



Norwegian
Environment
Agency

Monitoring of microplastics and use of digital tools on removal of marine litter

An introduction to the Norwegian microplastic monitoring program and the digital tool Rent hav

The Norwegian Environment Agency

Ragnhild Nyland, Innovation in environmental protection- Conference, Prague, 5/6/2024

Agenda:

- Microplastics
 - Introduction to the Norwegian monitoring program
 - Example on monitoring Tyre Wear Particles
- Rent hav - Clean Sea
 - Short presentation of the tool
 - Examples on user-interactive mapping features
- Summary



Microplastics monitoring program

- Microplastics in Norwegian coastal areas, rivers, lakes and air (MIKRONOR)
- Analysis program of particles between 50 μm to 5 mm
- Program started in 2021
- Detailed reports are available in English

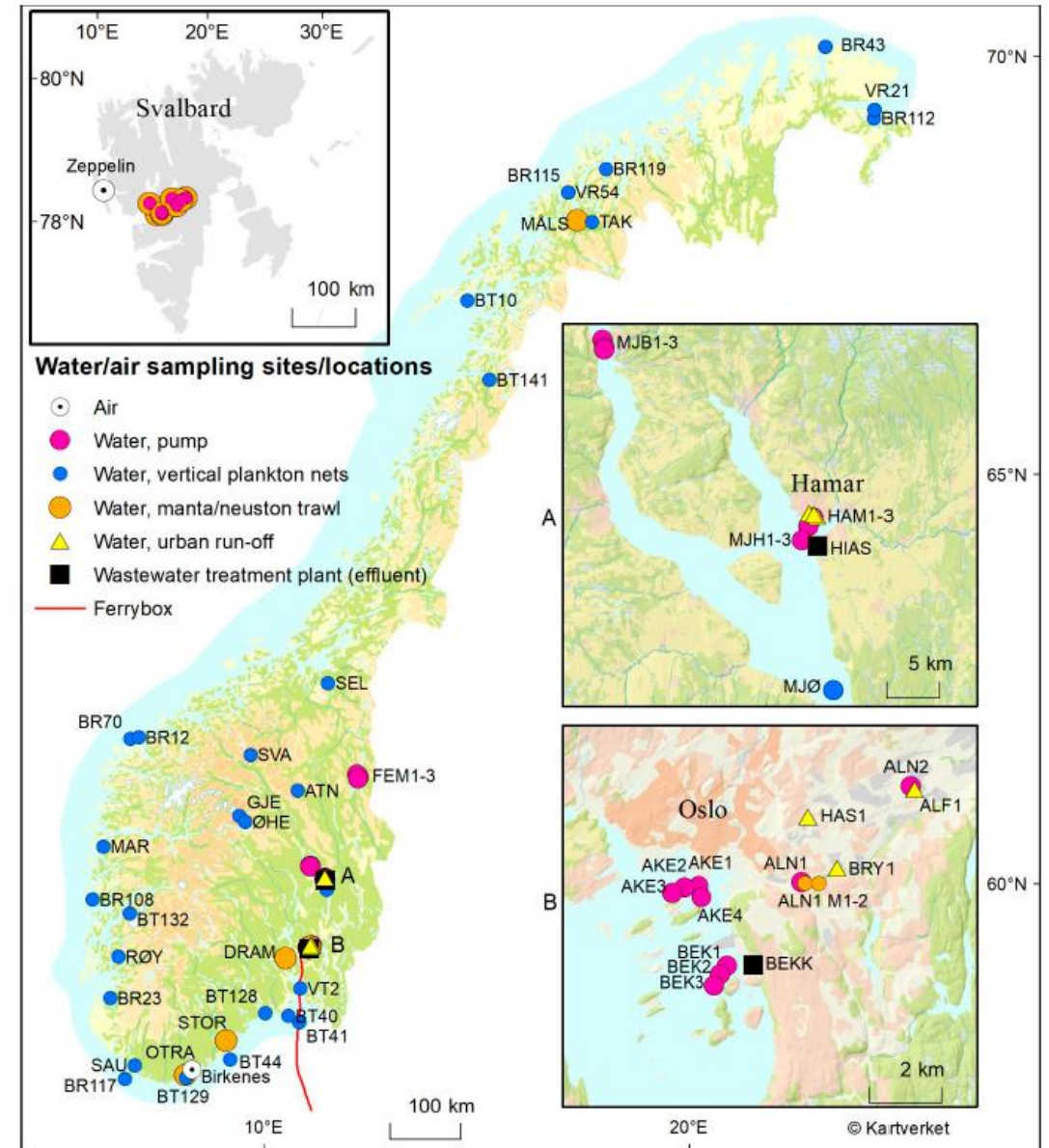


Figure 1. Stations for the analysis of microplastics in water/air samples 2023; stations codes in Table 2.



