

The many facets of maritime archaeology

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In June 2022, about 250 maritime archaeologists gathered in Finland's capital of Helsinki by the Baltic Sea for the 7th International Congress for Underwater Archaeology (IKUWA 7) to celebrate our academic field after two postponements and almost three years of social distancing and academic isolation. It was a week of joyful reunions and new meetings, excited conversations and intellectual discussions with all-things-maritime taking centre stage. The event, in its seventh iteration, called upon maritime archaeologists to think about the future of maritime and underwater archaeology under the title *Delivering the Deep—Visions for the Future*. In the 22 sessions of the conference, central, fundamental and classic themes related to shipwreck analysis and interpretation, maritime trade and commerce and the management of underwater cultural heritage were presented. Newer topics emerged, such as the links between climate change and maritime archaeology, as well as the utilisation of creative citizen science in maritime archaeological initiatives. Themes connected to theoretical frameworks, especially those focussing on maritime cultural landscapes, were expanded from previous conferences, a sign of the growing theoretical insights and maturing research paving the way for a more nuanced understanding of past societies, their behaviours, technologies, economies, beliefs and interactions with their watery environments.

The wide range of themes discussed at the conference underscored the changing nature of maritime archaeology, which has expanded from a subject area originally focussing on underwater archaeology and the study of nautical technology to a dynamic and interdisciplinary field encompassing all tangible and intangible elements of culture related to human activities on, in and around aquatic environments—inland waters and wetlands, as well as seas and oceans. Maritime archaeology is highly interdisciplinary, frequently using and borrowing methodologies and approaches from fields such as oceanography and marine sciences, engineering, geography, anthropology, ethnography and history, to state but a few (Muckelroy 1978; Adams 2002; Bass 2011; Catsambis *et al.* 2011; Ford *et al.* 2020). This interdisciplinarity, as coupled with the continued evolution of the theoretical frameworks applied (*e.g.* Westerdahl 1992, 2011; Tuddenham 2010; Campbell 2020), has yielded a progressive knowledge base equipped with a wide set of tools with which to pursue ambitious academic enquiries. In a fashion similar to archaeology, the openness of maritime archaeology and the internationality of the field (Martin 2011; Maarleveld 2012) allow limitless possibilities of research, as well as the participation of scholars from any disciplinary backgrounds studying

cultural elements of human activities within the context of watery environments.

In this edited volume, rendered from the work presented at IKUWA 7, we want to set forth the multifaceted nature of maritime archaeology and underscore the significant role which maritime scholars should play within the broader field of archaeology. Having transcended the techno-functional studies that characterised maritime archaeology for the most part of the twentieth century, the sample of work contained in this book aims to put to rest that now-outdated idea of maritime archaeology as we showcase the ways in which our sub-field can be used to understand how human societies interact and have interacted with their watery environments. While most contributors to this volume would call themselves maritime archaeologists, the definition of this label can vary down to individual levels due to the wide breadth of the field and the unique path through which each scholar has approached the discipline. Concurrently, some contributors may also characterise themselves with additional academic identities, including Stone Age archaeologists, Nordic archaeologists, Classical archaeologists, field archaeologists, maritime historians, historic environment specialists and heritage specialists, to name just a few. What characterises and unites us as maritime scholars is a desire to view human societies from the water (*e.g.* Cooney 2004; Ilves 2004; Adams 2006; Tana 2006; Fleisher *et al.* 2015; Fowler *et al.* 2015; Trakadas and Corbin 2015; Mylona 2020), and by doing so, to extract past maritime cultural landscapes. Our work offers a counterweight to land-oriented research, where the role of maritime communities is often obscured, and it becomes particularly important in regions of the world where societies have developed ways of life deeply entangled with watery environments. Water has provided unique resources and opportunities to humankind along with intricate challenges. Uncovering and understanding the delicate balance of bridging the natural environment with the complexity of the human social environment through the documentation of maritime histories, tangible and intangible heritage, along with contemporary attitudes, and values of maritime communities are key outputs of our field. The examples from the human–environmental past, our insights into the impact of aquatic environments on material culture, and our ability to unveil local, traditional and indigenous knowledge can play a fundamental role in reshaping humanity's relationship with the water, in the present and the future (Trakadas 2022; Velentza 2023). Through immersive and participatory, place-based and historically-informed heritage approaches maritime archaeology has already revealed its contribution to assisting communities reconnect with maritime and

watery localities to restore the equilibrium between nature and culture (e.g. Kelly *et al.* 2023; McDonagh *et al.* 2023; Buchan *et al.* 2024).

