

Project process

Problem



Release of microplastics from washing of textiles

Goals



Reduce microplastic in the ocean



Awareness of Microplastics



Create more sustainable habits

Methods



survey



Offer solutions



Pitch



Nudging



Awareness

Interdisciplinary



Vegard: Knowledge about the human mind and behavior; illustrations, survey

Erle: Knowledge about the ocean resources, passionate, research

Ida: Knowledge about sustainable development, academic writing structure, culture

Silje: Knowledge about environmental toxicology, research

Jenny: Concept visualization, poster design, time management

FREE TRONDHEIM OF MICROPLASTICS

A local solution for a global problem

Background theory

What are microplastics?

Microplastics are small synthetic particles that are less than 5 mm in diameter (Frias and Nash, 2019). Sources of microplastics are car tire wear, road dust, rubber granules, paint, personal care products, textiles and degradation of larger plastic pieces. Most of the clothing today have plastic fibers like polyester and nylon which is released from the clothes when washed and end up in our environment. Microplastics are persistent in the environment and is not biodegradable (Miljødirektoratet, 2021).

Effects of microplastics

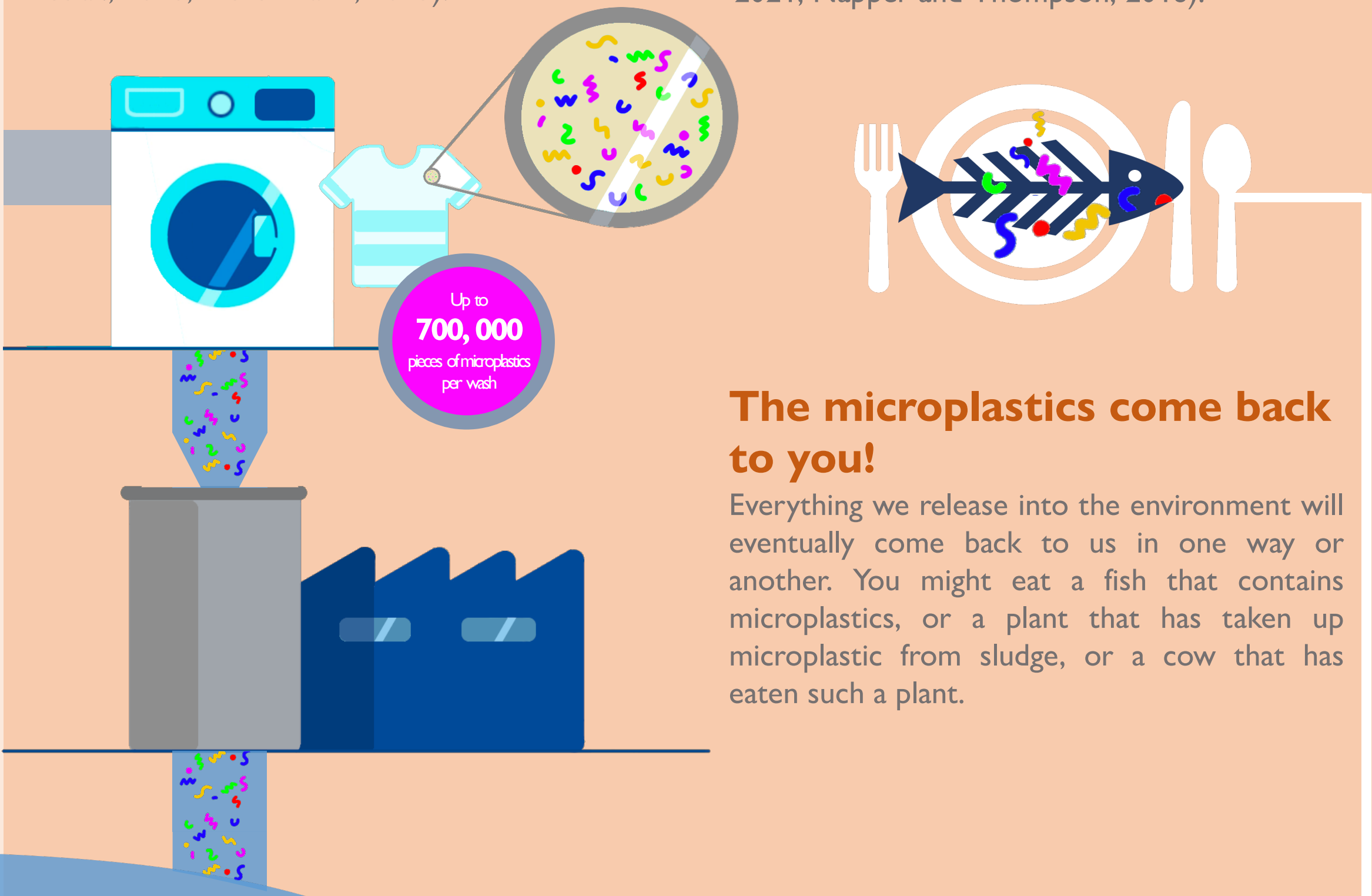
Microplastics affects many types of organisms, from small filter feeders and fish in the water to plants, birds, insects, and mammals on land. Increased amount of microplastics can accumulate in the stomach of animals. Some get absorbed, ending up in the bloodstream where it's transported around the body. Microplastics can leach toxic chemicals or cause physical damage, which can have a negative effect on physiological functions, health, and survival (Napper and Thompson, 2016).

