Microplastics on the seabed inadequately mapped

February 16 2016

Researcher Marte Haave at Uni Research says it's necessary to map the scope and effects of microplastics, and hopes a new project in the Byfjorden in Bergen will get funding. To the left master's student Tiril Klunderud, UiB, who Haave co-supervices. Credit: Andreas R. Graven

Nobody knows the amount of microplastics on the seabed along the

coast of Norway. Uni Research in Bergen wants to start investigations in Byfjorden.

Microplastics on the seabed are inadequately mapped, both in Norwegian and international waters.

"Plastics are a form of pollution that will continue to increase. It will therefore be necessary to map the scope and effects of microplastics, for instance the absorption of microplastics in the food chain", says researcher and toxicologist Marte Haave at Uni Research.

"When the EU directive for maritime strategy is implemented in 2016, Norway too must get an overview of all pollutants in the sea, including microplastics", she continues.

Must supply data in Norway as well

A report from the World Economic Forum suggests that there are large amounts of plastics: by 2025, we risk having the world's oceans contain one tonne of plastics for every three tonnes of fish.

This plastic is broken down into small particles that bind pollutants, are ingested by fish and risk ending up on our dinner table.

Haave notes that ingestion of plastics has already been shown in crayfish, crab, and mussels, though she does not believe it is necessary to stop eating seafood for that reason.

"We know far too little so far, and the authorities have very little data to rely on. However, many countries, through the UN and EU, are eager to document the situation. It is just a question of time before we have to be able to supply data here in Norway as well", says Haave.

Potential harm

Haave is heading a new project that is applying for funding from the Regional Research Fund for West Norway. The researchers are hoping to start microplastics investigations in Byfjorden in Bergen as soon as possible.

"It is well-known that large plastics damage fauna and the environment. The potential harm from microplastics to humans and animals is also significant", says Haave.

Bottom-feeders, shellfish and fish can mistake microplastics for phytoplankton and believe it to be food. For instance, mussels may ingest microplastics because they filter large amounts of water to capture small, edible particles.

"As plastics may bind pollutants, there is a clear risk of harmful substances entering the food chain and the food we eat. The significance of microplastics to an animal's absorption of pollutants is a hot research topic. If, as a consumer, you are eating fish you buy or catch, you want the food safety authorities to have enough knowledge to assess whether the fish is safe, for instance based on where it is caught", says Haave.

She points out that Uni Research's project will be a very important first step as it will give researchers a data set for the incidence, scope and sources of microplastics.

"We hope that the knowledge platform we are building in Bergen will benefit researchers across the country", says Haave.

Benefiting from decades of data

Researchers are benefiting from data based on more than forty years of monitoring in Byfjorden in Bergen and the surrounding area.

"The detailed knowledge of these areas is very helpful, because we know so much about currents and where other waste is deposited on the seabed. We also have access to more samples through the monitoring carried out by the Bergen municipality", says Haave.

Uni Research Environment, SAM Marin, is also a co-supervisor for master's student Tiril Klunderud at UiB, who will receive training in Germany to learn more about the methods of analysis that are starting to come into use there.

In order to have good comparisons with other countries and areas it is very important that the methods used are the same.

With this training, the laboratory will be he only one in Norway thus far to conduct studies of microplastics on the seabed using the methods that will likely be preferred in Europe, according to Haave.

From paint, tires, cosmetics

Microplastics may originate in plastics production, paint or tires, or be broken down plastic waste, but can also come from cosmetics, toothpaste and fibre in synthetic clothing. Like abrasives in for instance exfoliants and toothpaste, tiny plastic fibres from clothing end up in the wastewater when being washed.

"It has been shown that there may be as much as thousands of particles from each item of clothing in each wash", says Haave.

Microplastics are also created when larger plastic items are broken down, such as when larger pieces of plastic waste are worn down or

broken down by UV light, wind, waves and weather.

One of the goals of the study is to combine well-known methods of investigation, so as to over time build a solid foundation of knowledge for the authorities that manage coastal and ocean areas in Norway.

Another goal of the project is to map how microplastics have spread along the coast of Norway.

"Both taking samples on the seabed and finding out how much plastic is there is very expensive and labour-intensive. It is therefore smart to use models of currents to show where the plastics most likely have ended up, and then take samples where we expect to find plastics or where we expect clean areas. A good model can save a lot of extra work and lead to good answers quicker and cheaper", says Haave.

Provided by Uni Research

Citation: Microplastics on the seabed inadequately mapped (2016, February 16) retrieved 25 April 2024 from https://phys.org/news/2016-02-microplastics-seabed-inadequately.html