With this in mind, the book has been organised into five thematic sections which capture the current trends and directions of maritime archaeological research. Through the varied range of perspectives and methodological approaches presented in each section and contribution, this volume shows the inherent strengths of maritime archaeology. It serves as an example of the discipline's unique academic position, fostering a deeper humanistic understanding which bridges the realms of nature and culture within the maritime spectrum.

Special mention should be made to new generations of maritime archaeologists, represented here by a healthy balance of postgraduate students and early career researchers. We hope their work as presented here is seen to exemplify what the turn from techno-functional studies to more theoretically aware and socially focussed concerns can look like. Through thorough reviewing and mentoring, we have provided a productive scholarly space for the next generation of maritime scholars, where they could experience the process of academic publishing. The importance of peer support and mentoring for early career researchers and their publishing efforts has been pointed out in several recent studies (e.g. McAlpine *et al.* 2018; Nicholas *et al.* 2017; Merga and Mason 2021), and we have striven to ensure their voices are heard. This is particularly important in the post-COVID-19 era, during which major systemic problems of academia have been amplified, making early career researchers especially vulnerable (Gibson *et al.* 2020). By giving the opportunity to up-and-coming scholars to publish their research findings in this book, we hope to create significant momentum and set an example for improving research culture and practice in the field of maritime archaeology.

Maritime cultural landscapes and maritime communities

As maritime scholars, our interest rests squarely on the broader ways in which watery spaces (*i.e.* seas, lakes, rivers and wetlands) and the maritime worlds created around them have shaped societies and cultures throughout history. This can only be achieved if the lens through which we see the past is broad enough to explore the meshwork that connects land and water. This is what Christer Westerdahl postulated in his paradigm-shifting framework 'the maritime cultural landscape' (1992; 2011), and in the first section, the book draws attention to studies which apply this perspective. The distinct geographical regions covered here, ranging from Ireland to the eastern Mediterranean and the Black Sea, highlight the relevance of this perspective to the study of any site, culture or community living in the proximity of watery environments.

Moving from previous typologies and technological studies, Karl Brady's chapter demonstrates the significance

of dugouts in Ireland's prehistoric past, offering insights into early watercraft development and how boats were vital in facilitating travel, trade and the transportation of goods and animals within the island's freshwater environments. Through the discussions on the deliberate deposition of logboats, this chapter also highlights how their study is shedding light on a variety of complex social activities. The study emphasises the changing perception of logboats from simple vessels to valuable archaeological artefacts and underscores the need for continued research and preservation efforts to understand their significance and broader historical context. His work is followed by that of Sebastian Adlung and Martina Seifert, who provide new insights on maritime communities living on the islands of the Adriatic Sea during ancient Greek and Roman times. By investigating the role of islands as important landmarks, trading centres and stopovers in maritime interactions, this contribution examines how local communities and traders utilised islands for settlement, trade, and transportation, highlighting the significance of ports and harbours, as well as coastal settlements in shaping the economic and cultural dynamics of the region. This study challenges previous interpretations of colonisation and Romanisation, emphasising the need for a broader perspective on settlement history, migration processes and interactions among island communities, ultimately contributing to a better understanding of the complex historical landscape of the Adriatic region.

Maria M. Michael's contribution, on the other hand, presents an innovative holistic approach to understanding fishing as a way of life beyond its material aspects. Michael highlights the multifaceted character of fishing, discussing technological, social, economic and environmental factors. She suggests that fishing is a lifestyle which encompasses various elements of the maritime cultural landscape. The research she presents, which is focussed on the island of Cyprus, is comprehensive in analysing archaeological evidence, ethnographic data and environmental factors as relevant aspects needed to reconstruct ancient fishing practices and perceptions. This type of integrated study sheds light on the complex relationship between humans and the sea, and it allows us to examine fishers' knowledge of the landscape and seascape. In the final chapter of this section, Kalin Dimitrov and a team of co-authors explore the underwater cultural heritage of the Ropotamo River Bay on the southern Bulgarian coast of the Black Sea to uncover local adaptations to the watery landscape. Pioneering in the use of modern techniques for documentation and post-excavation processing in the framework of maritime archaeological investigations conducted in the Black Sea region, this study offers empirically grounded insights into the history of Ropotamo pile-dwelling communities, provides evidence of sea level changes and contributes to understanding the ecological and cultural dynamics in the region over a span of 7,000 years.

