

## The ENHANCE EU-funded initiative kicks off its 3-year journey to protect coastal ecosystems

**DECEMBER 2024** | The new Horizon Europe project, [ENHANCE \(Enabling One Health Coastal Management through advanced AI over Marine Copernicus and citizen science data\)](https://enhance-onehealth.eu), brings together 7 partners from 4 European countries, aiming to safeguard coastal ecosystems from the growing threats of eutrophication and climate change, and human-induced pressures on coastal environments, and to promote sustainable coastal management by addressing these pressures and their impacts on human, animal, and environmental health.

ENHANCE is funded under the "**Digital, Industry, and Space**" pillar of Horizon Europe, with a total budget of **€1.7 million**, entirely supported by the European Union. Coordinated by Dr. Stamatia Rizou from **SingularLogic** (Greece), ENHANCE brings together a multidisciplinary consortium to address coastal eutrophication and other environmental pressures in coastal areas through innovative tools and approaches.



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Coastal zones, covering just 20% of the Earth's surface, hold immense environmental, economic, and social significance. These critical areas, where land meets sea, are home to 45% of the global population, underscoring their importance as hubs of human activity. However, coastal zones face unprecedented threats from anthropogenic impacts and climate change, making them some of the most vulnerable environments on the planet today.

Eutrophication, driven by excessive nutrient runoff from agriculture, urban areas, and industrial activities, triggers harmful algal blooms, biodiversity loss, and the formation of hypoxic "dead zones." ENHANCE seeks to mitigate these issues by integrating innovative technologies.

ENHANCE will introduce a One Health-based decision-support system, integrating human, animal, and environmental health concerns into coastal management strategies. By leveraging AI-driven analytics, remote sensing data from the Copernicus Marine Service, and citizen science contributions, ENHANCE will provide real-time insights and predictive tools to policymakers, businesses, and researchers.

#### Key Innovations of ENHANCE:

- **Adopt the One Health approach**, linking human, animal, and environmental health within the established DPSIR framework to ensure sustainable solutions.
- **Create the ENHANCE Open One Health data platform**, to integrate and harmonize diverse data sources, such as Copernicus Marine Service, EGNSS services, and citizen science, ensuring comprehensive monitoring and accessibility.
- **Leverage advanced AI models for eutrophication prediction** by utilizing integrated data gathered with the ENHANCE Open One Health data platform to provide early warnings and insights into environmental pressures.
- **Deliver a decision-support toolkit for policy and business**, providing actionable insights for local authorities, aquaculture businesses, agricultural stakeholders and environmental agencies
- **Co-create and foster stakeholder engagement through Living Labs**, actively involving communities, scientists, and policymakers to develop practical solutions and climate-resilient strategies.



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ENHANCE will test and refine its technologies through two real-world case studies:

1. **Catalan coast, Urban Beaches & Ebro Delta, Spain:** Addressing urban wastewater pollution and aquaculture pressures, monitoring water quality degradation, eutrophication, and biodiversity shifts.
2. **Pagasetikos Gulf, Greece:** Studying climate-induced flooding impacts on coastal health, ecosystem resilience, and human well-being.

These case studies will demonstrate the scalability of ENHANCE tools while providing evidence-based recommendations for coastal governance and management.

ENHANCE is expected to improve early-warning systems for eutrophication and harmful algal blooms, support data-driven policymaking for coastal management and climate adaptation, and empower businesses—such as fisheries, aquaculture, and tourism—with sustainable and resilient strategies. Additionally, the project aims to reinforce European leadership in marine data applications and AI-driven environmental monitoring.

The ENHANCE initiative underscores the importance of stakeholder engagement, working closely with public authorities, citizens, and businesses to co-develop actionable solutions. By addressing eutrophication holistically, the project aligns with the EU's sustainability and climate resilience goals, aiming to restore and preserve our invaluable coastal ecosystems.

ENHANCE commenced its mission in December 2024, while the consortium officially inaugurated the project's activities during a two-day hybrid meeting in Athens, Greece, on December 9th and 10th, 2024. This assembly, hosted by SingularLogic (Greece), project coordinator, brought together 20+ partner representatives and established the foundation for a collaborative effort spanning 3 years.

## GENERAL INFORMATION

**Duration:** 36 months | Starting from 1 December 2024

**EU funding:** € 1.701.375 | **Grand Agreement no:** 101180146

**Coordinator:** SingularLogic (Greece)

**Website:** [enhance-onehealth.eu](https://enhance-onehealth.eu) | **LinkedIn:** [@enhanceeu](https://www.linkedin.com/company/enhanceeu) | **Youtube:** [@enhance\\_eu](https://www.youtube.com/channel/UC8h3jKjKjKjKjKjKjKjKjKj)

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## ENHANCE CONSORTIUM

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