Monitoring objectives

- Document the quantity and types of microplastic pollution in the external environment
- Monitor variations across geographical areas and types of samples, as well as changes and trends
- Contribute data to document major pathways and sources



Sample types

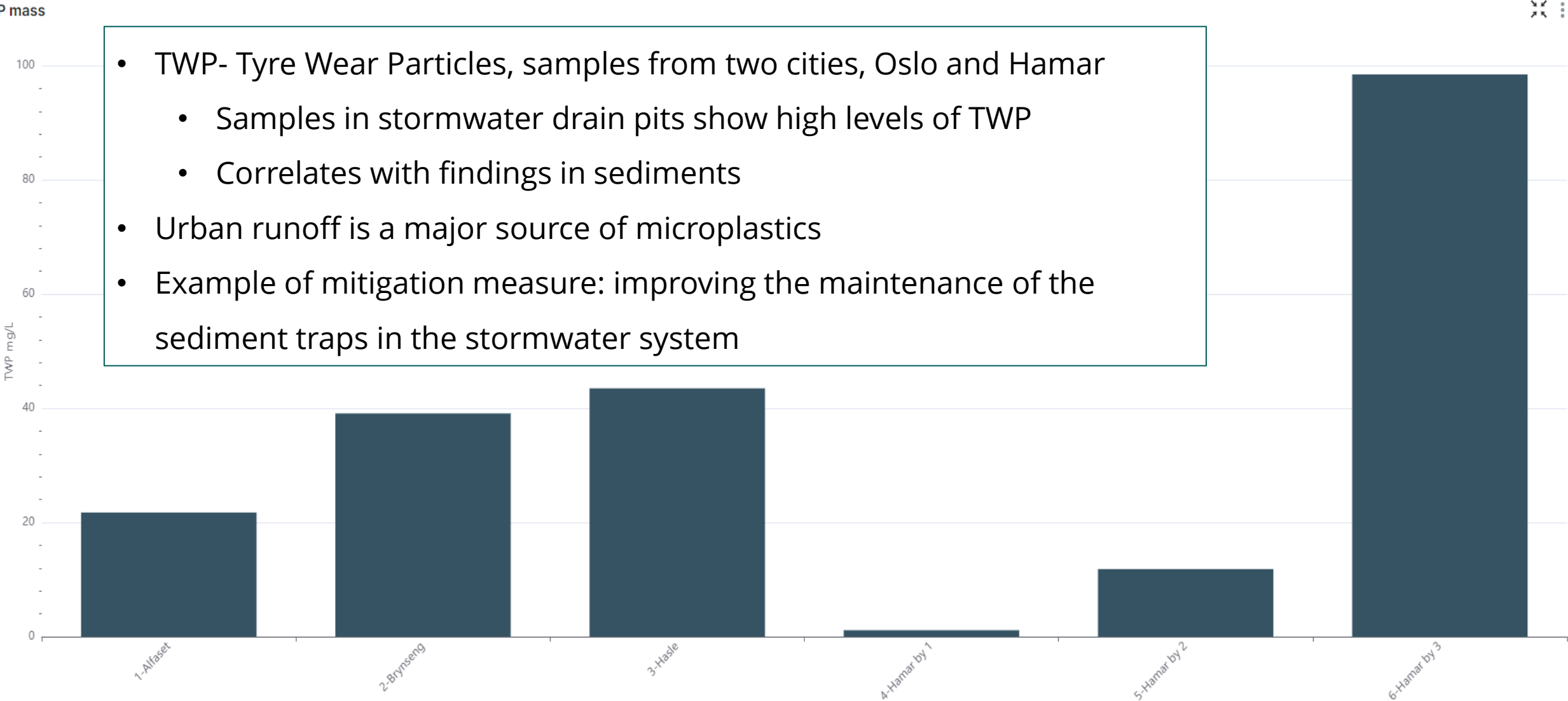


- Using seven pre-existing monitoring programs to collect samples
- Sampling from sediments and biota in freshwater and marine environments, and both from active air and deposition

