

Presenting the MarinEye project –Development and validation of a prototype for multitrophic oceanic monitoring

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The understanding of the complex exchanges among biological, chemical, physical, atmospheric, and geological processes in the ocean basins is severely limited by the paucity of infrastructures able to support sustained and timely observations. The present work aims to develop an autonomous system for integrated marine chemical, physical, and biological monitoring. The MarinEye system will combine different technologies in a modular, compact system that can be deployed on fixed or mobile platforms. The data acquisition system will include high-resolution imaging (targeting plankton), acoustic techniques (targeting plankton and small pelagic fishes), a hydrophone (targeting mammals and anthropogenic sound), fraction filtration systems (targeting prokaryotes and unicellular eukaryotes), and sensors (for physical-chemical variables such as salinity, dCO₂, dO₂, temperature and pH). The project is organized in a total of seven work-packages (WP), all supporting and complementing each other in an overarching holistic approach. A bottom up approach has been used to link tasks that start with a lower level of complexity, until achieving the full objectives of the proposal. MarinEye will increase the knowledge of the ocean, complementing the information from existing observatories by providing novel integrative data that are not currently supplied. MarinEye will also give an extremely important contribution to the consolidation of infrastructures dedicated to the observation of the marine environment, implementing adaptive management approaches, as the European Union Marine Strategy Framework Directive (EU- MSDF), and allowing the development of strategies for the continuous assessment of the marine waters Good Environmental Status (GES).

Keywords: optical sensors, autonomous filtration system, high resolution imaging, acoustic, integrated marine monitoring

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