WITH THE CONTRIBUTION OF THE LIFE FINANCIAL INSTRUMENT OF THE EUROPEAN UNION
LIFE16ENV/IT/000488 - LIFE PHOENIX

Perfluorinated compounds
HOlistic ENvironmental
Interinstitutional eXperience

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Life Phoenix

LIFE project PHOENIX: a new project for the management of water pollution from short chain perfluoroalkyl acids in Veneto region (Italy)

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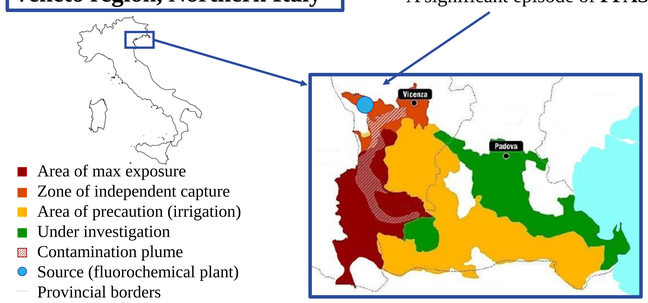
Background

Veneto region, Northern Italy

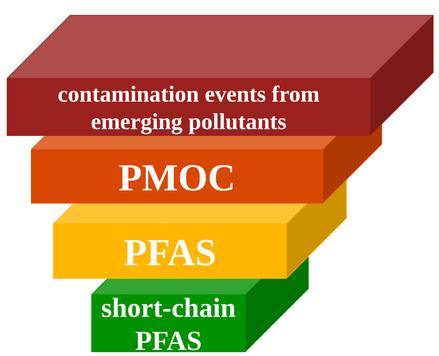


A significant episode of **PFAS** pollution of surface, ground- and drinking water has been discovered in 2013

2013 PFOA (ARPAV, 2018)
- 700 µg/L in the groundwater
- 3,4 µg/L in the surface waters
- 7,9 µg/L in the source waters of the Vicenza province

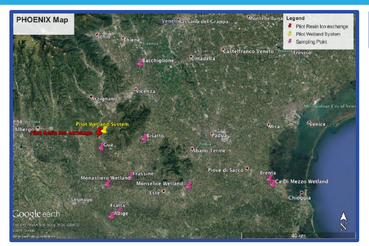
Regional authorities faced up with the emergency and put in place mitigation actions effective for long-chain PFAS

Aims of Life Phoenix project



- Propose an approach that help to avoid or at least to reduce public spending on damages caused by contamination from emerging pollutants (environment and human health)
- Promote the transferability and reproducibility of the approach to different geographical area
- Demonstrate how a **new interinstitutional governance system** can manage risks related to the diffusion of PMOC in/from water
- Investigate short-chain (C4-C6) PFAS environmental fate
- Develop innovative forecast tools and mitigation actions

Field Monitoring

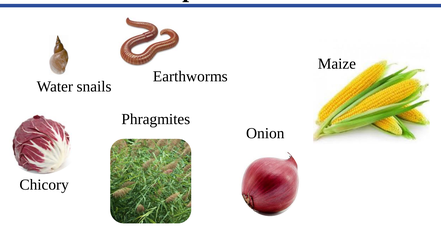


10 sampling stations

Selected areas include three red, four yellow and two green zones and an area uncompromised by PFAS (blank sampling station).

Samples

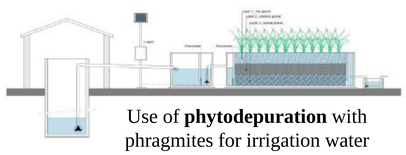
- **Animals**
- **Plants**
- **Water**
- **Soil**



Mitigation Strategies

Sustainable technological and natural solutions for mitigation of PFAS concentration in water

Wetland system



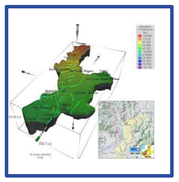
Use of **phytodepuration** with phragmites for irrigation water

Physical-chemical pilot-plant

Use of **ion exchange resins** for drinking water. This technology is based on *in-situ* regeneration that represents a cheaper alternative to the off-site regeneration of carbon filters

Integrated Forecast Tools

Tools for the estimation of contaminant distribution



Numerical model

Validated to understand flow and transport in groundwater
→ understand qualitative and quantitative processes, predict the processes, evaluate the interaction between PMOC and the different environmental matrices

Early warning

Biological systems to identify environmental stress by means the assessing of health status of biomarkers in *lumbricidae*

Chicory test

- PFAS adsorption
- K_{oc} and K_{od} determination

Management Actions

Panel of experts

Settled to define tasks, plans, roles and responsibilities, methods, priority to manage the pollution events

Permanent Regional Commission

Settled to define the decision-making strategy and implement emergencies and policy measures

Procedures and Guidelines

Drafted in support to local authorities and institutions for effective and immediate mitigation action

Data warehouse

An informative and statistic system of data will facilitate the data exchange of useful info

Project reference: LIFE16 ENV/IT/000488 **Coordinating beneficiary:** REGIONE DEL VENETO **Associated beneficiaries:** ARPAV, Azienda Zero, CNR-IRSA, UNIPD **Duration:** from 01-SEPTEMBER-2017 to 31-MARCH-2021

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