Protection of underwater cultural heritage

Editors:
Hakan Öniz,
Emad Khalil,
Gustau Vivar

CMAS

CMAS

World Underwater Federation

Protection of underwater cultural heritage - Editors: Hakan Öniz, Emad Khalil, Gustau Vivar
Design: Oscar D. Ríos

February 2024

INDEX

Foreword

On behalf of UNESCO, the United Nations Educational, Scientific and Cultural Organization, we are delighted to present this publication on underwater cultural heritage to the public. This book represents a culmination of international efforts and collaborative partnerships, acknowledging the invaluable cooperation with the World Underwater Federation (CMAS) and the International Scientific Committee on Underwater Cultural Heritage (ICOMOS-ICUCH). Together, we embark on a journey of discovery, conservation, and appreciation of the hidden treasures that lie beneath the world's oceans, lakes, and rivers.

Underwater cultural heritage is a testament to the intricate tapestry of human history, a living connection to our past that transcends time and borders. It encompasses a diverse range of submerged sites, including shipwrecks, sunken cities, ancient ports, and sacred sites, each holding invaluable clues to the civilizations that came before us. These submerged legacies tell stories of exploration, trade, cultural exchange, and the triumphs and tragedies that have shaped our world.

The protection and preservation of underwater cultural heritage are of paramount importance. It is through our collective efforts that we can ensure these fragile time capsules endure for future generations. UNESCO, CMAS, and ICOMOS-ICUCH recognize the significance of this mission and have collaborated tirelessly to raise awareness, advocate for responsible practices, and develop international guidelines and standards.

This book serves as a beacon, illuminating the wonders and challenges associated with underwater cultural heritage. It is a celebration of the courageous divers who venture into the depths, the passionate archaeologists who meticulously uncover history's secrets and the dedicated professionals who tirelessly work to protect and manage these precious underwater sites. It is also an invitation to the public to embark on a journey of exploration and appreciation, to become guardians of the submerged heritage that belongs to us all.

Within these pages, you will find a wealth of knowledge, expert insights, and captivating narratives that shed light on the significance of underwater cultural heritage. You will discover the critical role played by international cooperation, scientific research, and sustainable practices in safeguarding these submerged treasures. Moreover, you will witness the transformative power of underwater archaeology, as it unravels mysteries, challenges assumptions, and enhances our understanding of the past.

We extend our deepest gratitude to the World Underwater Federation (CMAS) and the International Scientific Committee on Underwater Cultural Heritage (ICOMOS-ICUCH) for their unwavering commitment and expertise. Their collaboration and invaluable contributions have enriched the content of this book and strengthened our collective resolve to protect and cherish the submerged heritage that lies within our reach.

We also express our sincere appreciation to the divers, researchers, professionals, and enthusiasts worldwide who have dedicated their lives to the study, preservation, and promotion of underwater cultural heritage. Your passion, determination, and unwavering dedication inspire us all.

It is our hope that this book serves as a source of inspiration and enlightenment, igniting a deep appreciation for the wonders that lie beneath the waves. Together, let us celebrate and protect our shared cultural heritage, embracing the responsibility to ensure its survival for generations to come.

Ernesto Ottone R.
Assistant Director, General of UNESCO for Culture

Foreword

The CMAS World Underwater Federation is seriously committed to the protection of underwater cultural heritage (UCH), and carries it out in different programs to raise awareness about the importance of its protection, as well as giving its divers training focused on sustainable diving techniques.

The CMAS scientific committee focuses its efforts on educating scientists and recreational divers to be part of a global UCH protection system. Prestigious archaeologists participated in the writing of this book, three of them directors of areas within our organization.

This book is part of our commitment to the sustainable development goals of the United Nations 2030 agenda and the UNESCO CMAS 2023 convention. Through citizen science we connect the scientific world with the universe of CMAS divers to create a relationship that brings us closer to our objectives of responsible diving and the protection of our submerged resources. We also provide scientists with a diving training system and with specific tools to perform their professional tasks effectively and safely in the underwater environment.

Through agreements with UNESCO and several universities, scientists from all over the world have access to our training programs for scientific divers, thus closing the virtuous circle where divers and archaeologists collaborate with each other to protect our cultural heritage.

Francisco Alberto Lacase
President, CMAS Scientific Committee

Ancient plates from the Late Hellenistic-Early Roman Plate Wreck from Antalya
Photo Hakan Öniz

CHAPTER ONE

INTRODUCTION

Dr. Hakan Öniz, Director of Cultural Heritage CMAS Scientific Committee

Annually, millions of recreational SCUBA dives are made around the world by sport divers. Very few of these divers are aware that some objects visible beneath the oceans, seas, lakes, or rivers are manmade and have significant historical value, and that these fragile objects should be protected for future generations. CMAS, as a global non-profit organization, works to protect Underwater Cultural Heritage (UCH) through special training programs and awareness methods. This book is one of the first steps in the protection of the underwater cultural heritage worldwide. This approach involves collaborating with scientists and scientific organizations to enlighten divers in every part of the world about the archaeological value of submerged cultural objects.

According to UNESCO, underwater cultural heritage is defined as all traces of human existence of a cultural, historical, or archaeological nature that have been partially or totally immersed for at least 100 years. Protection and preservation of UCH allows for better knowledge and appreciation of past culture, history, and scientific knowledge. The 2001 Convention on the Protection of the Underwater Cultural Heritage provides a legally binding framework for state parties to identify, research, and protect their underwater heritage, while ensuring its preservation and sustainability. CMAS supports UNESCO's 2001 Convention and has planned a special training program in collaboration with UNESCO. This book is prepared within the framework of this important step in the Protection of Underwater Cultural Heritage. It is written by eight academics from the world of underwater archaeology, who currently work within UNESCO UniTwin Underwater Archaeology.

CMAS - UNESCO Agreement

Network and in the International Committee on the Underwater Cultural Heritage of ICOMOS. The book is set to be published by CMAS in at least 11 languages and is prepared according to the principles and recommendations of UNESCO and the International Council on Monuments and Sites (ICOMOS). The purpose of the book is to provide an approach and a knowledgebase to prevent damage to archaeological heritage by divers. The book also aims to inform relevant institutions about the cultural values found underwater, subsequently passing them on to future generations and bringing them to the heart of global science.

Cultural heritage that lies submerged in deep water often goes unnoticed, making them particularly vulnerable. Underwater archaeologists study this heritage, which faces numerous risks today, such as from treasure hunting, looting, and commercial exploitation, as well as environmental degradation, and coastal development. Underwater cultural heritage is fascinating as it provides illuminating glimpses into the past, but can lose some of its meaning when exhibited out of context on land. This contextual disconnect makes the creation of underwater museums and dive trails a useful and imaginative adjunct to archaeological excavation.

In addition, CMAS introduced new hand signs for Underwater Cultural Heritage in 2021, which were developed by Akdeniz, Alexandria, Warsaw, and Buenos Aires Universities and implemented by Akdeniz University in Turkey. These signs enable better communication and help to protect cultural treasures. CMAS urges divers not to disturb archaeological and historical objects in the water, and to contact the nearest museum or governmental institution for assistance. So, this book is not a guide to discovering shipwrecks or other sunken objects. This is the duty of the underwater archaeologist, who undergo years of education and experience during their training. However, every diver can see an exposed cultural object on the seabed. Preventing the handling, interference, or removal of these artefacts and informing the relevant national institutions is our aim. Let us work together to protect underwater cultural heritage for future generations!

UNESCO Unitwin Network Partners - 2018 UNESCO Fontenoy-Paris

WHY SHOULD UNDERWATER CULTURAL HERITAGE BE PROTECTED?

Dr. Emad Khalil, Director of Scientific Diving
CMAS Scientific Committee

Throughout the history of mankind, humans predominantly lived in close proximity to the oceans, seas, lakes, and rivers. Therefore, the waters of the world have been the principal means for connecting civilizations, and places of sacred and symbolic value. Transport, trade, fishing, war, and many other activities took place onboard boats and ships along these coastlines. These activities have left behind a wealth of material evidence lying on the seabed. Therefore these submerged remains are integral parts of a society's cultural identity. Through their study we can learn about the social and historic components of the seas and oceans.

UNESCO defines underwater cultural heritage as being all traces of human existence, which have been partially or totally under water, periodically or continuously, for at least a hundred years. It includes ancient shipwrecks, sunken cities and settlements, submerged prehistoric coastlines, fish traps and other sites. It is estimated that more than three million ancient shipwreck sites and submerged cities and settlements, from different eras, lie underwater. These sites can provide invaluable information on past human activities and cultural interchanges. Therefore, the study of underwater cultural heritage gives an insight into various aspects of human life and activities in different regions and time periods. It holds great potential for scientific research and education.

Moreover, underwater cultural heritage is also an important witness to climate change and the development of civilizations. For over 90% of the timespan of humankind sea levels were between 40-130 metres lower than today's. Accordingly, a substantial number of prehistoric sites, representing evidence of the life of mankind, are now submerged. Therefore, underwater cultural heritage is important evidence of the impact of climate change. It offers a great opportunity for research related to the changes of sea-level, and the response of human communities to those changes over time.

Furthermore, public accessibility to underwater cultural heritage has an important cultural, recreational and educational impact on the community or region where it takes place. It can contribute to shaping cultural identity and strengthening the link between a society and its past. In fact, underwater cultural heritage represents great opportunities for sustainable development and cultural tourism. Submerged archaeological and historical sites are a very interesting and attractive form of heritage, and are highly appreciated by divers due to the particular nature of the underwater realm and the stories behind the submergence of those sites. Hence, underwater cultural heritage provides great opportunities for cultural and recreational activities, including diving tourism, as well as the urban development of the adjacent areas.

According to the renowned Jacques-Yves Cousteau, "We love what we marvel at, and we protect what we love". Accordingly, it is essential to value and appreciate underwater cultural heritage to be able to protect it. Therefore, the UNESCO 2001 Convention on

the Protection of the Underwater Cultural Heritage encourages responsible public access to underwater cultural heritage sites. Hence, the development of museums of underwater archaeology, and dive trails that allow facilitates divers' informative visits to underwater archaeological sites, ensure the appreciation and hence the in-situ protection and preservation of the underwater cultural heritage, ensuring a beneficial and lasting return.

However, underwater cultural heritage is threatened by looting, treasure hunting, coastal development, and the commercial exploitation of natural resources on the sea bed. It is also affected by global warming, water acidification, and pollution. Therefore, serious measures have been taken by local governments and international organisation to ensure the protection and preservation of underwater cultural heritage.

Nevertheless, safeguarding of underwater archaeological sites requires effective site supervision as well as physical and legal protection. Measures for site supervision could include sonar buoys installed within the parameters of underwater archaeological sites and to transmit information about the site to a base station on land. They could also include satellite supervision of protected sites. Moreover, measures for physical protection include re-burial of underwater archaeological sites using sandbags, layers of sand, or fabric sheets. Protective cages and metal nets could also be used for the physical preservation of vulnerable underwater archaeological sites that are seriously threatened by looting. On the other hand, legal protection methods include local and international legislation that prohibit the looting, trade in, and irretrievable dispersal of underwater cultural heritage. Moreover, education, capacity-building and raising public awareness are considered primary methods for the protection and preservation of underwater cultural heritage.

An amphora from the Lycia Region of Turkiye - Photo Tahsin Ceylan

A SHORT HISTORY OF THE NAUTICAL WORLD

Dr. Gustau Vivar, Director of Citizen Science
CMAS Scientific Committee

We are going to make a brief compilation of the nautical history, with the facts that have marked milestones in its development and evolution. The reader must keep in mind that the following is a brief compilation of events and, therefore, not all of them are included, since this alone would require the writing of an entire book.

The first coastal settlers entered the sea using different techniques, based on the hollowing out of logs. This is how they would begin to be able to exploit maritime resources beyond the coastline and move long distances by taking advantage of the waterways, or the sea itself. The first archaeological evidence of monoxyl canoes is found in the Mesolithic and early Neolithic periods, mainly from lake sites in northern Europe. The climate and physical conditions have helped the preservation of these objects to the present day.

Subsequently, the development of naval technology began evolving little by little and with differentiated characteristics based on the culture and technical knowledge of the different human groups. Thus, in different areas, the union of planks with ropes was developed from the first monoxyl canoes. The different technical evolutions ranged from the tying of logs, the tying of boards, or even the sewing of woven fabrics.

Together with the technique of boat construction, propulsion methods were developed. In the first canoes, oars have been found, with which humans could move at will, or poles with which to move the boat in shallow waters. Later, the adaptation and use of the propulsive force of the wind appeared. From the mastery of these propulsion forces, generally mixed on the first boats, navigation began.

The first milestones of navigation are found in texts and especially in mural paintings, showing extraordinary navigations. The paradigmatic example is the expedition that the Pharaoh Necho II launched, surely using Phoenician navigators, for the circumnavigation of the African continent in the 4th century BC.

At this time, ships were built following the tradition of hull-first shipbuilding. First the hull as a whole was built, in different ways according to cultural traditions, and then the transverse reinforcement structures or frames were built. We find different systems of this technique, differentiated by the union of the planks that formed the hull. In the Egyptian world, the planks were tied or sewn together, while in the Phoenician world the joints were made by means of tongues, tenons and mortises.

Greeks continued the Egyptian tradition of stitched shipbuilding, taking the land-based social hierarchies to the sea. Thus, they developed the triremes, the great war ships in which there was a high social implication, being a personal honour to be able to operate an oar of each of the ships of the Polis.

Greeks were also devoted to exploration. Pitheas, a Phocean man born in Marseille in the 4th century BC, was the first to describe in his accounts, upon returning from his explorations, the existence of the British Isles, the Arctic ice floe and the Aurora Borealis.

The great thinkers of all times (mathematicians, cartographers, engineers), were in charge of solving maritime and nautical problems. One of them, and the most important one for that matter, being the precise position of the ship at sea, what we know today as Latitude and Longitude. The first problem was solved by Hipparchus of Nicaea, who, in the 2nd century BC, used mathematics for its calculation. The second problem was not fully solved until the 18th century when the English watchmaker John Harrison perfected the marine chronometer.

With the evolution of navigation, warfare also entered the sea. We have thousands of examples of nautical battles, where seapower defeated armies or conquered empires. For that purpose, warships evolved depending on the cultures and times, in some periods being stronger and more resistant, and in others, faster and lighter.

The commercial ships also underwent a clear development, creating wealth and commercial exploitation. We know that in the 2nd century BC, there were large ships capable of carrying up to 10,000 amphorae.

Even in the times of the Roman Empire, Caligula built two floating palaces of more than 70 meters on Lake Nemi, near Rome, with the propagandistic intention of proving and boasting of his power and, at the same time, exhibiting the nautical knowledge they had achieved.

In northern Europe, a system of naval construction appeared and although it followed the procedures of hull first, it presented elements of the Scandinavian tradition of clinker-built vessels, whereby the planks of the hull are joined between them overlapping each other. This system was widely used in the Middle Ages and was the typical system used in the Viking “Drakkars” ships.