Collectively, these studies highlight how broadening our research to explore maritime communities from a holistic perspective which integrates material from land, as well

as from underwater sites, can provide nuanced views of the past when applying the maritime cultural landscape framework. These studies also serve to accentuate the importance of interdisciplinary perspectives in maritime studies, a theme which permeates the rest of the contributions, albeit with different foci.

Interpreting maritime objects and representations

As part of broader cultural landscapes, maritime realms have found their way into social imaginations in various forms, from rock art to votive offerings and symbolic associations. Each is represented in the second section of this volume, giving the reader a very broad overview of the ways in which maritime archaeology can be studied. Boat and ship motifs can be found represented in different artistic media all across the world and throughout time as symbols of deeper cultural meaning. The first example in this volume comes from the north. Through the study of rock art, Ekaterina Kashina, Ville Mantere and Evgeniy Kolpakov explore the use of watercraft by prehistoric hunter-gatherer-fishers in northeastern Europe, focussing on the territory of modern northern Russia. The authors discuss the scarce attention given to early water transport in archaeological investigations due to limited archaeological finds and analyse the significance of Stone Age rock art as a source from which to learn about early watercraft, discussing the various boat types depicted and their potential functions. The study highlights the challenges of interpreting rock art images, nevertheless suggesting the presence of both logboats, skin boats and bark boats. A ceremonial aspect is suggested in relation to the use of boats with elk-head sculptures, highlighting the role of the waterworld in early cultures of the region.

The symbolic attributes of ships are further explored by Marina Maria Serena Nuovo and Stefania Tuccinardi, but this time, through the analysis of two Roman sculptural reliefs of the second-third century AD from Italy. The study compares the artistic style, symbolic representations and features of seagoing vessels and maritime landscapes as depicted in the large monumental relief from Fucino Lake and the small relief uncovered during the archaeological excavations at the harbours of Claudius and Trajan in Portus, Rome, Italy. Through an iconographic and contextual analysis, the authors interpret the iconography of the two reliefs as a celebration of the extraordinary feat of engineering undertaken during the construction of the artificial outlet of the lake. Furthermore, the authors contend the ships depicted in the reliefs should be interpreted in connection to the works, and the overall iconography should be considered as the celebration of Rome and of the greatness of its emperors. Hence, the symbolic nature of ships stand here for the great achievements of the state, an example of the versatile nature of ship symbolism and the need to use holistic approaches in the study of this type of material.

Focussed on symbolism and iconography, but in a religious context, we next find an innovative study by

Rafail Papadopoulos, who examines the iconography of marine vessels and their connection of Christian saints. This preliminary study, part of the author's master's thesis, opens an exciting new avenue for research examining the connection between Christian saints and maritime material culture. With a focus on prominent examples from early Christianity, and especially the eastern Greek Orthodox Christian tradition, Papadopoulos illustrates how in Christian spirituality, faith has been associated with material realities from its inception. Presenting a series of examples on how water is conceived and integrated into Christian stories, as well as the use of maritime-related metaphors to explain crucial elements of the faith like equating the Church to a ship, the author introduces the reader to key 'maritime' saints, their lives and miracles, and how these are entangled with local beliefs and spiritual practices which take tangible form as votive icons. The ideas put forth in this contribution add to the examples presented in the volume on the importance of applying holistic approaches to the study of the maritime cultural landscapes of past communities, and the need to incorporate interdisciplinary approaches—in this case, mixing archaeology with theological and art historical research.

Katerina Velentza's work, on the other hand, presents an intriguing case for the maritime archaeology of shipwrecks and public perceptions throughout history. In her contribution, she constructs a narrative of loss and discovery at sea, examining ancient sculptures found underwater from Classical Antiquity to nowadays. This long-term approach allows Velentza to tap into a world of shared emotions and reactions when the public is confronted with the recovery of a lost sculpture. This sense of wonder and mystery—and of catastrophe and fear—has had an impact on the way the field of maritime archaeology is perceived, not just by academics but also by the general public; a continued effort to educate the public on the relevance of good practice in the recovery of material from underwater sites, she reckons, will ensure the protection of this unique archaeological material. Hence, in Velentza's world, one can perceive a different type of symbolic attribution of shipwrecks, and through this, perhaps, we can begin to understand how moments of tragedy at sea can permeate people's imagination.

