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Education and Training
in the Arab Region

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Figure 1 - A maritime archaeologist examining a Late Medieval grapnel anchor. Marsa Bagoush, Egypt
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List of Acronyms

3D	Three Dimensional
ACOR	American Center for Oriental Research
ALECSO	The Arab League Educational, Cultural and Scientific Organization
APSS	Archaeological Prospection Services of Southampton
AUB	American University of Beirut
CMAUCH	Centre for Maritime Archaeology and Underwater Cultural Heritage
DGA	La Direction Générale des Antiquités et des Musées
DUA	Department of Underwater Antiquities
GCC	Gulf Cooperation Council
HFF	Honor Frost Foundation
ICOMOS	International Council on Monuments and Sites
ICUCH	International Committee on the Underwater Cultural Heritage
INA	Institute for Nautical Archaeology
JREDS	Royal Marine Conservation Society of Jordan
KDT	Kuwait Dive Team
MA	Master of Arts
MAT	Maritime Archaeology Trust
MAST	Maritime Archaeology Sea Trust
MHC	Ministry of Heritage and Culture
MASO	Maritime Archaeological Survey of Oman
MOU	Memorandum of Understanding
NAS	Nautical Archaeology Society
PGD	Post-Graduate Diploma
ROV	Remotely Operated Vehicle
SCHEP	Sustainable Cultural Heritage through Engagement of Local Communities Project
SCTH	Saudi Commission for Tourism and National Heritage
SCUBA	Self-Contained Underwater Breathing Apparatus
STAB	Scientific and Technical Advisory Body
TOT	Training of Trainers
UAE	United Arab Emirates
UCH	Underwater Cultural Heritage
UCL	University College London
UNESCO	United Nations Education, Scientific and Cultural Organization
UNITWIN	University Twinning and Networking
USAID	United States Agency for International Development

Executive Summary

Underwater Cultural Heritage (UCH) consists of all traces of human existence having a cultural, historical or archaeological character, wholly or partially submerged underwater, periodically or continuously for at least 100 years. UNESCO estimates that at least three million sunken shipwrecks alone lay undiscovered on the seabed, many of which await discovery in the waters of the Arab region.

These time capsules of human history are increasingly at risk of loss or destruction due to human and environmental factors. It is for this reason that the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage (2001 Convention) calls upon the international community to protect and preserve the irreplaceable resources for present and future generations.

Twelve of the nineteen Arab States¹ recognised by UNESCO have ratified the 2001 Convention as of September 2020. The 2001 Convention sets out basic principles for the protection of underwater cultural heritage. It provides a detailed State cooperation system, and its Annex contains widely accepted practical rules for activities directed at UCH. Education, training and information sharing, are collectively one of the four fundamental pillars which support the 2001 Convention, and professional capacity building is critical to the successful implementation of the 2001 Convention and the safeguarding of UCH. This report shows that there is an urgent need to build capacity in the Arab region.

Underwater archaeology remains a nascent discipline in several Arab States. This report contains a situation study, gap analysis and recommended actions. It is clear from this report that a distinct lack of local expertise characterises the region, and that significant variations in capacity exist between the states.

The report found that:

- i. Most of the previously implemented training activities in the Arab countries were short-term, extending for no more than a few days at the most. These programs aimed to provide trainees with some fundamental UCH skills, however, were insufficient to produce qualified, competent underwater archaeologists or UCH managers.
- ii. Government officials working for the national antiquities or cultural authorities were the primary recipients of the previous training programmes and capacity building activities.
- iii. The region's previous training providers were mostly foreign archaeologists, who provided informal learning opportunities (on-the-job training) for local archaeologists who supported the foreign project in-country.
- iv. The training was delivered in a second (foreign) language and as such, limited the training's effectiveness.
- v. Three universities in the region offer UCH-related courses; the American University of Beirut (AUB), New York University (NYU) Abu Dhabi, and the Centre for Maritime Archaeology and Underwater Cultural Heritage (CMAUCH) at Alexandria University, Egypt.

¹ In accordance with the regional grouping of UNESCO until June 2020.

The status of each State, concerning UCH, is presented in Table 1 below.

Arab State	Education and Training	Research Projects	UCH Practitioners	Identified Competent Authority	Ratified 2001 Convention
Algeria	✓	✓	✓	✓	✓
Bahrain	✗	✓	✗	✓	✓
Egypt	✓	✓	✓	✓	✓
Iraq	✗	✗	✗	✗	✗
Jordan	✓	✓	✗	✓	✓
Kuwait	✓	✗	✗	✓	✓
Lebanon	✓	✓	✓	✓	✓
Libya*	✗	✓	✓	✓	✓
Mauritania	✗	✗	✗	✗	✗
Morocco	✗	✓	✓	✓	✓
Oman	✗	✓	✓	✓	✓
Palestine	✗	✗	✗	✓	✓
Qatar	✗	✓	✓	✗	✗
Saudi Arabia	✗	✓	✓	✗	✓
Sudan	✗	✗	✗	✗	✗
Syria	✗	✓	✗	✗	✗
Tunisia	✓	✓	✓	✓	✓
Yemen	✗	✓	✓	✓	✗
UAE	✗	✓	✗	✓	✗

Figure 1: Arab States UCH Status at a Glance
 *Note: Libya has accepted the 2001 Convention, not ratified it.

Recommended Actions Arising

The report strongly advocates for the implementation of an Arab regional capacity building program, supported by Arabic UCH trainers and learning materials, to:

- introduce necessary underwater archaeology skills to experienced terrestrial archaeologists who have not worked underwater, yet are already divers;
- train experienced terrestrial archaeologists to dive, and then train them in fundamental underwater archaeology skills;
- introduce essential UCH skills to sport divers/students, who are not archaeologists; and teach the fundamentals of UCH to experienced archaeologists who have some experience in working underwater but are not specialised maritime archaeologists;
- develop a manual and other learning materials in Arabic capitalizing on the experience gained in other regions;
- use Alexandria University in Egypt, ICCROM Athar in United Arab Emirates, Honor Frost Foundation (HFF) in Lebanon, National Maritime Museum in Algeria, and National Institute in Tunisia as training venues;
- conduct a gender review for UCH education and training in the Arab region.

Following training, and as per Article 22 of the 2001 Convention, it is encouraged to reinforce competent authorities in charge of UCH, and secondly to create, maintain and to update of an inventory of underwater cultural heritage. The adequate protection, conservation, presentation and management of underwater cultural heritage, can only be ensured once the nature and extent of the resource is fully known.

Figure 2 - A maritime archaeologist documenting a Late Roman North African Cylindrical amphora. Marsa Bagoush, Egypt



Figure 3 - A granite column base among the remains of the ancient Pharos Lighthouse. Alexandria, Egypt

Countries of the Arab Region were the cradle of the most ancient civilisations on earth. The Egyptians, Canaanites, Phoenicians, Assyrians, Hittites, and Babylonians all flourished in North Africa, Mesopotamia, and on the Levantine coast. Hence, the wealth of material culture inherited from these civilisations is unparalleled.

All Arab countries adjoin or contain water bodies. Throughout ancient history, the shores of the Eastern Mediterranean, Red Sea, Arabian Gulf, and the banks of the Nile, Tigris and Euphrates Rivers, bore witness to thriving maritime cultures, and their waterborne activities. It is from these cultures that we have inherited a vast array of maritime and underwater material culture.

Some of the earliest discoveries in the field of Underwater Cultural Heritage (UCH) took place in the Arab Region, including that of the Mahdia Shipwreck in the Republic of Tunisia (Tunisia) in 1907,² and the Bronze Age Pharos Harbour in Alexandria, Arab Republic of Egypt (Egypt) in 1910.³ Similarly, some of the world's earliest UCH investigations were conducted in the region, notably, those undertaken by Nicholas Flemming in

Apollonia, State of Libya (Libya) in 1958,⁴ Honor Frost in Sidon, Lebanese Republic (Lebanon) in 1966,⁵ and Robert Yorke and David Davidson in the People's Democratic Republic of Algeria (Algeria) in 1968.⁶

However, over the past five decades, the development of underwater archaeology in the Arab Region has stagnated. The result is an evident lack of regional expertise, and significant variations between Arab countries in the level of UCH research, training, and education.

Of the nineteen Arab countries in accordance with the regional grouping until June 2020, over 63% (twelve States) have ratified the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage (2001 Convention). Yet, there is a significant deficiency in the region, particularly in aspects of UCH education and training.

Accordingly, this report examines UCH capacity-building in the Arab Region. It reports on the status in each country, identifies gaps, and proposes solutions, including that of regional capacity building programmes.

