

EGU21-12313

<https://doi.org/10.5194/egusphere-egu21-12313>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



The effect of plastic leachates on respiration and foraging behaviour in hermit crabs

Victoria F. Scott, Jorg D. Hardege, and Katharina C. Wollenberg Valero

Department of Biological and Marine Sciences, The University of Hull, Cottingham Road HU67RX .

Plastic production has soared since the 1950s, with the last decade seeing an increase of 43% from 250Mt (million tonnes) in 2009 to 368Mt in 2019. Plastics and their associated chemical congeners (variants of chemical structures) which enter the environment further exacerbate pollution within already contaminated ecosystems. In this study, we investigated the effect of plastic leachate on the common littoral marine hermit crab *Pagurus bernhardus*, a species at great risk from potential adverse effects of microplastics. The effects of plastic additives released into the environment via microplastic leaching, and of contaminants adsorbed and accumulated onto the surface of microplastics on marine organisms is understudied. This study sought to (I) investigate whether plastic leachate has an effect on the respiration rate of hermit crabs and, (II) investigate whether plastic leachate has an effect on the foraging behaviour of hermit crabs. We found that within repeated measures design hermit crabs exposed to plastic leachate had different levels of oxygen consumption when compared to their control; with there being an increase or decrease dependent on the leachate type. This is potentially problematic due to high concentrations of microplastics along coastlines which may lead to impaired filtration within crustaceans resulting in lethality and reduced food intake.