By exploring the diverse perspectives presented in this section of the volume, we gain insight into the various manifestations of symbolic associations. These insights not only highlight the wealth of research opportunities, but also underscore the necessity of employing holistic approaches to study the symbolic, artistic, religious and societal dimensions contained within maritime cultural landscapes which span diverse historical and geographical contexts.

The archaeology of ships and boats

The study of ships and boats undeniably sits at the heart of maritime archaeology. They are the means by which

maritime communities make use of aquatic resources, how they harness the winds and connect distant places. But ships too can be studied in various ways. In the first contribution of this section, Stephen Wickler conducts a comprehensive analysis of the Iron Age boat finds from bogs in northern Norway, through which he is able to piece together local boat-building traditions. The author postulates the existence of specialisation and adaptation to challenging local conditions, providing grounds for critiquing previous assumptions of cultural conservatism and underdevelopment due to marginalisation. The study sheds light on boat construction variation, continuity and maritime innovation in northern Norway during the Nordic Late Iron Age and Mediaeval period, challenging misconceptions and highlighting the shared Sámi-Norse boat building tradition. But beyond techno-functional analyses, Wickler explores the ritual aspects of boat deposition and the significance of boat burials in the context of both mundane and spiritual life, revealing insights into the connection between boats and northern maritime communities. This way of understanding watercraft—outside of the constraints of their function and into the spiritual realm—highlights the ways in which societies can be understood through the holistic analysis of ships and boats.

Brendan Foley and Martin Hansson, for their part, further contribute to the contextualisation of ships and boats in society by reflecting on the way in which nautical design is affected by social organisation. In their contribution on the *Gribshunden*, a royal Danish-Norwegian flagship launched in 1485 and sunk just ten years later enroute to a political summit in Kalmar (Sweden), Foley and Hansson depart from other studies which often focus on the technological aspects of shipbuilding to explore the connection between the ship's design and social stratification in late Mediaeval times. The authors extrapolate the physical arrangement of *Gribshunden* to monumental architecture on land, especially that of Glimmingehus castle, successfully drawing parallels between the two which define the social division known from this period. Like Wickler's contribution does, Foley and Hansson open a door to understanding ships in context, not just as technological advancements, but also as places and spaces which implement the cultural ideations of societies. This approach, which was first introduced by Adams (2003) and follows the holistic approach promoted by the maritime cultural landscape framework, is shown here to provide a new layer of meaning to the study of nautical technology.

From a technological perspective, however, there is still much to be learned, especially when considering the longevity of ships and the necessary repairs they underwent during their lifetime or the transformations they underwent through repurposing processes. The last two contributions of this section of the volume are excellent examples of the difficulties maritime archaeologists encounter when studying ships, especially when faced with the cumbersome task of distinguishing the original layout of the ship from later repairs or transformations. Hendrik

Lettany makes a compelling case for the re-evaluation of the seventeenth-century shipwreck *Scheurrak SO1*. Previous interpretations have argued for the existence of a second layer of hull planking, known as the 'double Dutch' solution, which was thought to be part of the original nautical design. The author's re-evaluation of the ship's keel, stem and construction sequence indicates this outer layer of planking might have been added during a modification or repair phase, rather than being an integral part of the initial design. Through a meticulous analysis of the hull remains, Lettany shows the difficulties encountered by nautical archaeologists when studying shipwreck remains, and brings forth the implications of this new interpretation in the context of construction sequences. Further research is planned to understand the meaning of these changes, but Lettany has already made a substantial contribution to the field by highlighting the importance of understanding construction sequences when attempting to separate original features from later modifications.

Further insights into the practice of ship repairs and maintenance is presented by Michael R. Jones through the Yenikapi ships. These were found during the excavations of Constantinople's Theodosian Harbor, which was built during the reign of the Byzantine emperor Theodosius I (379–395 AD) and used until the eleventh century AD. During the 2004–2013 excavations, archaeologists uncovered 37 exceptionally well-preserved shipwrecks of fifth- to late tenth- or early eleventh-century AD, providing archaeologists with an unparalleled source of information for the study of Byzantine ship construction and maritime trade. This data enabled Jones to present a cohesive argument on hull maintenance and repairs practise in the Mediterranean, shedding light on ship longevity beyond textual sources. The discussion on the identified hull repair methods and timber recycling seen in the Yenikapi shipwreck assemblage provides new considerations and perspectives on the interpretation of generally Mediaeval shipwrecks documented underwater across the Mediterranean, emphasising for example, the real concern which wood rot posed to the survival of oak timber. Evidence of re-use of ship timbers was documented, as well as the use of new planks for repair; the author argues that this, together with other finds extracted from the excavations, can be used to gain new insights into the working methods and everyday conditions of maritime industries. Hence, despite the long-standing tradition of nautical archaeology within the field of maritime archaeology, there are still innovative ways of understanding ships in their context, as well as new ways of interpreting their remains through multiple layers of evidence.