In this period, the Middle Ages, a slow but radical change took place. During four centuries, the lateral rudder was changed to the axial rudder, which is still used today. But the most important change came with the construction of the hull. A new system was created: skeleton-first shipbuilding. Now the ships have been built by first laying the keel, then the frames, and finally, the planks that made up the hull. This is a system that greatly favors the maintenance of the hulls of the ships. A new trade appeared that would be decisive for large ships: that of the “caulker”. Thanks to this change, ships could be larger less expensive, and easier to maintain.

These changes undoubtedly contributed to the new era that began at the end of the 15th century: the era of discoveries, explorations and transoceanic voyages. The “Race of the Indies” began, and all the countries with a naval tradition in Europe set out for the Atlantic waters to seize new territories, previously unknown to them, with an abundance of raw materials and precious metals.

In the face of the new realities, new problems that needed solving appeared. The long voyages created problems in the ships, especially linked to the “Teredo navalis” (a worm that makes cavities in the submerged wood, consequently destroying it). That is the reason why, as early as the initial moment of the arrival of Europeans to the American continent, the large freshwater rivers were used to fight this parasite, which needs salt water to live. It was so important that even from the 18th century onwards, navies were compelled to clad the hulls of warships with copper sheets to protect from teredo damage.

Sailors not only took to crossing the Atlantic, but also in the opposite direction, looking for the silk routes, and trying to reach the eastern lands. Commercial links were created all over the world, with navigation becoming more and more complicated, since the most direct routes were not always the most favorable, especially for the return voyages. The world was divided among the colonizing powers, thus many voyages could not pass through enemy territories. One of the paradigmatic cases was the difficulty encountered on the return voyage of the “Manila Galleon”, which, in the 16th century, began the voyage from Acapulco (Mexico) to Manila (Philippines) and then took to the return trip. It took 50 years to find a passage area with favourable winds and currents. Once opened, the route remained in use until 1815.

The long stays at sea with a lack of fresh food, with many people crowded in small spaces onboard, made losses from the disease a continual headache for the great powers. Especially worrying was “scurvy”, which decimated countless crews, especially aboard warships, where supply stops were intermittent. At the end of the 18th century, thanks to the tests and observations of the Royal Navy doctor Gilbert Blane, chief doctor of the English Navy, a useful procedure for preserving lemon juice was found, which involved adding 10% cognac or wine spirit to preserve the vitamin C content of citrus fruits.

The potential of having a crew in good health at all times, the achievement of the great English advances in the measurement of longitude, among other achievements and circumstances, led to the naval hegemony of the Royal Navy in the 19th century.

At the beginning of the 19th century, steamships appeared. At first, they were not well received, but they would become one of the most important technical advances in the understanding of modern society. Vessels no longer need to rely on currents or prevailing winds. They could be precise and constant in their voyages.

The 20th century brought new engines, new technologies, and improved weather forecasts and by the end of the century, a major breakthrough: the Global Positioning System (GPS) with which ships can be positioned at any time on their route with minimal error, regardless of the weather conditions. Even third parties can know where each ship is at any given moment. Major advances in shipping, large cargo ships, and extensive port facilities have made shipping one of the main drivers of today’s global economy.

CHAPTER TWO

A photo from the Kumluca Bronze Age excavation2 - Photo Hakan Öniz

THE UNESCO 2001 CONVENTION SAFEGUARDING THE TREASURE TROVES OF UNDERWATER CULTURAL HERITAGE

Dr. Ulrike Guerin (UNESCO 2001 Convention Secretariat)

Beneath the vast expanses of our planet's majestic oceans, lakes, and rivers, lies a hidden world of captivating heritage and forgotten tales. It is a realm where time stands still, preserving remnants of human existence that have been concealed beneath the waves for centuries, encompassing not only shipwrecks, but also submerged dwellings, grottoes and prehistoric sites. These submerged marvels, known as underwater cultural heritage, are the guardians of our past, holding within them the keys to unraveling history's mysteries.

In recognition of the grave threats posed by extensive pillaging, commercial exploitation, and illicit activities targeting these precious underwater relics, the international community united under the banner of the UNESCO Convention on the Protection of the Underwater Cultural Heritage. Adopted in 2001, this landmark treaty stands as a beacon of hope, aiming to safeguard these submerged wonders for generations to come.

This comprehensive convention takes a resolute stance, leaving no waters unattended, and provides a robust legal framework to fortify the protection of sites in their original location. It sternly forbids the unethical recovery and trafficking of underwater artifacts, effectively combating the dark underbelly of this nefarious trade.

Yet, the significance of this extraordinary treaty transcends the mere act of protection. It answers the call for scientific guidance and fosters the spirit of collaboration among nations.

The field of underwater archaeology, still in its nascent stage, awaits the intrepid explorers who will unravel the secrets hidden beneath the immensity of our oceans. With a staggering 71% of the Earth's surface covered by water, a vast expanse of heritage remains unexplored, waiting to be discovered. However, the tools and expertise required to unearth this vast patrimony are yet to be fully realized, as global awareness of these submerged wonders remains alarmingly low. It is through the exchange of knowledge and the cultivation of specialized skills that we can breathe life into this dormant world and make its invaluable treasures accessible to all.

Divers and the general public stand as vital guardians of the submerged heritage, with an immense responsibility to protect and preserve these hidden treasures. As ambassadors of the depths, divers possess a unique connection to the underwater world, venturing into its depths and bearing witness to its mesmerizing wonders. It is through their passionate exploration and unwavering dedication that the stories of the submerged past can be brought to light.

Equipped with their knowledge, skills, and respect for the underwater environment, they play a pivotal role in safeguarding the delicate balance between exploration and conservation. By adhering to responsible diving practices, respecting underwater cultural sites, and reporting any potential threats or discoveries, they become the vigilant sentinels of this invaluable heritage.

However, the responsibility does not rest solely on the shoulders of divers. The general public, too, has an essential part to play in guarding the submerged heritage. Each individual possesses the power to raise awareness, foster appreciation, and advocate for the protection of these underwater time capsules. By embracing the significance of our shared past and understanding the fragility of these submerged legacies, we can collectively champion their preservation.

Beyond the realm of academia and exploration, the UNESCO Convention helps us to also address the urgent need to mitigate the destructive impact of industrial seabed activities. Trawling, dredging, and mineral extraction, among others, cast their destructive shadows upon submerged archaeological sites. Only through strategic planning and international cooperation, can we ensure that heritage protection and the development of underwater archaeology walk hand in hand. By embracing a shared responsibility, not only can we achieve extraordinary results in preserving our past, but the enterprises involved can also embrace their role as custodians of our collective history.

It is essential to understand that the Convention, crafted in 2001, solely focuses on safeguarding cultural heritage. Its overarching mission is to grant unequivocal protection to all submerged traces of human existence, bearing cultural, historical, or archaeological significance. Crucially, the Convention does not meddle with issues of ownership or maritime jurisdiction. Instead, it serves as a steadfast guardian, transcending borders and empowering nations to unite in preserving our shared legacy.

Today, the Convention stands tall, buoyed by the support of the global scientific community and an ever-growing number of enlightened nations that have chosen to ratify its provisions.

As we embark on this awe-inspiring journey, let us unlock the secrets that lie beneath the waves. Together, let us embrace the spirit of exploration, scientific endeavor, and international collaboration to preserve and honor the underwater cultural heritage that has slumbered for far too long. The time has come to give voice to the silenced echoes of our past and unveil the untold wonders that await us in the deep.

UNDERWATER ARCHAEOLOGY EDUCATION IN THE WORLD – UNESCO UNITWIN NETWORK & UNESCO CHAIRS

Dr. Hakan Öniz–Dr. Emad Khalil

Education and capacity-building in underwater cultural heritage are the principal means for the protection and preservation of that heritage. Knowing about underwater cultural heritage and its special nature and characteristics, leads to a better appreciation of its significance and value, which is often reflected in the procedures and measures adopted towards its preservation.

Commonly, there are two types of education in respect to underwater cultural heritage, these are academic and non-academic education. Academic education is offered by universities, and it takes the form of individual courses or full academic programs that focus on aspects of maritime and underwater archaeology. More than 15 universities worldwide offer full graduate programs in maritime and underwater archaeology. furthermore, several universities offer courses on underwater cultural heritage or related topics within their curricula.

On the other hand, non-academic education includes training courses, seminars, public talks, documentaries, online MOOCs, and more. This type of education is often offered by museums, heritage authorities, diving federations, NGOs, and international organisations such as UNESCO. In fact, there are more than 100 institutions of different kinds, in over 35 countries that offer different levels of training and education in underwater cultural heritage.

It is also worth mentioning that, for several decades, UNESCO has shown great enthusiasm towards underwater cultural heritage and its protection and preservation. In 1972 UNESCO published its first book on underwater cultural heritage, titled “Underwater Archaeology: a nascent discipline”. The book was written by 28 authors from different parts of the world, highlighting the significance and uniqueness of maritime and underwater archaeological sites. Since then, UNESCO has released numerous publications including books, reports, manuals, and promotion material in different languages.

In 2012, the UNESCO University Twinning and Networking Programme (UNITWIN) for Underwater Archaeology was created. UNITWIN aims to promote an integrated system of research, training, information and documentation activities in the field of underwater cultural heritage and related disciplines. It also aims to create an academic training network, organize joint field schools, foster faculty and student mobility, organize regional and international conferences and seminars, and to encourage inter-university cooperation, and act as a bridge between the academic world, civil society, local communities, research and policymakers, in order to promote awareness and protection of underwater cultural heritage. At present the UNITWIN for Underwater Archaeology

has 49 member institutions, including universities, museums, research centres, NGOs as well as the CMAS. Another program under the patronage of UNESCO is the UNESCO Chairs, which aims to advance knowledge and practice in an area of interest. The UNESCO Chairs programme is a collaboration between UNESCO and academic institutions. Each chair is hosted by a higher education or research institution that partners with UNESCO. Currently there are three UNESCO Chairs concerned with maritime and underwater cultural heritage. They are the UNESCO Chair on the Ocean's Cultural Heritage (2016), Universidade Nova de Lisboa, Portugal, the UNESCO Chair on maritime and coastal archaeology (2017), Université d'Aix-Marseille, France, and the UNESCO Chair on Underwater Cultural Heritage (2020), Alexandria University, Egypt. UNESCO networks and chairs complement the work of the UNESCO Secretariat of the 2001 Convention on the Protection of the Underwater Cultural Heritage. The 2001 convention is one of the seven core conventions in the field of culture, and it intends to enable member states to better protect submerged heritage. UNESCO activities in supporting education and capacity-building in Underwater Cultural Heritage also includes organizing training courses on different aspects of underwater archaeology in over 15 countries.

In addition to the above-mentioned capacity-building initiative, it is worth mentioning that CMAS, through its Scientific Committee, has developed a number of Scientific Diving courses that focus on Underwater Cultural Heritage. These courses are The Underwater Cultural Heritage Discovery Course, Underwater Archaeology Course and Advanced Underwater Archaeology Course. The courses aim to introduce divers to aspects of underwater cultural heritage in marine and fresh water and to help divers recognize sites of underwater cultural heritage. It also aims to promote the idea of sustainable diving. Moreover, CMAS has also developed a number of international Underwater Cultural Heritage hand signals for the better understanding and safeguarding of that heritage.

ICOMOS AND UNDERWATER CULTURAL HERITAGE

Dr. Chris Underwood, President of ICOMOS International Committee of Underwater Cultural Heritage

The International Committee on the Underwater Cultural Her¬itage (ICUCH)[1] was founded in 1991 to promote international cooperation in the protection and management of underwater cultural heritage and advise the International Council on Monuments and Sites (ICOMOS) on issues related to it around the world.

ICUCH's membership spans forty-four countries across five geographical regions as defined by UNESCO: Africa, the Arab States, Asia and the Pacific, Europe and North America and Latin America and the Caribbean. The committee's expertise relating to the protection of underwater cultural heritage includes management, education, research, conservation, museology and maritime law.

Objectives

ICUCH's first tangible achievement was the development and creation of the Charter on the Protection and Management of Underwater Cultural Heritage, adopted by ICOMOS in 1996. The Charter later formed the basis of the Rules of the Annex to the UNESCO Convention on the Protection of the Underwater Cultural Heritage adopted in Paris, in 2001. The rules set out the fundamental principles that should be applied as best practice in the management and research of underwater cultural heritage.

Supporting the 2001 UNESCO Convention and promoting sound ethical management of underwater cultural heritage are core activities of the committee. This has included providing ICUCH's perspective on the important article within the 2001 Convention that relates to in situ preservation which was undergoing a review by the Convention's Scientific, Technical and Advisory Body (STAB). Article 2.5 of the Convention states that in situ preservation should be considered as the first option. Regrettably this effective management tool has often been misinterpreted to mean leaving sites in situ without any actions – legal and physical – to prevent damage or even loss of cultural heritage sites. Understandably, this has led to outspoken criticism from stakeholders. However, for clarity, in situ preservation is an active process that aims to mitigate threats to a site and subsequently continue with long-term environmental monitoring. This action is aimed at safeguarding sites for future generations or research and must not be confused with in situ abandonment when in such cases sites are left to the environment to decide their fate.

[1] *ICUCH is one of twenty-nine ICOMOS International Scientific Committees.*

Among the committee's other objectives include supporting the development of national and regional cooperation, programs, and legislation; encouraging an inclusive approach to underwater cultural heritage; initiating and/or assisting in education and capacity-building initiatives with respect to the management, research–intrusive and non-intrusive – and legal and physical protection, conservation and dissemination of underwater cultural heritage, as well as providing information for governments, the general public and political organizations about the protection and preservation of underwater cultural heritage. ICUCH members have been the core trainers of UNESCO Foundation Courses in Asia–Pacific and Latin America and Caribbean regions and major contributors to the associated training manuals.

