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## The Accessible Underwater Cultural Heritage Sites (AUCHS) as a sustainable tourism development opportunity in the Mediterranean Region

### Abstract

This article is about the multi-dimensional value of the Accessible Underwater Cultural Heritage Sites (AUCHS) for coastal areas and islands in the Mediterranean Region, especially as an opportunity for sustainable blue growth. It is an attempt to underline the need for the broad promotion of Underwater Cultural Heritage (UCH) and to highlight the contribution of innovative technologies for direct and indirect accessibility to underwater cultural heritage remains. The paper further demonstrates how the AUCHS can become niches of touristic development for an area whilst offering multifaceted socioeconomic benefits to the local communities.

**Key words:** accessible underwater cultural heritage sites; knowledge awareness centers; sustainable tourism development; innovative technologies; Mediterranean

### 1. Introduction

The recognition that the in-situ preservation and responsible access of UCH are preconditions for its protection is currently a most adopted approach internationally, based on the recommendations of the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2001). Raising awareness on the value of Underwater Cultural Heritage (UCH) is likely to engage people into the safeguarding of their cultural heritage (Thurley, 2005). Apart from stimulating interest in the UCH, accessibility can also have an added socioeconomic value for local economies when considering the development of underwater cultural tourism.

The technological developments in underwater research such as the use of robotics have led to some impressive discoveries over the past years and stimulated public interest in UCH. Nevertheless, a huge part of UCH remains unknown to the public, when around three million shipwrecks are hidden underwater worldwide. In the Mediterranean, the volume of shipwrecks and submerged settlements can hardly be estimated, granted the limited underwater research and mapping in this diachronic crossroad of cultures along the sailing routes. What is more, there are many wrecks of the WWI and WWII era that are spotted but not broadly known (Argyropoulos & Stratigea, 2019). Most importantly, since literature focuses rather on technical issues such as the legislative framework, information hardly reaches the public.

The maritime museums on land have been a common practice in terms of broad promotion of UCH, however, this is not always a sustainable solution given the extreme costs for both facilities maintenance and conservation of exhibits. The impressive museums with whole wrecks recovered, such as the Vasa Viking vessel, or underwater museums developed in aquarium settings, like the Baiheliang Underwater Museum and the Guangdong Maritime Silk Road Museum in China cannot be a sustainable long-term investment for Mediterranean small economies.

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What calls for UCH be reachable to all, not only in terms of responsible physical accessibility but also captured in its original cultural and environmental context. This work intends to highlight the interrelation between accessibility to UCH and sustainable tourism development and discuss the benefits related to the operation of Accessible Underwater Cultural Heritage Sites (AUCHS). In this context, it introduces the BLUEMED model that has developed innovative technologies and Knowledge Awareness Centers to attract both divers and general public to AUCHS, aiming at promoting UCH and enhancing sustainable local tourism development in islands and coastal areas in the Mediterranean.

## 2. AUCHS for sustainable tourism development

In the Mediterranean, there have been different approaches for the in-situ promotion of AUCHS in terms of responsible accessibility. In Croatia, for example, what has been mostly adopted is the placement of protective frames over the cultural remains (Zmaić, 2009), while in Italy the Underwater Archaeological Park of Baia has encouraged the active role of diving centers achieving a full-time operation of the site (Stefanile, 2016). Depending on the type of remains (material, preservation state, accessibility), different management strategies must apply to different characteristics - the same framework cannot be applicable to shipwrecks of metal frame, submerged architectural remains or ancient cargo amphorae.

In addition, physical accessibility should not only be limited to the design of dive trails in terms of protection of remains but also take into account the satisfaction of visitors and the provision of contextual and appealing information (Bruno, Lagudi, & Barbieri, 2018). To this purpose, the integration of innovative technologies has offered indirect accessibility for both researchers and visitors where they cannot physically approach (Skarlatos et al., 2016), while the development of virtual dive trails has increased visitability at the actual sites (James, 2018).

From a different perspective, despite their appeal to divers, AUCHS are not considered as a destination for tourists. In fact, while coastal tourism is among the priorities of the EU strategy for Blue Growth (EU Commission, 2017), however, promotional strategies tend to focus on the marine sources and neglect the cultural assets (Henderson, 2019). On the contrary, tourists seem to recognise cultural richness in general as a strong asset of a tourism destination (Vodeb & Nemeč Rudež, 2017), while even the residents perceive cultural heritage as highly important in terms of benefits for the community, among others creating a sense of pride and identity for their region (Chand, 2013). Therefore, informing and engaging both locals and tourists on the cultural wealth can support sustainable cultural tourism in the area and generate several socioeconomic benefits (Petrić, 2007). Challenges of UCH related to the blue growth global trends (Papageorgiou, 2019) or tourism (El-Kady, 2017) need to be addressed so that UCH is also included to the discussion.

