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Remote Sensing Documentation for the Protection of Montenegro's Underwater Cultural Heritage

Montenegro's underwater cultural sites remain incompletely documented, limiting their legal protection, research, and long-term conservation. The 'Underwater Cultural Landscapes of Montenegro,' initiated by the Center of Archaeology, University of Montenegro, responds to this challenge by applying advanced remote-sensing technologies and interdisciplinary methods to support state institutions in the legal declaration of protection, and monitoring of these cultural resources, which are often invisible to decision-makers. The project integrates Multi Beam Echo Sounder and Side-Scan Sonar surveys with targeted underwater photogrammetry to produce high-resolution 2D and 3D datasets suitable for metric analysis, condition assessment, and monitoring. Built on inter-institutional cooperation and technical capacity developed through prior EU co-funded projects, the methodology prioritizes in-situ, non-intrusive documentation in accordance with the UNESCO 2001 Convention. Survey outputs are consolidated within a Geographic Information System database, ensuring standardized metadata and cross-sectoral access. Integration of the dataset into Montenegro's Spatial Plan until 2040 establishes a basis for including underwater cultural heritage in maritime spatial planning processes. Beyond regulatory aims, the project translates scientific outputs into public outreach campaigns, strengthening institutional capacities and supporting sustainable cultural tourism. Grounded in established acoustic-mapping and metric photogrammetry practices, the project delivers operational datasets and governance tools for accountable management of Montenegro's underwater cultural landscapes.

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