

Introduction to the  
**Fanplesstic-sea**



Final Conference, 30 November 2021

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# The FanpLESStic-SEA project

**Initiatives to remove microplastics before they enter the sea**

**Implementation period:** Project period is from January 2019 to December 2021.

- Prolongation of six months due to COVID-19

**Project budget:** total budget of 2 968068,80 euro with co-financing by the EU Interreg program



# The FanpLESStic-SEA: project aims



*Image courtesy of Alvise Vianello (Aalborg University)*

- To increase knowledge of where microplastics come from and their transport pathways
- To evaluate technology that can reduce microplastic or reduce microplastic leakage before reaching watercourses
- To increase knowledge and commitment of decision makers through suggestions on how to implement cost-effective methods to reduce microplastics.

# Project partners

## Coordinator: Sweden Water Research

- **Denmark:** Aalborg University
- **Finland:** Natural Resources Institute Finland (Luke)
- **Latvia:** Latvian Institute of Aquatic Ecology
- **Lithuania:** Siauliai Chambers of Commerce, Industry and Crafts
- **Norway:** Salt Lofoten AS (SALT)
- **Poland:** Gdansk Water Utilities Ltd.  
Gdansk Water Ltd.
- **Russia:** State Autonomous Institution of the Kaliningrad region  
"Environmental Center "ECAT-Kaliningrad" (ECAT)
- **Sweden:** Luleå University of Technology
- **HELCOM**



# The FanpLESStic-SEA: Work packages

WP1: Project management and administration, Lead: Sweden Water Research (SWR)

WP2: Systems perspective on microplastic pollution, Lead: Aalborg University (AAU)

- A2.1 Review of existing policies and research related to microplastics (Helcom)
- A2.2 Mapping of flows and pathways (AAU)
- A2.3 Mapping flows for a model region (SWR)

WP3: Microplastic removal technologies, Lead: Natural Resources Institute Finland (LUKE)

- A3.1 State-of-the-art microplastic removal technologies (LUKE)
- A3.2 Test and validate solutions (AAU)
- A3.3 Prepare investments for microplastic solutions (LUKE)
- A3.4 Pilot testing to develop and validate microplastic removal technologies (GIWK)

WP4: Capacity building to mitigate microplastic pollution, Lead: Gdansk Water Utilities Ltd. (GIWK)

- A4.1: Analyse barriers and raise willingness to act (SWR)
- A4.2: Public awareness raising (GIWK)
- A4.3: Build institutional capacity to implement microplastic solutions (SCCIC)

# Project outputs

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A model to map, understand and visualize microplastic pathways that will be applied to the partners' cities/regions.

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Piloting of new technology i) for filtering away microplastics; ii) sustainable drainage solutions as means for removal of microplastics; and iii) to remove microplastics from stormwater.

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Defining innovative governance frameworks and engaging a large range of players for implementation of coordinated and cost-efficient measures resulting in locally adapted investment proposals/plans for each partner's region.

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Dissemination of project results, including reports on barriers and ways forward, to increase institutional capacity on up-stream and problem-targeted methods to remove microplastics

