/L). MeHg concentrations vary, but the highest values are usually found in the Bay of Kastela (up to 34.3 pg/L). Number of picoeukaryotes is the highest in the Bay of Kastela ( $0.44 \times 10^6$ - $31.8 \times 10^6$ /L) which has been affected by industrial and civil effluents from the surrounding cities. The lowest number is found near the island of Vis ( $0.63 \times 10^6$ - $19.9 \times 10^6$ /L). All our results will be presented herein.