EGU2020-9473
https://doi.org/10.5194/egusphere-egu2020-9473
EGU General Assembly 2020

Marine macrophytes retain microplastics

Irina Chubarenko, Elena Esiukova, Olga Lobchuk, Alexandra Volodina, Anastasiya Kupriyanova, and **Tatiana Bukanova**
P.P.Shirshov Institute of Oceanology, Atlantic Branch, Kaliningrad, Russian Federation (irina_chubarenko@mail.ru)

Plastic contamination of marine beaches, sediments, water is widely reported. It is known that lot of plastic debris appears on marine shores after storms together with natural marine litter, like ragged vegetation, pieces of wood, etc. The goal of our field campaign in the southeastern part of the Baltic Sea was to check whether growing macrophytes also concentrate and retain plastics, particularly that of microplastic (MP, 0.2-5 mm here) size range. Three summer expeditions were conducted (July 30, August 5 and 7, 2019) in sea coastal zone (depth down to 10 m), where communities of attached macroalgae (*Furcellaria lumbricalis, Coccotylus truncatus, Polysiphonia fucoides, Cladophora rupestris*) are developed on underwater boulders off the Cape Taran. Samples were collected at 8 stations, covering areas with filamentous algae (at depths of 3.2 and 4 m) and with perennial algae furcellaria (depths of 5.6 and 8.2 m). Along with sampling of growing algae (from area 25x25 cm2 in triplicate), a hand pump was used to sample 20-100 liters of sea water from both algae thicket and algae-free water in surrounding area.

The samples were processed and examined in laboratory. Microplastic particles were found in all the collected samples. Preliminary analysis shows 1.3-5.3 times higher microplastic contamination in water samples taken from algae thicket than in samples taken in free water nearby. The majority of microparticles are fibers, mainly colorless and blue, but also red, black, golden, and yellow.

Investigations are supported by the Russian Science Foundation, grant No. 19-17-00041.