In unveiling the multifaceted layers of boat and ship interpretation, these studies of water vessels delve into the technological details, while underscoring the challenges faced by maritime archaeologists in discerning the nuanced historical narratives embedded within shipwreck remains, often compelling a re-evaluation of construction sequences and repair practices.

Interpreting underwater archaeological sites

The interpretation of archaeological sites is also dependent on the research questions which we bring to the table and the tools we devise for their performance. Each time we define the confines of a site, we are making decisions which will impact our conclusions. Therefore, the act of interpreting an underwater site needs to come from a point of reflection and a recognition of the situational knowledge which to a certain degree denies objectivity. One can focus on the landscape as a whole, or the links traced by objects through their provenance; the focus can then be used to argue for the defence of a type of underwater site, or help bring light to an industrial past which is often overlooked.

In the first contribution to this section of the volume, Carlos Del Cairo Hurtado and Jesús Alberto Aldana Mendoza present a compelling case for the use of interdisciplinary approaches for the interpretation of underwater archaeological sites, focussing on the case of Cartagena and the 1741 naval battle which took place on its waters. During that fateful year, the British launched an ill-fated attempt to capture the enclave through a combined naval and land attack. The confrontation resulted in a British defeat, along with a sea floor littered with remnants of the fray. These are treated by Del Cairo Hurtado and Aldana Mendoza as an underwater landscape which needs to be studied in its entirety, from the archaeological material to the environmental conditions at play in the area. By applying multiple interpretative frameworks, the authors demonstrate the vessels' tactical moves, the troops and the arrangement of defensive and offensive systems were directly related to winds, sea currents, mangroves, mosquitoes and the area's geomorphology. The result highlights the importance of not only engaging with the archaeological material, but also contextualising its location with environmental data to better understand the morphology of the site in the context of warfare.

The type of material available to Del Cairo Hurtado and Aldana Mendoza is not always present for all sites, and interpretive methods sometimes depend on partial hull remains and the few items found inside or scattered around them. This was the situation for the *Paal 27.1* shipwreck, which was found adrift by a bird watcher in the Frisian coast of The Netherlands. Only a section of the hull was left with some items still inside. By the time the floating woods were pulled ashore, some items had been rescued by the bird watcher, and others had fallen off into the sea. The interpretation of the material was a significant challenge for the authors of the second contribution of this section. Through the analysis of the material, Heidi E. Vink and Tobias B. Slowronek were able to trace the ship to the eighteenth century and start unfolding its history, which is connected to the transatlantic slave trade. Using archaeological, historical and scientific approaches the authors were able to contextualise the items found inside the hull to the history of trade goods exported from Europe in exchange for slaves. An important portion of the recovered material consisted of brass rods and cauldrons.

The scientific analysis of the brass, a metal composed of copper and calamine (zinc), allowed Vink and Slowronek to trace the copper to Falun (Sweden) and the calamine to Stolberg (Germany). This, the authors contend, highlights the way in which the networks of the slave trade were widely extended through Europe in response to supply and demand. Further historical studies have allowed the authors to explain the use of brass rods in a historical perspective, as the material has been used as an exchange currency in Africa since Mediaeval times. Vink and Slowronek show it is possible to engage meaningfully with archaeological material through a combination of approaches, even when the site is composed of decontextualised hull remains.

The following two contributions engage with a type of material which is not often recognized as relevant for archaeology, thus shifting interpretation from historical contextualisation to the legitimacy of the site as archaeological material. Julie Satchell presents the results of a recent study of the large numbers of merchant vessels lost off the south coast of England during the First World War. Through the analysis of the archaeological and historical data, Satchell aims to understand how this large corpus of shipwrecks contributes to understanding the warfare, ship technology, international trade and personal experiences of people during WWI. Through the review of selected case studies of cargo and passenger vessels which wrecked during that period, this study brings forward debates on the lack of protection by heritage legislation of most non-military shipwrecks of the late nineteenth and twentieth centuries, despite their international significance and commemorative importance. In creating meaning for the site, Satchell raises our awareness of the need to protect such sites.

