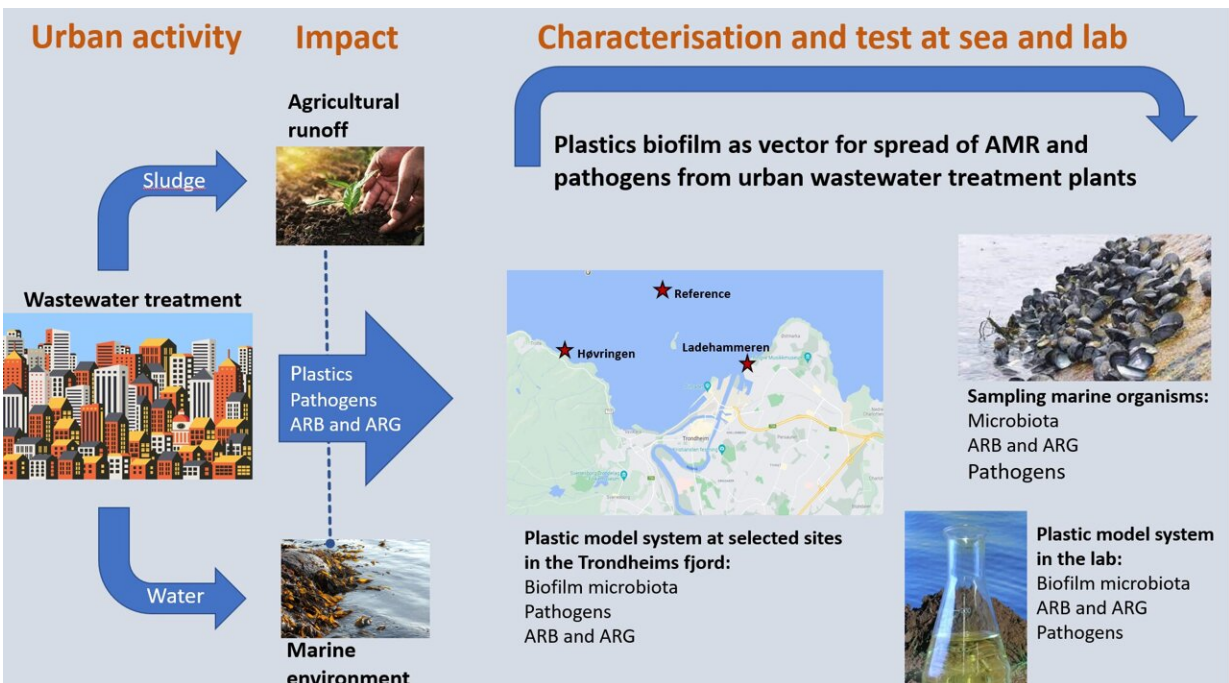


# Marine plastic waste can spread antimicrobial resistance

September 27 2023, by Christina Benjaminsen



This model illustrates the problem being addressed by the PlastiSpread project.  
Credit: SINTEF

Bacteria discharged to the oceans in sewage and wastewater thrive on the biofilms that form on plastic waste. This may be leading to the somewhat unanticipated problem of antimicrobial resistance.

Marine [plastic waste](#) may serve as a vector for the spread of

antimicrobial resistance (AMR) from [pathogenic bacteria](#), either to shellfish or directly to humans who are bathing in the sea or taking part in other recreational activities.

"The [bacteria](#) contained in sewage and wastewater discharged from households, hospitals and factories will form biofilms on plastic surfaces in the sea," explains Gunhild Hageskal, who is a Senior Research Scientist at the Norwegian science institute SINTEF.

"Such bacteria may already possess resistant properties, but in any event, bacterial biofilms are known to act as incubators for antimicrobial resistance. The reason for this is that bacteria readily exchange so-called mobile genetic elements when assembled in large numbers at a single location," she says.

There may also be antimicrobial and other [chemical residues](#) contained in the wastewater, and certain chemicals in the plastics themselves may influence the development of bacterial resistance.

Researchers at SINTEF will be investigating the extent of this problem as part of a project called PlastiSpread, which is a joint collaboration between SINTEF, NTNU and the University of Thessaly in Greece. The Norwegian part of the study will be carried out in Trondheim in close collaboration with Trondheim municipality and the [wastewater treatment plants](#) at Høvringen and Ladehammeren. In order to introduce a global perspective to this issue, a similar study will be carried out in Greece, where twice the amount of antibiotics are used as in Norway.

**More information:** [prosjektbanken.forskningsradet ... roject/FORISS/335391](#)

Provided by SINTEF

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