1. Capacity Building Programmes Organised and Supported by Inter-Governmental, Non-Governmental, and Governmental Institutions

Before considering aspects of UCH training and education in the Arab countries, we should distinguish between different types of researchers who practice underwater archaeology. Firstly, there are maritime archaeologists, educated in aspects of maritime and underwater archaeology, at undergraduate or graduate level, and who are professionally trained practitioners of archaeology underwater. Secondly, there are terrestrial archaeologists, trained to dive, but not educated in the theory or practice of maritime archaeology. The second category comprises the majority of archaeologists working underwater in the Arab region. Thirdly, there are sport divers and amateur archaeologists who have a particular interest in maritime archaeology. They have acquired basic training in aspects of UCH, yet are not professional archaeologists.

1.1 Aspects of UCH in the Arab Region

Several Arab countries have an active underwater archaeological research program. However, the level of activity varies from one country to another. Countries that have conducted submerged archaeological research include; Algeria, Kingdom of Bahrain (Bahrain), Egypt, Hashemite Kingdom of Jordan (Jordan), State of Kuwait (Kuwait), Lebanon, Libya, Kingdom of Morocco (Morocco), Sultanate of Oman (Oman), State of Qatar (Qatar), Kingdom of Saudi Arabia (Saudi Arabia), Tunisia, and the United Arab Emirates (UAE). Other countries, such as the Islamic Republic of Mauritania (Mauritania), Republic of Iraq (Iraq), State of Palestine (Palestine), and Republic of the Sudan (Sudan), have limited or no UCH activities.

2 Bass, G. 1972. Eighteen Mediterranean Wrecks Investigated between 1900 and 1968. In *Underwater Archaeology: a nascent discipline*. Paris. UNESCO. Pp. 35-52.

3 Jondet, G. 1921. *Atlas Historique De La Ville Et Des Ports D'Alexandrie*. Mémoires Présentées à La Société Sultanieh De Géographie. Le Caire.

4 Flemming, N. 1972. *Cities in the Sea*. London. New English Library. Pp. 95-135.

5 Frost, H. 1963. *Under the Mediterranean*. London. Routledge and Kegan Paul.

6 Yorke, R.A. and Davidson, D.P. 1969. *Roman Harbours of Algeria*. Underwater Association Report. Pp. 8-21.



1.1.1 The People's Democratic Republic of Algeria

In 2005 underwater archaeological research started in Algeria with the discovery of two shipwrecks east of Algiers. During the EuroMed Heritage II Project (2002-2007), the University of Malta trained Algerian archaeologists in underwater archaeological techniques. That resulted in an underwater archaeology research group being created within the Algerian Ministry of Culture and supported by the Algerian Navy. Nevertheless, Algeria paused underwater archaeological research until 2015, when the National Maritime Museum in Algiers created a separate unit dedicated to underwater archaeology. Accordingly, the group trained five archaeologists in underwater archaeological methods and techniques.

In 2017, Algeria created the National Commission of Underwater Archaeology within the Algerian Federation of Rescue, First-Aid and Underwater Activities, which is primarily a sports federation. Hence, the Commission is concerned with raising public awareness of UCH and encourages sport divers to declare the accidental discovery of underwater archaeological finds.

The most recent project conducted by Algerian underwater archaeologists commenced in 2018, by the National Commission of Underwater Archaeology in collaboration with the National Centre for Research in Archeology. The archaeologists surveyed the Tipaza and Cherchell coastlines. The survey resulted in the discovery and recording of several archaeological sites, including one comprised of twenty-three canons dated to the sixteenth and seventeenth centuries.⁷

Based on the above, it appears that there are three governmental entities involved in the investigation, protection and management of UCH in Algeria. These are the Algerian National Maritime Museum, the National Centre for Research in Archeology, and the National Commission of Underwater Archaeology; the latter being the entity most concerned with fieldwork and training.⁸ It is also evident that capacity building is being undertaken locally, based on the expertise of the National Commission of Underwater Archaeology. However, it is worth mentioning that the University of Morsli Abdellah in Tipaza is currently developing a vocational MA degree in Underwater Archaeology, in collaboration with the National Centre for Research in Archeology.⁹



1.1.2 Kingdom of Bahrain

The interest in UCH in Bahrain started as early as 1993 when the Institute of Nautical Archaeology (INA) carried out a marine survey along its northern coastline. During the investigation, INA archaeologists identified several submerged sites. Thus, the project revealed the potential for coastal and underwater archaeological research in Bahrain.¹⁰ However, since then, no significant underwater archaeological work has been undertaken in Bahrain. Nevertheless, in 2010 the Bahraini Authority for Culture and Antiquity sent a local archaeologist to the Alexandria University Centre for Maritime Archaeology and Underwater Cultural Heritage (CMAUCH) to attend the collaborative UCH training workshop held in conjunction with the University of Southampton, England, and University of Ulster, Northern Ireland. The workshop, which lasted for two weeks, introduced some of the necessary theoretical and practical fundamentals in coastal and underwater archaeology.

In 2012, Bahrain hosted the 1st Meeting of Gulf States on the 2001 Convention. Participants from Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE and the Republic of Yemen (Yemen) were in attendance. The meeting discussed the development of underwater archaeological research and capacity-building in the Gulf region. In 2014, Bahrain ratified the 2001 Convention. Since that time, the Bahrain Ministry of Culture has expressed interest in managing national coastal heritage and has invited foreign experts in that respect. Nevertheless, at the time of writing, no significant UCH training or capacity building has been undertaken in Bahrain.

7 Khellaf, R., Bensalah, N., Maallem, M. F., Bensaidani, Y., Benaouda, N., Magha, M. Etude du site des canons du rocher blanc à el Hamdania. Cherchell. The Nautical Archaeology Digital Library. Accessed on 18.06.2020. <https://nabl.tamu.edu/index.php/landscapes/africa/algeria-rocher-blanc/>.

8 Khellaf, R. Underwater Archaeology in Algeria. The Nautical Archaeology Digital Library. Accessed on 18.06.2020. <https://nabl.tamu.edu/index.php/landscapes/africa/underwater-archaeology-in-algeria/>.

9 This was mentioned by the Algerian representative during the TOT training organized by UNESCO Regional office in Cairo on 16.12.2020.

10 Pedersen, R. 2015. A Survey for Shipwrecks, Submerged Settlements and Seafaring Technology in Bahrain. <https://www.researchgate.net/publication/315803872>.



1.1.3 Arab Republic of Egypt

Underwater archaeological exploration and research started in Egypt in the early twentieth century CE. Egyptian archaeologists conducted several surveys and excavations along the Egyptian Mediterranean and the Red Sea coastlines. The majority of projects, however, took place in Alexandria and were mostly carried out by foreign archaeological missions, including the Centre d'Etudes Alexandrines and l'Institut Européen d'Archéologie Sous-Marine.¹¹ Nevertheless, in 1996 the Egyptian Supreme Council for Antiquities (currently the Ministry of Tourism and Antiquities) created the Department of Underwater Antiquities (DUA), which now has approximately thirty professional archaeologists. The DUA is the governmental agency responsible for supervising all underwater archaeological projects. Moreover, DUA conducts its archaeological research and training programme.

In 2009, Alexandria University in collaboration with the University of Southampton and several other EU institutions, including the Nautical Archaeology Society (NAS), and with funding from the European Union Tempus scheme, created the CMAUCH.¹² The CMAUCH is an academic teaching and research facility which grants Postgraduate Diploma (PGD), and Master of Arts (MA) degrees in maritime archaeology. It also provides training in aspects of UCH. Moreover, the CMAUCH runs underwater archaeological research projects in the Mediterranean Sea and the Red Sea. Over the past decade, more than seventy maritime archaeologists graduated from CMAUCH, including students from Tunisia and Libya.

Furthermore, the CMAUCH organised and delivered training workshops for local archaeologists and community stakeholders, including naval officers, museologists, oceanographers, and tourism specialists. Additionally, the CMAUCH in collaboration with the University of Southampton, the University of Ulster and the British Museum conducted a regional training program in 2010 for archaeologists from Tunisia, Libya, Bahrain and the Federal Republic of Somalia (Somalia).



1.1.4 Republic of Iraq

Although Iraq has a fifty-eight kilometre (km) coastline on the Arabian Gulf, the Iraqi section of the Euphrates River runs for approximately 1,160 km and the Tigris River for 1,400 km. Iraqi archaeologists have made several attempts at finding a British vessel that wrecked in the Tigris in the nineteenth century CE while carrying a load of ancient artefacts.¹³

There is, however, no evidence for scientific research or UCH capacity building in Iraq. Also, the fact that the country has been subject to conflict for several years prevents any current development in that respect.



1.1.5 Hashemite Kingdom of Jordan

With only a twenty-six kilometre coastline along the Gulf of Aqaba, Jordan has the shortest coast of any Arab country. Yet, the effort of Jordan in the exploration and preservation of UCH is undeniable. Two authorities in Jordan engage with UCH. First, the Directorate of Antiquities of Aqaba, part of the Jordanian Ministry of Tourism and Antiquities, is the national body responsible for any archaeological work carried out in Aqaba. Also, there is the Royal Marine Conservation Society of Jordan

11 http://www.cealex.org/sitecealex/navigation/FENETR_NAVfouil_smarin_F.htm.

