NATURE BASED SOLUTIONS TO REDUCE MICROPLASTIC POLLUTION FROM THE STORMWATER

[Gdansk Water]

Pilot station for stormwater treatment

The pilot station was established to verify the effectiveness of stormwater purification from microplastics, using Nature Based Solutions (NBS). It is a constructed wetland system that consist of properly selected filtration beds and plants (hydrophytes).

.

STORMWATER AS A SOURCE OF MICROPLASTICS

In cities, heavy rains wash away all kinds of debris that are sources of microplastic pollution - city dust, plastic litters, tire particles and granulates from artificial turfs. With the stormwater microplastics can easily enter the watercourses and ultimately the Baltic Sea. Are the constructed wetlands the solution to remove microplastics from the stormwater?

Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND
Gdańskie Wody

How does it work?

Stormwater from the stormwater collector is directed to a system of five steel tanks. The first tank contains probes that are used to measure basic parameters of water flowing into the station (e.g. pH, DO, temperature, redox potential, conductivity and turbidity).

It also plays the role of a sedimentation pond.

Two more tanks are filled with a filter beds (gravel of suitably selected grain size), in which the common reed (Phragmites australis) has been planted. Tank No. 2 is a bed with vertical flow (VF-CW), and Tank No. 3 - with horizontal flow (HF-CW).

After passing through the subsequent filter beds, the water goes to tank No. 4, which acts as a cleaning pond with a variable depth filter bed.

The last, fifth tank stores treated water and, like tank No. 1, is equipped with a measuring system.

Sampling

Pilot has been fully operational from August 2020. The sampling for microplastic analysis has already been done twice - in October 2020 and September 2021.

FANPLESSTIC-SEA

This fact sheet has been produced within FanpLESStic-sea, a project working with preventing and decreasing the pollution of microplastics in the water and the Baltic Sea.

Project period: Jan 2019 - Dec 2021
Total project budget: 3 m. euro
Partners: SALT, GIWK, ECAT, Gdanskie Wody, Aalborg University, Luke, Helcom, Latvijas hidroekologijas institūts, Siauliai CCIC, Luleå tekniska universitet, Sweden Water Research
*Read more: **www.fanplessticsea.com***

Fanplesstic-sea

Interreg Baltic Sea Region

EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

Gdańskie Wody