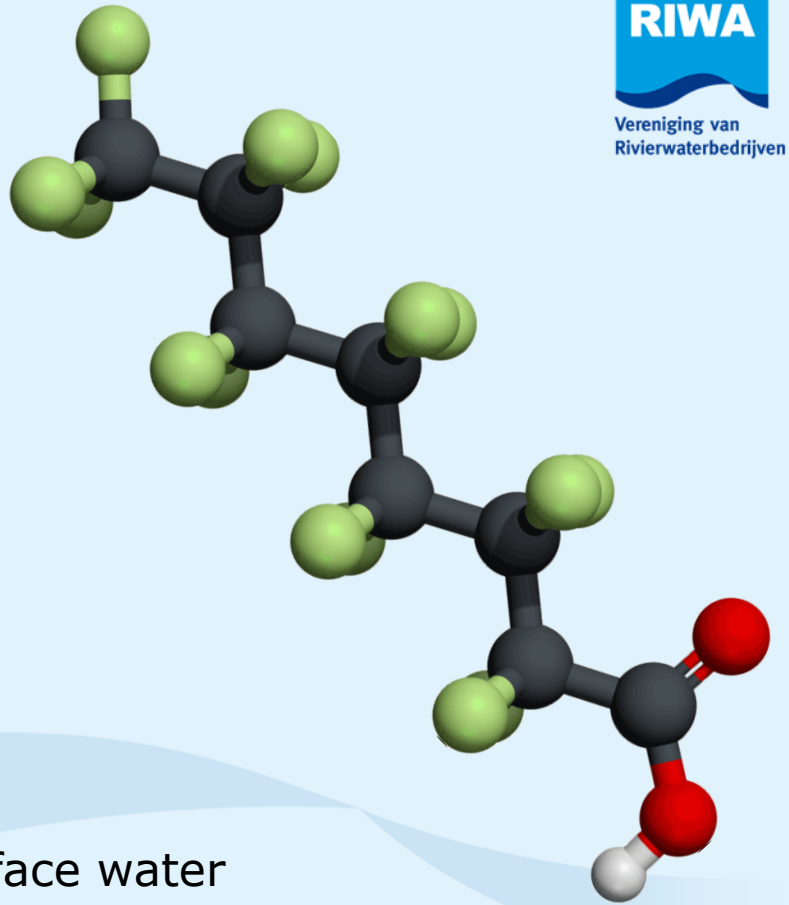
# PFAS in the Meuse

Jasper Ford
RIWA Maas
*10 September 2024*

# Content

1. Introduction
2. Research questions
3. Methodology
4. Example
5. Interactive map
6. Questions

# 1. Introduction



- *What is PFAS?*

Per-and PolyFluoroAlkyl Substances.
= *Group of substances*

- Grease, water, heat-and stain resistant

→ Pans, jackets

- PMT:

**P**ersistent
**M**obile
**T**oxic

→ More and more PFAS ends up in the surface water

# 1. Introduction

Norms for the Meuse:

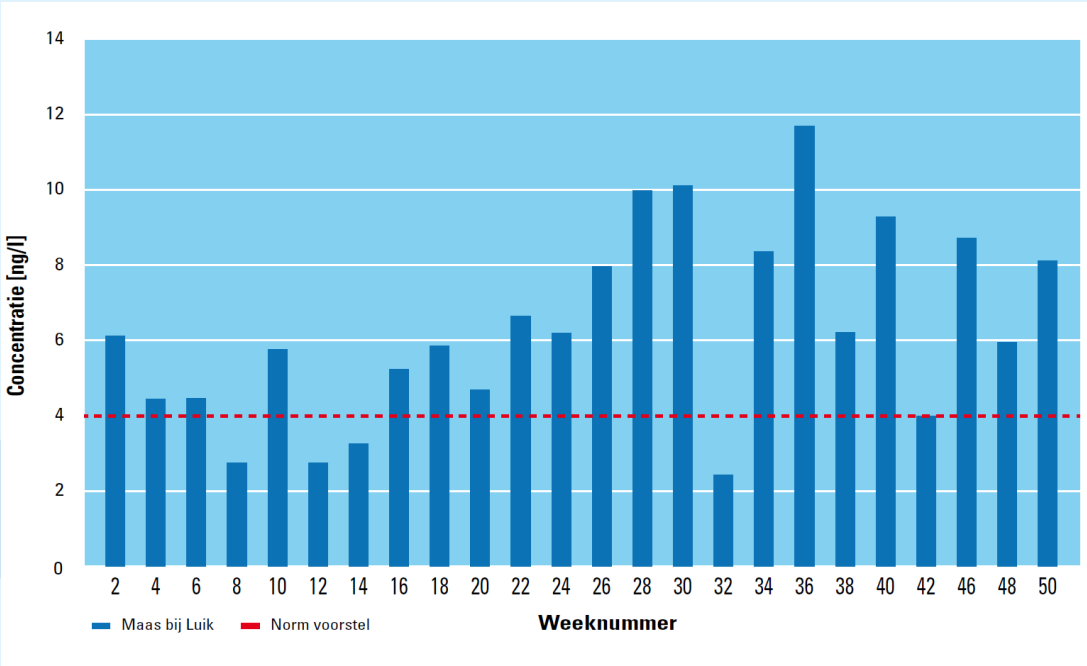
EU Drinking Water Directive 2026:

- 100 ng / L for 20 PFAS

In Flanders: Drinking Water Guideline

- 4.0 ng / L for EFSA-4

*Afgedamde Meuse in the Netherlands, 20 PFAS: The Meuse in Liege, 4 EFSA!*

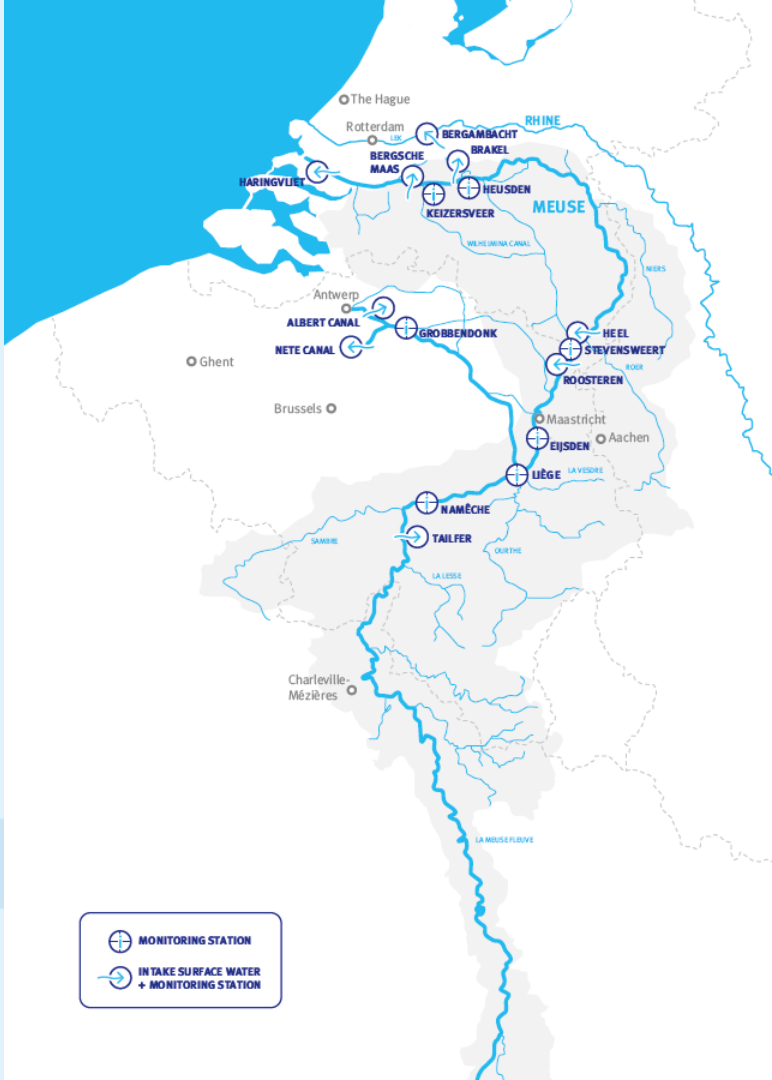


# 1. Introduction

Often difficult to locate the parties discharging into surface water.

