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The Conservation of Mosaics Under Progressive Submersion Due to Climate Change: A Holistic and Adaptive Approach to In-Situ Preservation. The Case Study of the WHS of Butrint

Authors : Laura Nicolini

Abstract : The ongoing impacts of climate change pose significant threats to cultural heritage located along coastlines, which are increasingly susceptible to flooding, erosion, and progressive submersion. In many archaeological sites adorning the shores of the Mediterranean Basin, the he predictions of the most advanced climate change studies are already materializing, evidenced by notable trends in rising sea levels and the shift from seasonal to permanent submersion of archaeological areas. This phenomenon is exemplified by the UNESCO World Heritage Site of Butrint in Albania. In this dynamic and progressively worsening scenario, the challenge of ensuring the preservation of mosaics still in situ engages theoretical reflections supported by scientific data. These efforts must also grapple with the intrinsic value and cultural significance of the heritage in question while embracing holistic conservation policies that integrate the eco-environmental balance of the sites. This study, part of a broader doctoral research project, aims to develop preventive and adaptive conservation methodologies for mosaics in Butrint impacted by flooding and progressive submersion. The author, deeply engaged in the theoretical and scientific debate between the extreme practice of detachment and in-situ conservation techniques, advocates for the latter approach. The study explores the feasibility and sustainability of this approach within a case study characterized by complex environmental variables and the interplay between archaeological significance and the surrounding natural landscape. A rigorous investigative methodology underpins the research. An initial anamnesis phase —focusing on data collection regarding damage and influencing factors— was followed by a diagnostic phase involving the interpretation of these data to understand damage mechanisms, identify causative factors, and predict future developments. This scientific approach enabled the collection and analysis of data to assess the environmental conditions of mosaic sites, the exposure level to submersion and flooding (derived from documented trends over the past decade and interpolated with predictive models), and the soluble salt content in water samples collected from various mosaic locations. Additionally, the chemical and physical properties of the mosaics' constituent and supporting materials were examined. By assigning relative weights to the factors contributing to degradation, the study identified six distinct risk levels for the mosaics. The subsequent formulation of an adaptive conservation strategy was grounded in assessments of the historical significance, cultural value, and authenticity of the in-situ mosaics. F. A. Author is with University of Alcalá de Henares (UAH), Pza. San Diego, s/n 28801 - Alcalá de Henares (Madrid), Spain (e-mail: laura.nicolini@edu.uah.es The proposed measures also take into account the broader environmental context of Butrint National Park, including its saline coastal lake and the Vivari Channel, a fragile ecosystem requiring careful management and protection. This research's primary contribution lies in the development of a multi-parameter environmental monitoring strategy, enabling real-time risk assessments and timely interventions. This approach ensures that critical risk factors remain within acceptable thresholds, thereby supporting a preventive and adaptive conservaton framework by timely interventions.

Keywords : adaptive conservation, butrint, climate change, monitoring, mosaics, UNESCO, WHS
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