An example: Tyre Wear Particles

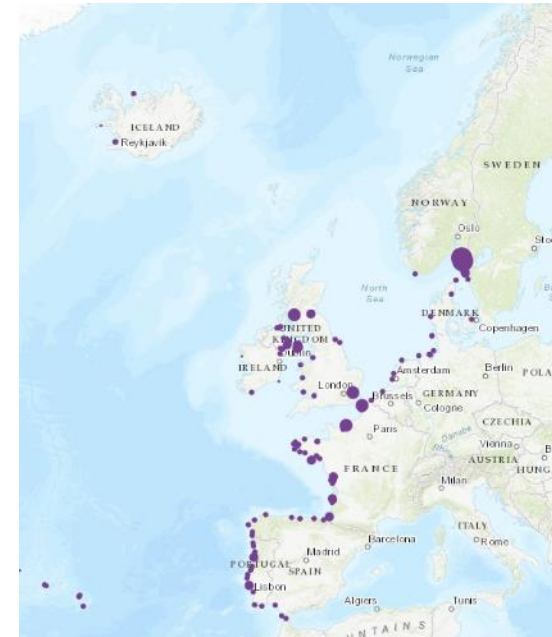


- TWP- Tyre Wear Particles, samples from two cities, Oslo and Hamar
 - Samples in stormwater drain pits show high levels of TWP
 - Correlates with findings in sediments
- Urban runoff is a major source of microplastics
- Example of mitigation measure: improving the maintenance of the sediment traps in the stormwater system



Monitoring beach litter

- OSPAR monitors litter along the North-East Atlantic coastline
- More than 70 beaches
- Registration of items along a 100-meter span of coastline
- Sorting marine litter into 112 categories according to the OSPAR Guideline
- Norway monitors 13 beaches with yearly reports to OSPAR





Rent hav | Clean Sea

Collecting national cleanup data from multiple sources

But *Rent hav* is also a tool for mapping, prioritizing and coordinating cleanups

- Prioritization of areas to clean
- Links participants and tasks
- Registration from cleanups - amounts and types of litter