Alistair Byford-Bates, Ben Saunders and Euan McNeill, on the other hand, turn our attention to the emerging sub-field of aircraft archaeology through the analysis and recovery of a Fairey Barracuda, an all-aluminium high-winged monoplane of the Royal Navy's Fleet Air Arm, which was discovered submerged in the sea close to the end of the runway at the former Royal Navy Air Station (RNAS) Daedalus in Hampshire, England. Through evidence collected during the recovery of the aircraft from under the water and through archival research, the authors discuss the identification of the aircraft and its significance as an example of the technological advances in aircraft design and development in the 1930s and 1940s in the United Kingdom. The study also reveals insights into wartime production contingencies across aircraft manufacturers in Britain, and the human stories of the individuals involved in each production and operation. As the authors point out, aircraft found underwater often have ties to personal stories which lie within the reach of archaeological and historical inquiry, opening an intriguing path to a combination of archaeological analysis and oral history. The object becomes a tangible link between past and present, allowing archaeologists to work at an individual level which we can expect to become more meaningful as years go by and events pass out of living memory.

The contributions exploring the interpretation of underwater sites underscore the multidimensional avenues available for studying submerged sites, encompassing environmental, technological, historical and socio-cultural perspectives. In line with the other contributions to the volume, all of the studies in this section highlight the need for and usefulness of interdisciplinary methodologies and nuanced, reflective approaches. Maritime archaeology, whether it is focussed on shipwrecks and underwater sites or maritime landscapes and symbolic manifestations in the study of human activities within the context of watery environments, navigates between the tangible nature of material artefacts and the contextual richness they offer.

Underwater cultural heritage management and public engagement

Lastly, the protection of underwater cultural heritage is an unavoidable topic for maritime archaeology. Numerous threats affect the integrity and survival of underwater sites, not just treasure hunting and looting, but also other, less obvious elements such as the construction of offshore infrastructures, some fishing techniques and the high-energy storms which are becoming increasingly severe due to climate change (Velentza 2023; Westley *et al.* 2023). Faced with these and other threats, maritime archaeologists have been developing and implementing different strategies to protect underwater cultural heritage; these range from supporting legislators to improving management at a state level, to raising the awareness of the value of underwater cultural heritage in the general public. In this section of the volume, we draw attention to four of these topics: the challenges of underwater cultural heritage protection in times of climate change, the role of preventive archaeology in protecting maritime heritage, the importance of devising outreach tools for contextualising underwater sites for the general public, and finally, the potential for exploring the inspirational and evocative dimension of shipwreck sites through poetry.

With growing concerns from environmental scientists about the increasing frequency and force of storms due to climate change, maritime archaeologists are becoming more and more aware of the need to evaluate the impact of environmental events on underwater and coastal sites in order to devise ways of protecting the maritime cultural heritage for the future. In the first contribution of this section, Sandra Henry and her co-authors discuss the approaches followed by the CHERISH project in Ireland for investigating the impacts of climate change on wreck sites exposed to different environmental conditions. With the use of remote sensing and archaeological recording methodologies conducted in selected shipwreck case studies, these authors have created substantive site records, as well as baseline and monitoring datasets, which have been analysed and evaluated through a collaboration of maritime archaeologists, geologists, divers, surveyors and geophysicists. This multidisciplinary approach is presented as an effective way to increase our understanding of climate change impacts on coastal and underwater

cultural heritage sites. The contributions of the chapter are twofold, as it both raises awareness—backed by data—of the impact which climate change is having on underwater sites and offers a way of monitoring and evaluating this impact in order to take preventive measures for the protection of this type of sites.