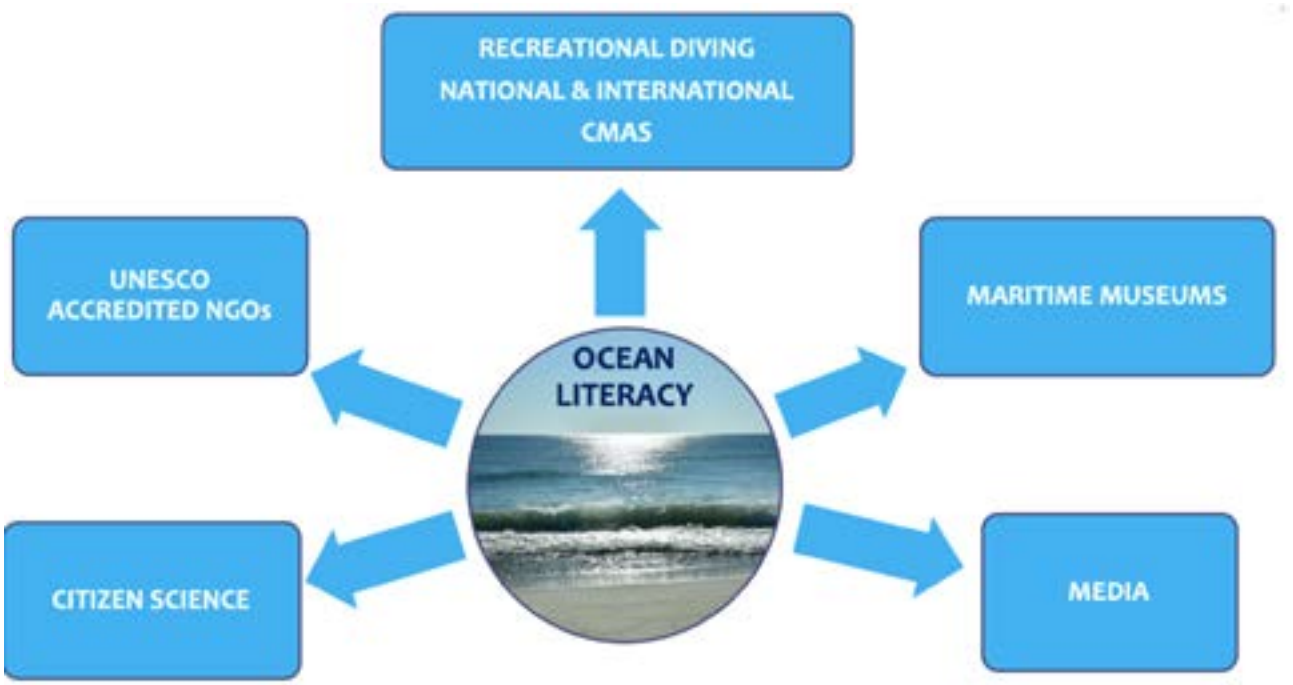
ICUCH also recognises and supports the need to raise public awareness of the social, cultural and economic values, the latter value often associated with sustainable tourism. ICUCH acknowledges the importance of public access to sites through well managed, sustainable visitor trails and public participation in underwater cultural heritage projects, 'except where such access is incompatible with protection and management of the site', a criteria that the 2001 UNESCO Convention makes explicitly.

The United Nations Decade of Ocean Science–Ocean Literacy

In 2019, ICUCH members were part of cultural heritage delegation that were present at the 2nd Planning Meeting of the United Nation's Decade of Ocean Science (UN Sustainable Goal 14: Life Below Water), which subsequently began in 2021 and runs until 2030. The meeting enabled the delegation to promote the positive contributions that the science and related data – past, present and future – associated with researching underwater cultural heritage can contribute to the 'decade'.

Importantly it was recognised that the 'decade' would not be successful without public support. Following the event a 7th Societal Goal promoted by delegation was adopted by the International Oceanographic Commission of UNESCO, which has responsibility for the 'decade'.

'An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development. In order to incite behavior change and ensure the effectiveness of solutions developed under the Decade there needs to be a step change in society's relationship with the ocean.'



Partners in promoting the sustainable management of the oceans, seas and internal waters

Call to action

ICUCH strongly believes that the organisations and marine communities represented in figure 1 can work together to make a vital difference in promoting the Decade of Ocean Science's Societal Outcome 7, mentioned above. Our success will be to achieve a fundamental change in public perception of the ocean, seas and other internal waterways, so rich in underwater and natural cultural heritage that we are so privileged to enjoy. Our message is to see the sustainable management of the oceans, sea and internal waters to enable future generations to have the same enjoyment and well-being as ours. CMAS with its global reach are vital partners in this mission.

ICOMOS ICUCH'S new book edited by A.Hafner, H.Oniz, L.Seaman, C. Underwood

CHAPTER THREE

3

An amphora from Lycia Region of Turkiye - Photo Hakan Öniz

UNDERWATER CULTURAL HERITAGE IN THE MEDITERRANEAN AND THE BLACK SEA

Dr. Hakan Öniz

From shipwrecks to sunken settlements, the types of cultural heritage that can be encountered underwater are much more diverse than might be expected. Some of these may be easily recognised by sport divers, whilst others will only be understood by expert scientists using specialist technology. Anything on the sea, lake, or river beds that does not belong to the natural environment may indicate past human activity. The underwater world is sometimes very surprising and often misleading in regards to these objects; some may appear to be from the present day, but may actually date back thousands of years. The reverse may be true as well, whereby underwater formations that may appear to be man-made turn out to be natural features. It is the job of the underwater archaeologists and experts from differing fields to correctly identify these objects in order to present an accurate narrative of the past. In the following sections, we will take a look at the most ubiquitous artefacts encountered under the Mediterranean and the Black Seas.

Shipwrecks

It is estimated that humans have been using watercraft for various purposes for tens of thousands of years. For example, research has shown that obsidian tools (a type of black volcanic glass), of Anatolian (Nevşehir) origin were transported between Anatolia and Cyprus approximately ten thousand years ago. In addition to this trade, academic research has shown that communities in the Central and Eastern Mediterranean have used the sea as a source of transportation and food for more over ten thousand years. Undoubtedly, these seaborne vessels of the time were used for not just for maritime fishing and transportation, but also in numerous lacustrine and riverine environments. Many of these ancient vessels have been encountered on the seabed, their individual fates due to natural events, such as storm activity, or the result of warfare. These wrecks may appear in various forms and when we least expect them whilst diving recreationally. Shipwrecks are frequently encountered resting on the seabed off harbour mouths, or the rocky slopes off the windward sides of capes and islands. Many of the vessels were driven onto these rocky shores or hidden shoals during storm activity.

Shipwrecks from all periods can be found in these danger zones. In some notorious areas unprotected by lighthouses or other navigational aids, we find modern shipwrecks laying atop ancient Shipwrecks, off the Turkish coast most famously at Yassi Ada.

Shipwrecks may also be found within ancient harbours. Amongst other causes, these vessels may have foundered due to negligence, tsunami or storm activity, or had been deliberately abandoned.

Shipworm, an organism belonging to the Teredo family (Picture x4, x5), which are found throughout not only in the Mediterranean and the Black Sea, but as far north as the Baltic Sea, has been a major threat to the fabric of wooden vessels throughout the history of seafaring, against this threat only regular maintenance and protective measures have kept these vessels afloat.

The appearance of shipwrecks on the seabed depends on how they sank and at what depth they lie. Ships that founder against rocky shores or come to rest on a rocky seabed usually suffer extensive damage and rarely maintain their structural integrity. Depending on the severity of a storm and the wrecking process, both the ship and its cargo may come to be scattered over a wide area, with the consequent breakage of glass, ceramics, and other fragile objects. To some extent, a shipwreck and its cargo may be preserved if it comes to rest on a sandy bottom, however, since there is little depositional material such as sand and alluvium to cover the wreck on a rocky seabed, to form what archaeologists call a sealed context, all the perishable remains of the ship will disintegrate further until little remains. In these cases, often the only way to identify a shipwreck is through any extant anchors. Close and careful study of the area will often uncover smaller artefacts and remains which will help piece together the story of the vessel's last voyage, including its last cargo and embarkation points

Ships that sank further offshore can often be found in a more complete condition. In the Mediterranean, wooden parts that are not quickly covered with sand and alluvium are destroyed by Teredo and similar organisms, and by other natural mechanisms of decomposition. The longevity of a ship's timbers depends very much on the type of wood used and the duration of time submerged. In the case of the ship itself being destroyed, remnants of the cargo may still remain on the seabed (picture x). Removing these artefacts has the potential to destroy any remnants of the shipwreck laying below, greatly reducing the scientific and contextual value of the evidence. Those wrecks displaying extant wooden parts often date to the 16th-19th centuries, a common category being 19th century warships. In this case, the ship's cannon is typically seen on the seabed, partially covered with sand and pebbles (Picture x6). Rarely, a sport diver may be lucky enough to come across a shipwreck from the 16th century B.C. wherein the cargo may have been amphorae (detailed below), or perhaps a wreck assemblage that may have belonged to a ship which was carrying copper ingots from the island of Cyprus (Picture x7) thousands of years ago. Classical, Hellenistic, and Roman era shipwrecks have been recorded carrying roof tiles, raw glass, bricks, and sarcophagi (Image x8x9). In order to ensure the preservation of these examples of cultural heritage, no part of these shipwrecks should be removed or interfered with in any way. The handling and recording of these special objects should always be left to those who have special training and expertise.

Submerged Structures

Inundated settlements have an important place among the archaeological remains that divers may encounter underwater. Various factors have been responsible for fluctuating sea levels, especially over the last 1600 years. Accordingly, some settlements may now be located underwater, and some once coastal settlements are now seen as ruins some distance from the sea. The visibility of these remains varies greatly. For reasons outlined below, it is possible to see not only submerged settlements from the Roman Period but also stone tools of Palaeolithic origin, dating back some 50,000 years now in deeply submerged caves. Ruins from the Neolithic period dating

back 8000 years may also be located in flooded coastal zones. Those remains, especially from the Hellenistic, Roman, and early Byzantine periods range from structures such as houses, warehouses, and shops built on the seashore, to maritime structures such as harbour breakwaters, shipyards and docks. In some cases, settlements may be part or the entirely flooded. These sites may be found over a wide range of distances from the coastline, some may be 50-centimeters deep on the shoreline while others may be tens of kilometers offshore from the current coastline and at up to 50 metres depth. There are two main reasons why these structures are found underwater today: earthquakes and sea level rise. On a smaller scale, sedimentation, and wave and tidal processes that characterize each region could potentially be reasons for the location of submerged or changed coastal settlement landscapes. There are many examples of land structures being submerged as a result of earthquakes. As a result of a series of eight earthquakes in the Marmara Sea during the 10th and 11th centuries, Vordonisi Island off the coast of Küçükyalı, Istanbul was destroyed and flooded, together with the associated 9th century monastery structure (Meriç, 2010: 60). Similar processes may be seen at Alexandria, Egypt, during the 3rd century B.C. Famously, the Lighthouse at Alexandria was submerged by earthquakes in the 4th and the 14th centuries (Khalil, 2004: 51). Such structures can also be found in lakes, for example, in Antalya-Demre Beymelek lake, a harbour breakwater dating to the Hellenistic Period and ruins of docks, buildings, and baths dating to the Roman and Late Roman Periods are now underwater as a result of earthquake activity (Öniz, 2016: 151).

After the last Ice Age (approx. 14-10kya) the Eastern Mediterranean region underwent a warming phase attended by heavier rainfall. Although there are differences in the northern, southern, and eastern regions of the Mediterranean, on average 8000 years ago the climate became drier, and average rainfall decreased. It is known that during and after this period of climactic drying, Neolithic communities living on both agriculture and fishing were densely settled along the coastlines, especially in areas where rivers flow into the sea. Since the end of the last Ice Age, melting glaciers have caused a rise in sea levels. Climate scientists put this rise is approximately 80 to 100 meters. This fluctuation in sea level shows that there is a potential for an unknown number of Neolithic (~12000-8000 BP for the region) and later coastal settlements that may be found at depths of 0 to 50 meters in the Black Sea, Marmara, and the Mediterranean seas. Examples of settlements that were submerged due to this effect are the ten Chalcolithic (~8000-5000 BP for the region) and 29 Bronze Age (5000-3200 BP for the region) settlements discovered underwater off the coast of Bulgaria (Stanimirov, 2003: 2). There are similar examples on Avşa Island in the Marmara Sea (Günsenin, 1996: 361-362), in the Dardanelles off Canakkale, in Istanbul at Selimpaşa, and off the Israeli Carmel coast in the Eastern Mediterranean (Galili et al., 1993: 134-136).

Anchors

Anchors, arguably the most important piece of equipment on a ship, are among the most commonly encountered archaeological remains in the Mediterranean and Black Sea. Seagoing vessels require anchors to remain stable on the sea when necessary. These can provide an insight into the identity of the ship they belong to, or to ports of call, through their forms and the raw materials they are made of. Ships can anchor in ports, natural shelters, or any shallow area in the open sea when necessary. If a sudden storm affects the position of a ship, it may have no choice but to seek shelter elsewhere.

In this case, there may be no time to retrieve the anchor and it is left on the seafloor. For this reason, anchors that do not belong to a shipwreck may be found in any natural harbour, bay, or around islands. Since the same natural events have affected all types of vessels throughout history, it is possible to see anchors of all types and periods side by side in such places.

Throughout the history of seafaring, anchor types have been divided into three main groups according to the material they were made of stone, wood, and iron. These main groups are supported by other materials such as lead for the stocks, attaining differing forms with different technologies, which can be further subdivided into different groups within themselves. In the past, the anchors that were most easily accessible and with the simplest manufacturing process were those made of stone. These have been indispensable equipment aboard ships since the earliest periods, when primitive sea vessels were used, and they constitute the type of anchor that had the longest duration throughout maritime history. Anchor stones and stone anchors have been used not only on the seas but also in lakes and rivers, from the Atlantic Ocean to the Indian Ocean, from the Red Sea to the Baltic Sea. Stone anchors are further subdivided into two main groups: single-hole stone anchors and multi-hole composite stone anchors. The period in which single 'two and three-hole' stone anchors were most widely used in the Mediterranean was between 3000 B.C. and 1000 B.C., however, the use of stone anchors, especially single and three-hole ones, continued in use up to relatively recent times. Some of those two-hole stones were used as line weights between the anchor and the ship, which, as auxiliary weights, were used in the Bronze Age to keep vessels more stable on the sea. Compared to a single heavy anchor, one or more line weights provide a more effective grip on the seabed, whilst allowing for easier retrieval.

Chronologically, wooden anchors supersede stone anchors. This type of anchor was used in and around the Mediterranean from the 9th century B.C. to the 3rd century A.D. The use of wooden anchors beginning in the Iron Age begs the question of why wood was used when there was a solid, heavy, and durable material like iron available. In those particular centuries, iron was a rare and expensive material, this, along with its malleability, largely confined its use to the production of weapons such as knives, swords, and spearheads. These weapons made of iron would be stronger than any other artifact made from raw material at the time. Notably, the wheels of war chariots were also made of iron. Therefore, the production and trade in iron was generally carried out under kingly control, due to its prominence in tools of war. For this reason, wooden anchors were used instead of iron. Thanks to durable wood and skillful carpentry methods, wooden anchors took part in the lives of sailors in the Mediterranean for approximately 1200 years. Wood alone cannot provide the necessary weight to anchor ships that might weigh thousands of tons; therefore, sections referred to as the 'stock' were used to increase the weight of the anchors and strengthen their grip on, lake-, or river-, and seabeds. Stocks, which were first made of stone, started to be made of lead from the 5th century B.C. and the different forms of lead anchors show that they were manufactured for the same purpose but with different techniques. In some of the examples of wooden anchors where a lead stock was used, there might have been clamps made of lead and different lead sections. Due to the Teredo worm and perhaps other wood-destroying species, the wood of the anchor very rarely survives in the archaeological record, only those constituents of stone or lead remain. Such artifacts found on the bottom indicate the existence of a wooden anchor that was located there in the past. Removing them or changing their orientation will result in the loss of

archaeological information. This is because stone or lead remains that may belong to the same anchor contain information about their spatial relationship to each other, the overall dimension of the original anchor, and its final orientation on the seabed.