**“Track the concentration of PFAS in the Meuse Basin**

**& Potentially finding dischargers”**



# 2. Research Questions

What is an appropriate methodology
to track the concentration of PFAS in surface water
and potentially find companies that are discharging the PFAS into the water?

Sub-research questions:

a) Area's of interest?
b) Companies?

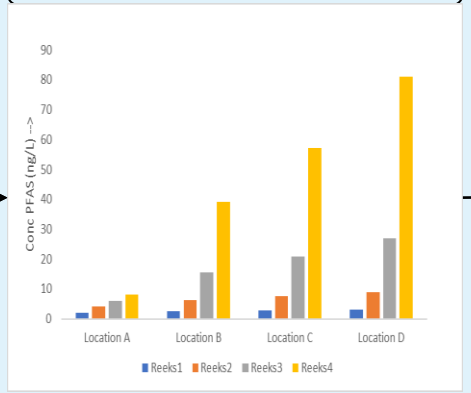
# 3. Methodology

**Starting points:**
**-Data**
**-Netherlands**

*River Basin:*

*i. Divide map in segments:*


*ii. Find increase in PFAS:*

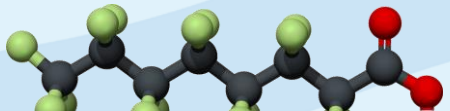


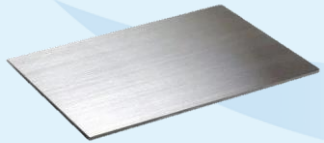

*iii. Find companies*

**PFAS Data**

# Types of companies/products

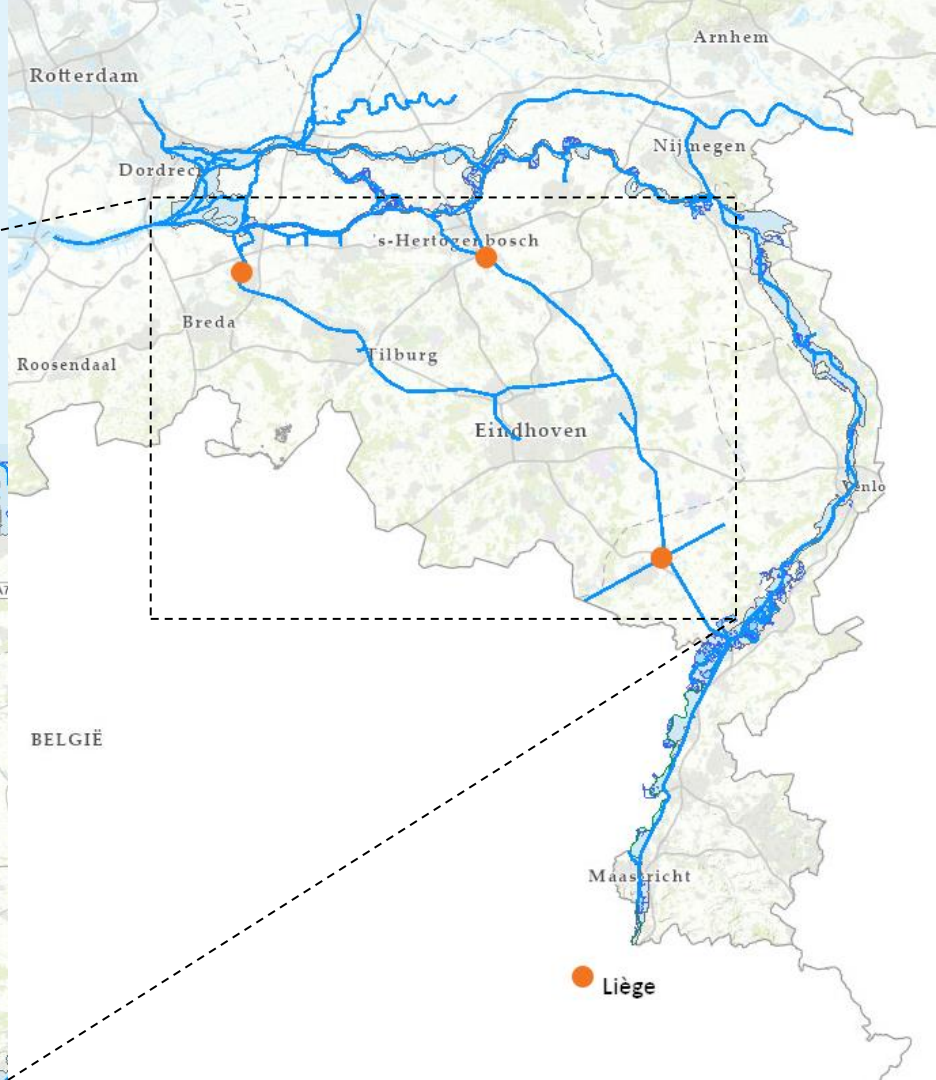
- **Chemical Production of PFAS**.
- **Waterproofing and Water-Repellent Treatments**: For leather, textiles, and cardboard.
- **Specialized Chemical Applications**.
- **Surface Treatment**: Including detergents and anti-adhesive treatments.
- **Polymerization Aids**: For fluoropolymers like PVDF and PTFE.
- **Firefighting Foam**.
- **Paper Industry (Recycling)**.
- **Metal Plating**: Such as chrome plating.
- **Waste Treatment**.
- **Landfill**.
- **Coatings**.
- **Ink**.
- **Varnish**.
- **Waxes**.
- **Paint**.
- **Cosmetics**.
- **Pesticides/Herbicides**.
- **Detergents**.
- **Hospitals**.
- **Surfactants**: For oil wells and mines.
- **Hydraulic Fluids**: Used in aviation.
- **Semiconductors**.
- **Photography**.



