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# MAPPING PFAS DISTRIBUTION IN FLANDERS, BELGIUM

## Results of an extensive aquatic monitoring campaign

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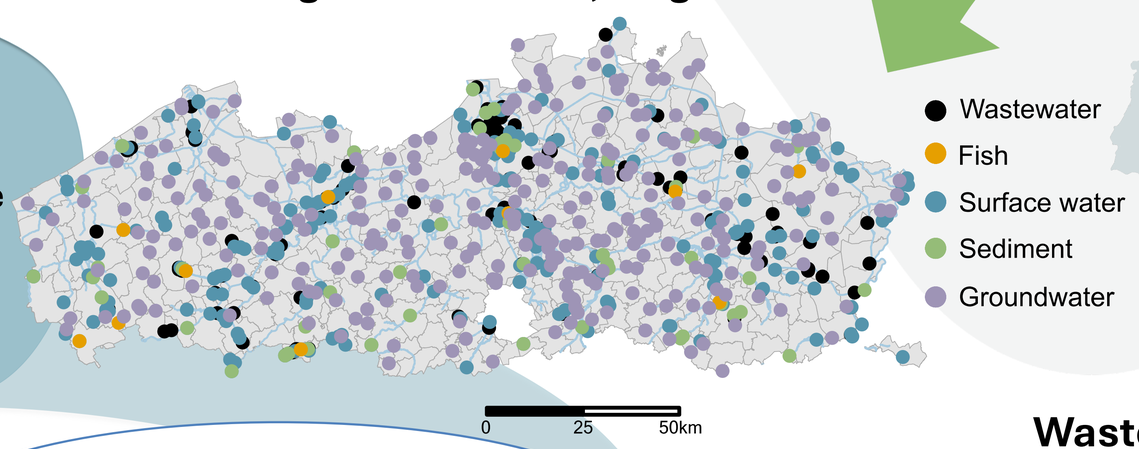
## Background

In 2021, PFAS pollution became (inter)national news and concerns about PFAS in our environment increased.
Until then, PFAS were only monitored to a limited extent in Flanders (Belgium) and questions about the scale of the contamination started to rise.
In 2022, an extensive aquatic monitoring campaign was set up by the Flanders Environment Agency (VMM) to map the PFAS contamination in Flanders.

**Sampling locations in the region of Flanders, Belgium**




43 PFAS were measured in 5 environmental compartments

### 1 Wastewater

*n*=108

| Sector (in decreasing order of median PFAS concentration) | Dominant PFAS |
|---|---|
| Waste & soil processing | PFBA, PFOA, 8:2 diPAP, HFPO-DA |
| Metal industry | PFOS |
| Textile industry | PFPeA, PFHxA, PFOA |
| Chemistry | PFBA, PFOS |
| Petroleum | PFBA, PFOS |
| Paper industry | 6:2 FTS |
| Other | PFPeA, PFBA |
| Food industry | PFBA, PFHxA, PFBS |
| WWTP | PFOA, PFOS, PFHxA, PFPeA |

