TH209 Development of a dynamic uptake model for virgin and contaminated microplastics in the Mediterranean mussel (Mytilus galloprovincialis) C. Catarci Carteny, University of Antwerp / Biology; M. Albentosa, Instituto Español de Oceanografia / Centro Oceanográfico de Murcia; L. Bervoets, University of Antwerp / Biology; R. Blust, University of Antwerp. Over the last few years, microplastic pollution of the marine environment has been highlighted as a major issue. Microplastic particles have been detected in a large number of aquatic habitats worldwide. Due to their small size, microplastics are often mistaken for food, and ingested by biota; their porosity and lipophilicity grant them the ability to soak hydrophobic persistent pollutants from the surrounding water, delivering these hazardous contaminants to the organisms consuming them. Very little is known concerning the mechanisms ruling microplastic ingestion and accumulation in biota: this important gap constitutes the missing link between microplastic concentration in the environment and organismal effects and toxicity in achieving a valid risk assessment, both for biota and for human health. Thus, a first dynamic model of microplastic uptake and accumulation was developed in the Mediterranean mussel (*Mytilus galloprovincialis*), a species relevant both on an ecological and an economical level. Mussels were exposed to polyethylene (PE) microplastics, of a size (3-12 µm, mean particle size 7.5) comparable to that of microalgae which constitute the natural diet of these organisms. A control of mussels exposed to microalgae (*Isochrysis* aff. *galbana* clone T-ISO) was also present. During the experiment, a microalgae and particle concentration below the pseudofaeces threshold reported for this animal was used, in order to encourage particle ingestion and avoid saturation. Furthermore, we selected the insecticide chlorpyrifos as a model contaminant, and exposed mussels to PE microplastics spiked with this compound, to understand if the presence of adsorbed persistent pollutants affects uptake and accumulation of microplastics. The preliminary results obtained in this study confirmed ingestion of microplastics by treated mussels, and highlighted a difference between microalgae and microplastics uptake and excretion rates. Overall, the dynamic model allows to simulate and predict the impact of microplastic exposure on uptake, retention and elimination rates under different exposure scenarios. For the future, there subsists a need for more dynamic models, encompassing different microplastic types and shapes (such as fibres) and organisms, to contribute to a better understanding of the threat posed by microplastic pollution, and to produce more accurate risk assessments.