IPA ADRION 447 – BLUEQ

FULL NAME: Applied Solutions for Monitoring Coastal Habitats and Quantifying Blue Carbon Storage: An Integrated Approach for Sustainable Ecosystem Management

LEAD PARTNER: "University of the Aegean" (EL) (Codice Fiscale/Partita IVA: 090264862)

DURATION: 36 months

PROJECT BUDGET: **EUR 1.447.940,14**

PROJECT SUMMARY:

The BLUEQ project aims to address the critical conservation and management needs of blue carbon ecosystems, particularly the Posidonia oceanica meadows, situated in the Adriatic-Ionian Seas. From biodiversity and fisheries support to shoreline protection and water quality improvement, this species offers ecosystem services that are essential for the well-being of both marine and human communities and has been identified as a priority habitat type for conservation under the Habitats Directive (Dir 92/43/CEE). Posidonia is also a secret weapon in the battle against climate change. This remarkable marine seagrass absorbs more carbon dioxide than an equivalent area of the Amazon rainforest and stores it in underlying organic deposits, known as "matte", for thousands of years.

Despite their significance, they deal with threats including unregulated human activities, pollution, and natural disasters. These parameters are fully aligned with the territorial needs and challenges of the Adriatic-Ionian region, which struggles with soil, air, and overall loss of biodiversity. In response to these challenges, BLUEQ seeks to develop tailored solutions and a comprehensive Blue Carbon Strategy for the Adriatic-Ionian region. This strategy aims to raise awareness about the importance of blue carbon ecosystems in mitigating climate change and to secure transnational involvement in their long-term preservation.

The recent idea to use the carbon budget of these habitats towards national climate-change plans under the Paris Agreement is promising but hindered by missing data required for carbon offset methodologies. Significant uncertainties exist regarding the geographic distribution of Posidonia meadows and carbon stocks. The BLUEQ project comes to fill these gaps in scientific knowledge through the project's Joint Pilot Action that will be implemented in 4 key study areas of the Adriatic-Ionian region representing different levels of anthropogenic pressure, environmental/ecological characteristics, and management approaches; the Karaburun Sazan National Marine Park (Albania) in the south and the Area of Special Characteristics of the Zut-Sit island group (Croatia) further north in the Adriatic Sea, and the east-west extremes of the Ionian Sea (Natura 2000 West and Southwest Crete; Plemmirio MPA in Sicily). The selected Pilot Action study sites are highly ecologically important, hosting several priority habitats and species. The BLUEQ Joint Pilot Action (Output1.1) includes detailed and accurate habitat mapping of the Posidonia oceanica meadows extent, in the case studies, using state-of-the-art remote sensing techniques, including satellite and UASs acquired high-resolution imagery. In-situ habitat mapping and carbon stock measurements will supplement the above images,

creating a comprehensive dataset of high-resolution information, not currently available. The use of the acquired dataset in a GIS-based tool that converts the spatial extent of seagrass meadows to stored carbon units while at the same time providing several layers of information on habitat characteristics and services, such as biodiversity and ecological status, constitutes the BLUEQ Joint Developed Solution (Output 1.2). The BLUEQ Joint Developed Solution will be tailored to the needs of decision-makers and will develop the roadmap towards a Blue Carbon Strategy in the Adriatic-Ionian region.

The development of the BLUEQ Joint Strategy (Output 2.1) marks a comprehensive plan informed by the scientific outcomes of the project. It emphasizes utilizing the BLUEQ Solution as a decision-making tool within the framework of Maritime Spatial Planning, promoting best practices and innovative solutions, and envisioning the utilization of blue and green infrastructures throughout the Adriatic-Ionian region. The adoption of transnational, holistic approaches, in the BLUEQ Cooperation framework (Output 3.1) enhances the formal cooperation among stakeholders including BLUEQ-associated partners under a long-term perspective (after the project lifetime) and empowers them through a building capacity program to effectively use the BLUEQ Joint Strategy and Solution.

The BLUEQ outputs are significantly aligned with the indicative actions of the specific objective 2.3 aimed at conserving and enhancing the natural habitats of the Adriatic-Ionian region. Through the protection and restoration of Posidonia Oceanica meadows and the promotion of blue and green infrastructure, BLUEQ contributes to policy frameworks designed to safeguard sea habitats, including those under protected areas. Furthermore, the development and implementation of the BLUEQ Joint Strategy falls within the framework of Maritime Spatial Planning, aiming to safeguard biodiversity while addressing the territorial challenges in the IPA ADRION area.