<https://www.ieasm.institute/institute.php>.

12 <http://www.cmauch.org/>.

13 <https://www.niqash.org/ar/articles/society/5883/>.

(JREDS), headed by HRH Princess Basma bint Ali, one of the first female divers in Jordan.¹⁴

In 2017 the Jordanian authorities requested assistance from the DUA to conduct the first underwater archaeological project in Jordan. The project aimed to search for the submerged remains of the harbour of the Islamic city of Ayla, which dates back to the Umayyad/Fatimid period (650-1116). The DUA sent one of its experienced inspectors to co-direct the project and to help training Jordanian divers on underwater surveying techniques.

Accordingly, JREDS delivered the project in collaboration with the American Center for Oriental Research (ACOR) and funded by the United States Agency for International Development (USAID) Sustainable Cultural Heritage through Engagement of Local Communities Project (USAID-SCHEP).¹⁵ The project resulted in the discovery of a remnant fifty-metre long, eight-metre wide harbour quay understood to belong to the ancient harbour of Ayla. The majority of project work was carried out by Dr. Sawsan Al-Fakhry, a Jordanian underwater archaeologist, Islam Sliem, and Egyptian underwater archaeologists from the DUA.

It is worth mentioning, however, that the project resulted in the creation of a Marine Heritage Unit within JREDS. It consists of a group of enthusiasts who have been trained both in Self Contained Underwater Breathing Apparatus (SCUBA) diving, and basic techniques of underwater archaeology.

Similarly, JREDS conducted a training workshop focusing on marine heritage and underwater surveying. Hence, although academic education in UCH in Jordan has not commenced, there are several attempts for training and capacity building.



1.1.6 State of Kuwait

From 2013 to 2019 the Institute of Archaeology, Faculty of History, University of Warsaw carried out the first coastal and underwater archaeological survey along the coastline of Kuwait's Failaka Island. The project aimed to detect and record archaeological sites in the intertidal zone. The project resulted in the discovery of more than thirty stone structures, mostly fish traps, in addition to the remains of three harbours with breakwaters.¹⁶ The Kuwaiti National Council of Culture, Arts and Letters (NCCAL) supported the project, yet the local contribution was minimal. The support did not exceed the logistical and administrative matters. The investigation did not extend underwater; it was limited to the foreshore and intertidal zone.

Moreover, the Kuwait Dive Team (KDT),¹⁷ founded in 1991 as part of the Kuwait Science Club have attempted to introduce UCH to Kuwait's diving community. In 2013, for example, the KDT organised a workshop to train divers in underwater survey and site mapping. The KDT remains the most organised scientific diving body in Kuwait.

Although there is no UCH academic education nor UCH capacity in Kuwait, there is a significant interest among local academics, Non-Governmental Organisations (NGOs) and governmental authorities, and the KDT, in the Maritime Heritage and seafaring history of Kuwait.

14 <http://www.jreds.org/en-us/Media-Room/Videos>.

15 <http://usaidschep.org/>.

16 Shehab, A. H. S., Pieta, K., Ruttkay, M., Kovár, B. 2016. Archaeology of Failaka and Kuwaiti coast – current research. Archaeologický ústav Slovenskej akadémie vied/ Institute of Archaeology, Slovak Academy of Sciences. National Council for Culture, Arts and Letters. Kuwait.

17 <http://freekuwait.com.kw/>.



1.1.7 Lebanese Republic

Lebanon is among the most active Arab countries regarding UCH research and capacity building.¹⁸ At present, Lebanon has more than a dozen underwater and coastal archaeological projects in progress. These include coastal sites surveys, such as the Tabarja project, submerged anchorages survey, such as the Anfeh project, and shipwreck excavation, such as the Ain el Mreisseh project. The official governmental authority responsible for Lebanese antiquities is La Direction Générale des Antiquités et des Musées (DGA) which is part of the Lebanese Ministry of Culture. The DGA is involved in several underwater archaeological projects in Lebanon and is often collaborating with other organisations and institutions locally and internationally. The collaborations include those with the University of Aix-Marseille, University of Perpignan, Academy of Fine Arts Santa Isabel, and the Association pour les Recherches Sous Marines en Roussillon, and include investigation of the ancient harbours and shipwreck sites in Tyre, Byblos, Beirut and Sidon.¹⁹ Moreover, the DGA²⁰ permits individual archaeologists, NGOs, universities and other entities to conduct other projects.

Another significant initiative is the creation of the United Kingdom-based Honor Frost Foundation (HFF) team in Lebanon. The group consists of five members, and its main objective is to efficiently respond to the needs in case of rescue archaeology sites, notably ahead of development projects at targeted locations. The team is also involved in developing local capacity through raising the profile of the different stakeholders and creating awareness towards Lebanon's maritime heritage.²¹

Lebanon has many achievements concerning UCH capacity building. On the academic side, the American University of Beirut (AUB), sponsored by HFF, offers a minor in marine sciences and culture. The Department of History and Archaeology, delivers the program, in collaboration with the Departments of Biology and Geology. It focuses on the ancient coastal remains of the Mediterranean Sea. Although it is not a full degree and it is not focused solely on UCH, it is a good start for education in coastal and maritime archaeology.²²

In addition to education, the HFF and the Nautical Archaeology Society (NAS) are playing a significant role in capacity building in Lebanon. So far, two field schools were conducted by NAS and funded by HFF; a four-day course in 2017, and a seven-day course in 2018. During the field schools, twenty Lebanese sport divers, archaeologists and archaeology students trained in different aspects of UCH via the NAS training programme. Several participants were not divers, so before the course, they obtained an open water diver certificate.²³



1.1.8 State of Libya

Libya is among the richest, yet the least explored of the Arab countries concerning UCH. Underwater exploration started in Libya more than sixty years ago, and it was the first Arab country to ratify the 2001 Convention in 2005. Although several foreign archaeologists have worked in Libya, such as the late Sebastiano Tusa in East Cyrenaica, from 2008-2013,²⁴ and Carlo Beltrame in Leptis Magna in 2009,²⁵ research and capacity building has not significantly progressed.

18 <https://honorfrostfoundation.org/grants-awarded/small-grants/lebanon/lebanon-projects/>.

19 <https://www.aresmar.fr/les-chantiers-de-l-aresmar/au-liban/>.

20 <https://honorfrostfoundation.org/2019/06/25/byblos-lebanon/>.

21 <https://honorfrostfoundation.org/grants-awarded/small-grants/lebanon/hff-lebanon-team/>.

22 <https://honorfrostfoundation.org/2019/06/24/aub-minor-in-marine-sciences-and-culture/>.

23 <https://www.nauticalarchaeologysociety.org/lebanon-training>.

24 Tusa, S., Buccellato, C. A., 2019. Coastal Archaeology in East Cyrenaica between Sea and Land. In, S. di Lernia and M. Gallinaro. Archaeology in Africa: Potentials and Perspectives on Laboratory and Field Research. Arid Zone Archaeology Monographs 8. Sapienza Università di Roma. Pp. 47-62.

25 Beltrame, C., 2012. New Evidence for the Submerged Ancient Harbour Structures at Tolmetha and Leptis Magna, Libya. *International Journal of Nautical Archaeology*. 41.2: 315–326.

For several years now, different parts of Libya have been subject to military conflict, and this has negatively affected any efforts to pursue the exploration and preservation of UCH. Nevertheless, some research is still taking place in that respect, mainly by small groups of diving archaeologists and amateur explorers.

The Libyan Organisation of Antiquities is the official authority responsible for archaeological research all over the country. However, its activities in UCH is limited due to the lack of resources and expertise. Nevertheless, the Libyan Organisation of Antiquities recently created a discrete unit at Benghazi dedicated to underwater archaeological research. The Libyan group is currently undertaking marine surveys along the State's eastern coast. No Libyan institution provides an academic education in either maritime archaeology or UCH. Therefore, the Libyan government recently sent an archaeologist to study for a Master of Arts in maritime archaeology at the CMAUCH in Egypt. At the time of writing, the student's studies are still in progress. Moreover, two representatives from the Libyan Organisation of Antiquities attended the training workshop delivered in Alexandria in 2010. However, local expertise in UCH in Libya is still quite limited and requires further support and development.



1.1.9 Islamic Republic of Mauritania

Mauritania's history is strongly linked to the critical connection between its territory and the Atlantic Ocean. Hence, Mauritania has always expressed its interest in ratifying the 2001 Convention. In 2019, Mauritania declared its intention to fight against illicit trafficking of cultural property. This project built capacity and raised awareness of the need to protect cultural heritage in all its forms, both land and underwater. Moreover, Mauritania adopted a new law on the protection of heritage which strengthened its ability to safeguard culture in all its forms, including UCH.²⁶ Nevertheless, Mauritania has no capacity or activities concerning its UCH. Hence there is a dire need for capacity building in that respect.



