

Title of the doctorate theme	ECOLOGICAL MODELING FOR EUTROPHICATION STUDIES IN THREE EUROPEAN COASTAL WATERBODIES
Brief description of the topic	<p>Eutrophication is a severe problem that coastal water bodies in the Baltic States experience. Trying to control it will have benefits in various areas such as ecosystem services, water quality, human wellbeing etc.</p> <p>Through the application of a common hydrodynamic and ecological modelling framework (the SHYFEM model) to the Curonian Lagoon, it will be possible to investigate how much eutrophication is dependent on nutrient exchange with the drainage basin, bottom sediments and the Baltic Sea. Climate change and future land use will also affect eutrophication. These scenarios should be investigated, as well as any extra measures that will be needed to achieve good water quality status.</p> <p>In order to apply the scenarios three pilot studies with different characteristics have been chosen that cover a full spectrum of ecosystem environments. These are the Curonian Lagoon (Lithuania), the Venice Lagoon (Italy), and the Mar Menor (Spain). For all of these pilot sites applications of hydrodynamic and ecologic models exists. The study aims to inter-compare these coastal environments through the application of numerical models, and the use of common evaluation techniques to quantify the impact of eutrophication on these water bodies.</p> <p>The aim therefore is to actively develop the existing ecological modelling framework and apply it for the study of the water bodies above.</p>
Requirements for a candidate	<p>Good English language skills are necessary. Understanding laws of physics, basic ecology and willingness to conduct individual research are essential. Applicant should have experience in analysis of environmental data. Knowledge and experience in programming and/or scripting languages will be given a preference during evaluation. The candidate will also need to have a high willingness to mobility that will allow longer stays in Venice (Italy) and/or Murcia (Spain).</p>
Existing research infrastructure and support	<p>This research will not require any special laboratory infrastructure. Analytical facilities will be provided by Marine Research Institute. The software necessary to conduct the research is in open access or will be provided by the institute. The candidate will have an opportunity to join several national and international (H2020) projects as a junior researcher with the appropriate remuneration.</p>
How the topic advances the research capacity of the Klaipeda University	<p>The MRI of KU is since its establishment interested in studying the Curonian Lagoon in view of biogeochemical processes, both through measurements, interpretation, and modelling. The proposed study will advance this knowledge and compare it to other European lagoons such as the Venice Lagoon and the Mar Menor. This internationalization is important for a holistic picture of the processes that occur in coastal lagoons.</p>
Potential scientific supervisor	<p>Dr. Georg Umgiesser, lead researcher https://scholar.google.it/citations?user=zc_cnWgAAAAJ&hl=en</p>
Potential scientific advisor	<p>dr. Ali Ertürk, senior researcher https://scholar.google.com/citations?user=GyZXpDIAAAJ&hl=en dr. Petras Zemlys, senior researcher https://scholar.google.com/citations?user=5yygOhQAAAAJ&hl=en dr. Arturas Razinkovas-Baziukas, lead researcher https://scholar.google.lt/citations?user=JuGw7al8dmsC&hl=en dr. Angel Perez-Ruzafa, lead researcher https://scholar.google.es/citations?user=QZHVmH8AAAAJ&hl=es dr. Mindaugas Žilius, lead researcher https://scholar.google.lt/citations?user=E6jZxSEAAAAJ&hl=lt</p>