Iron anchors began to be used in the Mediterranean and adjacent regions from the 3rd century B.C., the first iron anchors being manufactured in the same form as the preceding wooden anchors, categorized as a 'V form'. The stock sections of these anchors, which are heavy in themselves, are also made of iron. These V-shaped anchors were followed by C-shaped anchors during the 2nd century B.C. and later still, during the 1st century B.C. The 'C form' began to change into the 'T form' style of anchor, which was an intermediate style of anchor. Full T-shaped anchors became widely used during the Roman and Byzantine periods. Later anchors described as 'Y form' were used in the Byzantine and Arab periods (Kapitan, 1984: 42-43, Fig.8).

After the Middle Ages, especially between the 15th and 17th centuries, iron anchors with wooden stocks began to be widely used (Votruba, 2022: 338), and in the last few centuries, three and four-armed iron anchors were used. While iron is considered more stable than wood underwater, iron anchors still enter into a process of deterioration while they remain submerged. This process begins with the iron secreting iron oxide, and this cement-like secretion continues as the surrounding sand and gravel cover the iron. Depending on the time and the quality of the iron, the iron has the potential to disappear completely. What remains is typically a sand/gravel cast of the original shape. This cast/mold, which resembles a stone in the form of an anchor, may be damaged even under light handling. Many broken anchors seen in areas accessible to scuba diving are usually caused by such interference. Divers alighting on such remains as a result of buoyancy adjustment errors, air tank collisions, or other adverse movements that may occur while flapping the fins, can all damage iron anchors that appear to be very strong but can be extremely fragile, damage by such means may, of course, be caused to other archaeological artifacts in the same way.

Amphorae

Double-handled jars, termed amphorae, are terracotta vessels used for various purposes in ancient times. Among these, there are extremely beautiful examples that have been fired, painted, and illustrated with great care, as well as examples that have been manufactured solely for the transportation of goods. Double-handled containers, termed amphorae, are terracotta vessels used for various purposes in ancient times. Among these, there are wonderful examples that have been fired, painted, and illustrated with great care, as well as examples that have been manufactured solely for transporting goods. Amphorae encountered by divers underwater were made to transport liquid or semi-liquid products and store or ferment some products are named trade amphoras. Trade amphorae stand out as the main surviving element of maritime trade surrounding Asia, Africa, and Europe, and in the Mediterranean and the Black Sea, and the inland seas of these three continents, from the 2nd millennium B.C. to the 2nd millennium A.D. Their forms were designed for easy and safe transportation on ships, and numerous production centers were established in coastal areas. Amphorae, with their differing sizes and forms, are a treasure trove of information for better understanding the ancient world. Differences in the forms of the handles, neck, feet, and body often signify the commercial identities of any given amphorae and express their unique qualities. Thanks

to these forms, it is possible to be confident about where the product inside the amphora might have come from. Today, with specialist knowledge of these forms, we can date and provenance the various amphorae types . Commercial and political relations, information about agriculture and daily life, and many other unknowns are hidden in these details. It is possible to find hundreds of these ceramic vessels on the seabed, sometimes singly but occasionally as a tumulus containing the entire cargo of a shipwreck.

Amphorae, with their typological features, contents, stamps or graffiti, and the analysis of fabric all provide scientists with information about their production and dating (Öniz, 2017). Valuable liquids such as wine, olive oil, and fish sauce were carried in amphorae. From the Bronze Age, this trio of wine, olive oil, and fish sauce formed the backbone of the Mediterranean maritime trade. Excavation, research, and residue analysis show that in addition to these products, many other materials (whether liquid, semi-liquid, or solid), were also transported or stored in these transport jars. Examples of other products traded within amphorae include olives, fish products, lamp oil, smoked birds, vinegar, resin, beer, milk, butter, honey, meat, poultry, dried fish, cheese, cereals, legumes, hazelnuts, almonds, walnuts, pomegranates, pine nuts, terebinth nuts, figs, ointment, eye paint, gum Arabica, perfumes, glass beads, vegetable oil, turpentine resin, wheat, barley, coriander, black cumin, spices such as sumac and capers, plant seeds, lard, sesame, bitter almonds, and gum oil.

So, what should be done when faced with the vast array of archaeological material described above? As stated at the start of this discussion and UNESCO's ethical regulations and guidelines, any remains found under the sea must be reported to the nearest museum or relevant official institution. The range of artifacts a sport diver may encounter is not limited to those above. Amphorae are often seen in highly fragmentary form, often due to anchor damage from moored vessels. Remnants of submerged cultural heritage may take architectural forms and may extend from land into the undersea environment. In short any man-made object or feature found under the seas should first be examined by maritime/underwater archaeologists. The materials in question must undergo immediate examination. To facilitate this, it is of great importance to obtain the coordinates of the finds, if possible with a GPS device or a mobile phone with a navigation feature. Objects should never be interfered with or moved. If possible, it is important to take a photograph of the object, but if that is not possible, a drawing or detailed written description is an appropriate substitute. The information should be sent to the relevant official institution (such as state museums), along with a name, address, and telephone number. It is important to remember that just because a person saw these objects perhaps for the first time, it does not give them ownership. It is of great importance to leave these archaeological finds undisturbed for future generations. Unless conservation procedures are carried out by experts immediately after they are removed from the marine environment, they will most likely rapidly disintegrate or become lost. After the relevant institution is notified, some of these sites or artifact deposits when left in situ may have the potential to become part of sustainable tourism initiatives. Others some will take their place in museums to aid the work of expert archaeologists, and yet others may become the subject of important scientific articles meant to inform the wider scientific community about important archaeological finds in the field. Protecting these items in situ is both a national and a civic duty for the country, and instrumental for the wider respect for world culture.

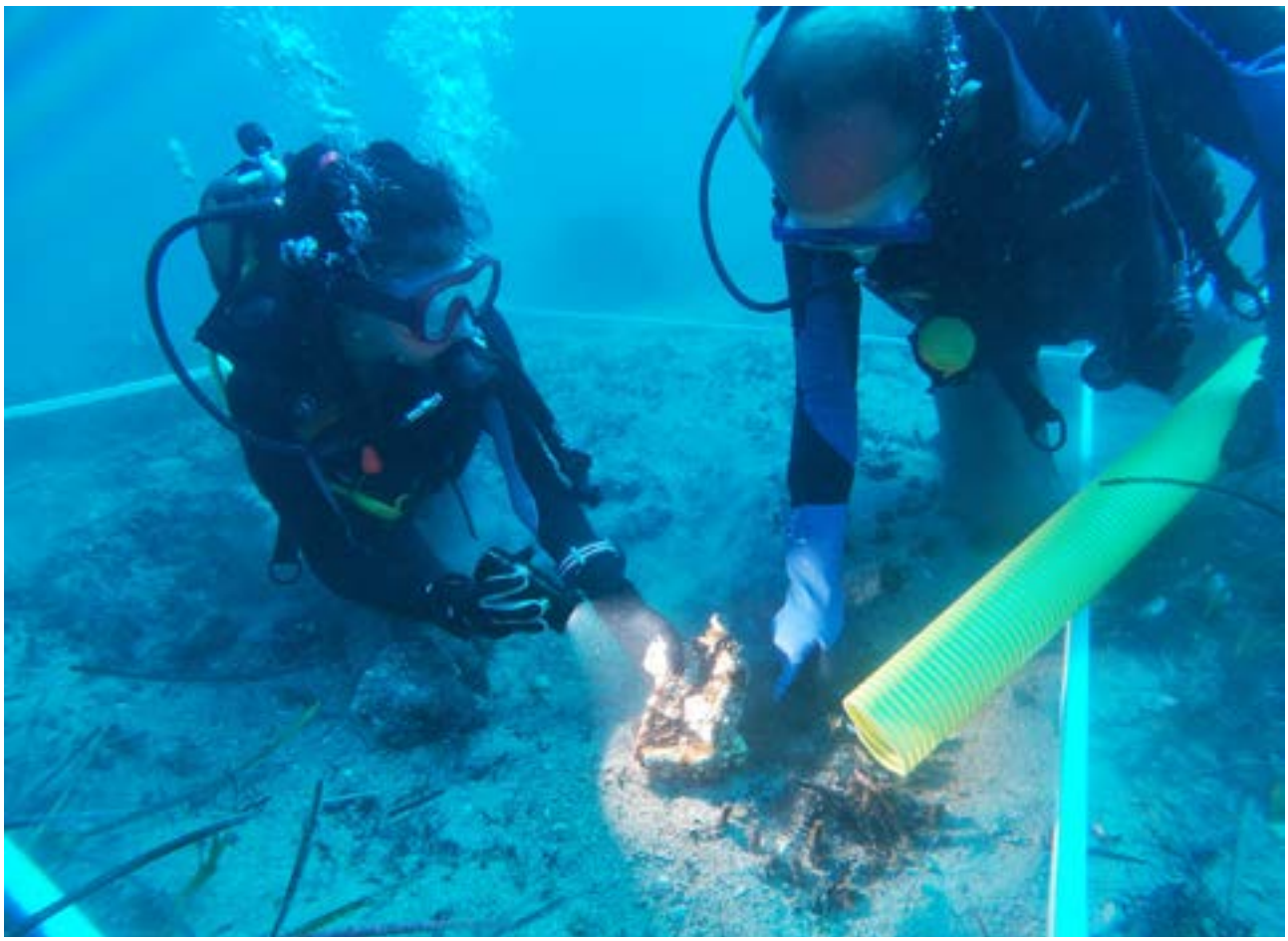
Sources

- Galili, E., Weinstein-Evron, M., Hershkovitz, I., Gopher, A., Kislev, M., Lernau, O., Kolska-
- Horvitz, L., Lernau, H. 1993, Athlit-Yam: A Prehistoric Site on the Sea Floor off the Israeli
- Coast, Journal of Field Archaeology, Vol 20, No. 2, 133-157.
- Günsenin, N. 1996, 1994 Yılı Marmara Adaları Sualtı Araştırması, AST XIII.1, 357-374
- Kapitan, G. 1984, Ancient anchors-technology and classification, The International Journal of
- Nautical Archaeology and Underwater Exploration, 13.1 : 33-44
- Khalil, E. 2004,Submerged Sites and Geomorphological Changes in the Coastal Zone of
- Alexandria, ENALIA VII, 2004, 51-63.
- Meriç, E. 2010, Jeoloji ve Arkeoloji: İstanbul ve Yakın Çevresinin 8500 Yıllık Geçmişinden
- Kesitler, TMMOB İstanbul Büyükkent Şubesi Yayınları, 42-60
- Öniz, H. 2017, Amphorae at Eastern Mediterranean, Archaeopress, Oxford
- Öniz, H. 2016. Demre Beymelek Gölü'nde Sualtında Kalmış Liman ve Yapı Formları. Adalya
- (19), 151-168
- Stanimirov, S. 2003, The Western Black Sea Coast in the Eneolithic and Bronze Age:
- Underwater Archaeology – Metods and Results, Athena Review Journal of Archaeology,
- History and Exploration, Vol. 3, No 4 http://www. athenapub.com/index12.htm

(10.01.2016).

- Votruba, G. 2022, Iron-Frame Wooden Stock-Anchor Design of the Age of Exploration, IJNA,
- Vol. 51, No. 2, 338–357

An Ottoman ship timber affected by Teredo Family (Photo Metehan Samet Gül)



An Ottoman Wreck excavation (only archaeologists can do this) Photo Ceyda Oztosun

Kumluca Bronze Age Shipwreck dated to 16th Century BC (Photo Hakan Öniz)

A raw glass from a shipwreck at Antalya (Photo Leyla Aydın)

A roof tile, probably belong to the roof of the ship (Photo Hakan Öniz)

An image from the Gelidonya Sargophagus wreck (Photo Hakan Öniz)

Aperlai Roman City - Drone Photo Günay Dönmez

Three-Hole composite stone anchor (Drawing Metehan Samet Gül)

A wooden anchor (Illustration Ahmet Denker)

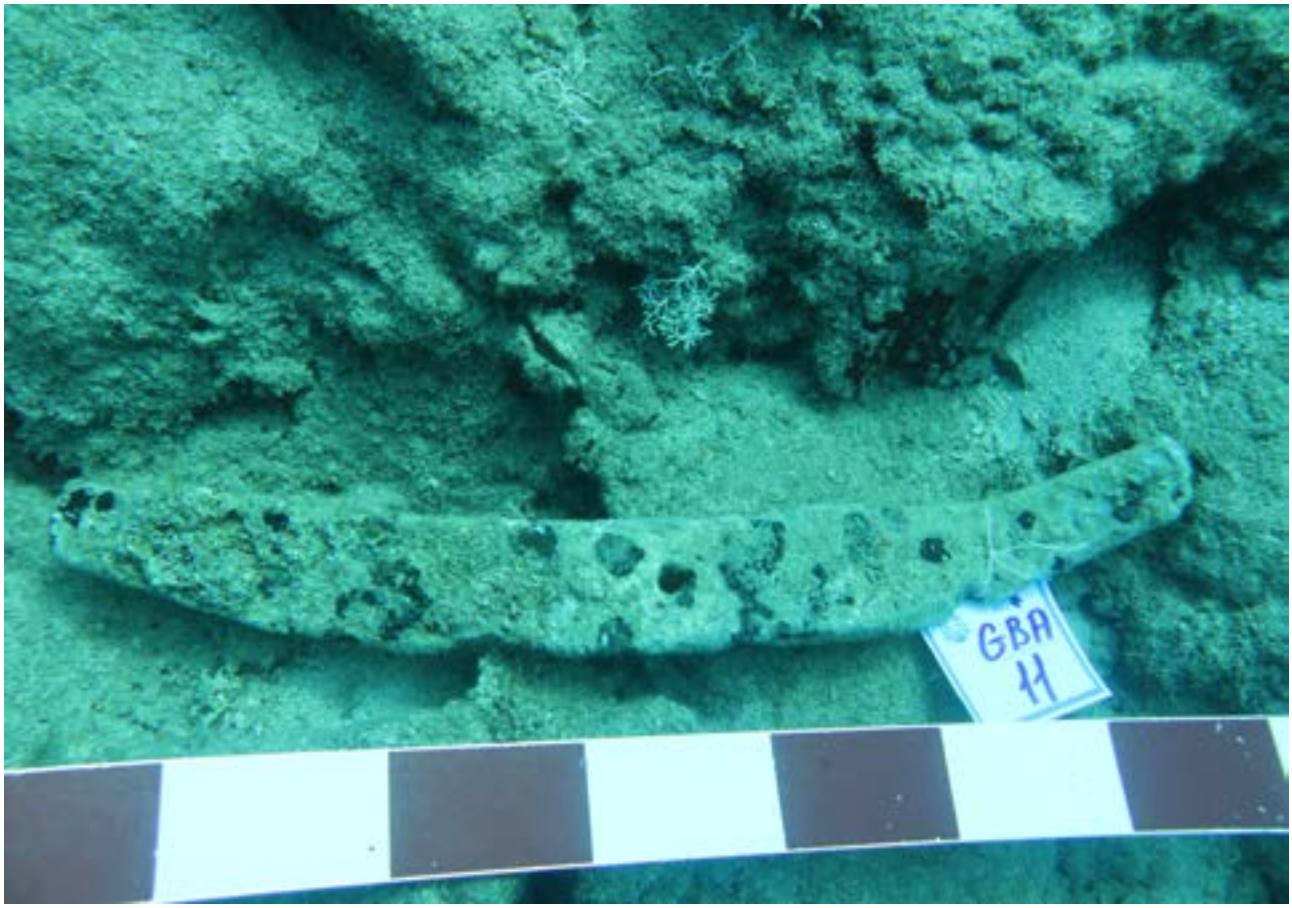
Single Hole stone anchor, Bronze Age (Photo Karolina Trusz)