# Review of existing research (HELCOM) – Main report in English, translations of the policy brief



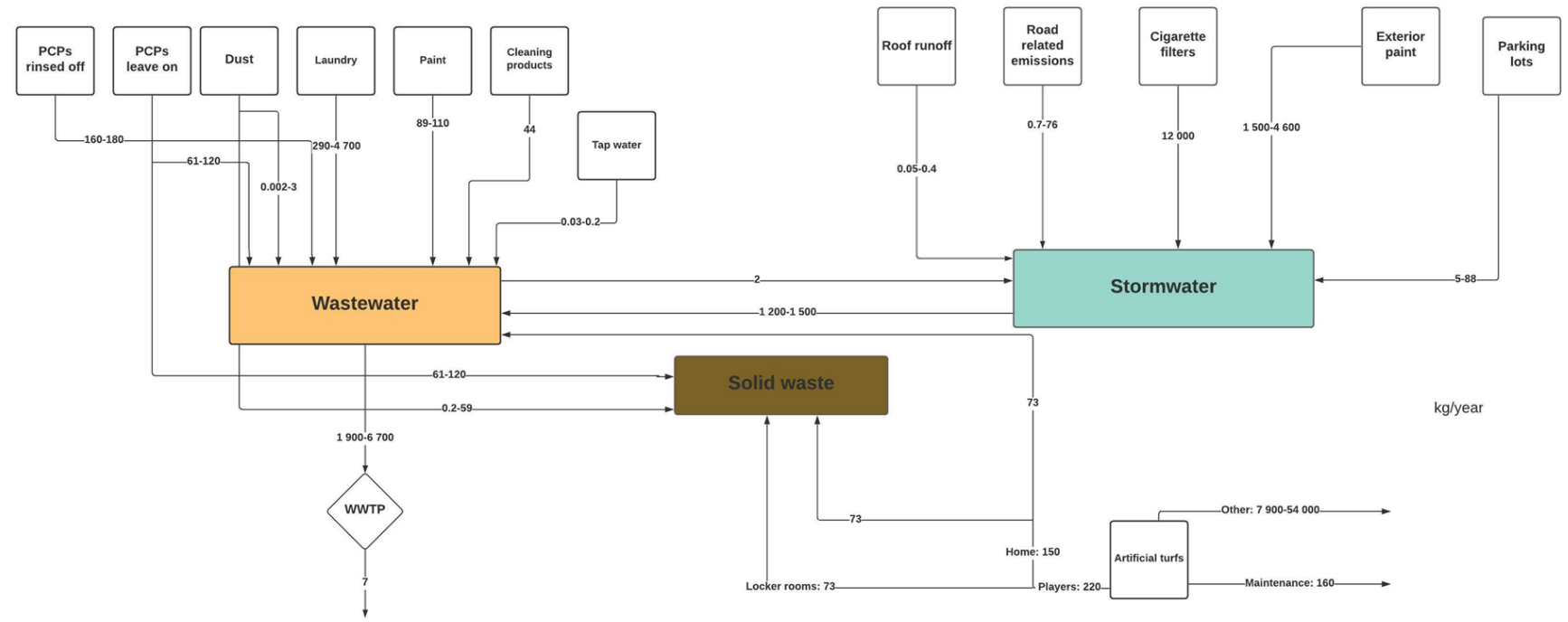
# Mapping of flows and pathways (AAU)

Sampling activities were performed in different places by different partners



# Microplastic flow in a model city

- Flows of Microplastics in a Model region



Microplastic flows

# State-of-the-art microplastic removal technologies (LUKE) – a report on Traffic microplastics and Existing and emerging removal technologies for microplastics removal



HELCOM has prepared summary outputs of these reports, HELCOM policy briefs are in the process

# Pilot installations (LUKE)



# Pilot installations



# Fact sheets



## 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 litter, 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?



Total project budget: 3 m. euro  
Partners: S&T, GIWK, EC&T, Odensek Wody, Aalborg University, Luleå, Helcom, Latvijas hidroloģijas institūts, Svalofas CCIC, Luleå tekniska universitet, Swedish Water Research  
Read more: [www.fanplesstic-sea.com](http://www.fanplesstic-sea.com)



## MICROPLASTIC EMISSIONS FROM LAUNDRY

Master thesis project from Linköping University

Who is responsible for controlling the emissions? Microplastics emitted from textiles during wash has been highlighted as a large source of microplastics to the wastewater treatment plant. There are possible reduction measures that can be implemented both at the laundry machine and further downstream at the wastewater treatment plant. There are also preventive measures that can be taken before the garments are washed, such as changes in knitting techniques and consumption and washing behavior. Consequently, there are many different actors in the system that can influence emissions of microplastics from laundry.

