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SPATIAL OCCURRENCE OF PFOS AND PFOA IN THE DAUGAVA AND LIELUPE RIVER BASINS (LATVIA)

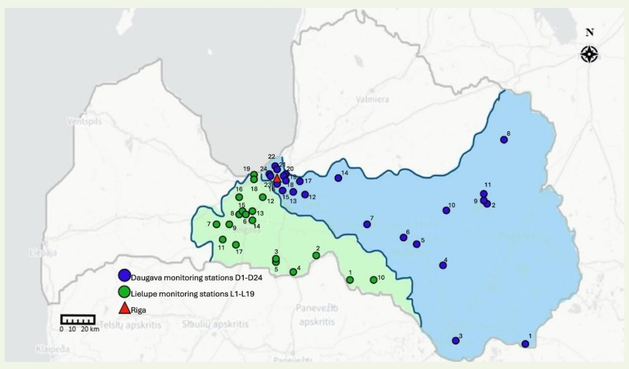
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KEY RESULT

PFOA medians exceeded PFOS medians in both basins. Across 43 monitoring stations, concentrations were strongly right-skewed, with occasional values up to 13.221 ng/L PFOA and 11.106 ng/L PFOS. The source reports no significant basin-wide difference (p > 0.05).

MONITORING NETWORK



Daugava: stations D1–D24.
Lielupe: stations L1–L19. [Slide 5]

43
MONITORING STATIONS

892
ANALYTE RECORDS

DAUGAVA

2017–2025, 24 stations
252 PFOA + 252 PFOS records
Mixed urban–rural catchment

LIELUPE

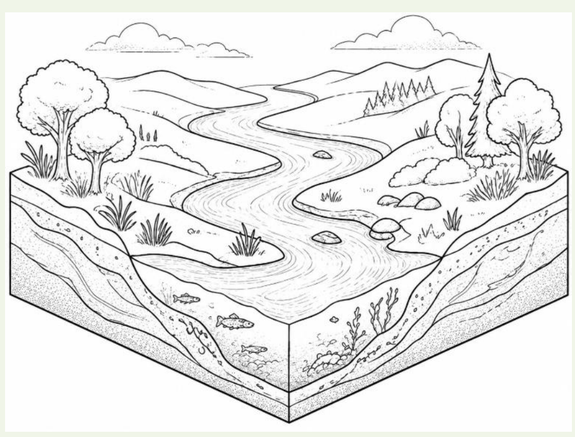
2018–2024, 19 stations
194 PFOA + 194 PFOS records
Intensive agricultural land use

STUDY APPROACH

Episodic national surface-water monitoring.

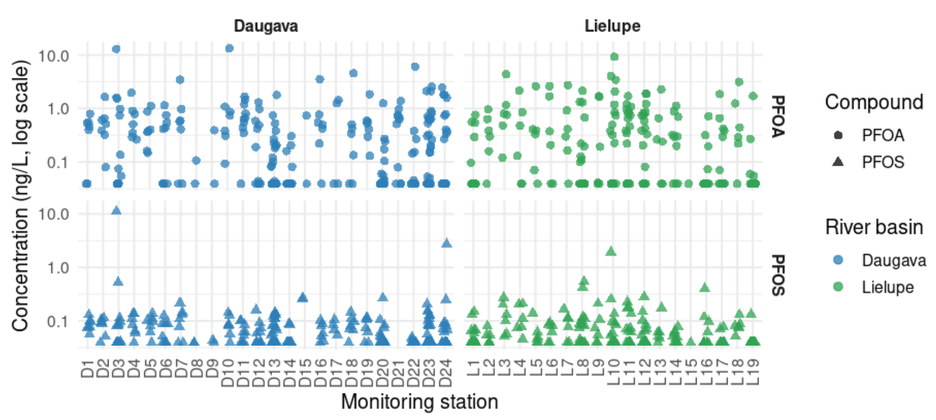
LC–MS/MS in accredited laboratories.
Concentrations standardized to ng/L. [Slide 5]

RIVER TRANSPORT PATHWAYS



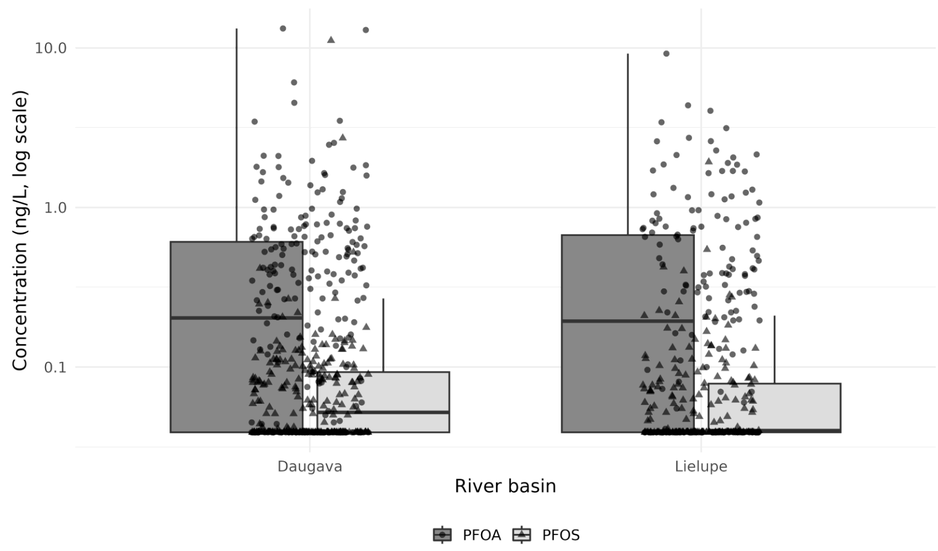
Conceptual river system. Urban and rural inputs can reach downstream waters. This study does not quantify the contribution of individual sources. [Slides 3, 11]

