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**Microplastics:  
Transport vehicles for POP, microorganisms and pathogens?**

Recent studies show that microorganisms use microplastics (MP) as a growth substrate and can selectively accumulate on their surfaces. In addition, microbial colonization in the form of biofilms has a significant influence on buoyancy and sedimentation behavior; probably impacting the distribution of microbial populations. For pathogenic microorganisms, potential activity patterns and infection risks can thus shift. If these are potential human pathogens such as *Vibrio* spp., which accounted for up to 25 % of all bacteria of the Sargasso Sea associated with MP surfaces, this may effect the critical infection dose and thus be of epidemiological relevance.

The interactions of dissolved organic pollutants and MP depend on the physico-chemical properties of the organic compounds. Plastic adsorbs, e.g., hydrophobic organic substances, among them persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) or organic chlorine compounds (e.g. DDT, compounds which are listed as potential endocrine disruptors) and can have a hormone-like effect even at very low concentrations. In marine environments, these pollutants accumulate in MP. Therefore, intensive research is being carried out to determine whether MP causes a significant accumulation of toxic substances in the marine food web, but the ecological consequences cannot currently be assessed.

In addition to the polymer, plastics also contain potentially toxic plasticizers, which are also released into the environment. A further challenge is the introduction of MP-associated antibiotics, antibiotic resistances, hormones and other active substances (or their degradation products) contained in pharmaceutical products. Here, too, the potential accumulation of these substances on aquatic habitats has not been sufficiently investigated. In this lecture, the latest findings on MP as a transport vehicle for POPs, microorganisms and pathogens will be presented and discussed.

Date: Thursday, 6 June 2019, 1:15 pm  
Venue: GEOMAR, Düsternbrooker Weg 20, Lecture Hall  
Host: Dr. Erik Borchert