1.1.10 Kingdom of Morocco

Morocco reported its earliest underwater archaeological discoveries in the 1960s. These were mainly amphorae discovered off the coast of Rabat-Salé, along with the remains of a ship carrying lead ingots, identified near Cape Spartel. It was not until the end of the 1990s that the first underwater archaeological research programme took place in northern Morocco. The project was a cooperation between the National Institute of Archaeological Sciences and Heritage of Morocco (INSAP), and the Institute of Nautical Archeology (INA),²⁷ based at Texas A&M University in the United States of America. The underwater archaeological programme continued in Morocco and included surveys in the Strait of Gibraltar and around Cape Spartel (2002-2003), Northern Morocco coastal surveys (2005, 2007-2009), Essaouira (Mogador) survey (2009), and the Oued Loukkos survey (2009-2015).

Since Morocco ratified the 2001 Convention in 2011, considerable efforts have made regarding UCH. The Department of Culture at the Ministry of Culture, which is the official body responsible for all aspects of cultural heritage, developed a team of diving archaeologists that carried out several reconnaissance and inventory missions, thereby confirming the discovery

²⁶ Information obtained from the UNESCO Office in Rabat.

²⁷ Trakadas, A. 2004. Morocco Maritime Shipwreck Survey: 2003 season. INA Quarterly 31.4:3-9.

of several historic wrecks on the Moroccan coast. The team's main objective is to develop an inventory of UCH sites on the Moroccan coast, as the first step to ensuring their protection. To date, projects resulted in the discovery of the wreck of the Kaiser Wilhelm der Grosse (2013), the Agadir wreck (2014), an unidentified shipwreck at Essaouira Beach (2018) and several wrecks on the coast of Al Hoceima (2020).²⁸

As with many of the Arab States, Morocco does not have any academic UCH courses or programs, nor does it offer UCH training programs or run other capacity-building activities. The Moroccan National Institute of Archaeology and Heritage is considering offering some lessons on maritime history and archaeology albeit these have not yet commenced. There is, however, one Moroccan archaeologist studying for a Master of Arts in maritime archaeology in France.



1.1.11 Sultanate of Oman

Oman is a maritime nation par excellence. Its seafarers and merchants were very active in the Indian Ocean during the Islamic and Mediaeval periods. Therefore, the Omani authorities are very keen on studying and recording the country's maritime and underwater cultural heritage. The official authority concerned with that is the Ministry of Heritage and Culture (MHC). In 2012, the MHC launched a national program for the protection of UCH and established a unique unit concerned with underwater archaeology.²⁹ The team is concerned with research and documentation of the submerged cultural heritage sites in Omani territorial waters. It is also responsible for supervising any underwater archaeological work to be carried out by foreign missions.

The projects undertaken by the MHC include the search for remains of the fifteenth century CE Chinese Zhèng Hé fleet, thought to have lost ships in Omani territorial waters. The search commenced in 2009 in collaboration with the People's Republic of China. MHC then resumed the hunt in 2012. Also, in 2012, the MHC signed a Memorandum of Understanding (MoU) with the Dutch Government. The MOU related to the search for the remains of the Dutch ship *Amstelveen* that sank off the Omani coast in 1763 CE. Another project took place between 2013 and 2015. It was the survey and excavation of the remains of Vasco de Gama's *Esmeralda* that sank off the coast of Al Hallaniyah Island in 1503.³⁰ The project was a collaboration between MHC, Blue Water Recoveries Ltd,³¹ Bournemouth University and the Maritime Archaeology Sea Trust (MAST).³²

Moreover, in 2014, the MHC carried out a coastal survey project in collaboration with the Western Australian Museum and the University of Southampton. The project surveyed targeted coastal areas with high archaeological potential. It also included a remote sensing and diver survey. Capacity building was a significant part of that project. Lucy Blue from the University of Southampton, delivered the training. The training enhanced the expertise of the MHC team.³³

Also, in 2014, the Maritime Archaeological Survey of Oman (MASO) was commissioned as a joint initiative between the Oman Ministry of Heritage and Culture and an executive management team consisting primarily of the Maritime Archaeological Stewardship Trust, the University of Southampton, and the Western Australian Museum's Department of Maritime Archaeology. MASO aimed to identify and manage the maritime archaeological resource of Oman and to develop

28 Personal Contact with Azzedine Karra.

29 <https://www.mhc.gov.om/heritage/archeology/underwater-archeology/>.

30 Mearns, D.L., Parham, D., and Frohlich, B. 2016. A Portuguese East Indiaman from the 1502–1503 Fleet of Vasco da Gama off Al Hallaniyah Island, Oman: an interim report. *International Journal of Nautical Archaeology*. 45.2:331-350.

31 <http://bluewater.uk.com/>.

32 <https://thisismast.org/projects/esmeralda-shipwreck-project-oman.html>.

33 Blue, L., Al-Jahwari, N. S., Staples, E., Giorgio, L., Croce, P., Ghidoni, A., Al Busaidi, A., Belfioretti, L., 2014. Maritime footprints: Examining the maritime cultural landscape of Masirah Island, Oman, past and present. *Proceedings of the 47th Seminar for Arabian Studies*. Oxford. Archaeopress. Pp. 53-68.

a comprehensive, holistic approach to maritime heritage management. It comprised coastal reconnaissance and focused remote sensing and diver survey in targeted areas.³⁴

Moreover, MHC staff, academics, other ministry staff, developers, fisherman, and both professional and recreational divers, participated in training and workshops to increase their skill and expertise. Specific learning activities were afforded to the staff of the MHC's underwater archaeology unit both in the classroom and significantly in the field, on targeted Environmental Impact Assessment in advance of coastal development.³⁵

Based on the above, it is evident that underwater archaeological research is well-established in Oman. Also, there is one national authority with the remit to regulate UCH. However, there remains a deficiency in education in aspects of UCH in Oman. Oman offers no academic education, at any level, in maritime archaeology or UCH. Also, training is limited to joining/running archaeological projects: hence, there are no dedicated capacity-building programs. It is worth mentioning, however, that Oman is the twelfth Arab country to ratify the 2001 Convention on the Protection of the Underwater Cultural Heritage.



1.1.12 State of Palestine

The State of Palestine enjoys a circa forty-kilometre coastline along the Gaza Strip. The Palestinian authorities note that there are many UCH sites situated offshore and that they have recently received reports of underwater archaeological discoveries. In 2011, Palestine ratified the 2001 Convention. Hence, the Palestinian authorities are keen to start implementing the 2001 Convention, create an official UCH focal point, and establish an inventory for UCH in Palestine.³⁶



1.1.13 State of Qatar

In 2014, University College London (UCL) Qatar carried out a three-week maritime archaeology course which provided students with an overview of the principles and practices of maritime archaeology. The program was tutored by Lucy Blue, on behalf of the University of Southampton's Maritime Archaeology Stewardship Trust, and John Cooper, University of Exeter. Students from UCL Qatar's Master of Arts in Archaeology of the Arab and Islamic World attended the sessions. Employees from the Ministry of Heritage and Culture of the Sultanate of Oman³⁷ were also present.

In 2017 and 2018 CE, the Qatar Museums Authority in collaboration with Qatar University, the University of York and the United Kingdom-based Maritime Archaeology Trust (MAT) carried out the Qatar Marine Archaeological Project (Qatar MAP). The project initially aimed to verify the location and assess the condition of some known submerged archaeological sites.³⁸ The survey was conducted using Multibeam Sonar, Remotely Operated Vehicle (ROV), and divers. During the project, the foreign team trained some Qatari divers on underwater Three-Dimensional (3D) Photogrammetry techniques. The project resulted in the location of few archaeological remains including the wreck on an Arab dhow.³⁹ Since that time, Qatar has not undertaken UCH work. Similarly, Qatar has not initiated any capacity building activities. It is worth mentioning, however, that the National University of Qatar does not have an archaeology program or courses at any level.

34 Blue, L. and Recinos, K. 2019. Improving Capacity Development for Threatened Maritime and Marine Cultural Heritage Through the Evaluation of a Parameter Framework. *Journal of Maritime Archaeology* 14:409–427.

35 Blue, L., Vosmer, T., and Green, J., 2018. The Maritime Archaeological Survey of Oman – building capacity for a sustainable future. In *Proceedings of the 6th International Congress on Underwater Archaeology (IKUWA6)*. (In press).

36 Communication of the UNESCO Office in Palestine.

37 <https://www.ucl.ac.uk/qatar/news/2014/apr/gulf-regions-first-maritime-archaeology-course-takes-place-ucl-qatar>

38 https://www.thebfsa.org/wp-content/uploads/2018/08/BFSA_Bulletin_2018_FINAL.pdf.

