NTNU CIRCULAR PLASTICS 2023-2026

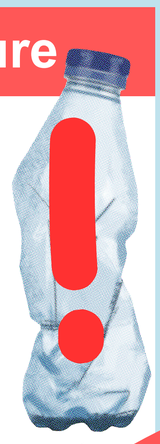
Mausund Feltstasjon
Eider AS

Defining the Problem

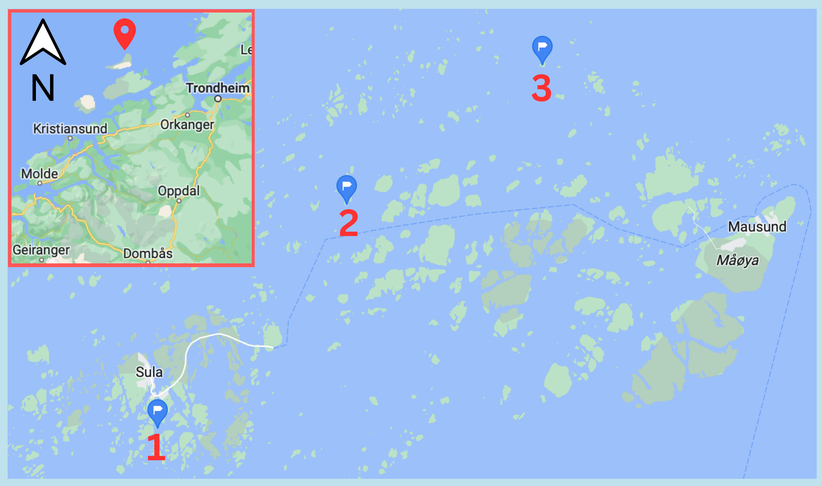
- Marine litter pollution is a complex problem with no single solution.
- Cleaning existing plastic in the ocean and coasts is expensive and challenging.
- The best approach to the problem is to prevent plastic entering rivers and oceans.
- Ocean currents transport plastics globally, making it a worldwide issue.

This poster seeks to investigate plastics found on islands around Mausund (Central Norway), to discuss future solutions and define actions.

Impacts of Plastic in Nature



- **Loss of biodiversity.**
- **Animals die due to starvation and entanglement.**
- **Threat to seafood supply.**
- **Job losses (marine-related).**
- **Spread of invasive species.**
- **Macro- and microplastic introduce hazardous compounds to the environment.**



Goals and Strategies

1.) **Clean** plastic on islands like the Mausund archipelago, a remote area with high biodiversity.

2.) Facilitate the **restoration** of nature by keeping islands clean from plastics and associated pollution, bringing it back to its original state.

3.) Characterize the **influx** of plastic.
Characterisation is important as we can:

- Try to locate the source of new and future plastics.
- Link the waste to the actors.
- Determine the pollution causes.
- Provide the actors with solutions.

4.) Increase **political** involvement and leadership.

Results and Analysis from 1900m Shoreline

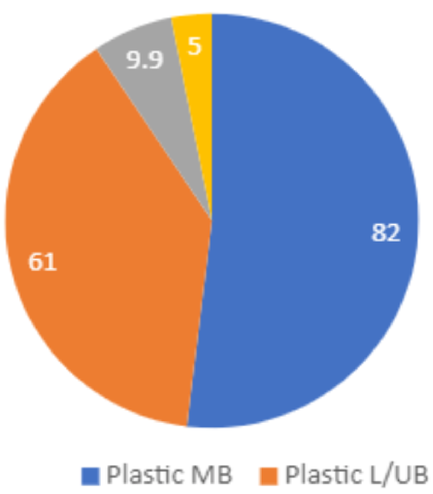
Plastic collected on the three islands (point 1, 2 and 3 in the map above) was found on the 1900m of shoreline and was analysed. The plastic found constituted 96% of all the litter items discovered, with 32% of them directly associated with marine-based activities, such as fishing or fish farming.

In terms of weight, plastic constituted 91%. Nevertheless, litter linked to marine activities was nearly 60% of the total identified litter (82 kg). Despite the lower number of plastic items associated with marine activities, their combined weight exceeds items from land based or unknown sources.

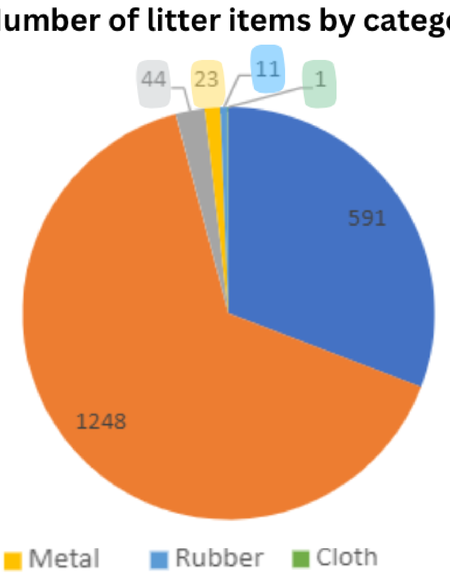
Regarding the top three types of litter found:

1.) Plastic fragments ranging from 2.5 to 50 cm, undefined source were the most prevalent (UB) (286 units).
2.) Marine based (MB) strings and cords with diameters less than 1cm (279 units).
3.) Drinking bottles - land based (LB) (207 units).

Weight of litter by category (kg)



Number of litter items by category



References can be found in "Circular Plastics 2023-2026" Report (2023).
Stian Bjørnli, Juan Cobo, Janique Köhler, Adrià Tallada and Vilde Rørnes.

Solutions

		Key Actors: Government	Industry	Consumers
Reduce production & consumption of single use plastics	Promote circular economy.	X	X	X
	Expand ban of single use plastic products.	X		
	Implementing taxes on single use plastic production and consumption.	X		
	More visible political and corporate leadership.	X	X	
	Changing consumers attitude, increasing awareness and knowledge.			X
	Extended producer responsibility policies.	X	X	
	Involve local communities in cleanup and waste reduction efforts.			X
Substituting plastic with alternatives	Joined international research and innovation on new materials/ replacements for single use plastics by promoting green and sustainable chemistry.	X	X	
	Invest in research and innovation for alternative materials and packaging.		X	
	Development of international treaties for regulations.	X		
	Offer economic incentives to businesses for implementing sustainable practices and technology.	X		
Improvement of waste management & recycling	Increase awareness of proper waste disposal.	X	X	X
	Waste management and collection system improvements in LIC with the help of HIC (H-/LIC: High/Low Income Countries).	X		
	Ban shipment of plastic waste to LIC.	X		
	Improve plastic clean up technology.	X	X	
	Implement deposit refund system in LIC and expand existing systems (e.g. fishing gear)	X		