

1st STACHEM Regional Workshop on Infrastructures for Underwater Archaeology



Tuesday, 1st of December 2009

Hellenic Center for Marine Research, Athens

Programme and Abstracts

STACHEM:
Science and Technology for Archaeology and Cultural Heritage in
the Eastern Mediterranean



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STACHEM: Science and Technology for Archaeology and Cultural Heritage in the Eastern Mediterranean

STACHEM is an EU funded (FP7) project contributing to the development of a regional strategic plan for research infrastructures devoted to archaeological sciences, digital heritage, and underwater archaeology and relevant technologies in the Eastern Mediterranean (<http://starc.cyi.ac.cy/stachem/stachem>).

The Cyprus Institute (www.cyi.ac.cy) is the coordinator of the STACHEM project. Partners include the Archaeological Research Unit of the University of Cyprus (<http://www.ucy.ac.cy/goto/archreun/en-US/HOME.aspx>) and the Institute of Nautical Archaeology (<http://inadiscover.com/>) at Texas A&M University. Further partner organizations are the Department of Archaeology at the University of Athens (<http://www.arch.uoa.gr/>) and the Research Center 'Athena' at the Cultural and Educational Technology Institute in Xanthi (<http://www.ceti.gr/>); the Kimmel Center for Archaeological Science at the Weizmann Institute (<http://www.weizmann.ac.il/kimmel-arch/home.html>); the Centre National de la Recherche Scientifique (<http://www.cnrs.fr/>) and the Ministero per I beni e le Attività Culturali (www.beniculturali.it).

The outcomes of the STACHEM project will include suggestions for joint trans-national activities, based on the exploration of opportunities for synergies and coordination, as well as a user-led assessment of needs, guidelines for good practices and directions for further infrastructure development.

Scientific Coordinator:

Dr. Kirsi Lorentz, email: k.o.lorentz@cyi.ac.cy, phone +357 22208 ext.656

1st STACHEM Regional Workshop on Infrastructures for Underwater Archaeology 1st December 2009, Athens, Greece

The main objective of the 1st Regional STACHEM Workshop on Underwater Archaeology is to bring together leading experts in underwater archaeology from different countries in the Eastern Mediterranean region, in a first step towards an enhanced networking between the existing infrastructures in the region and towards the building of a community of users with joint trans-national activities. It is hoped that this workshop will foster the exchange of ideas, interaction and co-ordination of plans among the workshop participants and the STACHEM partners. The workshop focuses on: existing infrastructures and practices: identifying capacities and needs, problems and perspectives for the future development of underwater archaeology in the Eastern Mediterranean.

Workshop Organisers

The Cyprus Institute (CyI) is a non-profit, non-governmental research and educational institution with a scientific and technological orientation (www.cyi.ac.cy). The Cyprus Institute comprises several cross-disciplinary research centres, including the **Science and Technology in Archaeology Research Center (STARC)**, a research centre devoted to the development, introduction, and use of advanced science and technologies in archaeology and cultural heritage (<http://starc.cyi.ac.cy>).

The University of Cyprus (UCY) is an educational institution, established in 1989. The University is a vigorous community of scholars engaged in the generation and diffusion of knowledge (<http://www.ucy.ac.cy>). **The Archaeological Research Unit (ARU)** is part of the Faculty of Philosophy and placed in the Department of History and Archaeology and conducts and coordinates the research activities of the Department within the region.

The Institute of Nautical Archaeology (INA) is a non-profit private research institute affiliated with the Texas A&M University (<http://www.tamu.edu/>). INA is a global leader in the field of underwater exploration and discovery. Its work includes some of the most significant archaeological discoveries of the past century. INA has pioneered technologies and fostered excellence in all aspects of nautical archaeology (<http://inadiscover.com/>).

The Hellenic Centre for Marine Research (HCMR) is a public body operating under public sector regulations (<http://www.hcmr.gr/>). HCMR plans and carries out scientific and technological programs, projects and elaborates relevant research studies relating to all aspects of the study and protection of the hydrosphere.

