



ALANIS project

Impacts of artificial light at night on pelagic ecosystems in European seas

Changing Marine Lightscares Joint Action

Europe's coastlines are flooded with artificial light at night, from ports, ships, and coastal cities, yet the ecological consequences for marine life remain poorly understood. **ALANIS investigates how artificial light at night (ALAN) and coastal darkening affect pelagic ecosystems**, with a particular focus on **zooplankton diel vertical migration**: the daily journey small animals make between surface feeding waters at night and deeper refuge during the day. Disrupting this cycle affects predator-prey dynamics and carbon export flux, with cascading effects on food webs.

Through laboratory experiments, field studies, remote sensing, and ecosystem modelling across diverse European sites, ALANIS aims to produce a **high-resolution ALAN atlas and risk map**, delivered via an open-access Web-GIS platform.



 jpi-oceans.eu

Results will directly **inform EU Marine Strategy Framework Directive Descriptor 11 on energy-based stressors**, helping establish **artificial light as a measurable and manageable threat to ocean health**.

Launched in July 2025 with a **budget of €3,700,000 together with the ISOLUME project**, this project was funded under the framework of JPI Oceans by the Federal Ministry of Research, Technology and Space (BMFTR), Germany, the Hellenic Centre for Marine Research (HCMR), Greece, the Marine Institute, Ireland, the Malta Council for Science and Technology (MCST), Malta, the Research Council of Norway (RCN), Norway, the National Centre for Research and Development (NCBR), Poland, and the Department for Environment, Food & Rural Affairs (DEFRA), United Kingdom.

Dr Rüdiger Röttgers, Helmholtz-Zentrum Hereon, Institute for Carbon Cycles, is the ALANIS project coordinator.

The project consortium includes 10 partners:

- Helmholtz-Zentrum Hereon
- University of Strathclyde
- Scottish Association for Marine Science (SAMS)
- Hellenic Centre for Marine Research (HCMR)
- Institute of Oceanology, Polish Academy of Sciences
- MaREI Centre, ERI, University College Cork
- Foundation for Industrial and Technical Research (SINTEF)
- University of Bergen, Department of Biological Sciences
- The Arctic University of Norway (UiT)
- University of Delaware (associated)



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