39 <https://blog.maritimearchaeologytrust.org/qatar-marine-archaeological-project-qatarmap-update/>



1.1.14 Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia has the longest shoreline of any Arab country, extending for 2,640 kilometres. However, it was not until 2007 that Saudi Arabia commenced investigating its coastal and underwater archaeological sites.⁴⁰ The University of York led one of the earliest projects in collaboration with Saudi Aramco and, Saudi Arabian Ministry of Antiquities and Museums. The project aimed to investigate the submerged landscape in the Farasan Islands in the southern Red Sea coast.⁴¹ The University of Marburg led an underwater survey in the vicinity of Jeddah in 2012 and 2013. The project resulted in the discovery of some Roman pottery and submerged harbour structures.⁴² However, the significant contribution of the project was the provision of SCUBA diving training for some archaeologists from the Saudi Commission for Tourism and National Heritage (SCTH); hence they were able to join the underwater survey. Accordingly, Saudi Arabia created a team of underwater archaeologists.

In 2015, a team from the SCTH and the Università di Napoli “L’Orientale” started an underwater survey in the area between Yanbu and Umm Lajj on the Red Sea coast of Saudi Arabia.⁴³ The survey resulted in the location of the remains of an eighteenth-century CE merchantman wrecked at a reef to the north of Umm Lajj, off the Saudi coast. Moreover, the Saudi authorities have developed agreements with several national organisations such as the General Directorate of Border Guards, the Saudi Ports Authority and the Saudi Wildlife Authority to collaborate in the exploration and preservation of UCH. However, it is worth mentioning that no Saudi institution offers education in aspects of UCH. The Saudi Underwater Archaeology Team was trained by accompanying foreign missions; hence more comprehensive education and training is recommended. Nevertheless, it was mentioned recently by the Saudi Minister of Culture, Prince Badr bin Abdullah bin Farhan, that the Kingdom of Saudi Arabia is to establish a new marine centre to oversee projects for the management, restoration, and protection of underwater cultural heritage in the Red Sea and Arabian Gulf.⁴⁴



1.1.15 Republic of Sudan

There are great potentials for UCH research in Sudan. However, little has been done to date. The Sudanese Red Sea has the potential to contain a wealth of sites, although the exact nature and extent of the resource is, as yet, unknown. The Nile dams are also thought to contain several submerged cultural heritage sites previously on land. Moreover, the rising groundwater in the Nuri Royal Cemetery, which dates from the seventh to the fourth century BCE, threatens several pyramids, including the recently excavated pyramid of Nastasen.⁴⁵ Accordingly, the Sudanese authorities have shown interest in exploring and conserving the country’s UCH, yet, the lack of national capacity and expertise represents an obstacle, which elaborates the need for capacity building and training.

40 Khalil, E., 2017. The Potentials of Maritime Archaeology in the Kingdom of Saudi Arabia. In, D. Agius, E. Khalil, E. Scerri and A. Williams, Human Interaction with the Environment in the Red Sea. Leiden, E. J. Brill. Pp. 348-363

41 <https://www.york.ac.uk/archaeology/research/current-projects/former-research/red-sea/>

42 <https://www.ajaonline.org/field-report/1943>.

43 Zazzaro, C., Loreto, R. and Cocca, E. 2016. 3D surveying of an eighteenth-century merchantman off the Red Sea coast of Saudi Arabia. *Skyllis*. Pp. 68-73.

44 <https://www.arabnews.com/node/1758656/saudi-arabia>

45 <https://www.nationalgeographic.com/culture/2019/07/dive-ancient-pyramid-nuri-sudan/>.



1.1.16 Syrian Arab Republic

Some of the earliest underwater archaeology projects in the region took place in Syria.⁴⁶ Since then, there have been some attempts by foreign archaeologists to explore further Syrian maritime and underwater cultural heritage.⁴⁷ Nevertheless, in recent years, the on-going conflict and humanitarian crisis have prevented the development of UCH capacity. However, in 2017 a project concerning UCH in Syria was carried out by a team from Ulster University and the University of Southampton. The project produced a desk-based assessment of the resource, which considered the nature and extent of the UCH resource, opportunities for investigation, threats to the heritage, and made recommendations to enhance effective management. The project relied entirely on existing information, including satellite imagery and remote sensing data, and hence, compiled results in a Geographic Information System.⁴⁸

Similarly, the Sevastopol State University in Russia formed an agreement with the Syrian Directorate General for Antiquities and Museum to develop a Syrian-Russian underwater archaeological mission. The mission aimed to investigate the underwater sites along the shores of the city of Tartus city and Arwad Island. Preliminary fieldwork conducted in 2019 identified some likely targets that will be subject to detailed investigation in 2020.⁴⁹ However, there is no education or training available in aspects of UCH in Syria. Nevertheless, it is worth mentioning that two Syrian archaeologists are currently studying for MA and PhD in maritime archaeology at the Aix-Marseille University, funded by the Honor Frost Foundation.⁵⁰



1.1.17 Republic of Tunisia

The Republic of Tunisia is considered one of the most active countries in underwater archaeological research in the Arab region. Systematic submarine surveys are carried out along its shores,⁵¹ under the directorship of the Underwater Archaeology Department at the National Heritage Institute, which the official authority responsible for Tunisian antiquities.⁵² In 2015, Tunisian underwater archaeologists started conducting the full underwater excavation of ancient shipwrecks. The first project of that kind was the excavation of a seventeenth to eighteenth-century CE warship located in Bekalta in the Governorate of Monastir.⁵³

Tunisia conducted several projects in collaboration with other institutions, notably those in France and Italy. A project was recently undertaken in partnership with the National Heritage Institute and the University of Sassari-Oriстано in Italy. This project explored the submerged remains of the Roman town of Neapolis, inundated by a tsunami in the fourth century CE.⁵⁴

Concerning capacity building, the Underwater Archaeology Department of the Tunisian National Institute often runs UCH training courses in collaboration with the Tunisian Navy and local sport diving clubs. Also, the Tunisian Federation of Underwater Activities and Aquatic Lifesaving, through its scientific committee, plays a vital role in capacity building and raising public awareness. The Federation organises training courses for divers to introduce them to the necessary skills of underwater archaeology. Concerning academic education, several Tunisian archaeologists have studied UCH abroad, notably in France and Egypt. However, Tunisian national universities do not offer courses in maritime and underwater archaeology.

46 Frost, H. 1972. Ancient Harbours and Anchorages in the Eastern Mediterranean. In *Underwater Archaeology: a nascent discipline*. Paris. UNESCO publication. Pp. 95-114.

47 Haldane, D., 1993. At the Crossroads of History: Nautical Archaeology in Syria. *Institute for Nautical Archaeology Quarterly*, 20.3:7-11.

48 Geographic Information System (GIS) <https://honorfrostfoundation.org/2019/08/20/benchmarking-the-maritime-cultural-heritage-of-syria/>.

49 <https://sana.sy/en/?p=183005>.

50 <https://honorfrostfoundation.org/2019/06/20/ghaiath-merhej-2018/>

51 Trabelsi, S., 2019. Le port antique de Missua (Sidi Daoud): découvertes sous-marines récentes. *Méditerranée. Revue géographique des pays méditerranéens*. <https://journals.openedition.org/mediterranee/10799>.

52 <http://www.inp.rnrt.tn/>.

53 <http://www.webdo.tn/tag/archeologie-sous-marine/>.

54 <https://www.spotmydive.com/en/news/neapolis-roman-city-discovered-in-tunisia-underwater-archaeology>.



1.1.18 Republic of Yemen

There have been several initiatives to explore and document the maritime heritage of Yemen.⁵⁵ Most projects focused on traditional boatbuilding and seafaring.⁵⁶ In 2009 the University of Exeter launched a project to investigate ancient harbours along the Yemeni coastline. This project encouraged the General Organisation of Antiquities and Museums to create an underwater archaeology unit and train some of its archaeologists to dive.⁵⁷ However, all these efforts have stopped due to the on-going conflict. Currently, there is no evidence for activities concerning any aspect of UCH in Yemen.



1.1.19 United Arab Emirates

Similar to the situation in most Gulf countries, the United Arab Emirates (UAE) has invested little in UCH. However mainly foreign missions have instigated a small number of maritime and UCH projects. In 2001, a marine remote sensing survey was carried out along the coast of Sharjah by the Norwegian University of Science and Technology (NTSU), albeit with limited results.⁵⁸ From 2011-2014, the Department of Culture and Tourism Abu Dhabi, the Directorate of Heritage Sharjah, the Maritime Archaeological Stewardship Trust, and Archaeological Prospection Services of Southampton (APSS) conducted the UAE Coastal Heritage Project. The project investigated several late Islamic settlements in the coastal regions of the Emirates of Sharjah and Abu Dhabi.⁵⁹

The National Council for Tourism and Antiquities is the official authority responsible for UAE cultural heritage, yet it does not have any capacity for UCH. Hence, there is limited expertise relating to maritime archaeology in UAE; few of the Emirates have underwater archaeologists within their antiquities departments or authorities, and no universities teach maritime archaeology or underwater cultural heritage. Visiting scholars are occasionally hosted to give lectures on UCH at different institutions in UAE.⁶⁰

It is worth mentioning, however, that the diving community in UAE is quite active. The Emirates Diving Association is the official authority responsible for organising diving activities, and there are more than 30 active diving centres and clubs in UAE.⁶¹ Hence, the diving community can advocate for UCH.