AUCHS can be beneficial for the local communities on a socioeconomic level (Tikkanen, 2012; Beattie-Edwards, 2016). Recreational diving if combined with underwater cultural assets can be a drive for economic development for coastal and island economies. In fact, alternative tourism is an emerging trend globally (Dwyer, Edwards, Mistilis, Adler, Scott, & Cooper, 2008) while according to Professional Association for Diving Instructors (PADI, 2019) scuba divers reach currently 27 million around the world. AUCHS can generate direct and indirect revenues for the community, since apart from diving fees and equipment other expenses may be considered, too, such as for accommodation, food or other services or activities in the area. Granted that cultural tourists are considered as highly educated high spenders (Richards, 2011) AUCHS can be considered as a profitable "market". Not only can they upgrade the touristic attractiveness of coastal areas and islands but also extend the touristic season. In general, the investment on underwater cultural tourism can become a growing market increasing the economic activity in coastal or island areas.

AUCHS can be a sustainable investment since it requires limited funding compared to other investments, like tourism infrastructure. What is required is an integrated model that focuses on sustainable management, responsible accessibility, and engagement of stakeholders, based on cooperation among competent authorities, managing bodies and other interested parties.

### 3. A model for tourism promotion of AUCHS

Under the Interreg Med 2014-2020, the BLUEMED project introduced a model with an overall goal to "Align/Integrate regional development policies, plans and management practices for Underwater Museums and Diving Parks for a tourism promotion of underwater natural and cultural heritage, in accordance with the principles of Sustainable, Responsible, Blue growth". BLUEMED aimed at coastal and island sustainable tourism development and was based upon the operation of AUCHS and their promotion through Knowledge Awareness Centres (KACs). The pilot sites selected for its implementation were in 3 different countries in the Mediterranean, Italy, Greece, and Croatia.

The BLUEMED model focused on the promotion of accessible underwater cultural and natural heritage sites through innovative technologies. A key feature of the BLUEMED model was the development of an Augmented Reality diving system to upgrade dive trails and offer an advanced experience for scuba divers at the sites. Another innovation of BLUEMED was the KACs, a combination of an exhibition and an information center on land. The KACs are equipped with different technologic solutions to attract visitors and provide knowledge as well as raise awareness on the value of UCH and the marine ecosystem. The main feature of the KAC exhibition is the Virtual Reality system that offers a virtual dive even to non-divers. Through other multimedia devices such as a touch screen system, the visitors receive information in a fun way on both the cultural and the environmental features of the sites.

Most importantly, KACs can support the sustainable operation of the sites as they inform visitors about the AUCHS in the area. In fact, according to the results of a survey conducted under the BLUEMED project to the visitors of the KAC in Alonissos Island in Greece, the visit at the KAC was a strong trigger for most of the respondents to consider becoming divers or visit the AUCHS in the area. Moreover, the data of visitability showed that KACs can be popular tourist attractions in an area; the KAC in Alonissos hosted during its first operation period in summer 2020 over 1300 visitors including people from abroad. In addition, granted that the KACs can be installed at various tourism access points such as airports, museums, or exhibitions they may attract many more future visitors. Consequently, KACs add to the sustainable tourism development of an area as loci of thematic tourist attraction.

Moreover, BLUEMED management and operational framework can be adaptable to the local context and support sustainable performance of AUCH sites and KACs. To this purpose, a Roadmap for the replicability of the BLUEMED model and good practices is available. In terms of sustainability, a solid methodology was developed as a tool for the evaluation of operation performance of both KACs and AUCHS, with Key Performance Indicators (KPIs) that for the first time in the Mediterranean considered the environmental characteristics, the cultural context, the socioeconomic impact and the touristic development prospects.

Aiming at the creation of a network of AUCHS in the Mediterranean to support a sustainable thematic touristic product for coastal and island regions, a web platform was developed (<http://meddiveinthepast.eu/web/bluemed>) to provide archaeological and touristic information supported by multimedia material along with the opportunity for a virtual dive at the pilot sites. Memoranda of Understanding with stakeholders further supported the building of this network among interested parties, including

managing bodies of Marine Protected Areas, local, regional and national public competent authorities, Maritime or Underwater Archaeology Museums, diving or tourism operators, research Institutions and University departments related to marine research or underwater archaeology, or local clubs and associations of a cultural or environmental interest.

## 4. Conclusions and implications

This paper has aimed to demonstrate how the AUCHS can enhance blue growth in the Mediterranean region, where coastal or island small scale economies can benefit from such a low-cost investment. Knowledge Awareness Centers and application of innovative technologies can support their sustainable operation and stimulate touristic interest in the area, attracting both divers and non-divers.

AUCHS can enhance tourism development in coastal or island areas, especially when the offered services are of high quality and the overall tourism infrastructure in the area satisfy the visitor needs (accommodation, transportation and food services etc.). This can be further leveled up when more than one nearby AUCH sites are combined during a visit. In this case, a weekly-based tourism destination allows divers to explore the area around or combine this visit during a longer travel, even in two to three different countries in the case of international travelers. When other tourism attractions such as on-land museums are available, the whole area becomes even more attractive to the visitor, especially for cultural tourists.

Policy makers and marine stakeholders need to acknowledge the role of AUCHS in enhancing sustainable growth in coastal areas and consider them in future decision making and planning. UCH is not included in spatial planning and tourism strategy development, even though it is an important asset of blue growth for coastal and island economies. Despite hosting unique underwater cultural remains on the seabed, most Mediterranean countries leave such assets unexploited and do not take advantage of such potentially major tourism attractions that can upgrade the attractiveness and re-profile visitors to the area.

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