CASE STUDY 1

FACTSHEET

ANERIS

aneris.eu

MAKING IT POSSIBLE TO SENSE MARINE LIFE CONTINUOUSLY

PARTNERS

LEAD PARTNERS: VLIZ, SU, UPC, MI, CytoBuoy, UH, CNRS/LOV, Quanta Labs

INVOLVED RIS: EMSO, LifeWatch, EMBRC, EGI, Euro-BioImaging, OsloMet

TECHNOLOGIES INVOLVED

AIES-PHY, AIES-ZOO, AIES-MAC, EMUAS, ATIRES

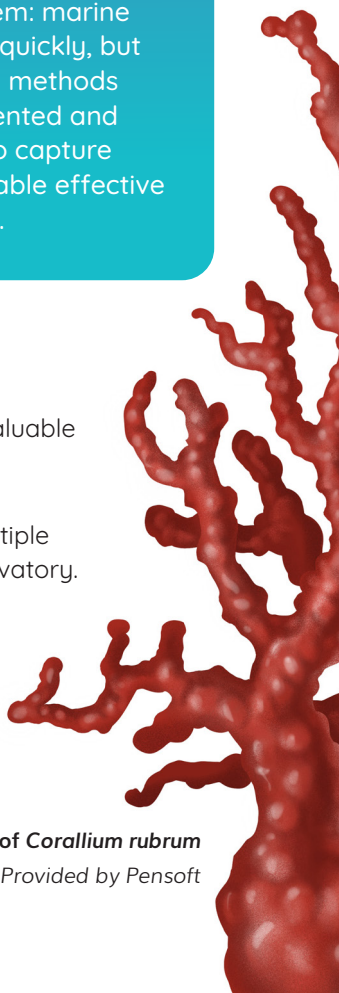
UVP6 device - v1.
Provided by OBSEA - UPC team

The distribution of marine organisms in the oceans is changing and the challenge addressed by Case Study 1 is our limited ability to track that change quickly and precisely enough.

As a result, the need to monitor marine life over time has increased, with an overall demand to improve the temporal and spatial resolution of biodiversity data. In addition, broader concerns about water quality, biodiversity loss, invasive species and food chain dynamics exist, alongside the practical challenge of managing large data flows across multiple institutions in an automated way. Taken together, these issues point to one underlying problem: marine ecosystems are shifting quickly, but conventional monitoring methods are too slow, too fragmented and too resource-intensive to capture that shift in time and enable effective management responses.

KEY MESSAGES

- **Provide continuous, real-time monitoring of marine life**, linking technologies, automated data flows and high-frequency sensing into a single coherent system.
- **Produce better AI-detection tools** that track the evolution of biodiversity across both time and space rather than relying on single snapshots.
- **Support accurate species identification** through high-resolution imaging, generating valuable and reusable datasets and revealing significant temporal correlations between species.
- **Develop streaming technology** capable of analysing high-resolution datasets from multiple regions at once, with real-time data flowing directly into the MINKA citizen science observatory.
- **Enable early warning systems** and faster detection of ecological change, alongside measurable improvements in observatory capabilities.
- **Gather better insight into the effects of human activitie**s, climate change and acute environmental events like storms or heatwaves on marine biodiversity.



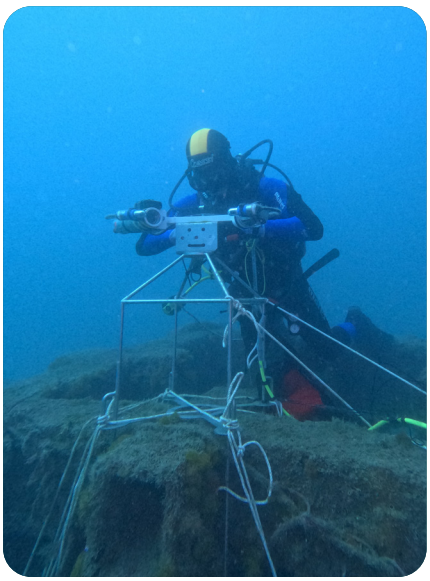
Scientific illustration of *Corallium rubrum*
Provided by Pensoft

WHO BENEFITS AND HOW?

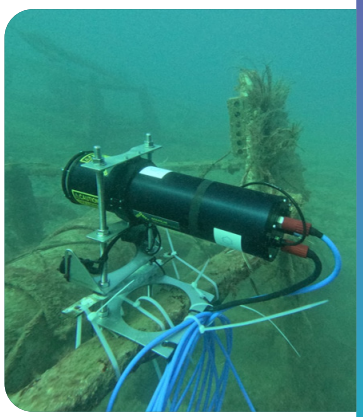
A wide range of groups stand to benefit from the developments of ANERIS' Case Study 1.

- **Governments and policymakers**: better evidence for environmental measures
- **Water management regulators**: improved tools for control and oversight
- **Research infrastructure operators** of e.g., point and cable observatories: expanded monitoring capacity
- **Environmental managers**: data to understand the impact of human activity on marine systems
- **Scientific community**: wider and more integrated view of biological dynamics
- **Coastal managers and coastal populations**: practical insight
- **Technology developers**: real-world test deployments for their tools
- **Students and educators**: access to rich datasets for teaching and research
- **Fisheries and aquaculture operators**: toxic algae and parasite detection

Preparing CytoSub for deployment
Provided by OBSEA - UPC team



The UVP6 tool being set up underwater
Provided by OBSEA - UPC team



EMUAS camera deployed unit at EMSO OBSEA
Provided by OBSEA - UPC team

POLICY-RELATED CONTRIBUTIONS

This case study connects directly to the EU Green Deal and the Blue Economy Strategy, as well as obligations under the Water Framework Directive. It generates data usable for reporting under the Marine Strategy Framework Directive (MSFD) and links to the UN Ocean Decade, Horizon Europe priorities, EU biodiversity regulation and the broader climate change policy agenda.

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