Three-Hole composite stone anchor, probably Middle Age (Photo Hakan Öniz)

Two-Hole stone anchor or line weight during the documentation (Photo Hakan Öniz)

Roman Bath at Beymelek lake of Antalya - Drone Photo Günay Dönmez

Stone stock of a wooden anchor, Iron Age (Photo Hakan Öniz)



Lead stock of a wooden anchor(Photo Hakan Öniz)

Lead clamp for wooden anchor (Photo Ceyda Öztosun)

T shape Iron Anchor (Photo Hakan Öniz)

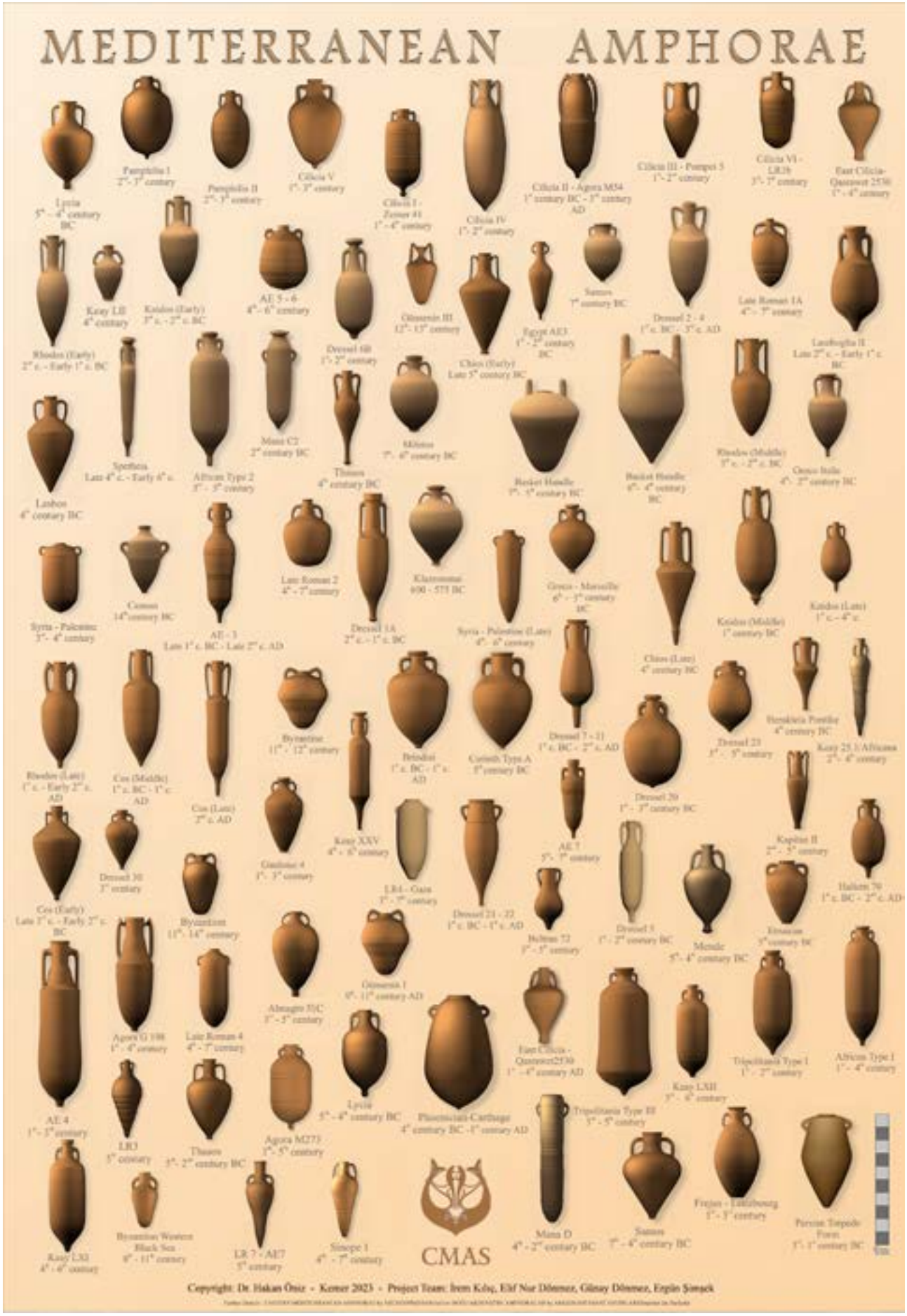
Y shape Iron Anchor (Photo Hakan Öniz)

Four armed (grapnel) anchor from Antalya (Photo Ceyda Öztosun)

A broken Y shape iron anchor (Photo Hakan Öniz)

A shipwreck at Kaş of Antalya (Photo Metehan Samet Gül)

A single amphora found during the survey at Mersin (Photo Hakan Öniz)



General Types of Mediterranean Amphorae

UNDERWATER CULTURAL HERITAGE IN THE INDIAN OCEAN:

Dr. Amer Bazl Khan

One of the earliest known civilisations in the region is the Indus Civilisation. There exists archaeological evidence of connections between the Indus Civilisation's maritime province of Meluhha and Mesopotamia. In the Middle Bronze Age. References to this trade are made in the inscriptions of Sargon the Great from the 3rd millennium BC and a moulded terracotta tablet from the city of Mohenjo Daro depicting a flat-bottomed Harappan boat, from 2500-1750 BCE. The boat has a large double rudder and the famous disha-kakka or land finding birds, which were an essential part of navigation in the Indus region.

A seal from the Harappan Culture - Indus Valley Bronze Age Civilization

Given the strategic location of the Arabian Sea at the crossroads between the East and West, the Indus Delta featured prominently in international trade, especially on the Maritime Silk Route from the 2nd Century BC to the Mediaeval period. During the Early Modern period direct connections were forged between Europe and the Indian subcontinent, first with the Portuguese Armadas, and then a century later with the Dutch and British East India Companies.

Underwater archaeological investigations have only just begun in Pakistan. Historical records from the British colonial period indicate that there were over 450 maritime mishaps and shipwrecking events off the coast of Pakistan during the latter half of the 19th and early 20th centuries alone. Efforts are now underway to investigate such historical locations to determine if shipwreck remains are still present there. There are a number of modern shipwreck sites off the coast extending from the Indus Delta in the East, towards the Baluchistan coast and onto the Iranian border in the West, that are frequently visited by tourists and divers.

Historical shipwrecks, such as the locally known "Bulbulay Wreck" (meaning "Bubble Wreck"), is located just 3nm southwest of the main Karachi harbour. The wreck is named for the bubbles emerging from the seabed in the vicinity of the wreck site. Given the presence of coal on the site, it is possible the vessel was a coal barge, or possibly a steam powered vessel from the 19th century. There are a number of modern wrecks that are a haven for marine life and are frequently visited by tourists and scuba divers.

An image from a shipwreck of the Indian Ocean

In addition to shipwrecks there exist a number of historical anchorages that have been used by coastal fishing and trading communities. For example along the shores of the now abandoned coastal town of Bhit Khori, at the mouth of the Hub River, exists an extensive anchorage consisting of interconnected moorings. The age of the site is still to be determined, however, it is possible that it dates to the first millennium. Isolated archaeological finds have also been located in recent years including a number of stone anchors. The dates for these finds are still pending and further investigations are required.

A stone anchor from the Indian Ocean

Greatbasses Reef Lighthouse

UNDERWATER CULTURAL HERITAGE IN THE ATLANTIC OCEAN

Dr. Gustau Vivar

The Atlantic maritime world encompasses a myriad of extraordinarily diverse and separated coasts and cultures with very different evolutionary moments. Atlantic underwater archaeology has always been related to navigation linked to the “Race of the Indies” and to the struggle of the different European powers to gain control of new territories and to achieve maritime supremacy.

However, it must be taken into account that before these historical episodes, which in terms of volume of finds are extraordinary, there was a wide and very interesting seafaring culture. From the ability to navigate or move around the sea, even in very coastal navigations, to the great navigations of ancient times. We know that the pharaoh Necao II, in the 6th century BC, already sailed along the Atlantic coasts of Africa, or that in the 4th century BC, Pytheas (a Phoenician navigator born in Marseille), sailed along what is now England and reached the Arctic region.

The European Atlantic coast has underwater vestiges from Roman times, reaching from Britannia to beyond the coast of Mogador (Morocco), where the importance of naval trade is evident from the archaeological remains, similar to those found in the Mediterranean, and which we will not develop here, as this is covered in a separate chapter.

After the decline of the Roman Empire, spectacular vestiges of cultures related to the peoples of the North Atlantic; Normans, Vikings and Saxons, began to be found on the Atlantic slope. All of them with different cultural elements, but with similar naval technologies, based on the construction in clinker. In this case we find both sunken remains (Viking ships from Roskilde, Denmark), and ships related to funeral rites (Sutton Hoo, England).

In the medieval period, all the great trading ships developed in northern Europe, creating the basis for the new trading ships with larger transport ratios, which would become responsible for evolving and giving way to the ships that will sail the Atlantic towards America.

From the colonization of the different parts of the American continent, a specific nautical archaeology of these great transoceanic ships was born.

A clear distinction must be made between those dedicated to trade and those to war. Two typologies, often together forming convoys, but which show from their archaeological remains realities that are different due to their final purpose

During more than 500 years the evolution of the ships, of the marine culture and of the technology changed a lot, so much so that it is too complex to compile the archaeological remains of all these periods in a simple book chapter. To make it more orderly we will divide the findings into the large groups in which they are studied.

Cargo, whether commercial or military

We have very diverse examples of the goods that could be carried in the holds of ships. Generally, we find the containers with which the different goods were transported. It is relatively easy to find remains of the "botijas" or ceramic containers, although the different materials that made up the cargoes have also been found. These range from fabrics, hides of various kinds, raw materials, dried fruits, processed products, etc. We also know that there are many materials that disappear at the moment of sinking, either because of their high volatility or simply because they float away from the center of the wreck.

In warships, the main cargo was linked to the main purpose of the ship, so, in a large ship of the line (generally armed with 74 guns) there would be the guns, and all the war material for their operation, as well as the quartermaster rations and supplies to maintain all the gunners, sailors, and marines who lived on the ship. In this type of ship which could have a crew of up to 400 people, we have to understand all the logistics associated simply to maintain the entire crew.

There are also mixed cases, where we find a cargo ship that transported military cargo. In this case, they are ships that carried ammunition of many types and calibres, supplies, and even cannons, not necessarily maritime, but terrestrial. In this case they are easy to distinguish thanks to the gun carriage. Very different from each other, the maritime ones, based on minimal movement, taking advantage of the recoil movement to be able to load the cannon, to the terrestrial gun carriages, characterized by large wheels with the intention of large movements and deployments on the battlefields. A paradigmatic example is the English transport ship Deltebre I, sunk in the river-mouths of the Ebro (Spain) in 1813. In this case, although sunk in the Mediterranean, all its characteristics were typical of the Atlantic world (England).

Another cargo that we must not forget, are the money transports, at this time in coins of different types and compositions. These remains, which are also part of the underwater cultural heritage, have been an inexhaustible source of imagination and fantasy. Much more novel than real, we have the example of the cargo of "Nuestra Señora de las Mercedes". It is a Spanish ship sunk in 1804 due to an encounter with English ships, when it arrived in the Bay of Cadiz (Spain) coming from Lima (Peru), with an important cargo of silver and gold coins, as well as cloth, quinine and other merchandise. This ship was discovered by a U.S. treasure hunting company that recovered all the coins and took them to the United States. Subsequently and after a legal action, the coins were returned to Spain. What was explained as the location of a great treasure, is really the extraction of an enormous number of coins of many different silver alloys, with very serious corrosion problems and complex conservation and consolidation issues. And most seriously, in this action only the remains of silver and gold coins were extracted, without paying any attention to the rest of the ship's cargo, which evidently did not match the value of the silver coins. Much of the rest of the cargo, also cultural heritage, was probably destroyed during the extraction operation.

Ship as a historical element.

Undoubtedly, the easiest thing to find underwater are the remains of the shipwrecked vessel itself. This gives us a lot of information about the type of ship, according to its measurements, its function, its shape, its cultural adscription, according to the technique used for its construction and its chronology, from the technical advances used in it, and therefore being able to know if it is earlier or later than certain key dates of technological adoption.

Nautical instrumentation and elements necessary for navigation

Among the objects that we can also find are nautical instruments. We can find, above all, the sailors' telescope, astrolabes such as the one found in the excavation of Viveiro (Galicia, Spain), compasses or sextants with all their parts. Also, tools such as pencils, pens, rulers and everything related to navigation charts. Since the popularization of the chronometer, in order to know the exact longitude, it will be relatively easy to locate these elements in the wrecks.