Scientific Committee

Prof. Franco Niccolucci, Chair, STACHEM Coordinator (STARC/CyI)
Dr. Kirsi O. Lorentz, STACHEM Scientific Coordinator (STARC/CyI)
Dr. James Delgado, STACHEM Partner Representative (INA)
Dr. Stella Demesticha, STACHEM Partner Representative (ARU-UCY)
Dr. Justin Leidwanger, STACHEM Partner Representative (INA)

Organising Committee

Dr. Kirsi O. Lorentz, Chair, STACHEM Scientific Coordinator (STARC/CyI)
Dr. Justin Leidwanger, STACHEM Partner Representative (INA)
Dr. Stella Demesticha, STACHEM Partner Representative (STARC/CyI)
Dr. Noémi S. Müller, STACHEM Postdoctoral Fellow (STARC/CyI)
Kelby Rose, STACHEM Assistant (INA)
Maria Dikomitou, STACHEM Postdoctoral Fellow (ARU-UCY)

Local Organising Committee

Dr. Dimitris Sakellariou, Chair (HCMR)
Paschalia Georgoulakou (HCMR)



WORKSHOP SCHEDULE

8:30-9:00	Registration
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Introduction to STACHEM: Science and Technology in Underwater Archaeology

9:00-9:10	Welcome note STACHEM Coordinator (CyI - Franco Niccolucci, Kirsi Lorentz) STACHEM Partners (INA - Justin Leidwanger, ARU - Stella Demesticha) Evangelos Papathanassiou Deputy Director of the Institute of Oceanography, Hellenic Centre for Marine Research
9:10-9:20	Introduction to the STACHEM project (Science and Technology for Archaeology and Cultural Heritage in the Eastern Mediterranean) Franco Niccolucci and Kirsi Lorentz Science and Technology in Archaeology Reserach Center, The Cyprus Institute
9:20-9:30	The STACHEM project, workpackage 3: Coordinating infrastructures for underwater archaeology and technology James Delgado, Justin Leidwanger, and Kelby Rose Institute of Nautical Archaeology at the A&M University

Session A: Infrastructures for management and protection of underwater antiquities: Requirements, limitations, perspectives Chairs: Stella Demesticha and Justin Leidwanger

9:30-9:50	Greece - Ephorate of Underwater Antiquities: Administration and protection of underwater heritage Angeliki Simossi Greece, Ephorate of Underwater Antiquities Protection of underwater antiquities: Challenges and practical obstacles Theotokis Theodoulou Greece, Ephorate of Underwater Antiquities
9:50-10:05	Vision for the future development of underwater archaeology in Egypt Alaa El-Din Mahrous Egypt, Underwater Antiquities Department in Alexandria
10:05-10:20	Underwater archaeological heritage of Israel: Nature, policy and management of endangered resource Jacob Sharvit Israel, Israel Antiquities Authority

10:20- 10:35	Future plans for the conservation of underwater heritage in Cyprus Eleni Loizides Cyprus, Department of Antiquities
10:35- 10:50	Underwater archaeology in Greece: Challenges and perspectives Katerina Dellaporta Greece, 2 nd Ephorate of Byzantine Antiquities
10:50- 11:20	Coffee break

**Session B: Governmental and non-governmental infrastructures for education and research in underwater archaeology:
New perspectives for collaborations and joint projects**
Chairs: Dimitris Sakellariou and Stella Demesticha