Wastewater treatment plant

At the wastewater treatment plant 20% of the wastewater goes straight to the ocean. 80% of the water waste is chemically or biologically treated, but not specifically for microplastics. For this reason, microplastics is present in the wastewater going into the ocean and in the sludge used for fertilizer in agriculture (Murphy et al., 2016; Norsk Vann, 2023).

Microplastic is in the ocean?

19 000 tons of microplastics is released in Norway every year, 50% of that end up in the ocean (Miljødirektoratet, 2021). When fish and other organisms ingest the particles, microplastics can then be transferred up the food chain when other animals eat the contaminated organisms (Miljødirektoratet, 2021; Napper and Thompson, 2016).



The microplastics come back to you!

Everything we release into the environment will eventually come back to us in one way or another. You might eat a fish that contains microplastics, or a plant that has taken up microplastic from sludge, or a cow that has eaten such a plant.



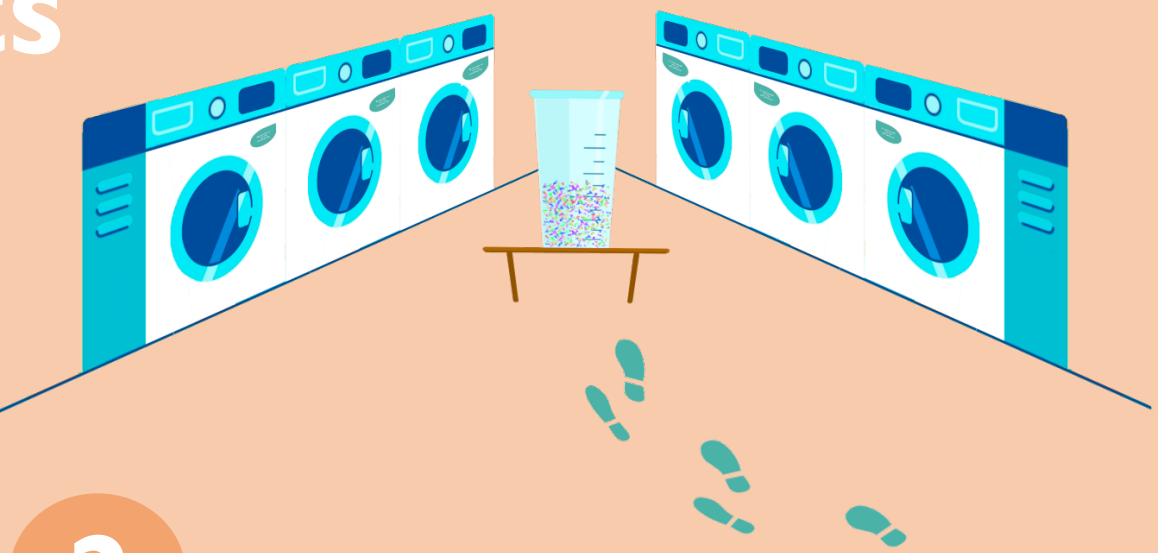
Group 5

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Solution and Results