🔍 Search

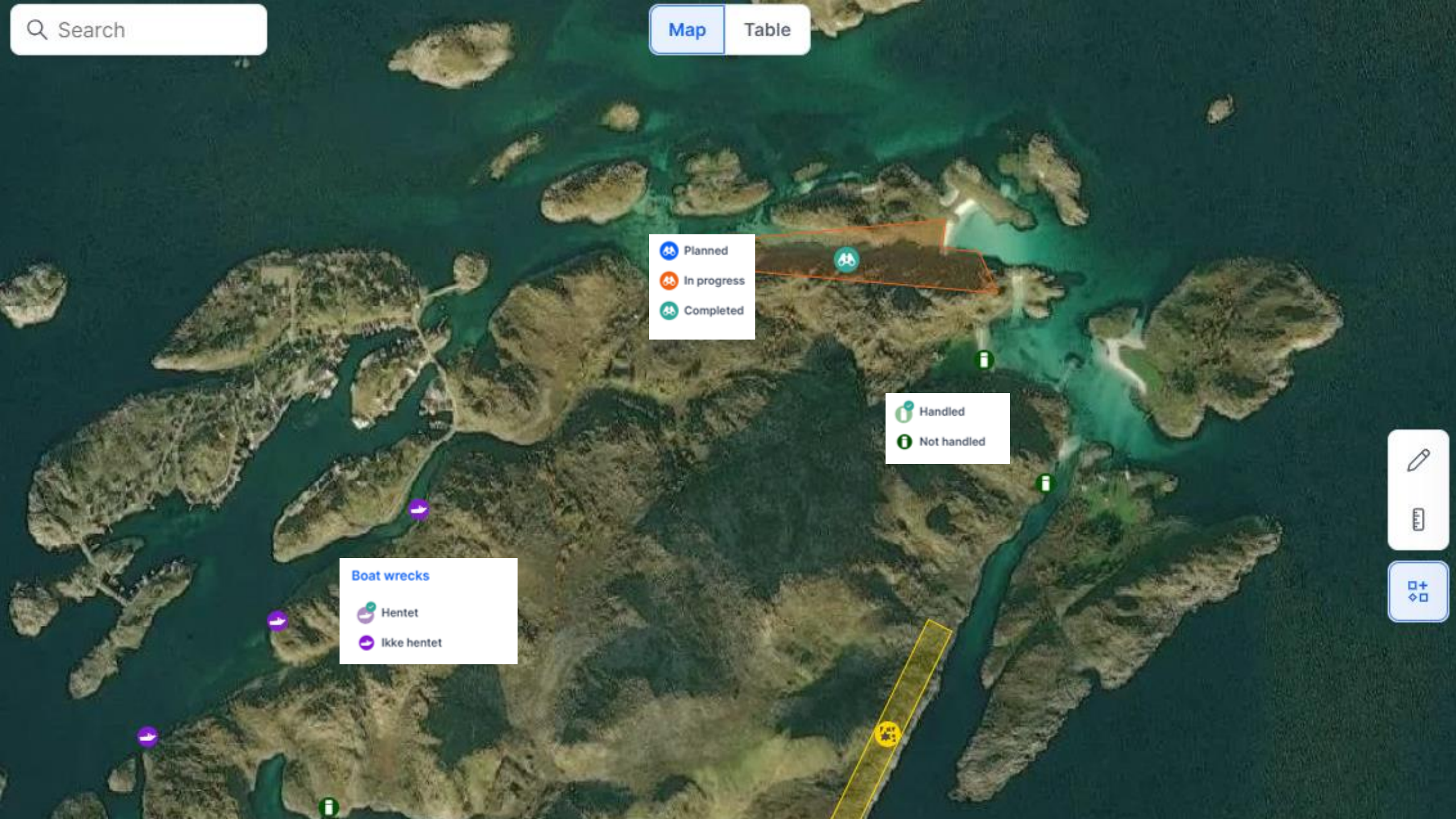
Map Table

- 📅 Planned
- 🚧 In progress
- ✅ Completed

- 📄 Handled
- 📄 Not handled

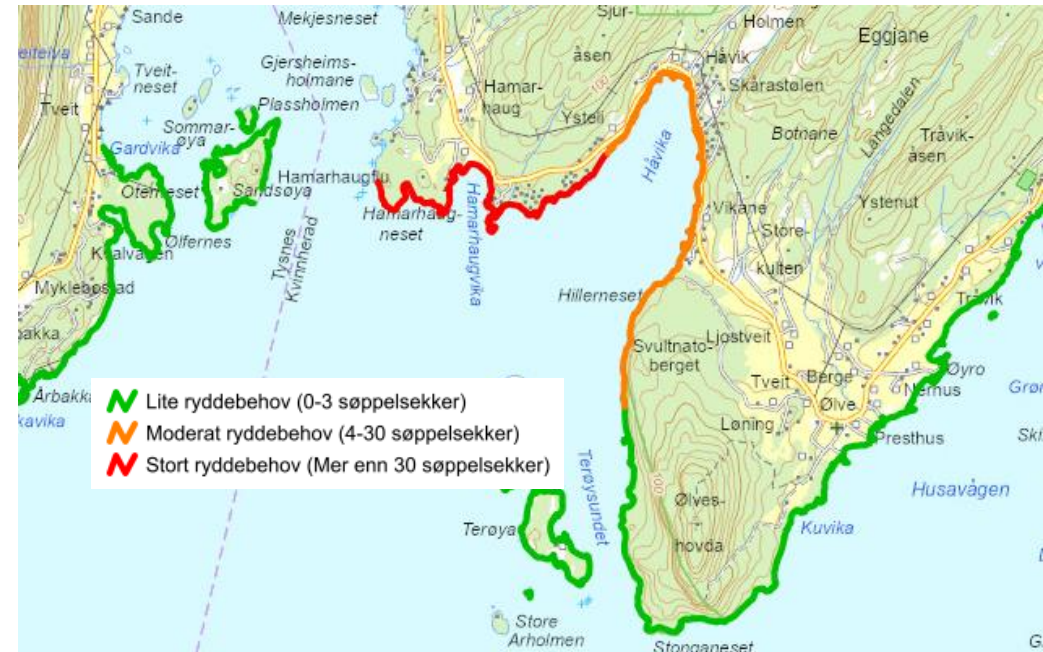
- Boat wrecks**
- 📄 Hentet
 - 📄 Ikke hentet

