Perfluorinated compounds in a coastal industrial area of Ningbo, China

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Perfluorinated compounds (PFCs) are man-made fluorinated hydrocarbons, which have been used in industrial products and processes, such as stain-resistant textiles and fabrics, fire-fighting foam, agrochemicals, surface cleaners and electroplating, etc. Due to their chemical and thermal stability, bioaccumulation, various toxicities and potential for long-range transport, PFCs have been detected in various environmental matrices and received worldwide attention over decades. In China, PFCs concentrations in surface water, sediment and biota samples have been reported in many areas of the country. Because China has several large-scale PFCs-related industry parks whose industrial wastewater discharge has been found to be an important pollution source of PFCs to the environment. The present study aims to estimate the influence of industrial source on regional environment, especially the downstream of the receiving river and the nearby coastal area. The Jiutang River, located in Ningbo of Zhejiang, China, was selected as the research area. It is a constructed river, where the discharge from a municipal wastewater treatment plant enters the river. This wastewater treatment plant is known to receive wastewater from the industry parks, including electroplating industry where fluorochemicals are assumed to be in use as mist suppressant. Surface water and sediment samples were collected in river downstream ($1^{\#}$～$7^{\#}$ in Fig.1). Biota samples were taken from the river estuary, about 13 kilometers from the wastewater treatment plant, perceived as a potential pollution source ($7^{\#}$ in Fig.1). In addition, drinking water samples were collected at this area.

Fig.1. Sampling site location of Jiutang River ($1^{\#}$～$7^{\#}$)

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