55 Agius, D., Cooper, J., and Zazzaro, C. 2014. The maritime heritage of Yemen: a focus on traditional wooden 'dhows'. In D. Agius, T. Gambin and A. Trakadas (eds.) *Ships, Saints and Sea Lore: Cultural Heritage and Ethnography of the Mediterranean and the Red Sea*. Oxford: Archaeopress. Pp.143-158.

56 Agius, D., Cooper, J., van Rensburg, J., Zazzaro, C., 2010. The dhow's last redoubt? Vestiges of wooden boatbuilding traditions in Yemen. *Proceedings of the Seminar for Arabian Studies*. 40:71–84.

57 <http://www.alkhaleej.ae/alkhaleej/page/6acf3781-7af2-40e2-9b2d-7079857ca564#>.

58 Marek E. Jasinski, M. E., Søreide, F., Phaneuf, B., and Hovland, M., 2001. *Underwater Archaeological Survey in Sharjah, UAE Report 2001*. Institute for Archaeology Norwegian University of Science and Technology: Oslo. Pp. 1-13.

59 Blue, L., Strutt, K., Sheehan, P., Jackson, P., and Beech, M., 2013. Developing an Integrated Policy for the Maritime and Coastal Heritage of the UAE: a collaborative approach. *Proceedings of the Seminar for Arabian Studies*. Vol. 43. Pp. 63-76.

60 <http://www.adias-uae.com/underwaterarchaeology.html>.

<https://www.aus.edu/media/news/dearth-of-information-on-maritime-archaeology-in-the-gulf-says-dr-lucy-blue>.

61 <https://www.emiratesdiving.com/>.

1.1.20 Regional Summary

Based on the above account of the Arab States in respect to UCH education and capacity building programs, it is understood that:

- Six countries (Algeria, Egypt, Lebanon, Libya, Oman, Tunisia) have official departments within their national authorities dedicated to UCH;
- Ten countries (Algeria, Egypt, Jordan, Lebanon, Libya, Oman, Qatar, Saudi Arabia, Tunisia, UAE) have had some capacity building activities in aspects of UCH;
- One country (Egypt) has a full education program in maritime archaeology and UCH. It is the only Arab country mentioned in the UNESCO report on courses in underwater archaeology at universities and other institutions;⁶² and
- Two countries (Egypt, Lebanon) have some academic programs in UCH.



Figure 4 - Participants in the Regional Workshop on the Protection and Management of the Maritime, Coastal and Underwater Cultural Heritage - Sharjah, UAE
©CMAUCH

62 http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/universities_with_programs_in_underwater_archeology_Sept.pdf

1.2 International/Regional Meetings and Workshops on UCH

Over the past few years, several meetings and workshops took place in the Arab Region to promote the exploration, preservation and presentation of UCH within the framework of the 2001 Convention. These are as follows:

	Meeting/ Workshop	Date	Country	Recommendations included:
1	UNESCO Bahrain Sub-Regional Meeting on the Convention on the Protection of the Underwater Cultural Heritage	16-17 October, 2012	Manama, Bahrain	<ul style="list-style-type: none"> - Organising, in cooperation UNESCO, national and regional capacity-building programmes in underwater archaeology and underwater cultural heritage protection; and - Strengthening bilateral, regional and international cooperation to establish a network of regionally active experts and professionals working on underwater cultural heritage.
2	The Arab League Educational, Cultural and Scientific Organization (ALECSO) Underwater Cultural Heritage in the Arab Region Meeting	28-30 October, 2013	Mahdia, Tunisia	<ul style="list-style-type: none"> - To include UCH as a topic in higher education programs in Arab universities and institutes.
3	UNESCO Regional Meeting on Underwater Heritage	2-3 June, 2016	Rabat, Morocco	<ul style="list-style-type: none"> - To encourage actions for capacity building for stakeholders concerned with the protection of underwater heritage; - To encourage the creation of a network of Arab professionals in the field of underwater heritage; and - To encourage the creation of a specialised Master in Underwater Heritage in the Arab region.
4	UNESCO-ICCROM ATHAR-New York University Abu Dhabi Regional Workshop on the Protection and Management of the Maritime, Coastal and Underwater Cultural Heritage	28-31 January, 2019	Sharjah, United Arab Emirates	<ul style="list-style-type: none"> - To improve institutional capacity in the protection and management of maritime and underwater cultural heritage through increased academic education and vocational training programmes.
5	UNESCO 2001 Convention Extraordinary meeting of the Scientific and Technical Advisory Body (STAB)	28 October, 2019	Algiers, Algeria	<ul style="list-style-type: none"> - To encourage the Secretariat to organise capacity-building activities in all regions of the world, in particular those regions, such as the Arab Region, that has not yet benefited from said capacity-building activities.

2. Training and Capacity Building Activities Organised by Inter-Governmental, Government and Non-Governmental Organisations

Based on the situation in each Arab country, it is clear that there are different types of training and capacity building activities delivered in the region.

2.1 Training Aim and Duration

Most training activities that were designed and delivered for building local capacities in the Arab countries were short-term, extending for no more than a few days at the most. They aimed to provide trainees with some elementary skills and fundamental principles related to carrying out archaeological work underwater. For example, the courses delivered by the Nautical Archaeology Society (NAS) and the Honor Frost Foundation (HFF) in Lebanon, and the University of Southampton in Oman. None of these courses compares, in terms of content and duration, to the UNESCO Foundation Courses delivered in Asia and Latin America. On the other hand, some training activities took place before or during archaeological projects to provide local archaeologists and antiquities officials with the necessary skills that would enable them to join the projects.

2.2 Target Groups

Most training delivered in the Gulf region is targeted at government officials working for the state antiquities or cultural authorities. In other cases, such as in Lebanon, the training is targeted at archaeology students and introduces them to fundamental underwater archaeology skills. Moreover, in some of the courses conducted in Egypt, Tunisia and Kuwait, the training is (was) made available to a broad range of stakeholders. Those stakeholders may not necessarily be archaeologists, rather, sport divers, environment specialists, naval officers, tour guides, etcetera. However, this level of training is awareness-raising and hence did not qualify trainees to work on underwater archaeological sites.

2.3 Training Providers

Foreign archaeologists, working on projects in the region have, to date, delivered most of the Arab training activities, notably the University of Marburg training in Saudi Arabia, the University of York training in Qatar and the University of Southampton training in Oman. However, one of the main obstacles facing foreign institutions providing training in Arab countries is the language barrier, which can negatively affect comprehension. On the rare occasion, however, training was provided by qualified local specialists, such as in the case of some training activities that took place in Algeria, Lebanon, Tunisia and Egypt.

3. Academic Programs in Maritime Archaeology and Other Related Subjects

In the beginning, we should differentiate between academic courses and academic programs offered by universities.

3.1 Academic Courses

These are courses offered by universities, at undergraduate or postgraduate levels. The classes discuss some topics relevant to maritime or underwater archaeology such as Maritime History, Ancient Shipwrecks, Ancient Harbours, Ancient Seafaring, Ancient Shipbuilding, Marine Geoarchaeology, Maritime Museums, Archaeology Underwater, etcetera. These courses may be offered in departments of Archaeology, Anthropology, History, Geography, Heritage, etcetera.

By looking at universities in the Arab countries, we realise that several of them have departments of history, which offer plenty of courses, however, without the focus on Maritime History.⁶³ Also, there are departments of Museum Studies and Heritage Management; however, there is hardly any mention of Maritime Museums.⁶⁴

Likewise, there are departments of Archaeology, yet, there is no mentioning of Maritime Archaeology.⁶⁵ Exceptions to that are the few universities which offer individual courses or a minor in some aspects of maritime or UCH. That includes a minor in Maritime Science and Culture at the AUB, and a unit on shipwrecks and Seascapes at the New York University Abu Dhabi.⁶⁶

3.2 Academic Programs

These are full undergraduate or postgraduate programs in Maritime or Underwater Archaeology. Unfortunately, such programs are not offered at any university in the Arab Region except in Alexandria University, Egypt. The Alexandria University Post-Graduate Diploma and MA in Maritime Archaeology and UCH was established in 2009.

The Post Graduate Diploma (PGD) is a one-year during which graduate students from any background study four core courses and two elective courses. The MA is a (minimum) two-year degree, during which students' study four core courses, six elective courses and produce a thesis.

The core courses are:

- Maritime Archaeology;
- Archaeology Underwater;
- Heritage Management in the Coastal Zone; and
- Research Methodology.

