

Saturday, August 27th

Session 2B Oral presentation: 16:20-17:40, Poster viewing: 17:40-18:40

Chair: SEI Kazunari

2B-16

Occurrence of perfluoroalkyl acids (PFAAs) in surface water of a tropical coastal area (Bay of Bengal coast, Bangladesh).

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This study reports the first evidence of the occurrence of perfluoroalkyl acids (PFAAs) in the surface water collected from the coastal area of Bangladesh. Fifteen target PFAAs, including: C₄₋₁₄-PFCAs (perfluoroalkyl carboxylates), and C₄, C₆, C₈, and C₁₀-PFSAs (perfluoroalkyl sulfonates) were quantified by HPLC-MS/MS. The ΣPFAAs in surface water samples were in the range of 10.6–46.8 ng/L. PFOA (3.17–27.8 ng/L) was found to be the most predominant PFAA followed by PFPeA (0.47–8.07 ng/L) and PFDA (<LOQ–5.72 ng/L). Majority of the monitored PFAAs did not show clear seasonal variation. Spatial distribution revealed that the southeast part (Cox's Bazar and Chittagong) of the Bangladeshi coastal area was more contaminated by PFAAs than the south (Meghna estuary) and southwest part (Sundarbans). Industrial and municipal wastewater effluents, ship breaking and port activities were identified to be the potential sources of PFAAs contamination in this region. Although none of the PFOA or PFOS exceeded the threshold of hazard at the present level, we should keep in mind that they are bioavailable and can accumulate in the food chain. Therefore, the ubiquitous occurrence of PFAAs in the coastal area of Bangladesh warrants further studies characterizing their specific sources and potential risk to both human and wildlife.