1 Concept idea

The problem we seek to solve is the release of microplastics from the washing of textiles. Our concept is to make Sit implement means of action to raise awareness and a washing bag called the Guppyfriend bag in their laundry rooms. The bag filtrates out more than half the microplastic in a wash.

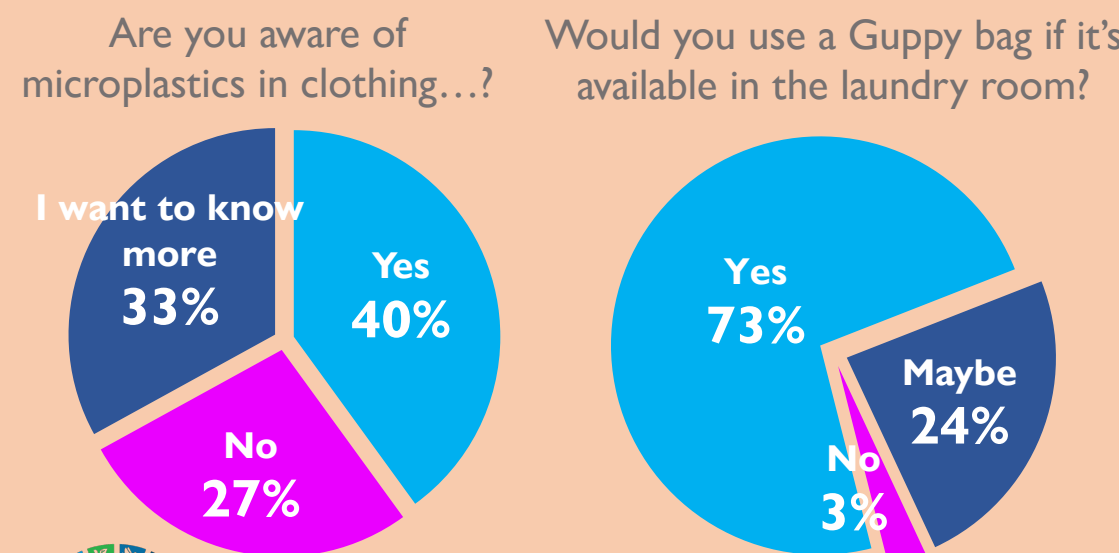


2 Awareness

To increase awareness, we decided on different means of action: A poster placed in the laundry rooms with information about the problem of microplastics in the ocean as well as alternative solutions. Stickers on the laundry machines and footprints will remind people to use the Guppyfriend bags. In the laundry room, there will be a cylinder where the residues from bags are emptied. This acts as a visual representation of how much microplastics are being filtrated out.

3 Survey

We made a survey to examine our target groups awareness of the problem and willingness towards solutions, which 102 users of Sit laundry rooms answered. 27% did not have sufficient awareness around the problem and 33% would like to receive more information. 73% of the sample reported willingness to use the bags.