Elective courses include:

- Ancient Seafaring;
- Ancient Boats and Ships;
- Introduction to the Marine Environment;
- Conservation of Underwater Finds;
- Special Topic in Maritime Archaeology; and
- Introduction to the History of Art.

Based on the above, we can conclude that there is a severe deficiency of academic education in Maritime Archaeology and UCH in the Arab region. Among more than 700 public and private universities, very few universities offer courses on any aspect on UCH, and only one university offers a full program on UCH.

63 <https://arts.ksu.edu>.
<http://www.fshst.rnu.tn/fr/licence>.

64 <https://www.sharjah.ac.ae/>.
<https://art.kau.edu.sa>.

65 <http://khartoumspace.uofk.edu>.
<https://www.squ.edu.om/>.

66 <https://nyuad.nyu.edu/en/academics/divisions/arts-and-humanities/faculty/robert-parthesius.html>.

4. UCH Gender Equality in the Arab States

Generally speaking, maritime archaeology in the Arab region remains male-dominated. Although women play a significant role in UCH in several Arab states, the gender imbalance is significant. Per United Nations Sustainable Development Goal five (SDG5), and following UNESCO's commitment to promoting gender equality and women's empowerment, it is recommended that a gender review for UCH education and training in the Arab region be conducted. The States, in which the female contribution to UCH is significant, are detailed below.

4.1 Arab Republic of Egypt

Women represent more than eighty per cent of the Alexandria University Centre for Maritime Archaeology, and Underwater Cultural Heritage (CMAUCH) graduates. However, only eight of the approximately thirty Department of Underwater Antiquities (DUA) of the Egyptian Ministry of Tourism and Antiquities archaeology inspectors are women; four of these divers. Notably, due to the high number of female students, CMAUCH research projects are predominantly conducted by women, as are UCH outreach activities.

4.2 Hashemite Kingdom of Jordan

A pioneer underwater archaeologist in Jordan is Dr. Sawsan Al Fakhry who worked at the Directorate of Antiquities of Aqaba. Dr. Al Fakhry was the first female archaeologist in Jordan to work on an underwater site. The Royal Marine Conservation Society of Jordan (JREDS), which includes a Marine Heritage Unit, is headed by HRH Princess Basma bint Ali, one of the first female divers in Jordan. The Princess remains very supportive of UCH research in the country.

4.3 Lebanese Republic

Lebanon is probably the Arab country with, arguably, the most female contribution to UCH research. Two of the country's leading underwater archaeologists are women; those are Dr. Lucy Semaan and Dr. Martine Francis-Allouche, both of them are also members of the ICOMOS International Committee on the Underwater Cultural Heritage (ICUCH). Moreover, the number of female students and researchers involved in the field of UCH is increasing steadily.

4.4 Republic of Tunisia

Tunisian maritime archaeologist, Dr. Ouafa Ben Slimane, member of ICOMOS-ICUCH and former member of UNESCO STAB, has been leading the country's UCH research for several years. Moreover, there are several female archaeologists who specialise in UCH. Among them is Miriam Mastouri who obtained her MA in Maritime Archaeology from Alexandria University, Egypt.

4.5 Gender Equality Summary

Of the nineteen Arab States recognised by UNESCO, only four have a noteworthy female contribution to UCH. The region, therefore, has a responsibility to redress this imbalance. The region needs to provide equal opportunities for women in all aspects of maritime archaeology and UCH, notably in training and research. The proposed regional UCH capacity building programme in the Arab States should, therefore, identify and remove gender barriers. The programme must go beyond merely measuring disparities in education opportunities between males and females. As pointed out in the UNESCO Global Monitoring Education Report,⁶⁷ the distribution of resources, teaching and learning practices, legislative barriers and institutional policies which prevent women from attending the training program need also be redressed when such issues should exist. The teaching team, facilities and programme delivery need to cater to gender sensitivities. Gender and size-appropriate personal protective equipment, diving equipment and safety equipment must be available.



Figure 5 - SCUBA diving training is an integral part of UCH capacity building programs.
CMAUCH trainers and trainees. Egypt
©CMAUCH

67 https://gem-report-2017.unesco.org/en/chapter/gender_recommendations/

5. Recommendations for developing a Regional Capacity Building Programme for UCH in the Arab Region

When developing a regional capacity building program for UCH in the Arab Region, several aspects should be considered. These are outlined below.

5.1 Aims

It has to be apparent from the beginning what the aims of the capacity building are to be able to determine the target group, contents, duration and location. Recommended objectives are, to:

- introduce necessary underwater archaeology skills to experienced terrestrial archaeologists who have not worked underwater, yet are already divers;
- train experienced terrestrial archaeologists to dive, and then train them in fundamental underwater archaeology skills;
- introduce essential UCH skills to sport divers/students, who are not archaeologists; and
- teach the fundamentals of UCH to experienced archaeologists who have some experience in working underwater but are not specialised maritime archaeologists.

For each of these cases, the structure, contents and duration of the training will differ. Diving training is not a necessary part of the capacity building programme in underwater archaeology. Although diving competency is essential for working underwater, a standard beginner diving course takes about five days, and there are many existing diving training agencies for students to choose from. Also, some underwater archaeology skills require an advanced diving level and should not be taught to beginner divers.

5.2 Course Content and Duration

The content and duration of a capacity building program vary according to its objectives.

5.2.1 Basic Introductory Course

That aims to introduce key underwater archaeology skills to terrestrial archaeologists or archaeology students. During the course, trainees learn basic submarine surveying, position fixing, photography, object recovery, and field conservation. The course duration would be seven days. However, the course requires basic SCUBA diving training. If the trainees were not divers, they have to acquire SCUBA diving training first, before being trained in underwater archaeology skills.

5.2.2 Training of Trainers Course (TOT)

This course targets archaeologists or site managers who already have considerable technical experience in working underwater. The course will provide them with training in the fundamentals of UCH management, such as project design, site formation process, in-situ preservation, dissemination, capacity building, public accessibility and the 2001 Convention. This course can be done in five days. The TOT trained trainers are expected to play a key role in the development and implementation of a regional capacity building programme for UCH in the Arab Region.

5.2.3 Foundation Course

To build regional capacity in the exploration, preservation and management of UCH, professional training should be provided in underwater archaeology theory and practice. The content should include topics such as; the 2001 Convention and its Annex, surveying and excavation techniques, site recording and mapping, in situ preservation and public presentation of UCH, museology, ancient shipbuilding techniques, conservation of underwater finds, protective legislation, 3D site modelling,

ceramics, ethnographic boat recording, Geographical Information Systems (GIS) in underwater archaeology and data management, with a particular emphasis on the use of the UNESCO Manual for Activities directed at Underwater Cultural Heritage.⁶⁸

This foundation course should extend for three weeks, and it targets archaeologists, heritage specialists, or conservators. Trainees preferably have to be certified advanced divers with a minimum of twenty-five logged dives, and five dives to a depth deeper than fifteen metres. If the trainees were not already qualified divers, they would need to acquire a One-Star Diver (or equivalent) Certificate before joining the foundation course.

5.3 Teaching Material

There is a general deficiency in Arabic resources on underwater archaeology. Very few papers and books are published in Arabic focusing on UCH.⁶⁹ Accordingly, any capacity building activity will be faced with this issue. Although the Arabic translation of the UNESCO Manual for Activities Directed at Underwater Cultural Heritage can be used effectively by both trainers and trainees, there is still a lack of educational material in Arabic. Hence, some essential teaching material must be translated from English to Arabic in preparation for the training courses. The production of Arabic Training Manual for the Foundation Course is recommended to support the delivery of capacity building initiatives in the region by capitalizing on the outcomes of and experience in Asia and the Pacific⁷⁰ since the basics are very much the same.

5.4. Trainers, Venue and Logistics

The Basic Introductory Course taught by two senior tutors, including the Training of Trainers (TOT) trained trainers, and one assistant and could accommodate up to ten trainees. Delivery could be in the form of a Nautical Archaeology Society (NAS) course. The course requires access to an adequate classroom equipped with a data projector and teaching aids, a dry training area, training equipment and teaching material, and a swimming pool/confined water, full diving facility, and preferably able to access to an underwater archaeological site(s).

The Training of Trainers (TOT) Course can be taught by two senior maritime archaeologists and can accommodate up to twelve trainees. That requires access to an adequate classroom equipped with a data projector and teaching aids. The course would include site visits and case studies, hence, demands access to local underwater sites.

The Foundation Course would be based on the structure and material developed for the UNESCO Asia Pacific foundation courses.⁷¹ It should be taught by a team of four or five tutors, including the TOT trained trainers, with adequate expertise in every aspect of the course. It can accommodate up to twenty trainees. The course requires a suitable classroom equipped with a data projector and teaching aids. It also requires accessibility to a swimming pool/confined water, full diving facility and preferably with access to an underwater archaeological site(s). All training should be provided in Arabic or accompanied by an Arabic translation.

