International Forum on Marine Environment and Ecosystem

From the coastal margins to the Arctic ocean – PFAS in the marine environment

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While regulated long-chain PFASs have been well investigated (“legacy PFASs”), potential adverse properties, environmental occurrence and fate of other PFASs are largely unknown (“emerging PFASs”). This talk will present results of recent research investigating the importance of selected emerging PFASs as pollutants in European coastal environments and a possible transition from legacy long-chain PFCAs and PFSAs to replacement compounds. It was found that levels of the replacement compound HFPO-DA were approximately three times higher than those of its predecessor PFOA in surface water from the North Sea, and legacy long-chain compounds still played a major role in surface water from the European Baltic Sea and in sediments from both North and Baltic Seas. It is undisputed in the scientific community that long-chain PFCAs and PFSAs undergo long-range transport. Based on vertical PFAS profiles in Fram Strait (down to 3,117 m depth), PFAS mass flows entering the Arctic Ocean from the North Atlantic and exiting the Arctic in the opposite direction were estimated.

Dr. Ralf Ebinghaus, the Director of the Hereon Institute of Coastal Environmental Chemistry, Germany, is an analytical and environmental chemist, and his research focuses on the occurrence, fate, and relevance of long-lived and bio-accumulative hazardous substances in coastal, marine, and polar environments.

Ralf has published more than 220 articles in peer reviewed journals (h-Index WoS=66), several book chapters and three books as co-editor, and four journal special issues. Ralf is Editor of “Atmospheric Chemistry and Physics” since 2007, Editor of “Environmental Chemistry” 2010 – 2020 and Editor of “Chemosphere” since 2015.

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