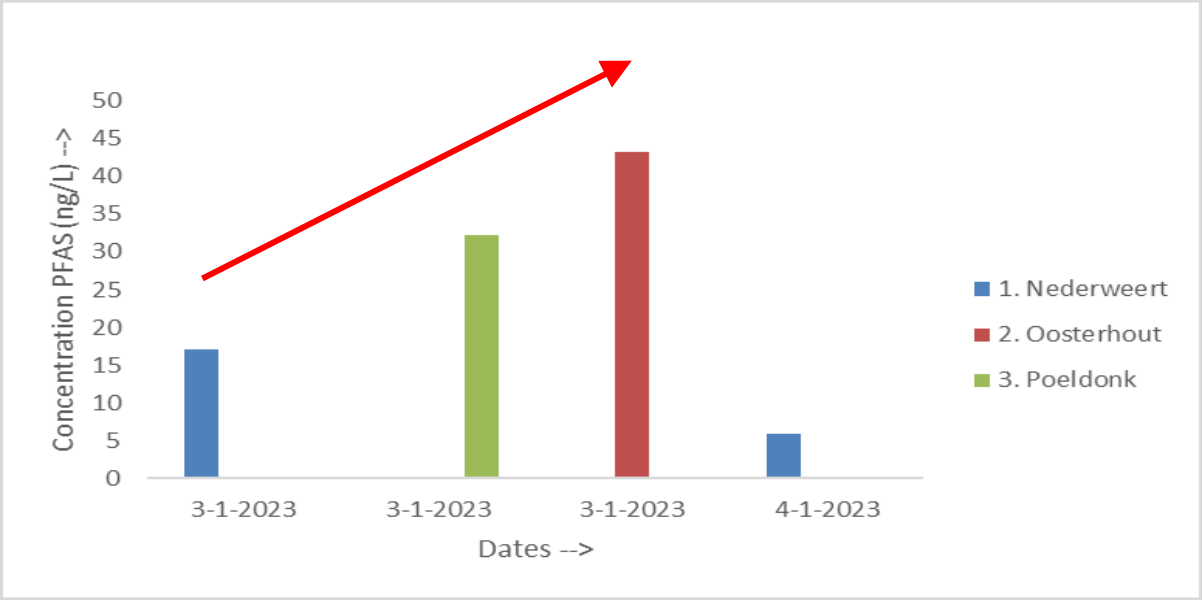
# 4. Example

## i. Divide map in segments

# 4. Example

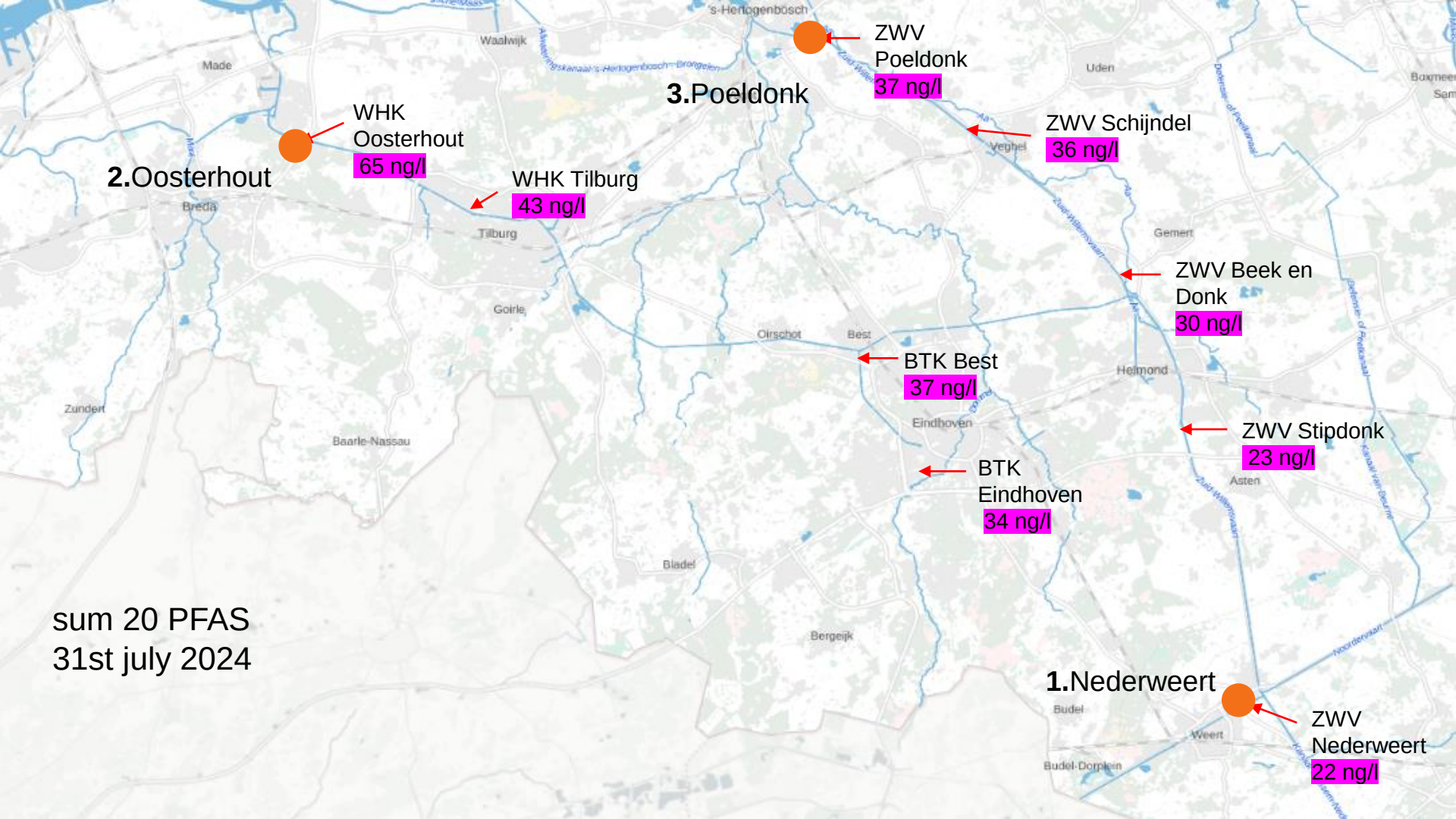
## ii. Find increase in PFAS


- Increase in sum concentration PFAS

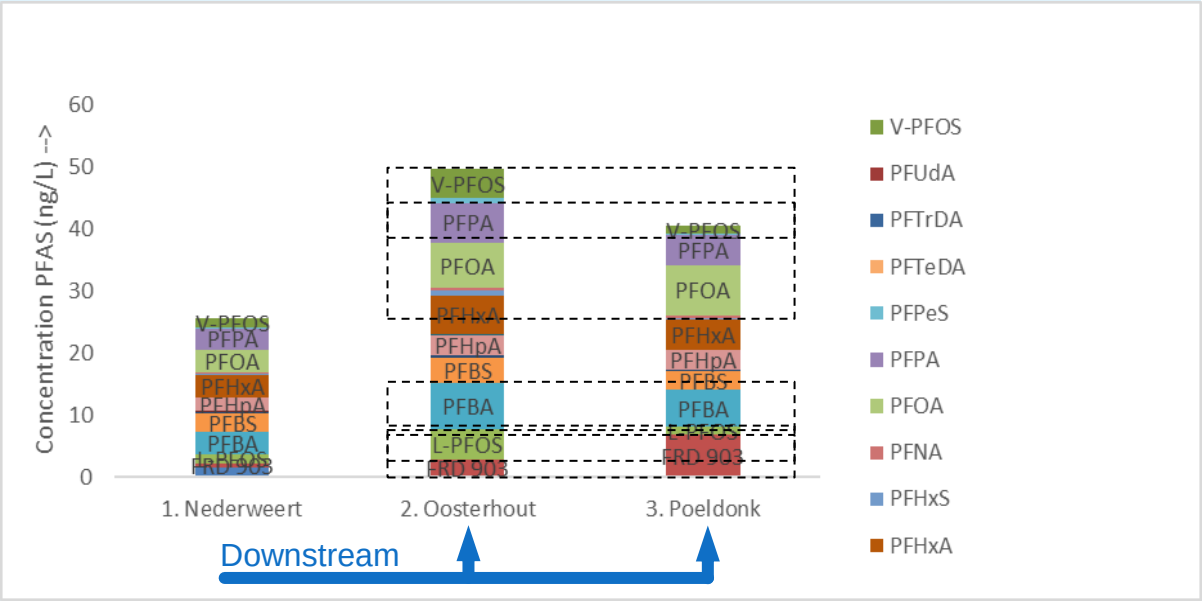
→ Increase to: Oosterhout (**2.**) & Poeldonk (**3.**)