The need to invest public time, effort, and funds to protect underwater sites can only be justified if a certain degree of social consensus is achieved on the worthiness of saving this type of cultural heritage. The ICOMOS 1996 Charter on the Protection and Management of Underwater Cultural Heritage (Sofia Charter 1996) recognises that ‘underwater cultural heritage contributes to the formation of identity and can be important to people’s sense of community’. Through the ethical and sensitive promotion of underwater cultural heritage, these sites can play an important role in sustaining socioeconomic growth around the world. Therefore, finding ways of engaging the public and increasing the accessibility of underwater sites is an important step in securing and improving the social impact which underwater cultural heritage can have in local communities. In the second contribution of this section, Eike Falk Anderson and Thomas Cousins do just that by presenting an innovative and engaging way to enhance public engagement with archaeological sites through the creation of a virtual heritage experience which allows the user to contextualise the archaeology in a meaningful way. The project, called ‘Exercise Smash’, focuses on the WW2 D-Day landings in Normandy and offers a two-step activity where the user is first tasked with landing an amphibious tank before exploring the underwater remains. This virtual tool not only makes underwater sites accessible to non-divers, it also contextualises in-situ remains in the history of the region. Furthermore, it establishes strong links between tangible and intangible cultural heritage, combining stories about and memories of a historical event with archaeological finds directly linked to the event. The work of Anderson and Cousins exemplifies the way in which technology can help raise awareness of the importance of this type of archaeological site, while supporting the socioeconomic growth of the local community in light of the tourism industry it attracts. Advances like this add value to underwater cultural heritage beyond academia and into society, and contribute to changing the public’s perception of maritime heritage.

Earning a place in public life is vital, since public opinion can persuade legislators and create momentum for actions or activities which will protect underwater cultural heritage. Advances on public policy and the management of maritime heritage sites is uneven throughout the world, so examples of good practice and lessons learned are important to set a baseline which others can follow. In the third contribution, Nicolas Birgourdan takes a long dive into the history of maritime cultural heritage management in France to discuss how preventive archaeology has been able to evaluate and mitigate the impact of development on this type of sites. He makes a good point in noting the work of preventive archaeology has developed as a

mitigation strategy to protect maritime cultural heritage while supporting industrial development; as a result, target areas for intervention and ensuing collected material do not respond to archaeological interests, but rather, to the locations of industrial projects. The model is nonetheless one which facilitates the protection of maritime cultural heritage and ensures its survival for future generations; it is presented here as a case study for others seeking to develop or improve their government's approach to underwater cultural heritage management.

Last but not least, we close the volume with a most unusual contribution, one which delves into public perceptions of shipwrecks and the creativity nurtured through senses of loss, awe and mystery as liberated by the tragic fate of these ships. We have already seen in Velentza's contribution how this fascination with shipwrecks and the tragedy which results from sinking ships can be traced. In the final contribution of the volume, Katariina Vuori taps into her own interest in maritime archaeology and her love of poetry to access shipwrecks as sources of inspiration. She introduces a poetic approach to exploring maritime cultural heritage, focussing on the *From wreck to poetry* workshops held at the IKUWA 7 conference. Based on the workshop outcomes, Vuori examines the impact of combining archaeology and poetry on how wrecks are perceived. Through a three-stage metaphor analysis and free association, she shows that structured poetry exercises can enrich descriptive vocabulary and bring new insights to the interpretation of material culture. This out-of-the-box thinking is proposed here as a way for experts in maritime heritage and archaeology to look at their material from a completely different perspective (see also Marila and Ilves 2023), something which can serve to enhance the understanding and appreciation of the cultural heritage among diverse stakeholders.

Learning how to communicate—in different ways, at different levels and with various objectives in mind—is something the maritime archaeologist needs to nurture. As seen in this section of the volume, the very existence of maritime archaeology depends at least in part on our ability to communicate the vital importance of our work and of the maritime heritage which we study. In a world where social media has become the meeting point for most social actors, we need to recognise the importance of engaging the public on multiple levels, but also of finding new ways of explaining our work and expressing our passion for the maritime realm and the many wonders it contains. Our ability to think and write creatively about our work will have an impact on the management and protection of our maritime heritage.

In compiling this volume, we aimed to showcase the up-to-date state of the field in the twenty-first century. Through the interdisciplinarity and diversity of the maritime archaeological work taking place in the present, we hope to demonstrate the ways in which the discipline is moving forward to advance the study of the past, but also participate in discussions addressing the challenges of the

present and the future. Through a broad methodological, geographical and chronological spectrum, the 20 chapters in this volume provide a sizable sample of the current trends in maritime archaeological studies and the direction of the field as we approach the end of the first quarter of the 21st century. We hope readers will find themselves immersed in worlds unlike any they have ever found on land, and for which a view from the water is essential if we are to understand the ethos that affected their decisions and structured their behaviours.

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