**NORMAN workshop: Improving the use of (semi-)field data for the risk assessment of chemicals.**

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**Abstract**
As part of the NORMAN network (https://www.norman-network.net/) Working Group 2: Bioassays, the Expert Group (EG) on "Ecosystem level effects of chemicals of emerging concern (CECs) on aquatic ecosystems" organised the workshop: 'Improving the use of (semi-)field data for the risk assessment of chemicals' on the 21st and 22nd of November, 2023. The aim of the workshop was to create a framework for the field-based calibration of the different (new) tools that can be used to assess the effects of chemical mixtures on ecosystems, with focus on the integration of higher tiers of biological complexity/organization. We propose a framework that integrates (i) analytical data of individual chemicals, (ii) effect-based monitoring data obtained by in vitro and in vivo bioassays with multiple endpoints accompanied by chemical measurements, (iii) PNEC values based on laboratory toxicity data for standard test species (i.e., from the NORMAN ecotox database) to assess risks of single substances, (iv) multi-substance potentially affected fraction (msPAF) calculations to predict the toxic pressure of mixtures, (v) mesocosm effect data (e.g. NOECs) into predictive mixture assessment tools like the PERPEST model, and (vi) biomonitoring data based on ecological (e.g. diversity indices) and biological effects assessment (e.g. biochemical, physiological and molecular markers) to evaluate mixture effects of contaminants in the environment, and explored how these can be integrated or compared for validation/calibration. As a proof of concept, we used a lowland stream monitoring dataset collected in Germany, which covered the majority of these data types (https://doi.org/10.1594/PANGAEA.931673 Titel anhand dieser DOI in Citavi-Projekt übernehmen) and focussed on pesticides. We added PNECs from the NORMAN ecotox database, msPAF values and effect data from mesocosm studies to this dataset to enable a linkage and comparison. A specific proof-of-concept study has been created which demonstrates how the validation and calibration of the different parts can be performed, and/or where the main uncertainties and data gaps are. The results of the workshop and regulatory implications will be discussed further and summarised for the SETAC meeting aiming to establish an applied framework for the integration of all these available resouces for risk assessment.