Please note: all graphs are lower bound


ZWV
Poeldonk
37 ng/l
3.Poeldonk
WHK
Oosterhout
65 ng/l
2.Oosterhout
WHK Tilburg
43 ng/l
ZWV Schijndel
36 ng/l
ZWV Beek en
Donk
30 ng/l
BTK Best
37 ng/l
ZWV Stipdonk
23 ng/l
BTK
Eindhoven
34 ng/l
sum 20 PFAS
31st july 2024
1.Nederweert
ZWV
Nederweert
22 ng/l
's-Hertogenbosch
Waalwijk
Made
Uden
Veghel
Breda
Tilburg
Gemert
Goirle
Oirschot
Best
Helmond
Zundert
Eindhoven
Baarle-Nassau
Asten
Bladel
Bergeijk
Budel
Weert
Budel-Dorplein

# 4. Example

## ii. Find increase in PFAS

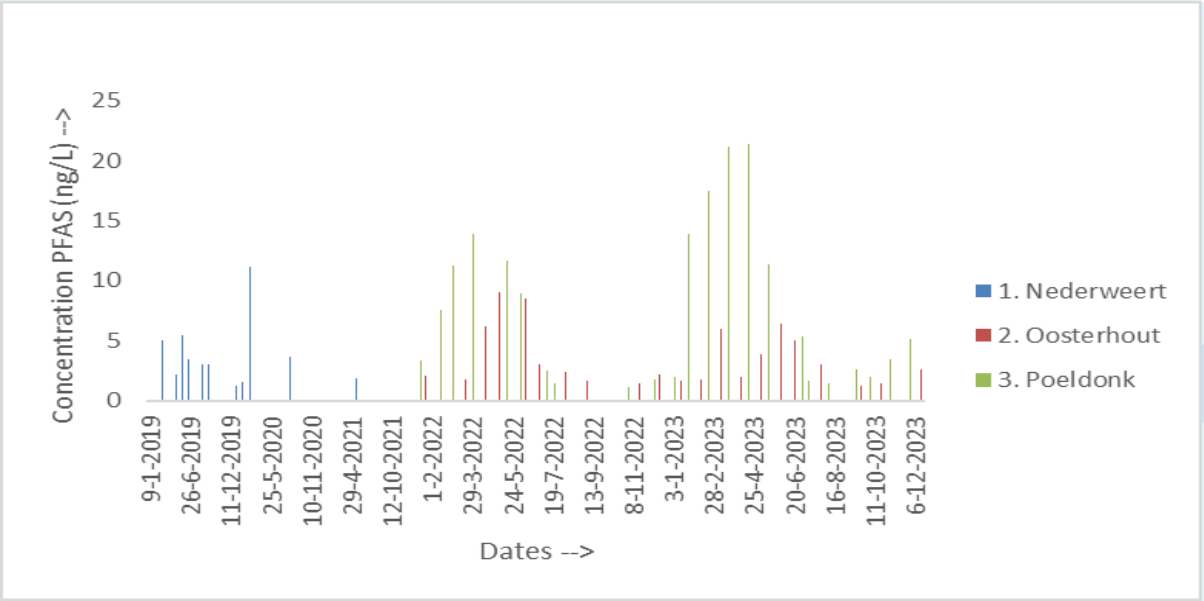

<u>Mean concentration PFAS per type</u>

Three observations:

- FRD903 (GenX)
- PFOS
- PFOA+PFBA+PFPA

# FRD 903 (GenX)

## ii. Find increase in PFAS

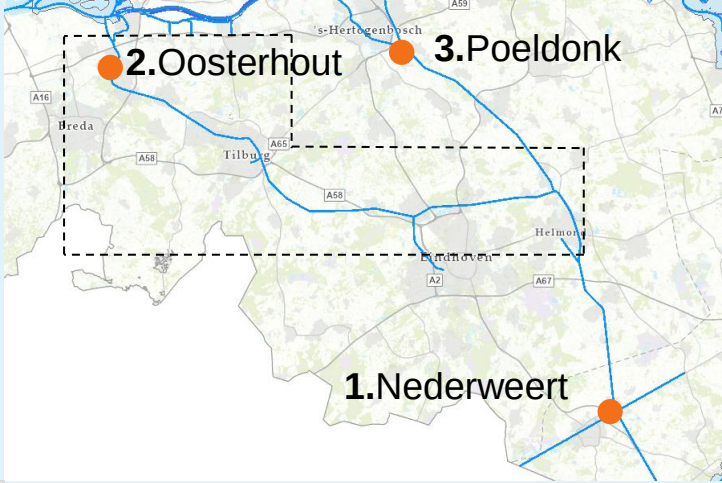



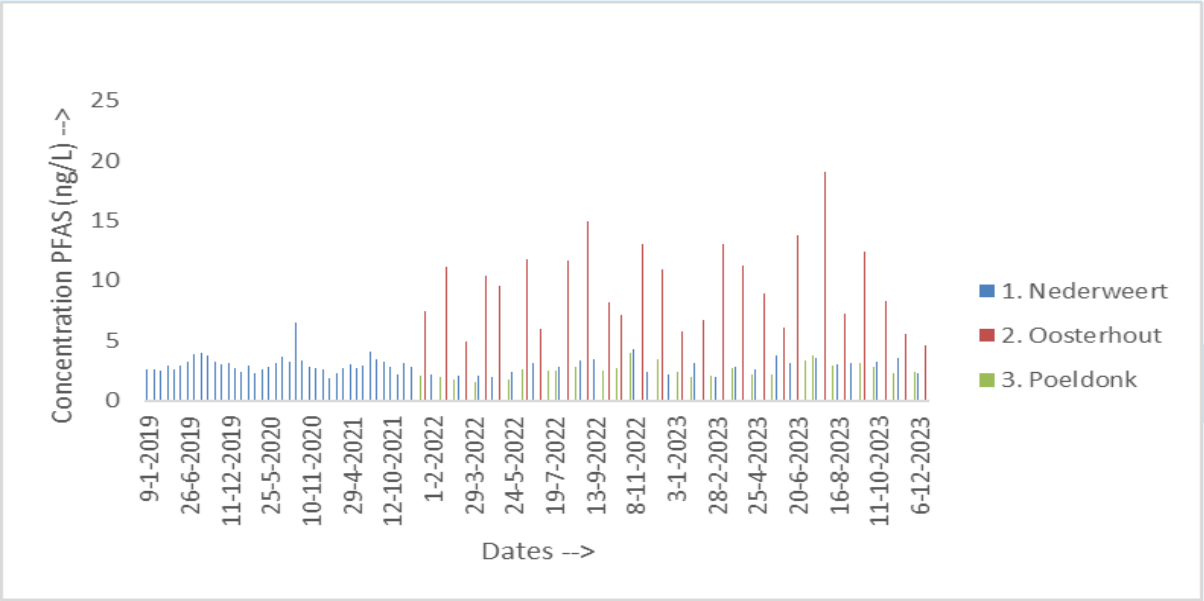

→ Larger increase towards Poeldonk.