CONCENTRATIONS AT INDIVIDUAL STATIONS



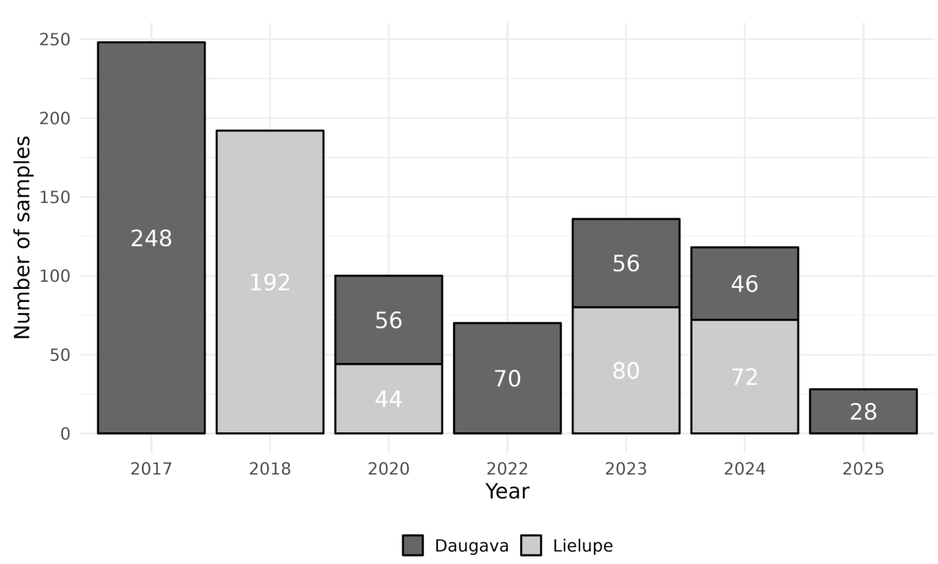
PFOA (top) and PFOS (bottom) across all 43 stations. Blue: Daugava. Green: Lielupe. Logarithmic axes reveal low values and occasional elevated observations. [Slide 9]

CONCENTRATION DISTRIBUTIONS



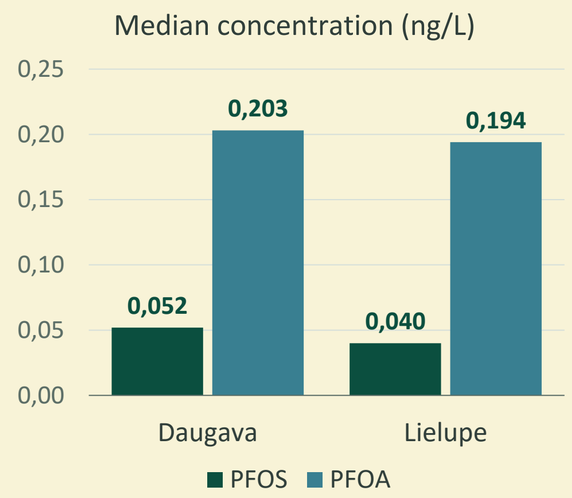
Original boxplots and individual observations, logarithmic scale. Means exceed medians in all four basin–compound groups, consistent with right-skewed distributions. [Slides 7–8]

MONITORING COVERAGE OVER TIME



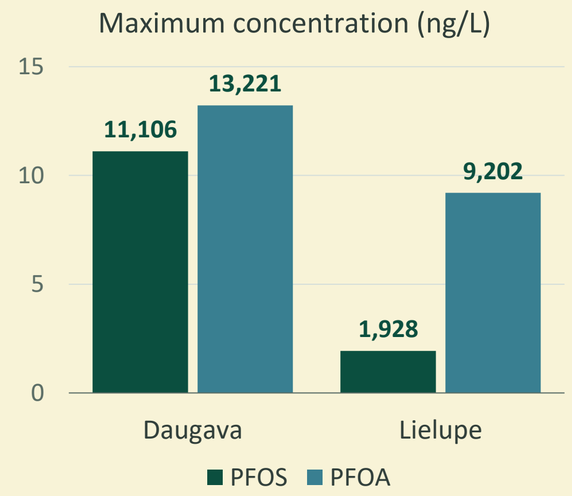
Annual counts sum to 504 Daugava and 388 Lielupe analyte records. Uneven temporal coverage limits interpretation of long-term trends. [Slides 7, 12]

MEDIAN CONCENTRATIONS



PFOA medians are 0.203 ng/L in Daugava and 0.194 ng/L in Lielupe. Both exceed the corresponding PFOS medians. [Slide 7]

MAXIMUM CONCENTRATIONS



Occasional maxima greatly exceed typical concentrations. These single observations do not represent annual mean concentrations. [Slide 7]

STATISTICAL RESULTS

Basin comparison: p > 0.05
Compound comparison: p < 0.001
Station differences: p < 0.001
Temporal variability: p < 0.05

Source-reported significance. Exact p-values and full test specifications are not supplied. [Slides 8–10, 12]

Systematic monitoring is needed to distinguish persistent spatial patterns from episodic variation.

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Source: Grave, Grinfelde & Pilecka-Ulcugaceva, Spatial occurrence of PFOS and PFOA in the Daugava and Lielupe river basins (Latvia).
Supplied Research for Rural Development 2026 presentation, slides 3, 5, 7–10 and 12. Figures reproduced from the presentation.