CRC 1253 CATCHMENTS AS REACTORS

CAMPOS

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Influence of tributaries on the pollution profile of the Ammer River

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MOTIVATION & RESEARCH QUESTION

- Rivers integrate organic micropollutants from point (e.g., treated wastewater) and diffuse (e.g., agricultural, urban areas) input sources
- What and where are input sources of organic micropollutants and how do they influence the pollution pattern of a defined river stretch?
- To what extent do inputs from agriculture and urban areas contribute to the mass and effect fluxes in the Ammer River?

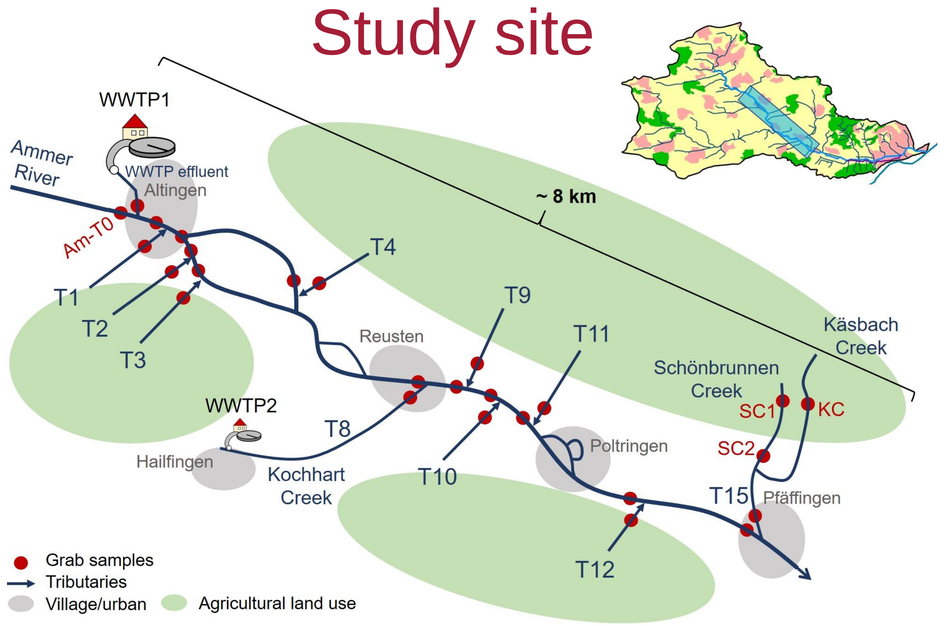
METHODS

- Lagrangian sampling of the Ammer and grab sampling of all tributaries from agricultural and urban areas (see map below)
- Target screening for 83 compounds by LC-QQQ-MS
- Bioassays: aryl hydrocarbon receptor induction (AhR-CALUX), oxidative stress response (AREc32), estrogenicity (ER-Bla) and peroxysome proliferation activation (PPARγ-Bla), expressed as effect units (effect unit = $EC10^{-1}$; EC10: conc. causing 10% effect in the assay)
- The contribution of tributaries to effect and mass fluxes was derived by the concentrations, effects and discharge measured in the tributary and the Ammer upstream of each confluence