Possible venues for holding the training could be, Alexandria University-Egypt, ICCROM Athar-United Arab Emirates, Honor Frost Foundation (HFF)-Lebanon, National Maritime Museum in Algiers- Algeria, Tunisian National Heritage Institute-Tunisia.

68 Maarleveld, T. J., Guérin U., and Egger, B. 2013. Manual for Activities directed at Underwater Cultural Heritage: Guidelines to the Annex of the UNESCO 2001 Convention. Paris. UNESCO

69 عماد خليل، 2016 ، الاثار البحرية والتراث الثقافي الغارق، دار المعرفة الجامعية، الإسكندرية. ثيس مارليفيلد، أولريكة غويرن، باربرا أيغر. 2016. دليل الأعمال الموجهة للتراث الثقافي المغمور بالمياه: إرشادات لملحق اتفاقية اليونسكو لعام 2001. اليونسكو. ترجمة رنين سعيد، محرر النسخة العربية: ستار زويني، إشراف زكي أصلان.

70 Manders, M. R., and C. J. Underwood, 2012. Training Manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific. UNESCO Bangkok

71 The updated version of the manual adopted for the Latin America and the Caribbean (The UNESCO Training Manual for the Protection of the Underwater Cultural Heritage in Latin America and the Caribbean) will be available in English and Spanish in 2020-2021.

6. Suggested Structure for Capacity Building Programme for UCH in the Arab Region

6.1 Basic Introductory Course

Day 1	AM	Registration, course introduction, and course material.
	PM	UNESCO and the 2001 Convention Introduction to underwater archaeology development and scope
Day 2	AM	2D surveying theory
	PM	2D surveying dry practice and data processing
Day 3	AM	3D surveying theory
	PM	3D surveying dry practice and data processing
Day 4	AM	2D underwater practice
	PM	3D underwater practice
Day 5	AM	Photography and photogrammetry theory and dry practice
	PM	Position fixing, GPS
Day 6	AM	Search methods and object recovery in underwater practice.
	PM	Photogrammetry underwater practice
Day 7	AM	Field conservation, and archiving material
	PM	Report writing, dissemination

6.2 Training of Trainers Course (TOT)

Day 1	AM	Registration, course introduction, and course material
	PM	2001 Convention and the UNESCO Manual for Activities directed at UCH
Day 2	AM	Site formation processes and site types
	PM	Characteristics of UCH sites
Day 3	AM	Project objective, methodology and Techniques
	PM	Project design and management
Day 4	AM	Public engagements and outreach
	PM	Museology and UCH
Day 5	AM	Capacity building in UCH
	PM	Case studies and trainees' presentations

6.3 Foundation Course

Week 1

Day 1	AM	Introduction of students, trainers, course contents and teaching material
	PM	The role of UNESCO in the protection of UCH and the 2001 Convention
Day 2	AM	Site formation process, types and characteristics of UCH sites
	PM	Relative and absolute dating of archaeological material
Day 3	AM	2D survey techniques theory
	PM	2D survey dry practice and data processing
Day 4	AM	3D survey techniques theory
	PM	3D survey dry practice and data processing
Day 5	AM	2D survey underwater practice
	PM	3D survey underwater practice

Week 2

Day 1	AM	Photography and photogrammetry theory and dry practice
	PM	Position fixing, GPS
Day 2	AM	Photography underwater practice
	PM	Photogrammetry underwater practice
Day 3	AM	Underwater excavation theory
	PM	Search and recovery theory
Day 4	AM	Underwater excavation underwater practice
	PM	Search and recovery in underwater practice
Day 5	AM	Remote sensing and UCH research
	PM	Deepwater archaeology
Day 6	AM	Shipbuilding techniques and terminology
	PM	Ethnographic boat recording

Week 3

Day 1	AM	Geographical information systems (GIS) for UCH - theory
	PM	Geographical information systems (GIS) for UCH - practice
Day 2	AM	Conservation and finds handling
	PM	Field conservation
Day 3	AM	In situ preservation
	PM	Public access to UCH
Day 4	AM	Museums and underwater archaeology
	PM	Public outreach and engagement
Day 5	AM	Project design
	PM	Task planning and management.
Day 6	AM	Students presentations
	PM	Closing

7. Conclusion

The Arab region has excellent potential for underwater archaeological research. Its deep-rooted history has witnessed some of the earliest civilisations in human history. As mentioned earlier, States Parties to the 2001 Convention are obliged to its rules and regulations. With that in mind, it is worth mentioning that Article 21 of the 2001 Convention emphasises that States Parties shall cooperate in the provision of training in underwater archaeology.

Moreover, Article 22 underlines that States Parties shall establish or reinforce competent authorities in charge of UCH, to create, maintain and to update of an inventory of underwater cultural heritage, the adequate protection, conservation, presentation and management of underwater cultural heritage, as well as research and education. However, the region is still suffering from a significant lack of capacity and expertise in aspects of UCH. Therefore, some countries still have limited activities in the exploration, preservation and presentation of its UCH, while other States have no activities at all. The lack of capacity represents a real threat to UCH in the region, particularly since several Arab countries are witnessing unprecedented urban development along their coastlines. On the other hand, regional and international heritage organisations and academic institutions have not contributed effectively to developing capacity in UCH in the Arab countries. Accordingly, there is a pressing need for developing and implementing capacity building programmes for the Arab region.



Figure 6 - CMAUCH researchers, and excavated ceramic samples ranging in date from the 3rd century BC to the late Medieval Period - Marsa Bagoush, Egypt
©CMAUCH

8. Action Plan

The capacity building programmes should be implemented on different levels.

Action Step 1. The TOT course:

- The course aims to set a benchmark among regional experts and prepare for further, more in-depth training;
- Participants should be leading archaeologists who have had considerable experience in UCH from target countries. They should be affiliated with the recognised national organisation and from countries that have ratified the 2001 convention;
- The training provider would be responsible for identifying and developing the teaching material and the students' handouts in Arabic respecting the rules concerning activities directed at underwater cultural heritage (Annex to the 2001 Convention).

Action Step 2. Basic Introductory Course to UCH:

- The course aims to provide basic training in aspects of UCH in countries with limited or no capacity including Jordan, Mauritania, Palestine, Sudan, Syria, Yemen and the Gulf Cooperation Council (GCC) countries;
- The course would be offered as a preliminary step for developing essential skills in underwater archaeology;
- Participants should be young field archaeologists affiliated with recognised institutions in their countries;
- The course could be held in any of the countries that participated in the TOT course, with international cooperation and support provided by representatives from other countries who participated in the TOT course;
- The training provider or the TOT trained UCH expert would be responsible for identifying and developing the teaching material and the students' handouts in Arabic respecting the rules concerning activities directed at underwater cultural heritage (Annex to the 2001 Convention);
- Basic knowledge of SCUBA diving is required. Participants with no knowledge of diving can be provided with necessary training during the course.

Action Step 3. Arab Region Foundation Course:

- The Arab Region Foundation Course would be a fundamental step towards building regional capacity aspects of UCH;
- The course targets archaeologists, heritage specialists, conservators and museologists with a particular interest in UCH;
- Participants can be from any Arab county; however, a focus should be on countries with limited or no capacity in UCH;
- Trainers would be from Arab countries with more experience in that respect;
- Resources required include classroom, teaching aids, computers, swimming pool, open water diving site, diving equipment, archaeological tools, cameras, etcetera;
- Trainees should be certified advanced divers. If the trainees were not divers, they would have to be trained before joining the course;
- The course can be held in the GCC region;
- The training provider would be responsible for identifying and developing the teaching material and the students' handouts in Arabic respecting the rules concerning activities directed at underwater cultural heritage (Annex to the 2001 Convention);
- More teaching material and the students' handouts in Arabic should be developed in cooperation with UNESCO and partners in the Arab region.

Furthermore, developing and delivering training programs in the Arab Region can draw on the technical expertise and financial resources of different entities and partners, especially those who have a particular interest and previous experience in the Arab countries. That includes the UNESCO University Twinning and Networking (UNITWIN) Network for Underwater Archaeology,⁷² the Scientific and Technical Advisory Body (STAB) for the 2001 Convention, the International Council on Monuments and Sites (ICOMOS) International Committee on the Underwater Cultural Heritage (ICUCH),⁷³ the Nautical Archaeology Society (NAS),⁷⁴ the Maritime Archaeology Trust (MAT),⁷⁵ and the Maritime Archaeology Stewardship Trust.⁷⁶ The value-added through networking among experts in that respect is undeniable. It will ensure that the programs developed for the Arab Region would fulfil its desired goals and put the Arab Region on the right track to preserve its UCH.

72 www.underwaterarchaeology.net/.

73 icuch.icomos.org/.

74 www.nauticalarchaeologysociety.org/.

75 www.maritimearchaeologytrust.org/.

76 <https://cma.soton.ac.uk/partnerships-and-collaborations/mast/>.



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Sciences in the
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