### WHAT IS MICROPLASTICS?

Marine littering is one of the greatest environmental challenges of our time and plastic is one of the most common types of garbage in the sea. Microplastics are plastic particles that are smaller than 5 mm in size.



### FANPLESSTIC-SEA

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

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## MICROPLASTICS IN DRINKING WATER

Swedish Water Association

Can plastic pipes contribute to microplastics in tap water? The drinking water from Vombsverket in Skåne has been analyzed in terms of number of particles, pulp and polymer type and the report show that the content of microplastics appears to be 500 to 5,000 times lower in the examined water than in packaged drinking water. The report addresses results from two subjects. In one, the possible addition of microplastics from plastic distribution lines with primarily infrared imaging technology was investigated, in the other, nanoparticles were analyzed using partly new methods.

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## MICROPLASTICS IN WASTEWATER STREAM

Gdansk Water Utilities

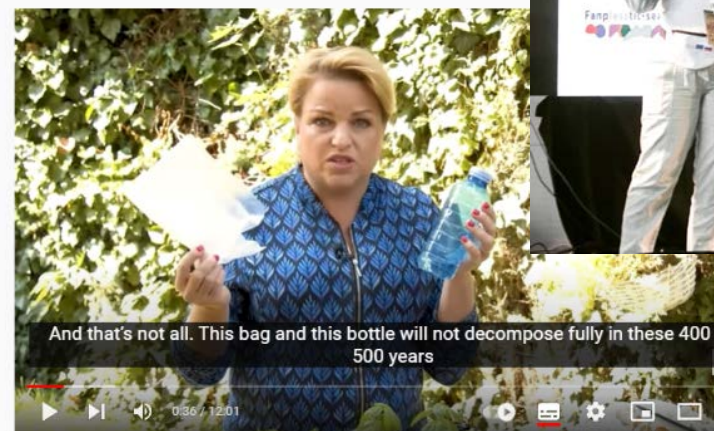
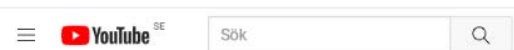
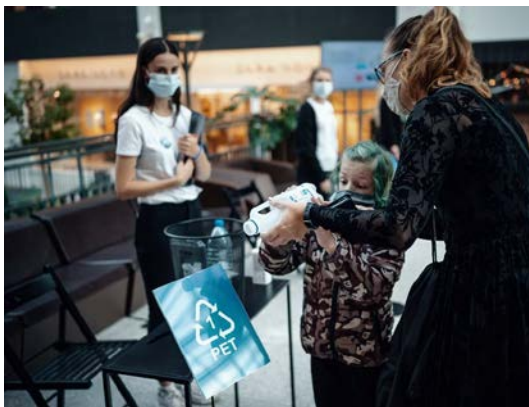
Microplastics in the wastewater treatment plant effluent. Wastewater is one of the main inputs of microplastics (MPs) to the aquatic environment and conventional wastewater treatment plants (WWTPs) play an important role in releasing MPs to water bodies. Even though they are said to remove microplastics to a certain extent, they represent a significant source of MPs in terms of load. Therefore the potential microplastic-targeted tertiary treatment technologies at the WWTPs are essential to develop. Recent years have brought interest in more nature-based solutions, such as constructed wetland technology.

### WHAT ARE CONSTRUCTED WETLAND SYSTEMS?

Constructed wetlands (CWs) are ecologically-engineered systems that utilize natural physical, chemical and biological treatment processes involving wetland vegetation, soils, and associated microbial assemblages to remove pollutants and improve water quality. CWs are nowadays a well-known technology for wastewater treatment.



# Public Awareness Raising



# Thank you!

<https://www.swedenwaterresearch.se/en/projekt/fanplesstic-2/>

<https://helcom.fi/helcom-at-work/projects/fanplesstic-sea/>

