

Press release | Berlin, April 30th 2025

PFAS in Europe and Berlin

Insights from the PROMISCES Project

The PROMISCES project, an initiative under the European Green Deal, addressed the challenges of per- and polyfluoroalkyl substances (PFAS). These synthetic pollutants threaten both environmental and human health while also presenting significant obstacles to achieving a sustainable circular economy in the water sector. PFAS are remarkably persistent, non-bio-degradable, and accumulate in the environment, making the recycling of contaminated materials and the reuse of water particularly challenging. Moreover, their comprehensive assessment is difficult because only a small fraction of PFAS compounds can currently be analysed. Running until April 2025, PROMISCES aimed to advance practical measures supporting the Green Deal's objectives and the EU's "Zero Pollution" Action Plan.

International collaboration

Led by the French geological service BRGM, the project brought together 27 partners from nine countries over three and a half years to develop innovative approaches for monitoring and reducing PFAS pollution. Berlin's Centre of Competence for Water (KWB) played a crucial role by focusing on sampling efforts in Berlin as well as modelling and assessing health risks.

Berlin case study: PFAS in the urban water cycle

As part of the Berlin case study, KWB collaborated with Berliner Wasserbetriebe (BWB), the German Environment Agency (UBA), and the Federal Institute of Hydrology (BfG) to investigate sources of PFAS and other industrial chemicals within the urban water cycle. Sampling efforts in Berlin's Reinickendorf district provided valuable data for developing toxicological assessment methods and modelling approaches to optimise urban water management.

KWB spearheaded the strategic planning and execution of sampling activities, focusing on the impact of PFAS runoff from industrial sites via stormwater. Known substances were analysed in BWB laboratories, while researchers at BfG used non-target screening methods to detect compounds not yet included in standard monitoring programmes. The UBA carried out toxicological analysis and evaluation.

Researchers implemented a monitoring system that automatically collected samples during 24 rainfall events over eight months. Of the 26 PFAS compounds tested, 13 were detected. The total PFOA-equivalents frequently exceeded the newly proposed surface water limit of 4.4 ng/L. PFOA-equivalents are standardised units that compare the relative toxicity and environmental impact of various PFAS against perfluorooctanoic acid (PFOA). These findings suggest that while stormwater runoff contributes to surface water contamination, its concentration is lower than that from discharges of municipal wastewater treatment plants.

Nine PFAS compounds were identified at the Flughafensee, with particularly high levels of per-fluorooctane sulfonate (PFOS) detected in sediments near discharge points. PFOS was histori-

cally used in products such as firefighting foams. Groundwater samples downstream also revealed elevated PFAS concentrations, predominantly PFOS. The findings indicate that polluted sediments and groundwater flows primarily cause contamination. Further research into groundwater, sediments, and historical contamination sources is needed to better understand the issue and determine appropriate remediation measures.

A model for assessing health exposures

In addition to detecting PFAS in Reinickendorf and Flughafensee, KWB collaborated with the Spanish research and technology organisation Eurecat to develop a Human Health Exposure Assessment (HHEA) model. This tool facilitates the comparison of multiple chemicals, enabling water providers to prioritise those that pose the highest risks and to target them with prevention or remediation measures. The model also assesses exposure pathways such as drinking water cycles, agricultural water reuse, and groundwater remediation. The HHEA model is scheduled for publication upon the project's completion in May 2025.

Innovative approaches for a sustainable future

The PROMISCES project delivers key insights and innovative solutions to effectively monitor PFAS contamination, assess risks, and develop strategies to reduce and prevent further pollution. This includes technical solutions for soil and groundwater remediation, landfill leachate treatment, and drinking water purification. Additionally, management approaches have been devised, such as substituting persistent chemicals with less harmful alternatives.

Free decision making tool

A standout result of the project is the open-source Decision Support Framework (DSF), a tool designed to provide practical solutions for preventing, monitoring, and treating persistent pollutants. The DSF was developed under the leadership of the French National Institute for Industrial Environment and Risks (INERIS), the Dutch National Institute for Public Health and the Environment (RIVM), and Eurecat. As a knowledge-sharing platform, it will be available to end users, including water suppliers, the chemical industry, and policymakers, following the project's conclusion in May 2025.

Towards a zero pollution circular economy

The PROMISCES project has made significant strides in addressing the challenges posed by PFAS pollution. The Berlin case study and KWB's contributions played a critical role in enhancing understanding of PFAS entry into urban water cycles and paving the way for targeted countermeasures. These efforts bring us closer to the vision of a sustainable, pollutant-free circular economy in the water sector.

Further Information

Our blog article offers more detailed insights into our work on the PROMISCES project, including illustrations and photos: <https://kompetenzwasser.de/en/newsroom/news/pfas-in-berlin>

The Berliner Wasserbetriebe has recently published two informative videos that we'd like to share with you:

"PFAS in the water cycle"

https://www.youtube.com/watch?v=Cp2r8ygNa_Y

"PROMISCES – an European research project and its results"

<https://www.youtube.com/watch?v=aZeY1fvsl2g>

About KWB

Founded in 2001, the Berlin Centre of Competence for Water (KWB) integrates science, research, and consultancy to promote sustainable water management. We focus on applied research throughout the entire water cycle, collaborating with partners from science, industry, and public administration to develop innovative solutions for livable, future-ready cities.

KWB connects national and international water sector stakeholders through knowledge sharing and public engagement. We communicate the latest developments and trends in water research to professionals and the broader public. With years of experience, we organise expert conferences and workshops to foster dialogue in the water sector.

Combining innovative research with practical application, we assist municipalities, policymakers, and infrastructure operators create sustainable and forward-thinking water solutions.

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