📄
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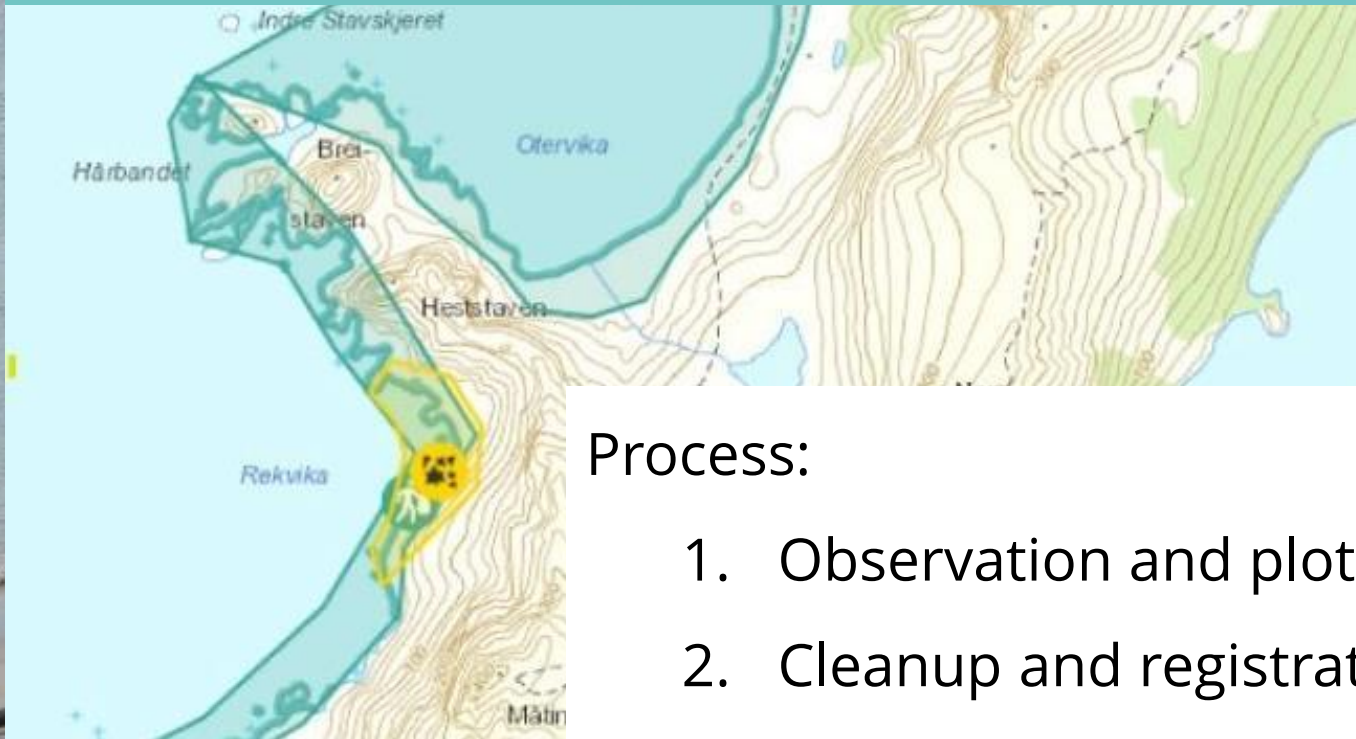


GPS technology for efficient beach litter field inspection

- *Rent hav*-mobile app is tracking the coastline as you walk or observe by boat
- And you estimate and plot beach litter levels: small, medium, large, based on needed garbage bags
- Planning efficient cleanups



Integrating monitoring with cleanups



Process:

1. Observation and plotting a hot spot
2. Cleanup and registration of findings - new baseline
3. Returning and new cleanups - observing trends and identifying recurring items

National cleanup data - timeline of collected marine litter

Amount of cleanup operations

Waste: 14,352' kg
Cleaned coastline: 76,465 km [i](#)
Participants: 601,508 pcs [i](#)
Cleanup operations: 40,662 pcs