In >90% of the samples, at least 1 PFAS was detected

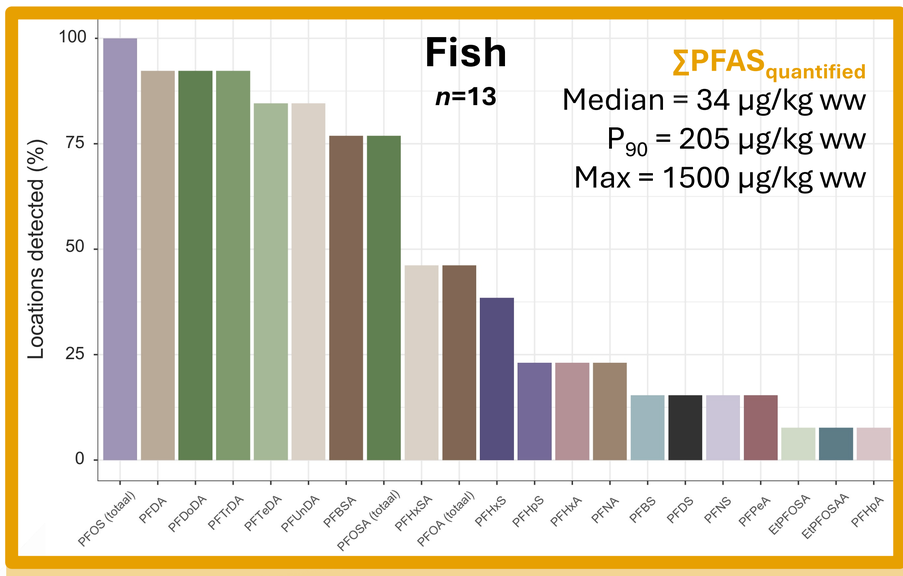
$\Sigma PFAS_{quantified}$
Median = 100 ng/L
$P_{90}$ = 3800 ng/L
Max = 25200 ng/L

Waste & soil processing showed the largest variation in concentrations and PFAS profile. The lowest concentrations were found in WWTPs.

### 2 Fish

*n*=13

$\Sigma PFAS_{quantified}$
Median = 34 µg/kg ww
$P_{90}$ = 205 µg/kg ww
Max = 1500 µg/kg ww

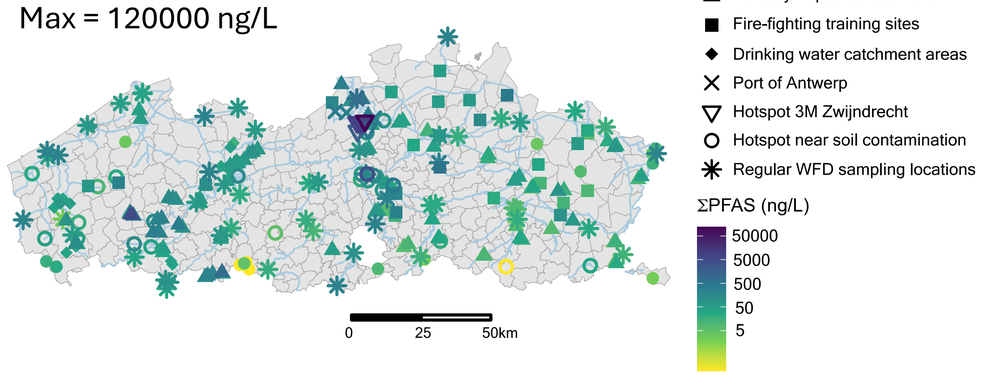



Long-chain PFAS and sulfonamides were most frequently detected in muscle tissue of fish.

### 3 Surface water

*n*=246

$\Sigma PFAS_{quantified}$
Median = 45 ng/L
$P_{90}$ = 293 ng/L
Max = 120000 ng/L



