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Interfaces in Urban Water Systems

Joint press release of TU Berlin and the Leibniz-Institute of Freshwater Ecology and Inland Fisheries Research Training Group "Urban Water Interfaces" conducts research into water systems in major cities such as Berlin / German Research Foundation to provide funding for a further four and a half years

The German Research Foundation (DFG) is extending the Research Training Group "Urban Water Interfaces" (UWI) for a further four and a half years. UWI, which is run in close cooperation between TU Berlin and the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB) Berlin, addresses the role of natural and technical interfaces in urban water cycles. The DFG will be funding the Research Training Group from 1 January 2020 until 30 June 2024 with 5.3 million euros.

In the future, water systems in major cities will be exposed to a wide range of problems regarding the quantity and quality of water. The major causes for these problems include population development in cities, the use of problematic chemicals, and climate change, including increasing extreme conditions such as heavy rain and dry periods.

Major findings
The first funding phase (1 July 2015 until 31 December 2019) has shown that close collaboration between engineering and natural sciences has significantly improved our understanding of urban water cycles, resulting in new concepts and measures for urban water management. Building upon model simulations and future scenarios reflecting climate change and using Tegeler See (Berlin's second largest lake) as an example, adaptive strategies have been developed to prevent future excessive algae blooms through controlled management of a phosphorous elimination plant. Field surveys and model simulations have further demonstrated that the transition areas of surface and groundwater effectively retain micropollutants and thus improve the ecological condition of urban waters. Bank filtration, by contrast, can negatively influence the quality of urban surface waters. Finally, a complex simulation model was developed to reduce future odor and corrosion problems in sewer systems.

Research goal
The interdisciplinary collaboration established in the first phase is to be extended in the second funding phase, with research conducted into interfaces in urban watersheds, rivers, lakes, groundwater and sewer systems. The results of basic research will be increasingly transferred into water management practice as part of this process. Based on this, a concept for an integral coupled model system is to be developed, which can be used for the management of urban water cycles.

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