Crew equipment and life onboard

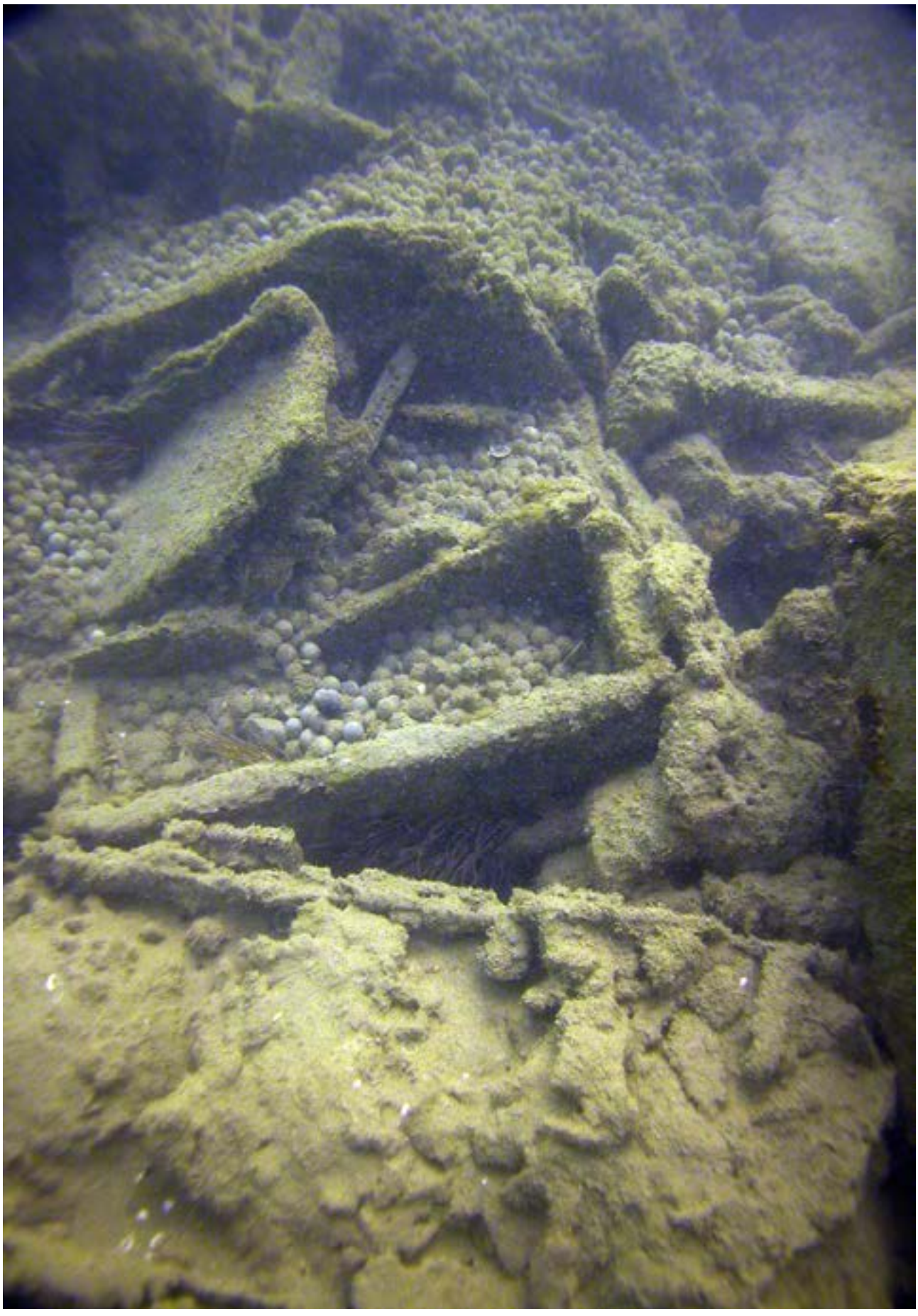
We must not forget the infinite number of objects belonging to the crew that can be found in the wrecks. From warlike elements of the ship's defensive armament, to elements of the kitchen and everyday life. From apotropaic elements (amulets), of all shapes and religions, to food preparation utensils onboard, tableware, or even leisure objects.

A Barrel from the Deltebre I wreck - MAC-CASC collection

Military Cargo from the Deltebre I wreck - Campain 2009 - MAC-CASC collection

Military Cargo from the Deltebre I wreck - Campain 2009 - MAC-CASC collection

Excavation at the Deltebre I wreck - Campain 2009 - MAC-CASC collection



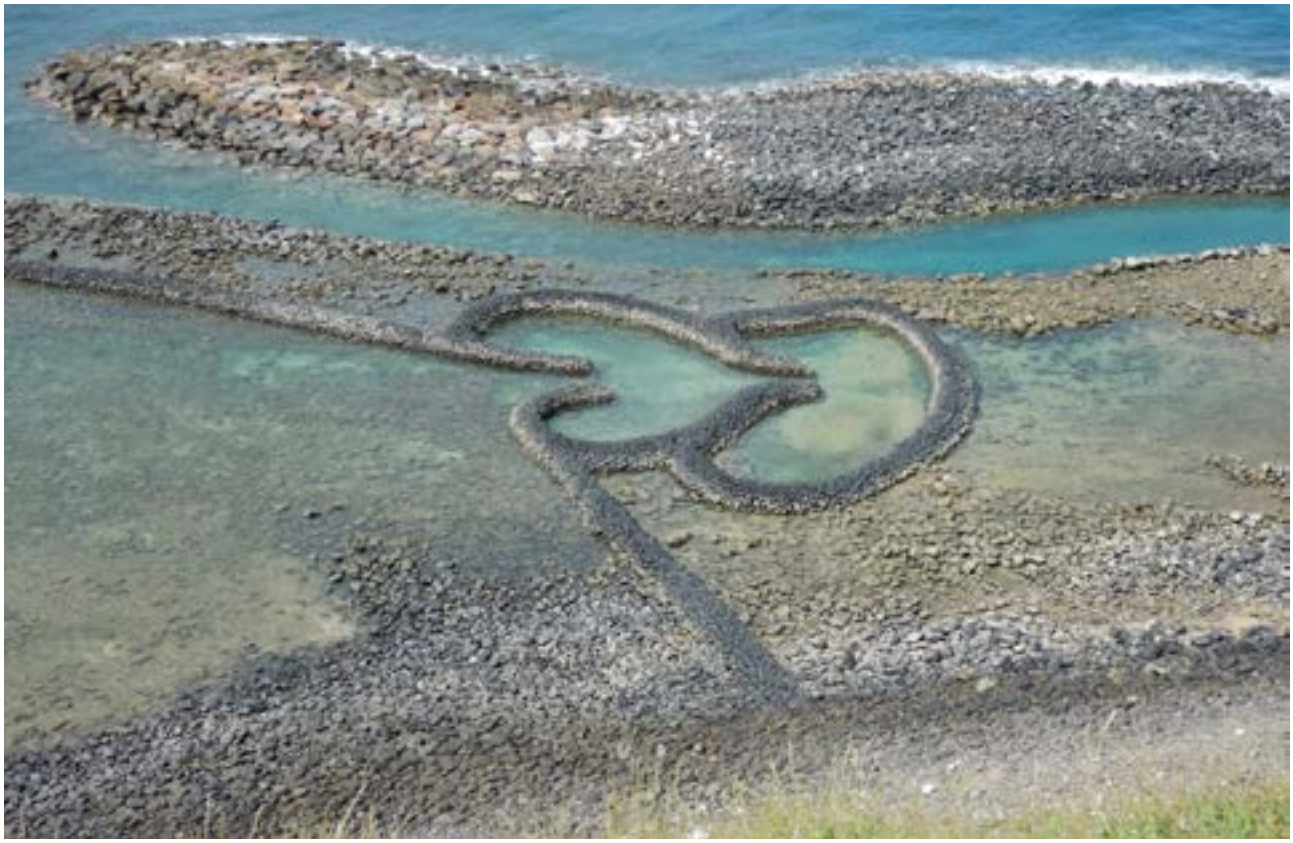
Military Cargo from the Deltebre I wreck - Campain 2009 - MAC-CASC collection

UNDERWATER CULTURAL HERITAGE IN THE PACIFIC OCEAN

Dr.Akifumi Iwabuchi (Member of ICOMOS-ICUCH)

The Pacific is the largest ocean on the earth, which contains countless islands composing Polynesia, Melanesia, and Micronesia, and some archipelagos such as the Philippine or the Ryukyu archipelagos. The sea around these islands or archipelagos has a vast treasury of underwater cultural heritage sites, but rivers or lakes in the inland areas of these isles also have a huge variety of submerged cultural properties. Many prehistoric sites or ruins of medieval dwellings have been discovered on the bottom of lakes in the Japanese archipelago.

Archaeological prehistoric sites have also been excavated on the continental shelves off the California coast or under the Taiwan Strait. The underwater cultural heritage of stone tidal weirs, which is believed to connote prehistoric characters by some archaeologists, has a wide distribution across the Pacific. Stone tidal weirs are completely submerged during high tide, but emerge into full view at low tide, allowing people to collect fish, which cannot escape their stone walls. Each stone tidal weir constitutes a remarkable seascape of the intertidal zone. Clam gardens, which bear a resemble to stone tidal weirs, are observed along the northwestern coast of North America.



The Underwater Cultural Heritage of Stone Tidal Weirs in the Penghu Islands. (Photo Akifumi Iwabuchi)

Quite a few shipwrecks and their cargos before the colonial era, in particular, in the Western Pacific region, are mainly associated with China or China-related seaborne trades. One of the most famous ones is the Belitung shipwreck, which was discovered in 1998 by a local fisherman from Belitung Island, Indonesia. Since recovering its half-broken hull and hundreds of cargo objects, most of which are Chinese wares, researchers have realized that this ship was a dhow originally coming from Arabia, departed a port in mainland China, and then sank in the 9th century. Other than the Belitung shipwreck, more and more China-related shipwrecks have been found in this region; divers' opportunities to access such shipwrecks or their cargoes have increased as well.

Submerged Shipwreck Cargos near Belitung Island. (Photo Akifumi Iwabuchi)

Many divers believe that the coral reefs around the Ryukyu archipelago are the most beautiful to be found anywhere. As the former Ryukyu kingdom used to be the centre of maritime commerce with Southeast Asia as well as with China and Japan, in addition to coral reefs, lots of wrecks of trading vessels and their cargoes have been identified across the archipelago, some of which have been managed and safeguarded properly by local diving centres and underwater archaeologists, who occasionally organize guided tours for amateur divers. Around the Ryukyu archipelago, there remain many wrecks from WWII.

As for underwater heritage sites dating to the colonial period, divers have many opportunities to see both European shipwrecks used by colonial powers and domestic ones used by local inhabitants. The former includes the wreck of the galleon San Diego, which clashed with a Dutch war vessel and sank in 1600 near Manila, Philippines, or several shipwrecks, such as the 19th-century whaling vessel, found at the Marine

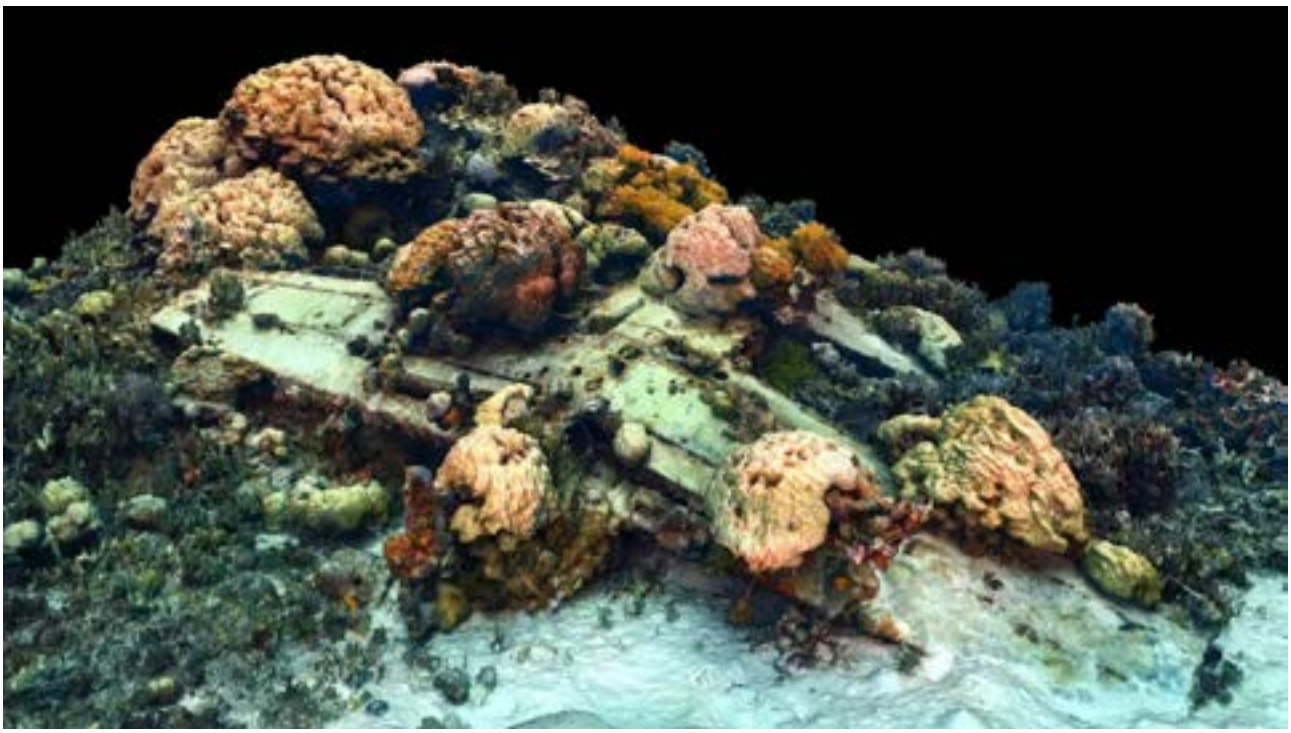
A Wooden Shipwreck Lost Circa 1700 in Japan. (Photo Akifumi Iwabuchi)

National Monument of Papahānaumokuākea around the Hawaiian islands. The latter includes some Thai shipwrecks sunk around the 15th century in the Gulf of Thailand or a wooden shipwreck lost circa 1700 near Tokyo, which was a domestic freighter carrying roof tiles for the Edo castle and is now managed by the local diving centre under the local fisheries cooperative association.

The most abundant and visible submerged wrecks of vessels or airplanes in the Pacific region are those from WWII. During WWI, indeed, around 20 war vessels were sunk across the Pacific, but no less than 4,000 vessels were sunk during WWII; some belonged to the Imperial Japanese Navy, and others belonged to the Allied Powers. Divers could see a lot of such wrecks around Micronesia, Melanesia, the Mariana Islands, the Bonin Islands, the Ryukyu Archipelago, or the Philippine Archipelago. Some wrecks have already been well-known diving destinations.

Chuuk Lagoon of the Federated States of Micronesia is the most popular wreck diving destination in the Pacific. In 1944, no less than 50 Japanese vessels and aircrafts went down in the air raids of the Allied Powers. Although Chuuk Lagoon attracts many amateur divers, closing with the wrecks and swimming into them is extremely dangerous. Because nearly eight decades have passed since the end of WWII, the metalwork of the hulls and airframes may collapse suddenly due to corrosion. Anyone other than licensed wreck or cave divers should not enter deep into those wrecks

Although it is slightly different in character from wrecks from WWII, more than 10 shipwrecks were sunk during the nuclear tests in 1946 at Bikini atoll of Marshall Islands. This underwater area was designated as a UNESCO World Cultural Heritage site in 2010. Only experienced divers are allowed to participate in the diving operations organized by the local diving facility.



Submerged Wreck of an Airplane from WWII at Chuuk Lagoon.
(3D Photogrammetry Kotaro Yamafune)

Around the Pacific, only the Federated States of Micronesia and Niue have ratified the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage. Not only around these two nations, however, but also around other countries in the Pacific, any divers without official permission to do archaeological works are forbidden to touch or recover any submerged items. Inside the wrecks from WWII, there remain many submerged human remains. According to the 2001 UNESCO Convention, submerged human remains constitute part of underwater cultural heritage.