→ Implies discharger is in this area:

# PFOS

## ii. Find increase in PFAS



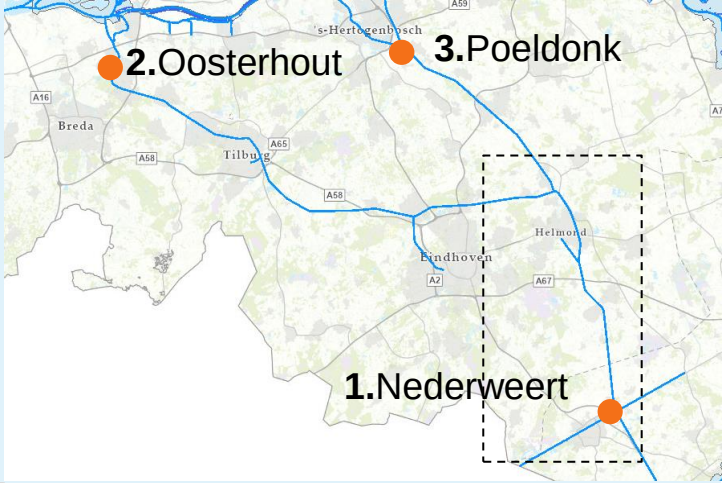



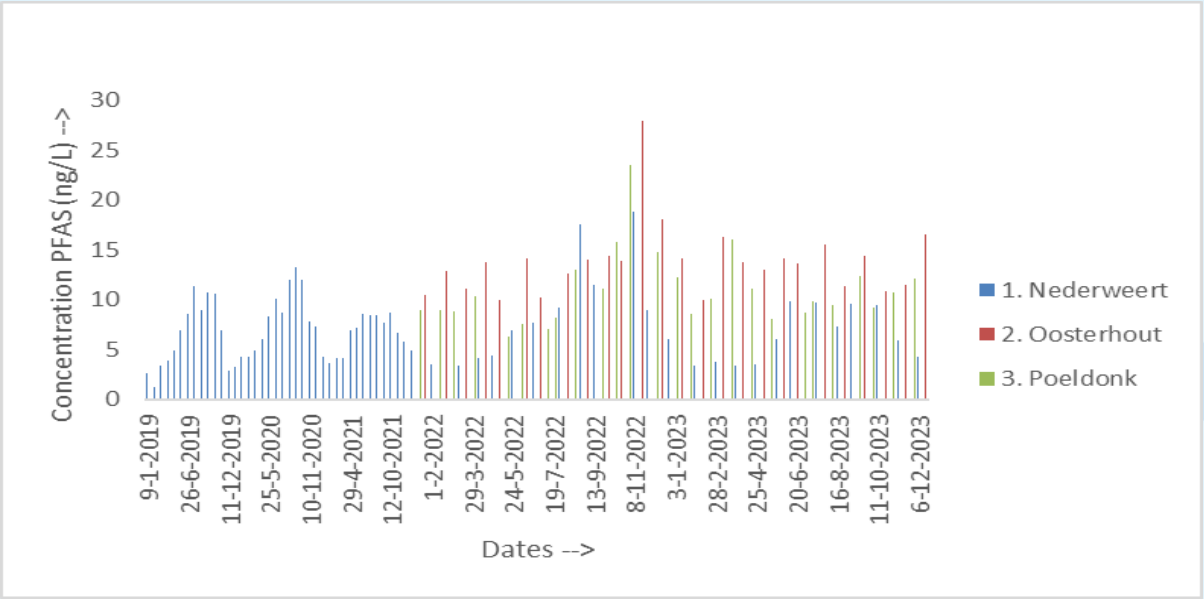

→ Larger increase towards Oosterhout

→ Implies discharger is in this area:

# PFBA + PFPA

## ii. Find increase in PFAS



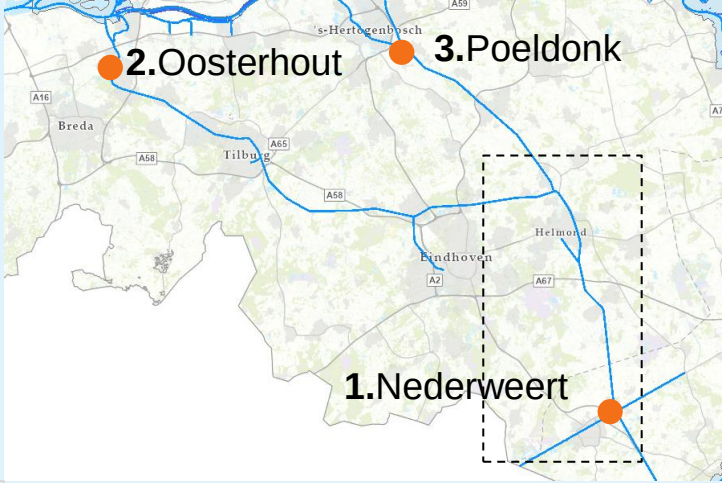

→ Comparable increase in concentration

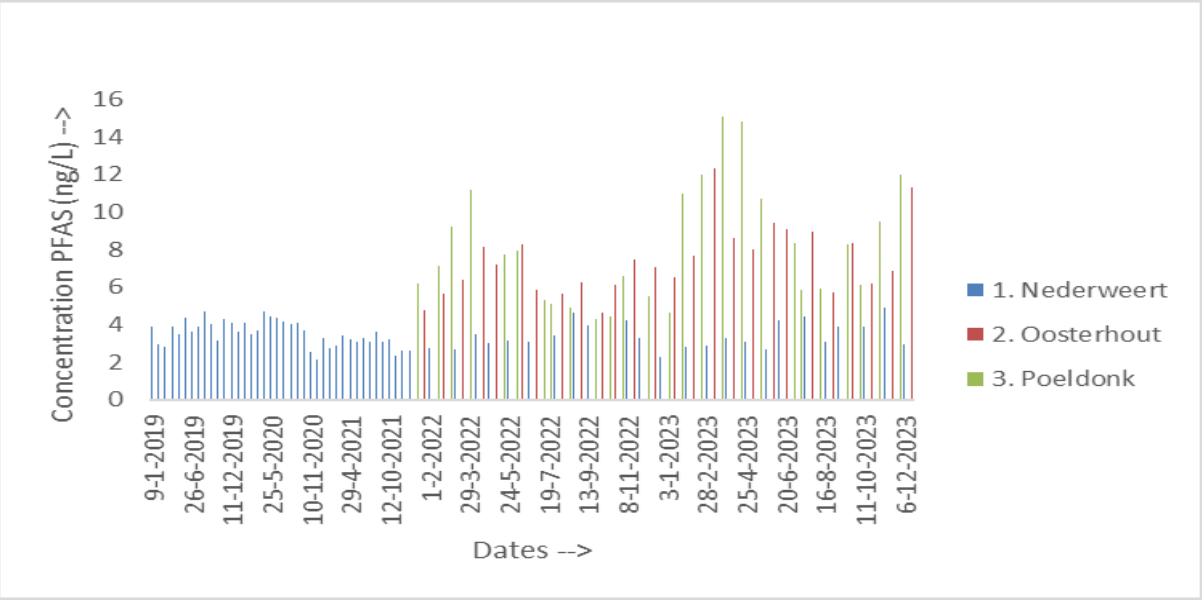
→ Implies a common discharger

→ Area until the split

# PFOA

## ii. Find increase in PFAS



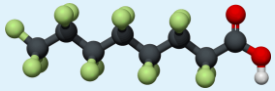

→ Comparable increase in concentration

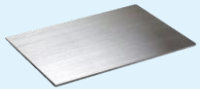
→ Implies a common discharger

→ Area until the split

# iii. Finding companies


Link segments to companies in PFAS producing industries:



Databases:

- Permits to discharge (IPPC)
- Registration Chambre of Commerce (NL)

→ Sewage Treatment Plants:
→ Receives indirect dischargers

IPPC

KVK WERKT VOOR ONDERNEMERS

# Interactive Map

RIWA
Vereniging van
Rivierwaterbedrijven

# Questions?

Thanks for listening!

