

**Proposed thesis topic for the Doctoral degree studies (2021-2025) in  
Ecology and Environmental Science at Marine Research Institute (Klaipėda University)**

<b>Title</b>	<b>Constructed floating wetlands as nature-based solutions for ecosystem restoration and ecosystem services enhancement in coastal waters</b>
<b>Brief description of the topic</b>	<p>Constructed Floating Wetlands (CFW) have been considered as a measure in the wastewater treatment process restricted to the use in stormwater ponds or domestic wastewater treatment (Jason et al. 2019, Borne 2014, Barco and Borin 2020, Maxwell et al. 2020). Nowadays, it is considered as nature-based solutions (NbS) serving multiple purposes from nutrient and persistent pollutant removal to coastal protection as well as habitat and biodiversity restoration (Pavlineri et al. 2017). The diversity of CFW designs and applications have so far not been assessed systematically, given the complexity of interactions in situ between the artificial floating wetlands and surrounding habitats across different climatic and hydrodynamic gradients. Despite the increase in the number of publications during the last years, the consensus is that the nutrient and pollutant removal mechanisms are not yet fully understood and there is a need for further investigations on combining CFW with other technologies (Colares et al., 2020), as well as balance between the costs and benefits.</p> <p>The proposed research will focus on assessing the nutrient's removal capacity (increase in water transparency) and biodiversity and habitat restoration effects of CFW, and its applicability as an element of green infrastructure at various setups and locations.</p>
<b>Requirements for a candidate</b>	Basic background in ecology (aquatic or aquatic plant ecology preferable) along with the experience in experimental <i>in situ</i> activities in aquatic environment. Good knowledge of statistical methods and their applications, motivation to learn some modelling methods e.g. growth of plants or experience <i>in situ</i> biogeochemical experiments would be an important asset.
<b>Existing research experience</b>	KU MRI co-ordinates SBP project LiveLagoons encompassing experimental pilot installations in Germany, Poland, and Lithuania. One publication on the topic published, two are in preparation. Submitted projects: REBECOS – HORIZON EUROPE - KU MRI as case study leader; European Network of Artificial Floating Wetlands – EU – COST - KU MRI as coordinator.
<b>Existing research infrastructure and support</b>	Existing four experimental pilot installations in the Curonian lagoon and water reservoirs in the Klaipėda city. Well-equipped modern laboratories at MRI for biological and chemical analyses in collaboration with numerous specialists.
<b>Supervisor</b>	Dr. Jurate Lesutiene, Dr. Arturas Razinkovas-Baziukas