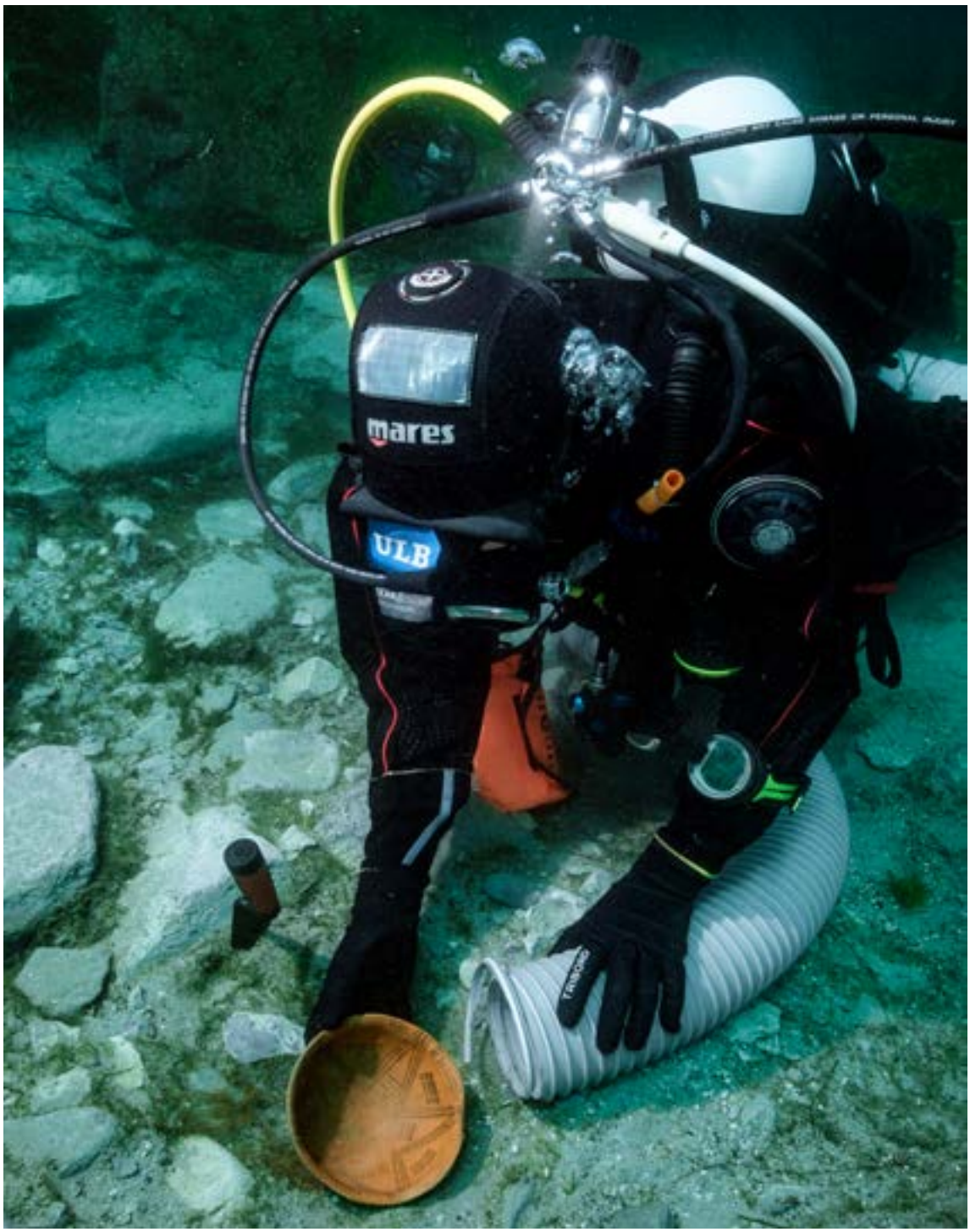
UNDERWATER CULTURAL HERITAGE IN LATIN AMERICA AND THE CARIBBEAN

Dr. Dolores Elkin (Member of ICOMOS-ICUCH)

This enormous geographic region is surrounded by two oceans -the Pacific on the west and the Atlantic on the east- plus several sea water bodies of lesser dimensions, some of which contain a vast range of islands and archipelagos such as the Caribbean. In addition, there is a fabulous variety of continental waters in the form of rivers, lakes, lagoons and some formations which are not found in other parts of the world such as the cenotes -natural sinkholes where groundwater is exposed, abundant in the Yucatán area of Mexico.

Native peoples have inhabited this region for millennia, developing many ways of connecting with water and its resources. This was mostly done through navigation practices and through diverse techniques for obtaining fish, birds, mammals, plants, and minerals.

Aerial image of a wooden shipwreck site located in a marine protected area in Chubut Province, Argentina. (Photo: Uriel Sokolowicz)



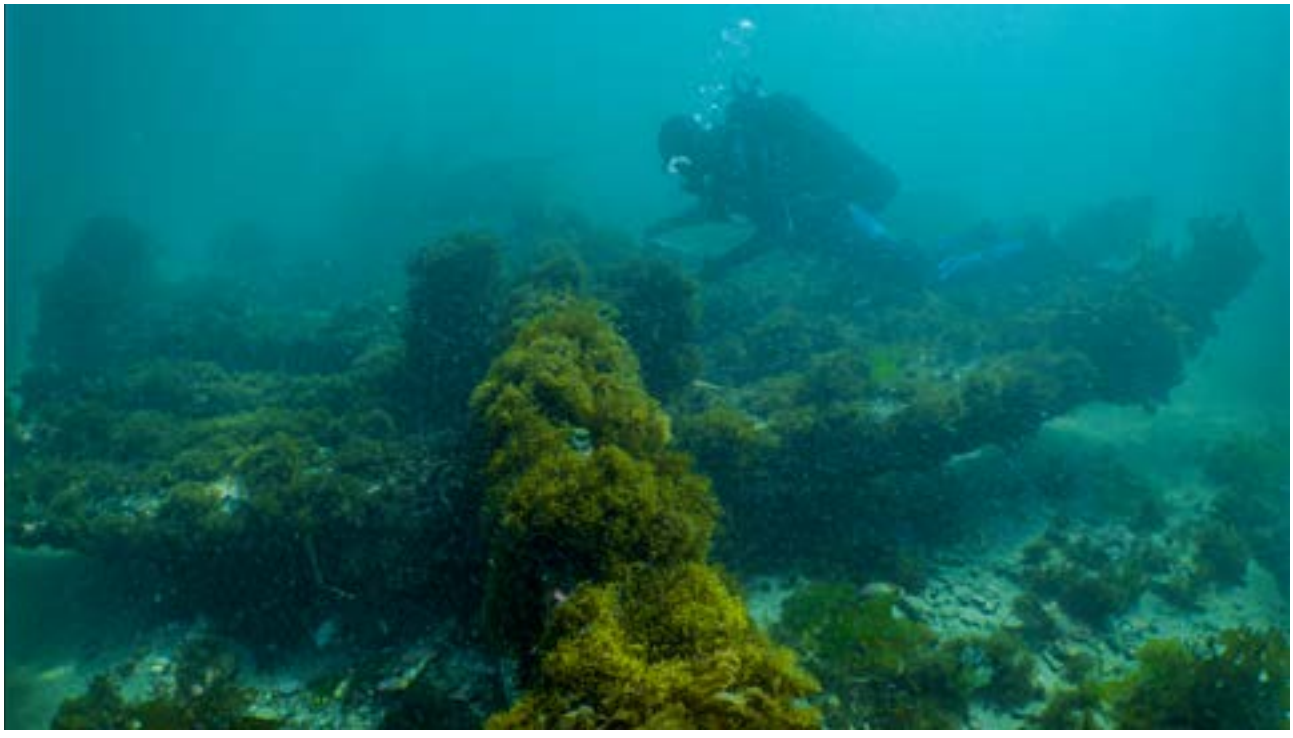
Pre-Inca ceramic vessel discovered at Lake Titicaca, Bolivia (Picture T. Seguin, Titicaca Project C. Delaere, ULB) - https://doi.org/10.30861/9781407356563

These activities, particularly the ones which took place before the contact with European cultures after the 15th century AD, in turn accompanied by a completely new range of ships and related materials-, have left evidence of the past which sometimes is not so visible underwater. However, with the aid of brochures or local guides, they can be "discovered" camouflaged among the surrounding natural environment. Examples include remains of wooden canoes, fishing and hunting equipment, weights, nets, hooks, fish traps, harpoons, or shell middens which are accumulations shells of molluscs that were consumed as food.

There are also large extensions of land which are now underwater as a result of sea level rise after the last glacial period (some 20.000 years ago), but which during some periods were above sea level. These territories can also be very large, especially where the slope of the continental shelf is gentle. This is the case of the Atlantic coast of Argentina for example, where around 15.000 years ago the sea level was nearly 100 metres below the current level, and the landmass was almost twice as big as it is today. The changes in coastlines could also take place in internal waters. A good example is Lake Titicaca in Bolivia, where in just a few metres' depth there are elements such as pre-Hispanic ceramic artefacts and bones, which originally were discarded on the shore on land and are now underwater.

Probably the most abundant and visible cultural remains that can be found underwater in this region are associated with the post-European contact period, that is, after the late 15th century AD. The initial period was characterized by the exploration and colonization of the American continent, followed by the development of commercial enterprises. Logically, seafaring was always very intensive. The main influence in navigation traditions, especially during the colonial period, came from Spain and Portugal. Galleons transporting gold, silver, and other treasures are perhaps the most iconic type of shipwreck that can be found in these waters, particularly in Central America and the Caribbean, but they are not as common as people imagine

This Iberian presence was in competition with vessels from other European nations also interested in the territory, such as the Netherlands, France, and England. By the late 19th and early 20th century AD, the navigation activity in Latin America and the Caribbean continued to be very intense, at a time of gradual replacement of sailing ships with steamers.



An underwater image of a wooden shipwreck site located in a marine protected area in Chubut Province, Argentina. (Photo: Uriel Sokolowicz)

Surely every country in the region has some type of sunken remains associated with this interesting period of cultural contact and commercial expansion, not just shipwrecks but also harbour infrastructure such as piers or navigational aids.

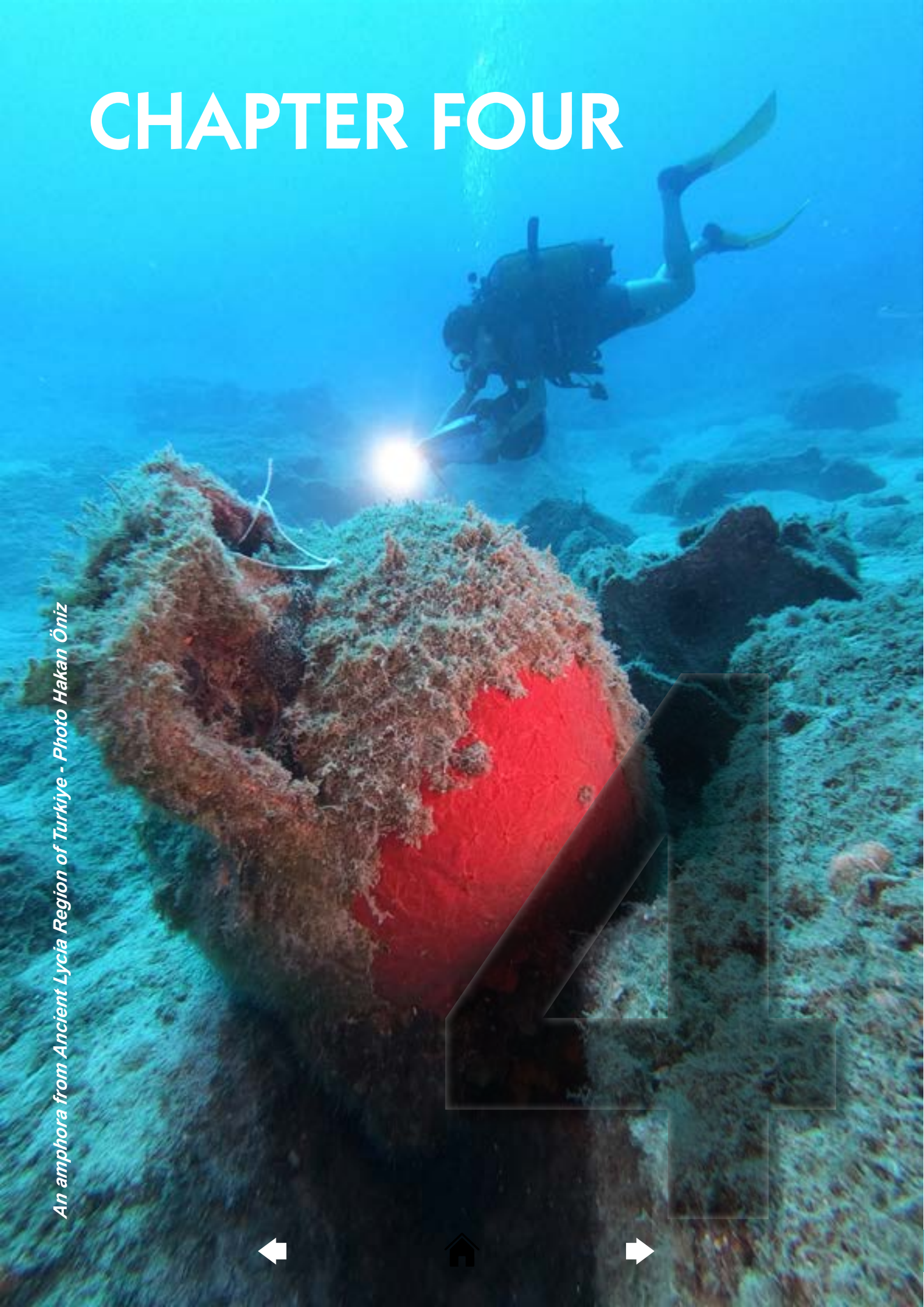
Perhaps one of the main attractions for divers in this part of the world is that in many places, from Mexico in the North to Argentina and Chile in the far south, at the gateway to Antarctica, you can still dive “off the beaten path”, in remote and pristine places where the cultural heritage is surrounded by fabulous wildlife and landscapes. In areas where the water is cold, such as Patagonia at the tip of the continent, there is an additional attraction which is the preservation of wooden and other organic archaeological remains. Seeing large parts of structural remains of ships is not rare.

Some of these places which have submerged archaeological remains are beginning to be opened to the public. This is a very good initiative, and in fact is something stimulated by the 2001 UNESCO Convention for the Protection of Underwater Cultural Heritage that has already been ratified by many countries in Latin America and the Caribbean.

Legal protection, by the UNESCO Convention and/or national legislation, is important because sadly the region has attracted treasure hunters for decades. Now the situation is improving from the regulations point of view, but also the local people are becoming aware of the benefits of preserving the heritage. It seems that now is the time to share it with more divers from all over the world; the CMAS community will be more than welcome.

