CASE STUDY 4

FACTSHEET

ANERIS
aneris.eu

UNCOVERING THE UNKNOWN IN THE OCEAN THROUGH IMAGE AND DNA

PARTNERS

LEAD PARTNERS: BIOPOLIS, HCMR, CSIC and the rest of the ANERIS consortium

INVOLVED RIs: LifeWatch, EMBRC, Euro-BioImaging, EGI, MINKA Citizen Observatory

TECHNOLOGIES INVOLVED

NANOMICS, MARGENODAT, SLIM 2.0, AIES-MAC, AMAMER, AWIMAR, AMOVALIH

Case Study 4 responds to the growing pressures of climate crisis and biodiversity loss, and to the need to protect biodiversity as the foundation of healthy marine ecosystems.

At its core, the case study responds to the need for solid evidence rather than assumptions by answering a simple but crucial question: how can we improve biodiversity monitoring across different coastal environments to accurately determine which species inhabit our coasts and how their presence and distribution are changing over time?

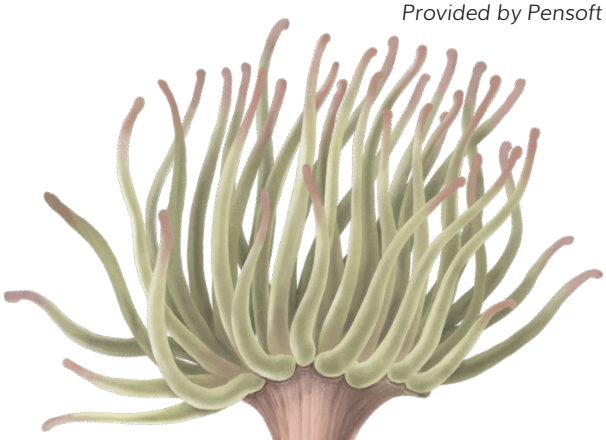
Bird's-eye view of participants in the eDNA and Biomaratona campaigns in 2025
Image provided by BIOPOLIS team

KEY MESSAGES

- **Uncover the unknown in the ocean** by linking image-based evidence with DNA data.
- **Develop an integrated approach** combining environmental DNA (eDNA) analysis with time-stamped imagery to detect invasive species and shifts in species distributions earlier and more reliably.
- **Engage people in ongoing monitoring efforts**, building out the citizen science dimension of biodiversity work alongside the more technical, scientific side.
- **Generate concrete evidence** about changes in the equilibrium of marine ecosystems, providing critical data that would be far harder to gather through observation alone.

Scientific illustration of *Mola mola*
Provided by Pensoft

Scientific illustration of *Anemone viridis*
Provided by Pensoft



WHO BENEFITS AND HOW?

Case Study 4 contributes knowledge and expertise to a wide range of interested parties. For instance:

- **Fishers**: better knowledge of marine biodiversity and ecosystem change to support sustainable fisheries and long-term livelihoods.
- **Policymakers**: evidence to inform and drive protective regulation.
- **The public**: broader environmental knowledge.
- **Municipalities**: improved environmental knowledge, supporting better-informed public engagement with ocean health at the local level.
- **Scientists**: standardised, interoperable biodiversity datasets and validated monitoring methodologies that support ecological research, long-term monitoring, and the development of conservation and management strategies.

POLICY-RELATED CONTRIBUTIONS

This Case Study connects to EU policy on special scientific areas and more specifically to the EU Habitats Directive.

The case study combines imaging and genomic technologies. Here, participants are testing and validating both the sampling kits for eDNA collection (left) and the use of the MINKA app to record biodiversity through pictures (right).

Images provided by BIOPOLIS team

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