Press Release

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Rainwater flushes microplastics into the Kiel Fjord

First long-term study on microplastic distribution in surface water published

28 May 2020/Kiel. **Tatters of shopping bags, lost bottle caps, empty handkerchief packs - the larger plastic garbage immediately catches the eye when lying on the beach or swimming in the harbour. But how much is the Kiel Fjord polluted with millimetre-sized plastics which are hardly visible to the naked eye? Scientists of the GEOMAR Helmholtz Centre for Ocean Research Kiel have been investigating this question for over 13 months. The results have now been published in the journal Science of the Total Environment.**

r the study, biologist Dr Nicolas Ory from the GEOMAR Helmholtz Centre for Ocean Research el, with financial support from the Future Ocean Network at Kiel University , took water samples very month for 13 months at eight precisely defined positions in the Kiel Fjord. "This way, we ere not only able to determine the base contamination of the fjord, but also to detect unusually gh abundance of microplastics after environmental events, such as heavy rainfall, and ice and now melt across all seasons," explains Dr Ory.

he sampling locations included the Schwentine River mouth, the entrance to the Kiel Canal and e wastewater treatment plant in Bülk: "We found very low microplastic contamination throughout, specially at the outflow from the wastewater treatment plant. This is certainly due to the plant's fficient filtering system, which can retain particles down to a few dozens of micrometers," explains Ory.

contrast, the team identified the urban stormwater drainage system as the potential main source microplastics in the fjord, where high concentrations of microplastics were found after heavy infall and after snow and ice melt. "We discussed this result with the civil engineering office of the ty of Kiel, which confirmed that the filters and screens of the rainwater drainage cannot filter articles less than a few centimetres long from the runoff," says Dr Ory. Innovative technical esigns would be required here in order to better control the release of microplastics into the nvironment and, at the same time, allow