A photo from the Kumluca Bronze Age excavation - Photo Hakan Öniz

CHAPTER FOUR



An amphora from Ancient Lycia Region of Turkiye - Photo Hakan Öniz

PROTECTION OF UNDERWATER CULTURAL HERITAGE AND AWARENESS ACTIVITIES

Dr. Ceyda Öztosun

Based on the fact that 70% of the earth is made up of water, it is obvious how important the seas, lakes, and rivers have been for humankind. All kinds of experiences related to the maritime world over the millions of years of human existence are now examined within the scope of underwater archaeology. This branch of science aims to conduct studies on all kinds of human remains found in oceans, seas, lakes, and rivers. In this context, countless objects belonging to cultural heritage are awaiting discovery in the depths. As a result of the research and excavations carried out by underwater archaeologists, various ruins have been discovered and accordingly important scientific data have been obtained. However, only a very limited part of the submerged cultural values have yet been discovered. It is the responsibility of all of us who have access to the undersea environment to protect the discovered artifacts and to pass on to future generations artifacts and architectural remains that are hitherto undiscovered but may come to light at any time.

Shipwrecks, submerged archaeological sites, and many other values are waiting to be protected underwater or on the coastlines. Some of these objects can be seen at diving depths, yet others lie obscured by marine growth or lie hidden under the seabed. Some of the ruins that can be seen have changed form due to natural effects and may now only be interpreted through expert eyes or using technological devices. The cultural heritage objects in question continue to be researched by scientists. Scientific documentation studies carried out on millions of kilometres of coastline all over the world will perhaps take hundreds of years. However, how can these values be prevented from being damaged until the documentation stage is carried out by scientists?

Many historical values under the water have been destroyed, damaged, or obscured in such a way that it is impossible to find them again due to various factors. Some of those that still exist are under serious threat of destruction. Undoubtedly, part of this was caused at the hands of irresponsible divers. Millions of dives made every year all over the world, on the one hand, pose a risk to the underwater cultural heritage, and on the other hand, they carry a huge potential in bringing these values to the scientific world and to future generations. This potential has not been fully realised to date. Although the law allows this in many countries, sufficient communication has not been established between scientists, relevant public institutions, and divers. It is necessary to ensure communication between archaeologists, other scientists working on the subject, and officials from Museums, Coast Guard units and similar organizations, and all divers, to attain this potential. In this frame, better protection and better contributions of underwater cultural heritage to the economy, in the way of sustainable tourism with museums and underwater archaeological parks and diving centers will become possible. In this context, experts trained in the field of communication can contribute to building a bridge between scientists and the public. Communication science is an essential tool in this field.

UNESCO CODE OF ETHICS FOR DIVING ON SUBMERGED ARCHAEOLOGICAL SITES

Submerged archaeological sites are increasingly exposed to damage by inexperienced or unaware divers. To ensure a worldwide respect for submerged heritage by individual divers the promotion of a Code of Ethics is essential in order to set a common standard. The States Parties to the 2001 Convention and the Scientific and Technical Advisory Body of the 2001 Convention fully endorse the UNESCO Code of Ethics for Diving on Submerged Archaeological Sites

1.Protect underwater cultural heritage for future generations.

Underwater cultural heritage encompasses all traces of human existence having a cultural, historical or archaeological character, lying under water. Over the centuries, thousands of ships, entire cities, and even landscapes have been swallowed by the waves. They constitute a precious heritage that needs to be protected.

2.Leave wrecks and submerged ruins untouched.

The site of a wreck or a submerged ruin is historically important. When objects or any other kind of remains are displaced without prior scientific recording, they are deprived of their context and lose part of their significance, they also risk deterioration in drying and their extraction, and without appropriate conservation will lead to their loss. Sites should therefore remain untouched by divers not involved in a scientific archaeological project.

3. Obey legal protection of archaeological sites.

Many underwater heritage sites are protected by the law. Know and understand the applicable regulations before you dive to avoid breaking the law. To understand the law worldwide see: www.unesco.org/culture/natlaws.

4. Seek permission to dive on designated sites.

Diving on designated wreck or ruin often requires a specific permission. Do not dive them without a licence, when it is required, as you may put the site or yourself in danger. Respect official directives concerning the limitation of diving in certain zones. Protected sites are often indicated on admiralty charts and marked by buoys or warning notices on the shore.

5. Only archaeologists may remove objects.

Non-scientific diving should remain non-destructive and non-intrusive. Do not move or recover objects other than in the framework of an official archaeological excavation and under the supervision of a professional archaeologist authorized by the competent authorities.

[2] *https://en.unesco.org/underwater-heritage/publications*

6. Do not take souvenirs.

Dive to enjoy and / or to get involved. Take photographs or document the site (if the national regulations allow). However, do not take any object from a wreck or submerged ruin and do not disturb the site. You would destroy the historic context and damage the object when brought to the surface.

7. Respect measures that protect sites.

Any protection measure (metal cages, sand layers, sonar buoys), placed over submerged archaeological sites by the responsible authorities safeguard them from erosion, irresponsible intruders and looting. They should be respected. Even if you take nothing away – any damage that you do to a protection device opens the way to damage to the site. If you note any damage done to such a device, report it to the authorities.

8. Report discoveries to the responsible authorities.

If you do discover an historic wreck or site do not spread the word. Immediately contact the national competent authorities, who will advise you about the next steps. If your find is important it may be researched or designated a protected site.

9. Hand over objects that you took.

Should you have taken an object from a submerged archaeological site to protect it from extreme risk of loss report it to the competent national authority as soon as possible. If ever you discover an ancient object in the water or at a beach, which is under the threat of private appropriation or damage, contact the competent authority. If this is not possible, then recover it and hand it over to the nearest authority. It can indicate the presence of an archaeological site off the coast and give information about it.

10. Do not sell our common heritage.

Objects coming from a submerged archaeological site should not be commercially traded, but protected. We can learn much about the development of civilisations and our own past from the remains of wrecks and ruins under water. Dispersing this heritage robs us of our past. If you note the sale of illegally acquired artefacts, notify the competent authorities.

11. Document discovered sites.

If you discover a wreck or submerged ruin document (photos, drawings, or notes) its precise location and its state. Make a report about it and accompany it by your documentation. (Please do it in the frame of the regulations of your country. Don't forget you are NOT an underwater archaeologist and you can do it only when you see them by chance)

12. Be careful when taking photographs.

When taking photographs, be careful to avoid contact with the wreck or ruin site. A camera is not a licence to move or disturb cultural heritage. Many objects are fragile regardless of size. Improper techniques while taking photos under water can damage sensitive site elements and harm fragile objects with the bump of a camera or tank, swipe of a fin or even the touch of a hand. Camera systems may add weight or be buoyant. Make sure to secure equipment and be properly weighted to avoid contact damage.

13. Stay safe.

Diving wrecks or ruins can be dangerous. Respect safety and health requirements appropriate to the sites in question. Pay attention to depth, time and currents and do not enter into cavities without taking highest safety precautions. Never dive unaccompanied. Preferably dive only accompanied by a professional and qualified guide, and gather information beforehand.

14. Be a role model.

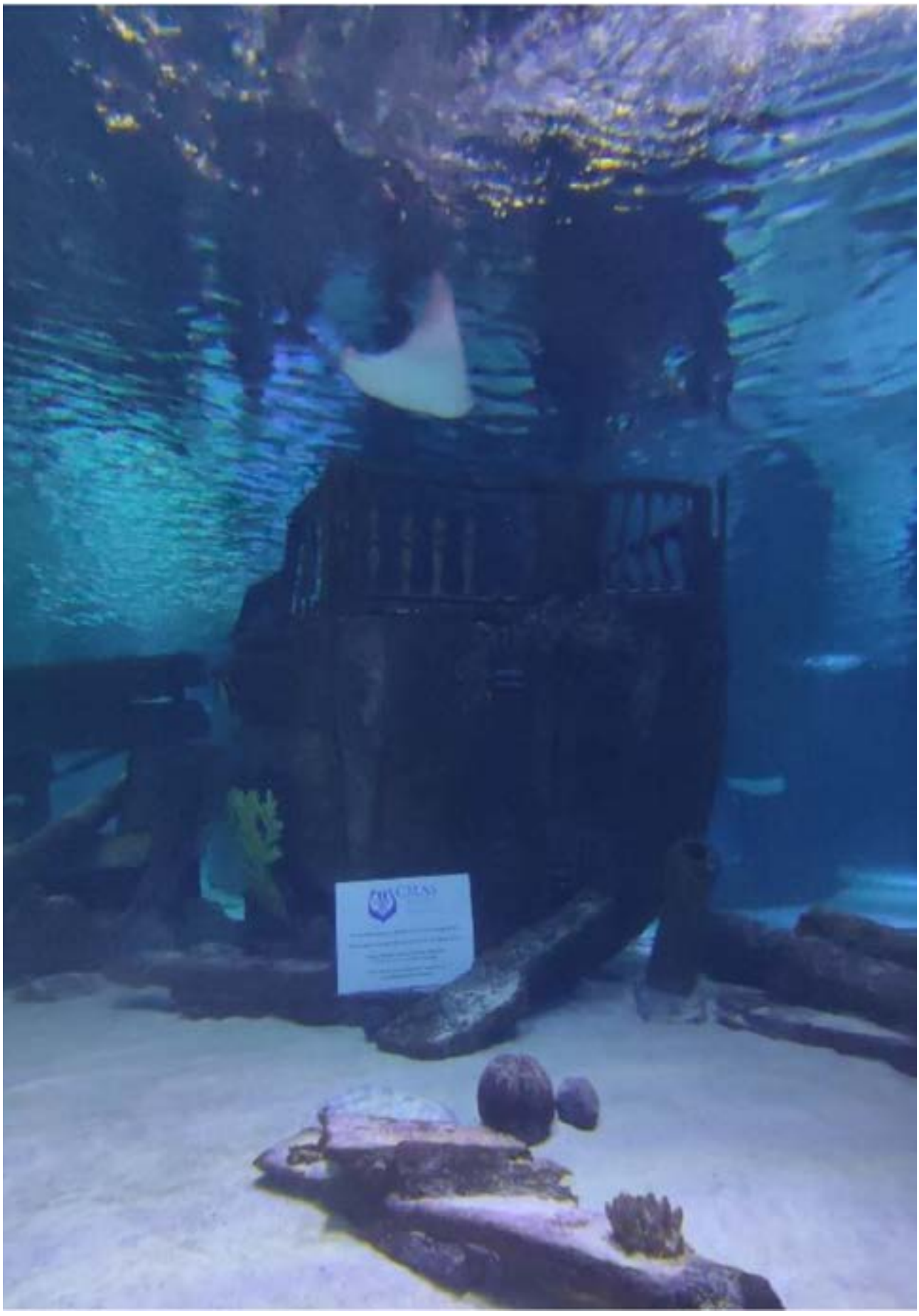
Be a role model for other divers and non-divers when diving submerged heritage sites. Encourage other divers to follow this Code of Ethics. Help create conservation awareness amongst the local community, general public and divers.

15. Support ratification and compliance with the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage.

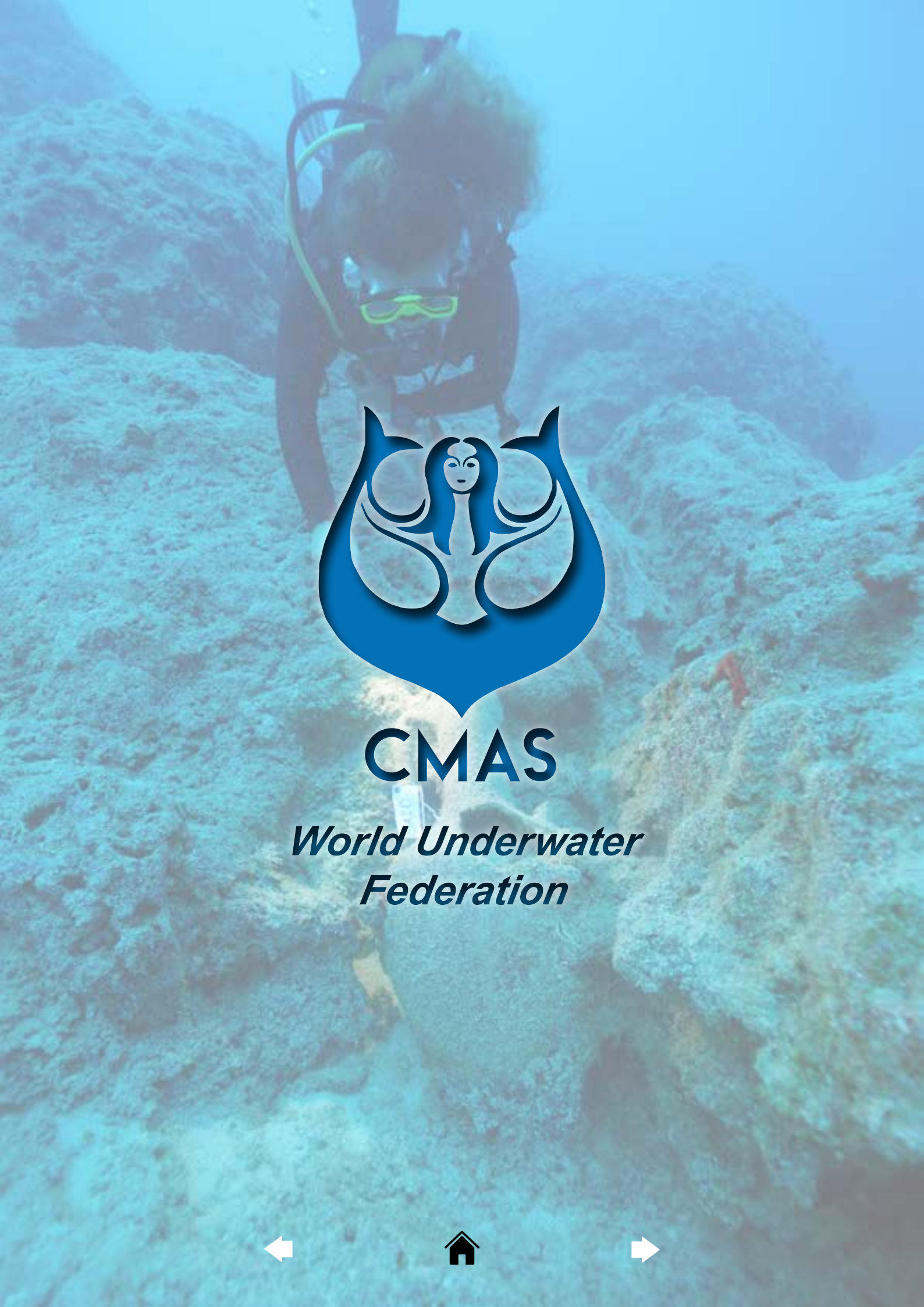
The UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001) is an international treaty protecting underwater cultural heritage. It sets basic protection principles, guides international cooperation and provides rules for underwater archaeology. Support the Convention.

A lion fish at Bronze Age wreck Turkiye - Photo Hakan Öniz

CMAS UCH Hand Signs Final



CMAS emblem with a message to protect underwater cultural heritage and Antalya Aquarium



CMAS

World Underwater Federation