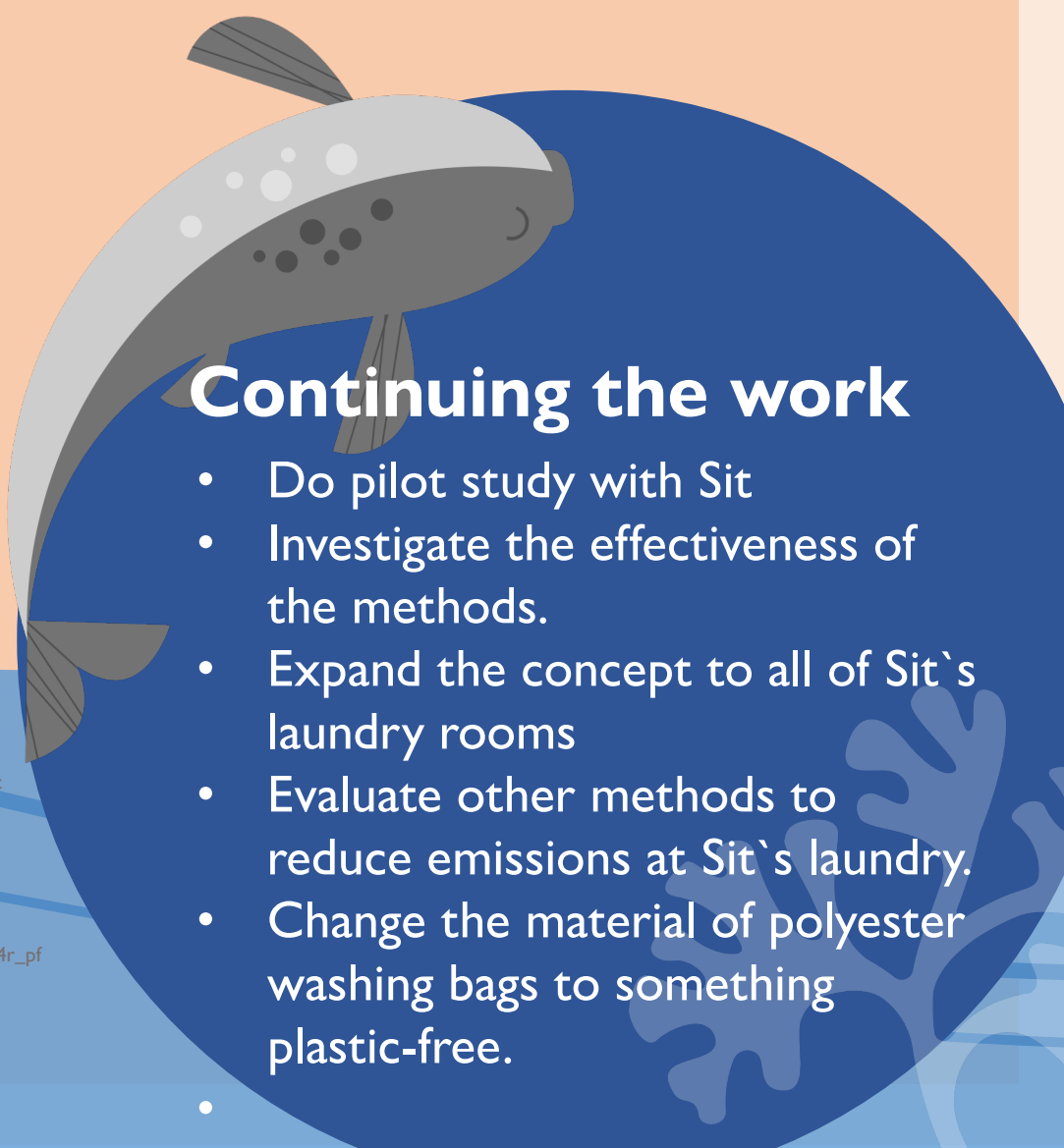


5 Social values

The use of the washing bags will reduce the emission of microplastics into the ocean from a big company. There is great value in creating awareness among students by introducing a solution to the problem of microplastics. The ocean is a global network connecting the whole world. Local reduction of microplastic emissions is one step in the right direction to solve a global problem.

4 Pitch for stakeholder

We pitched our concept to Sit. Sit will run a 6 months trial period at Moholt student village where they test out the use of the bags. Sit was positive to the idea of using the cylinder and creating a space at the laundry rooms for information and nudging to create more sustainable habits and awareness.



Continuing the work

- Do pilot study with Sit
- Investigate the effectiveness of the methods.
- Expand the concept to all of Sit's laundry rooms
- Evaluate other methods to reduce emissions at Sit's laundry.
- Change the material of polyester washing bags to something plastic-free.

References

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