If a question pops up later, send me an email on:
Jasper.ford@evides.nl

# (Back-up slides)

RIWA
Vereniging van
Rivierwaterbedrijven

# MB Graphs

RIWA
Vereniging van
Rivierwaterbedrijven

# Eijsden → Roosteren → Stevensweert (LB)

Dit traject heeft meerdere databases:

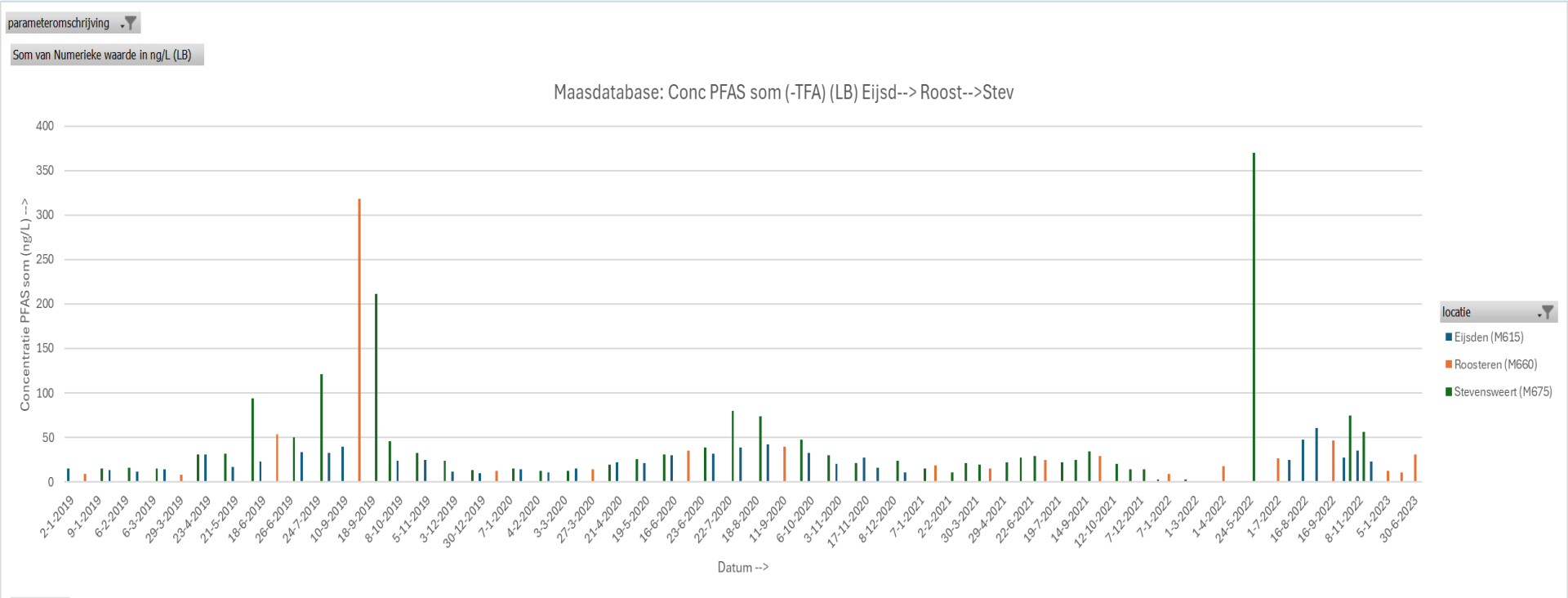
- **RWS**
- **Maasdatabase**

Ondersteunend

- Effluent van Heugem

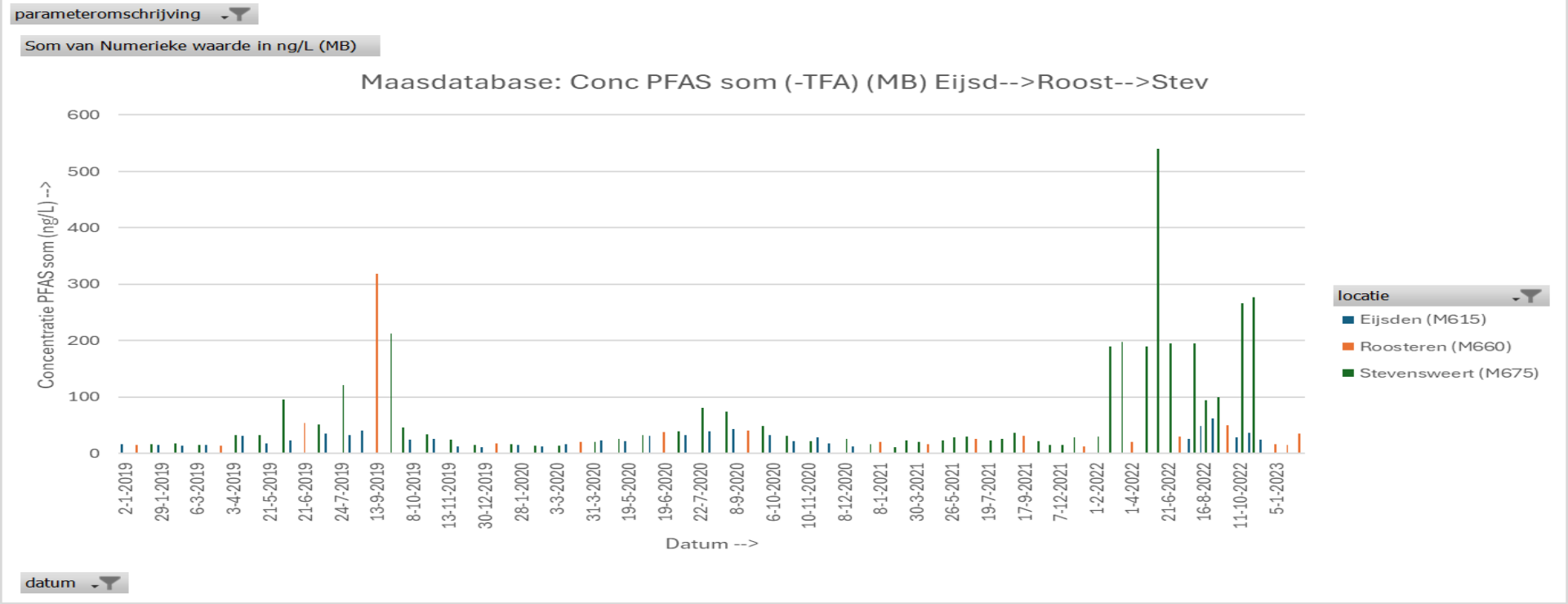
# Eijsden → Roosteren → Stevensweert (LB)

