7th IEEE/OES Baltic Symposium
Clean and Safe Baltic Sea and Energy Security for the Baltic countries

Abstract book

12–15 June 2018
Klaipėda, Lithuania
7th IEEE/OES Baltic Symposium
Clean and Safe Baltic Sea and Energy Security for the Baltic countries

ORGANIZERS

Marine Research Institute of Klaipėda University, Lithuania

Association “Baltic valley”, Lithuania

Coastal Research and Planning Institute, Lithuania

Institute of Electrical and Electronics Engineers’, United States of America

Oceanic Engineering Society (OES), United States of America

SUPPORTERS

South Baltic Oil Spill Response

Interreg South Baltic

EUROPEAN UNION

WORLD MARITIME UNIVERSITY

Universität Rostock

AKADEMIA MORSKA

SzczeCin
APPROACH TO ANALYSIS OF ENVIRONMENTAL IMPACT OF GEOSYNTHETICS IN AQUATIC SYSTEMS BY EXAMPLE OF THE BALTIAC SEA

Franz-Georg Simon ¹, Boris Chubarenko ²*, Ingrida Purina ³

¹ The Federal Institute for Materials Research and Testing, Germany, ² Shirshov Institute of Oceanology, Russian Academy of Sciences, Russia, ³ Latvian Institute of Aquatic Ecology, Latvia

*chuboris@mail.ru

Keywords: geosynthetic, pollution, Baltic Sea

Geosynthetics are widely used in hydraulic engineering in aquatic ecosystems such as in revetment measures for coastal protection or in ballast layers for wind energy plants. While providing various economic and technical benefits, the application of geosynthetics in hydraulic engineering projects has been questioned recently as these materials might degrade during their lifetime and induce a hazardous impact on the aquatic environment in a long term especially as the origin of plastic debris or as source/sink for chemicals such as plasticizers and stabilizers used in the production of geosynthetics to improve their performance.

The proposed project is aimed at assessment of the application of geosynthetics in hydraulic engineering. Accelerated artificial ageing of geotextiles used in marine applications will be applied in a laboratory scale and the performance characteristics will be compared with the virgin material. Whereby, a combination of mechanical, chemical and microbiological stress will be simulated. Additionally, the leaching behavior in relation to the ongoing ageing process as well as the ecotoxicological impact of leachates in marine environment will be investigated. The laboratory tasks will be accompanied by a field case study at the Kaliningrad shore.

The investigations are supported within the ERANET-Rus joint project EI-Geo. Participation of national groups from Germany, Latvia and Russia is supported via national projects, like RFBR grant 18-55-76002 ERA_a.