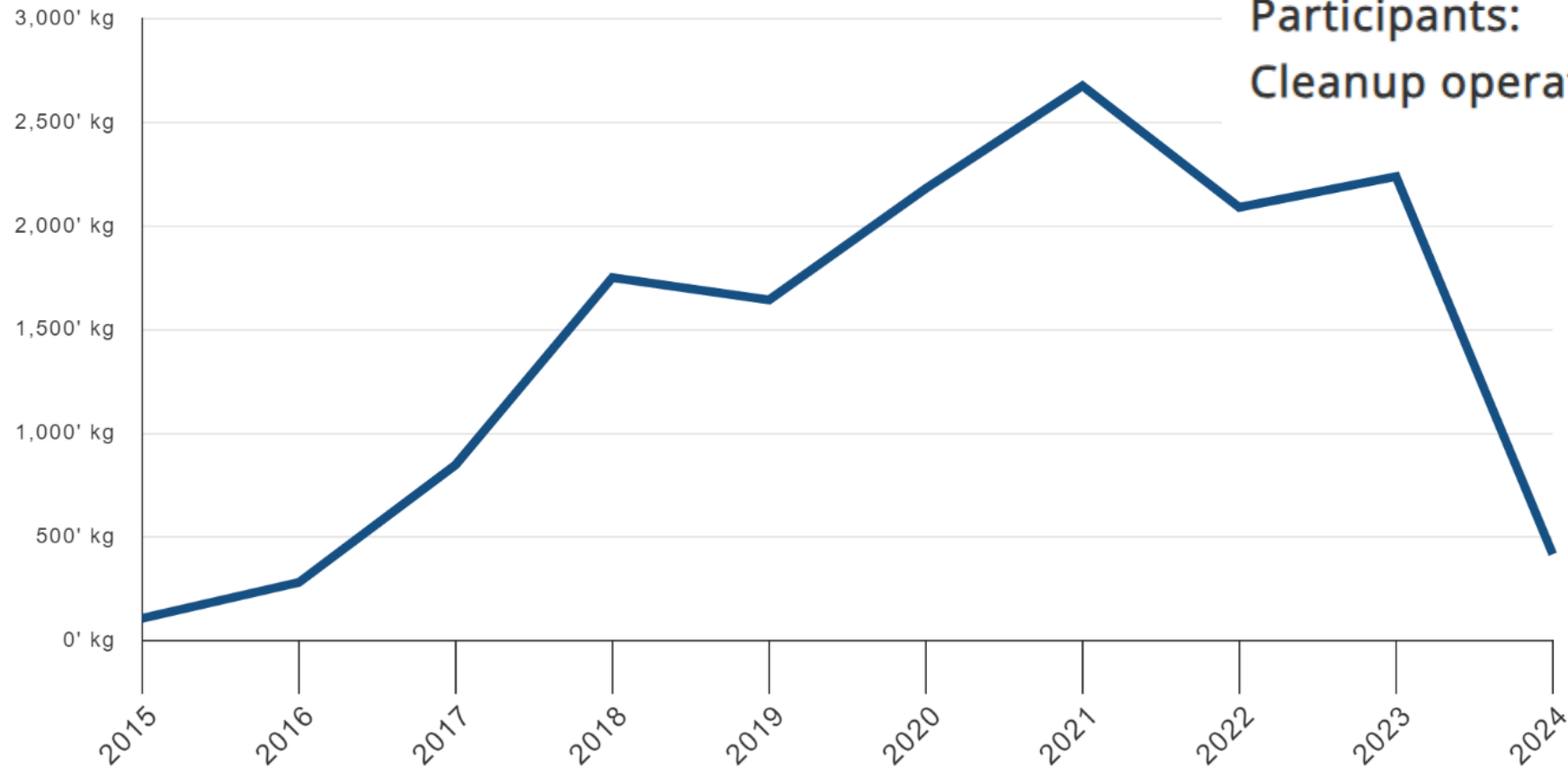




Photo: Norwegian Environmental Agency

Summary

- *MIKRONOR* got a quick start by “hitchhiking” on other existing monitoring programs
- *MIKRONOR* contributes to the work on standardized methods for international monitoring of microplastics
- *Rent hav* is specially designed to support the work on marine litter
- *Rent hav* is documenting and visualizing both the funded and the volunteer cleanups and collecting data from multiple sources
- Open and online accessible data
 - www.mikronor-data.no
 - www.renthav.no



Thank you for your attention!

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