Vereniging van Rivierwaterbedrijven

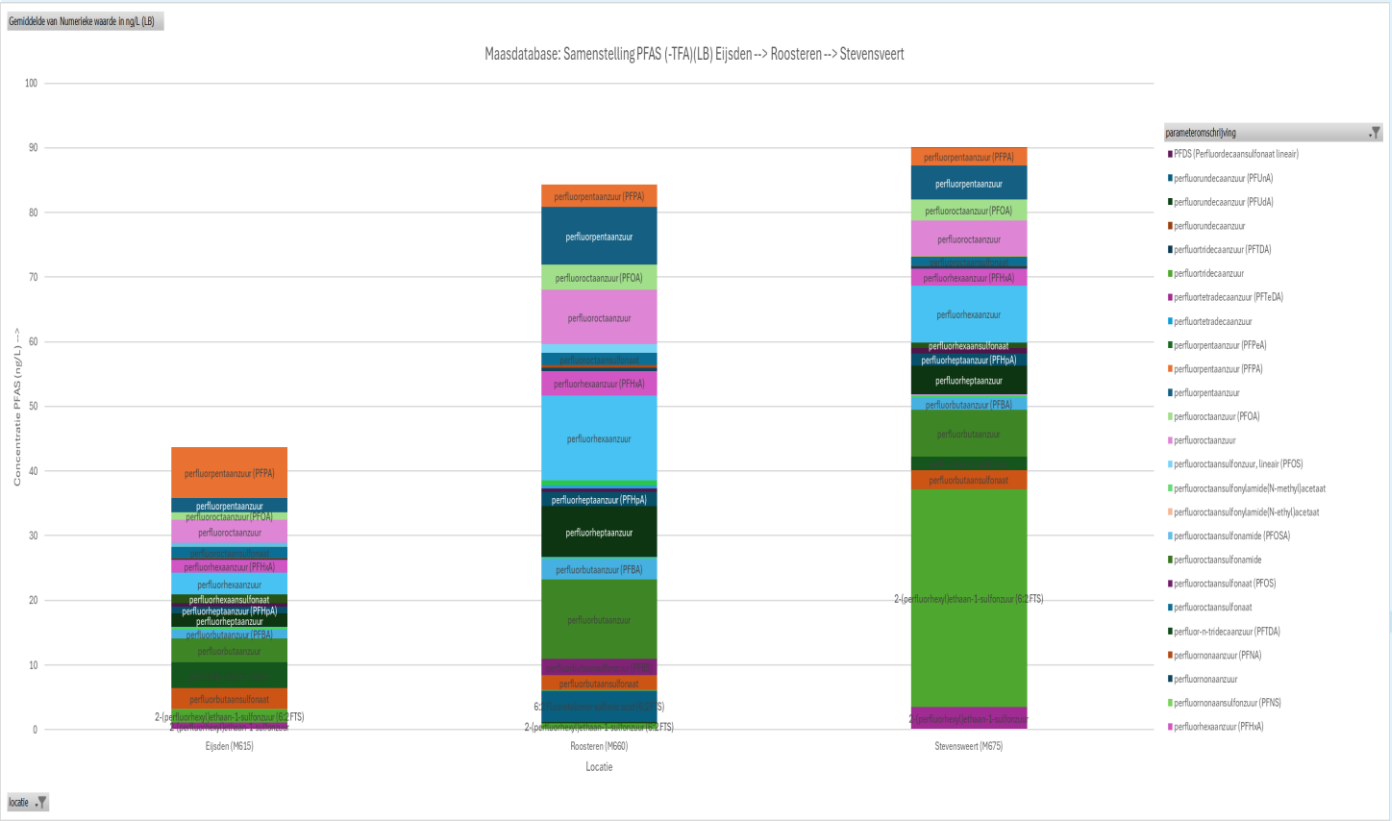


# Eijsden → Roosteren → Stevensweert (MB)

Vereniging van Rivierwaterbedrijven



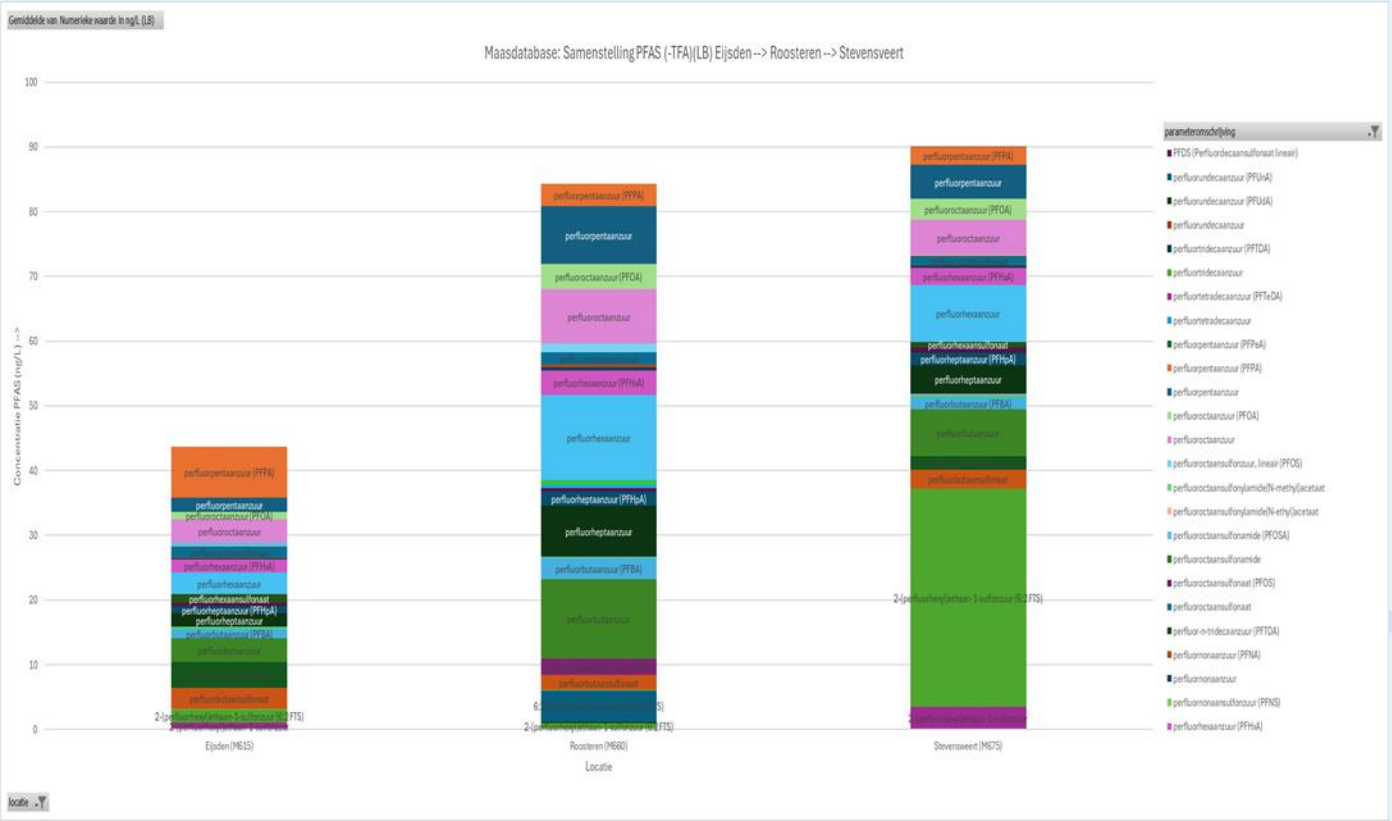
# 2. Maasdatabase: Samenstelling




Grote toename in **6:2 FTS**

→ Duidt op brand incident.

