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Eawag Seminar Invitation

Downstream of Switzerland – a landscape view to reduce chemical pollution

Speaker **Prof. Leo Posthuma, Dutch National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands**

When **October 13, 2022, 16.00 – 17.00, CEST**

Where **Online via Zoom, contact seminars@eawag.ch for access details.**

Abstract The river Rhine is one of the vital axes linking Switzerland and the Netherlands. The downstream position offers challenges regarding water quality.
Focusing on chemical pollution, history has shown that sudden incidents (such as the Schweizerhalle-case in 1986) may cause a dead, red Rhine for the hundreds of up- till downstream kilometers of river stretch – providing evidence to take a landscape-level view on the problem and its solutions. Such a view triggered the design and implementation of the European Water Framework Directive (WFD), with its firm foundation in the natural, hydrological system as basis. The WFD replaces tens of regional and pressure-specific laws and provides a unique template to prevent and tackle pollution problems.
Still, 2022 provides us with a bleak picture of water quality. In the Netherlands, less than 1% of the water bodies is characterized by a good quality, which contrasts to the societal goals of sufficient water of good quality for all societal purposes and as habitat for aquatic life. The current status is opposite to the goals of the WFD itself (100% good water quality in 2027) and with the aspirations of the Chemical Strategy for Sustainability of the EU-Green Deal towards a toxic-free environment.
The presentation on chemical pollution of European water systems is built upon specific calls for research from the European Commission in 2012, the scientific results of the SOLUTIONS project (2013-2018) that was funded in reply and the practical results of a Dutch follow-up project. At the European level, variation in ecological status is attributed for – on average – 26% to chemical pollution with unintended mixtures.
The practice-oriented "SOLUTIONS-NL" project resulted in novel viewpoints on water quality, showing that a nuanced view on the toxic pressure of unintended mixtures are valuable to demonstrate whether and how swift the 'distance to target' of the WFD and the CSS come into reach. The nuanced view takes an all-chemical, all land uses, all basins approach as a start, and provides latitude to link the WFD to the CSS, to bridge chemical safety assessment and Life Cycle Assessment, to utilize effect- and chemical-based methods alike, and to align applied ecology and ecotoxicology.

The project resulted in a website, with hands-on tools for the daily practice of water quality management professionals. Elements of the website will be shown as illustration. The starting position of the presentation is the toxic pressure map of the Netherlands, as shown below. The map shows in a nuanced way where, and due to which chemical groups, pollution limits ecological status.
Mixture toxic pressure in Dutch surface waters (monitoring data 2013-2018).
Sub-map: unintended mixtures of all monitored compounds. Further sub-maps can show separate compound groups.
Source: https://www.sleutelfactortoxiciteit.nl/nl/toxdruk-in-nl/