

**Proposed dissertation theme for the Doctoral degree Studies (2018-2022) in
Ecology and Environmental Science at Klaipėda University**

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| Title of the doctorate theme | Science based risk assessment for implementation of the Ballast water management convention |
| Brief description of the topic | Involvement of shipping in uncontrolled introduction of harmful aquatic organisms and pathogens (HAOP), which may have consequences on environment, economies and human health remains an unresolved problem. To address this problem, the International Maritime Organization (IMO) adopted the International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWMC 2004). The management of ballast water is a complex task, which requires the scientifically sound risk assessment of HAOP introductions. For example, the BWMC Regulation C2 indicates that “States should notify mariners of areas under their jurisdiction where vessels should not uptake ballast water, if they are known to contain outbreaks, infestations or populations of HAOP...”. However, the criteria to issue the warning signal are yet to be elaborated, therefore the main scientific objective of the proposed PhD thesis is to develop the risk assessment system based on the concepts of “unacceptable high risk” and “acceptable low risk. The main practical outcome of this work will be development of the Regionally Harmonized Early Warning System (EWS) on findings of HAOP in the Baltic Sea. The system should be based on the general principals of risk assessment developed by IMO (2007), their application to the ballast water management exemptions (Olenin et al. 2016) and emerging regional experience (Magaletti et al. 2017). AquaNIS, an internationally recognized information system on aquatic non-indigenous and cryptogenic species, developed and maintained at Klaipėda University, will be used as a main tool for data mining and meta-analysis of the biological traits, introduction vectors, physiological tolerance limits, environmental and socio-economic impacts of marine non-indigenous species. |
| Requirements for a candidate | A prospective doctorate student should have strong knowledge in aquatic ecology, understanding of environmental risk assessment principles, ability to analyze biological and interdisciplinary environmental data, good English language skills (knowledge of other languages is advantage). |
| Research experience in the institution | A doctorate student will join the research team which took part in several EU Framework programs 6 and 7 projects aimed on biological invasion studies (DAISIE, IMPASSE, ALARM, MEECE, VECTORS and DEVOTES). |
| Existing research infrastructure and support | Work will be performed in a framework of the INTERREG Baltic Sea Region Project COMPLETE (Completing management options in the Baltic Sea Region to reduce risk of invasive species introduction by shipping). Financial support: COMPLETE project |
| Potential supervisor [contact person for the topic] | Prof. habil. dr. Sergej Olenin (sergej.olenin@jmtc.ku.lt) |