# Maasdatabase: Samenstelling (gemiddelde) PFAS (Zonder 6:2FTS, TFA)

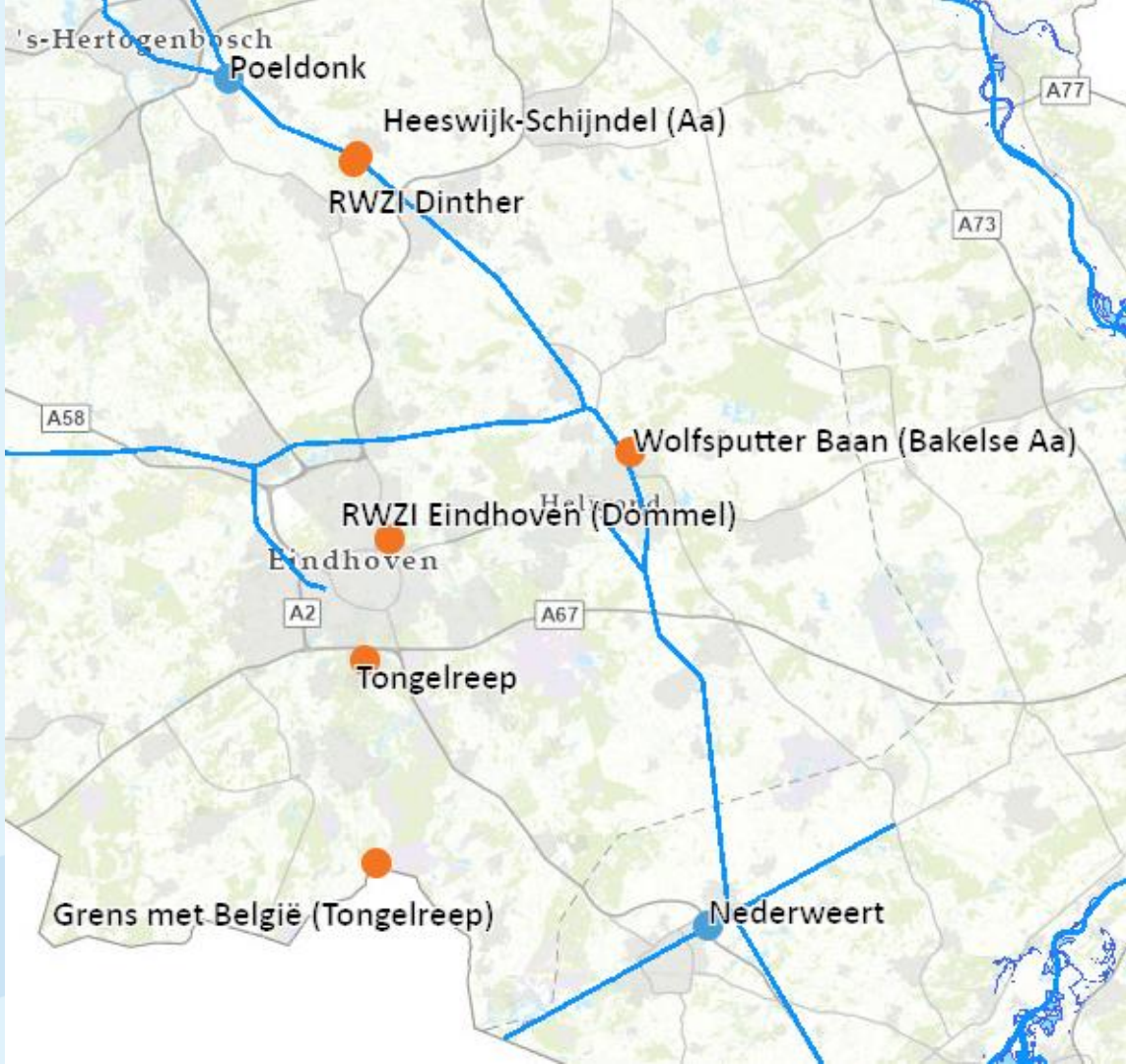



Grote toenames Tussen Eijsden en Roosteren in:

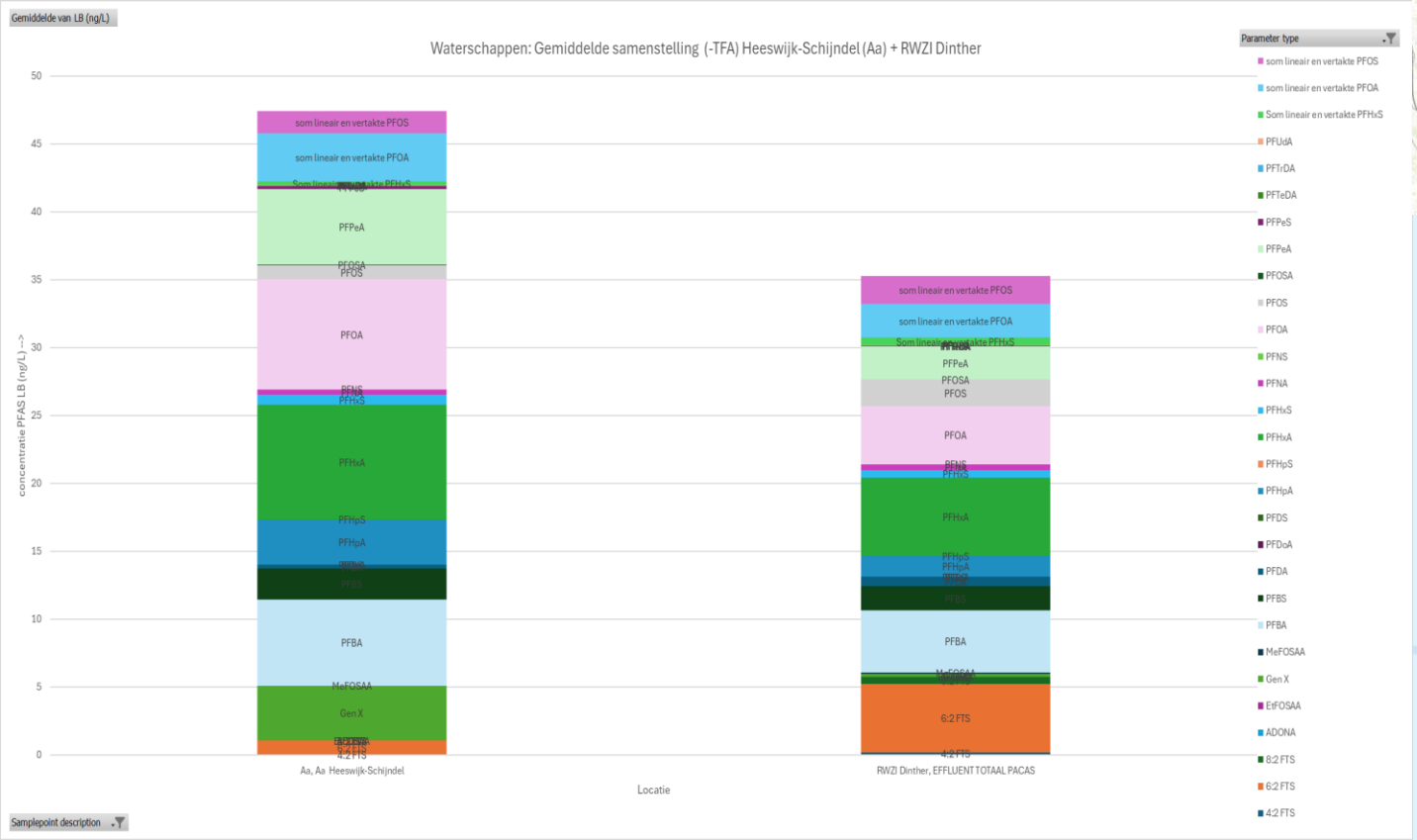
- PFBA
- PFBS
- PFPA
- PFHxA
- PFHeA
- PFOA

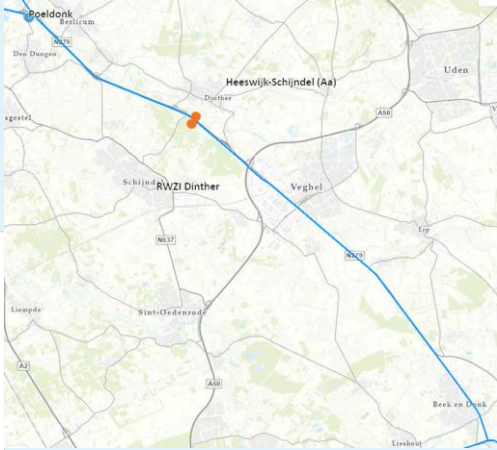
# 4. Example

Extra measuring points



# *Ondersteunend:* Heeswijk Schijndel (Aa) + RWZI Dinther




*Heeswijk-Schijndel:*

- GenX mogelijk afkomstig van Aa

*RWZI Dinther*

- GenX niet te zien.