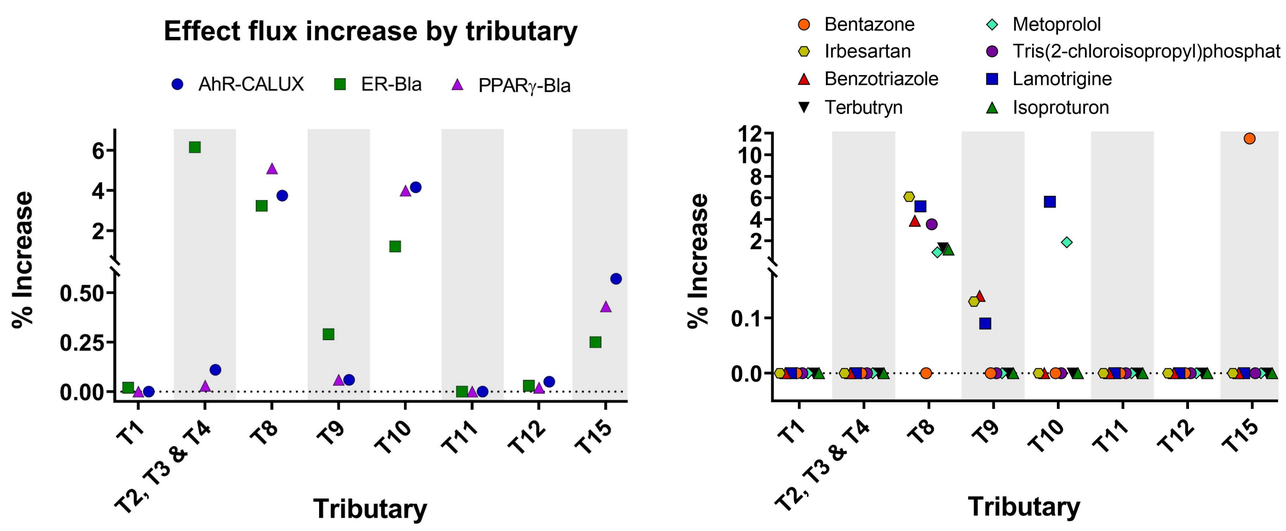
KEY FINDINGS

- Ammer water quality was dominated by treated wastewater from WWTP1, see 1 and 2 .
- T8 (Kochart Creek) showed high compound concentrations and effects
- The tributaries had little impact on the compound and effect patterns of the Ammer 3 , compared to the WWTP1 effluent.
- Bioassays and chemical analysis essentially showed the same pollution patterns along the river stretch

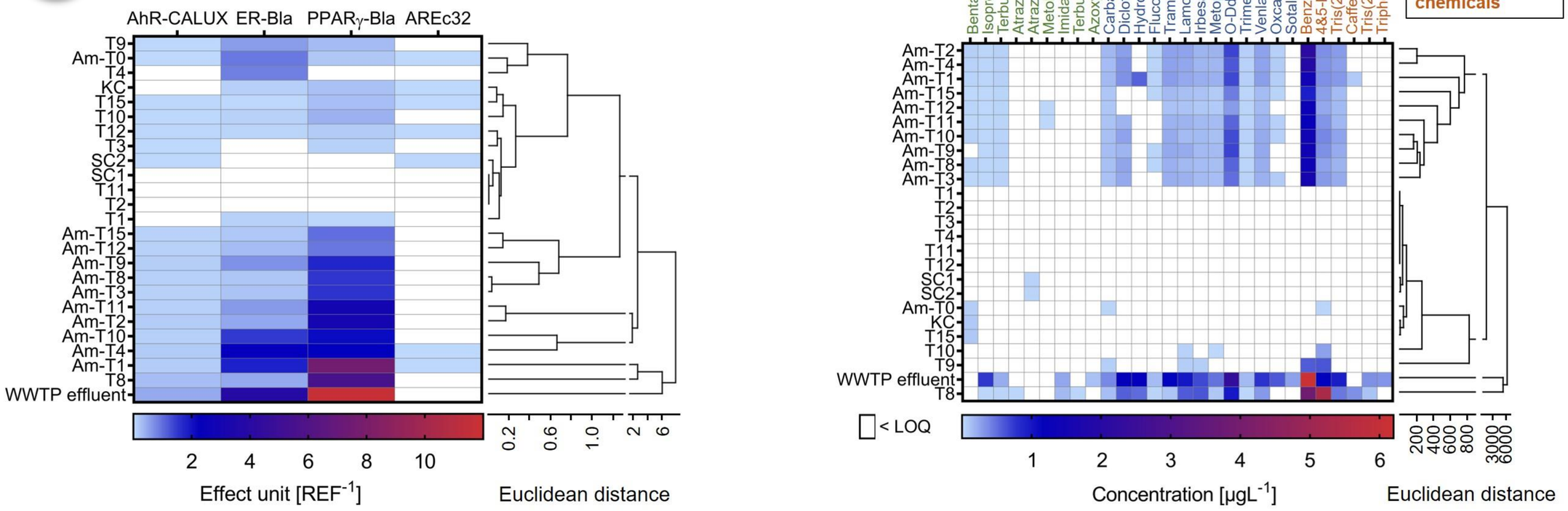
Study site



3 Contribution to fluxes



2 Compound pattern



1 Effect pattern

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