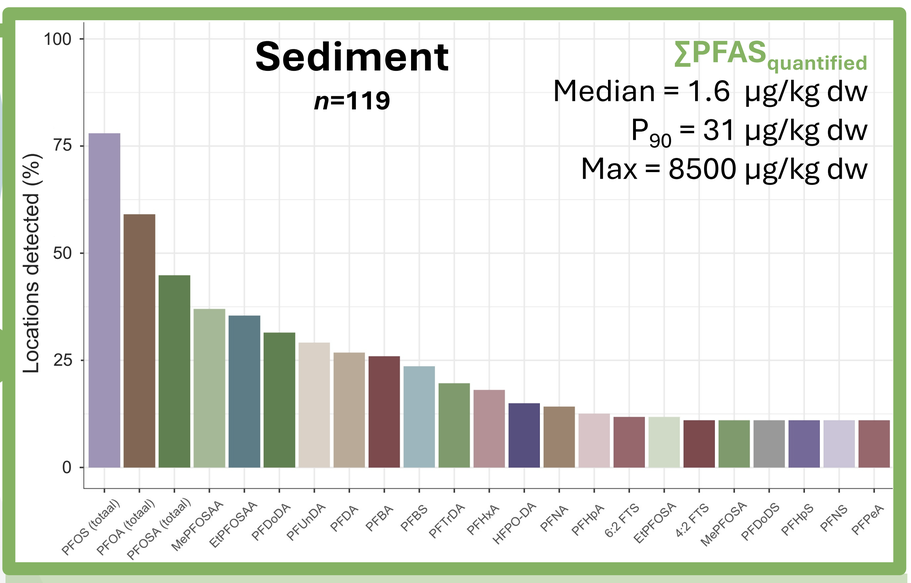

The highest PFAS concentrations were found in the Port of Antwerp and the hotspot around the 3M plant in Zwijndrecht. Median concentrations in Zwijndrecht are about 300 times higher than the background (6.3 ng/L).

In ±30% of the samples, at least 1 PFAS was detected

### 4 Sediment

*n*=119

$\Sigma PFAS_{quantified}$
Median = 1.6 µg/kg dw
$P_{90}$ = 31 µg/kg dw
Max = 8500 µg/kg dw

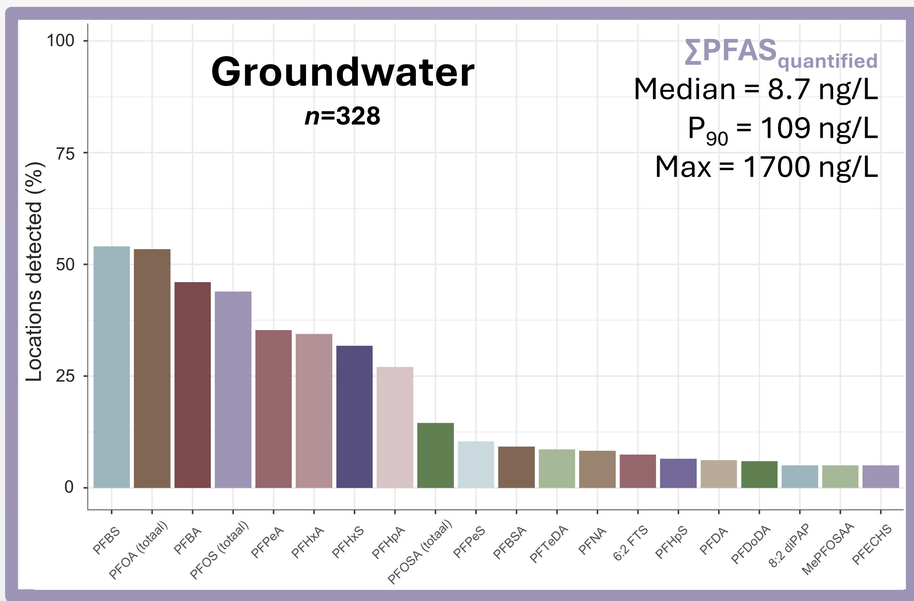



Sulfonamides and sulfonamidoacetates (precursors) were most frequently detected in sediment, besides PFOS and PFOA.

### 5 Groundwater

*n*=328

$\Sigma PFAS_{quantified}$
Median = 8.7 ng/L
$P_{90}$ = 109 ng/L
Max = 1700 ng/L




PFBS and PFBA were as frequently detected as PFOA and PFOS.

## Conclusions

- PFAS are widespread in Flanders
- Some industrial sectors are characterized by a specific PFAS fingerprint
  - Difficult to relate to the profile in surface water because of diffuse sources
- The detected PFAS differ between matrices, in line with their physico-chemical properties

Comparison with PFAS threshold values suggested that potential risks were mainly associated with surface water and fish consumption (see report for more details).

DOWNLOAD REPORT (in Dutch)

This study was commissioned by the Flanders Environment Agency (VMM) in the framework of the Flemish **PFAS Action Plan**.

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