11:20- 11:35	Ten years of underwater archaeology at the University of Thessaly Dimitris Kourkoumelis Greece, Maritime Archaeology, University of Thessaly
11:35- 11:50	Educational framework of underwater archaeology in Greece: Perspectives for a new era Kalliopi Baika Greece, Maritime Archaeology, Department of History, Archaeology and Cultural Management, University of the Peloponnese
11:50- 12:05	Maritime Archaeology Field Schools: Limitations and perspectives Stella Demesticha Cyprus, Archaeological Research Unit, University of Cyprus
12:05- 12:20	Hellenic Institute of Marine Archaeology: Facing new challenges for nongovernmental, nonprofit organizations Christos Agourides Greece, Hellenic Institute of Marine Archaeology
12:20- 12:35	Underwater archaeological research in the Mediterranean: Problems and possibilities for the cooperation of governmental and non-governmental institutions Harry Tzalas Greece, Hellenic Institute for the Preservation of Nautical Tradition
12:35- 12:50	The Institute of Nautical Archaeology's Bodrum Research Center in Turkey: Infrastructures and technology for collaborative underwater archaeology James Delgado and <u>Justin Leidwanger</u> Turkey, Institute of Nautical Archaeology

12:50- 14:00	Light Lunch
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**Session C: Infrastructures supporting science and technology applications to
underwater archaeology: Advances, problems and potential**

Chairs: Justin Leidwanger and Kirsi Lorentz

14:00- 14:15	Mapping, digging and documenting using sound: Limitations and perspective in marine geoarchaeology <u>George Papatheodorou</u> , Maria Geraga and George Ferentinos Greece, Laboratory of Marine Geology and Physical Oceanography, Department of Geology, University of Patras
14:15- 14:30	Underwater geo-archaeology: A field for close collaboration between marine geoscientists, engineers and archaeologists Dimitris Sakellariou Greece, Institute of Oceanography, Hellenic Center for Marine Research

14:30- 15:30	Round Table Discussion and Closing Remarks Chairs: Franco Niccolucci, Stella Demesticha, Justin Leidwanger and Kirsi Lorentz
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15:30- 16:00	Short tour of HCMR's facilities Visit of the Thetis submersible and Achilles remotely operated vehicle
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ABSTRACTS OF CONTRIBUTIONS

(Abstracts are arranged in the order of presentation)

Underwater Archaeological Heritage of Israel: Nature, Policy and Management of Endangered Resource

J. Sharvit - Israel, Israel Antiquities Authority

Israel's seas are rich with ancient relics left behind by ancient civilizations. These remains provide material evidence for the wide-spread human activities that took place along the Israeli coasts for thousands of years.

The extent of Israel's shorelines comprises some 200 kilometers of Mediterranean coast, two lakes (the Sea of Galilee and the Dead Sea) and the Bay of Eilat on the Red sea. These areas call for special attention, because economic development, construction, urbanization and tourism, may come in conflict with the archaeological heritage.

Because of the physical characteristics of the Israeli Mediterranean coastline (lack of natural shelters and unexpected storms) many ships were wrecked and washed ashore. Hence, most of the shipwrecks are concentrated close to the shoreline. The rising sea beginning in the Holocene inundated coastal prehistoric settlements that once resided on the ancient coastline and are today submerged at depths to 13 m.

In the Sea of Galilee and the Dead Sea years of drought and over-exploitation of water, have resulted in low water levels and exposure of sea floor. Here too, shipwrecks, cargoes and submerged settlements are now exposed and prone to destruction.

Due to the conflicts and complexity of coastal environments, an Integrative Coastal Zone Management (ICZM) strategy was created in Israel, based on principles that will ensure sustainable use of the resources, as well as maintaining state and public interests. Recently, a governmental committee was created to deal with the destruction of the coastal cliffs, where many endangered ancient coastal and port cities are situated.

The Marine Archaeology Unit (MAU) of the Israel Antiquities Authority (IAA) is the authorized body in charge of the underwater heritage of Israel. The MAU is engaged in: the enforcement of the Israeli Antiquities law 5738, 1978, supervision of construction projects to prevent damage to antiquities, formulation of procedures and regulations, creation of a national data base of coastal and underwater archaeology sites, declaring archaeological sites as national protected reserves, participation in the preparation of the state-wide master plans for development (tourism, transportation etc.) surveying and excavating areas intended for coastal development, research and publication, and raising public awareness to the importance of protecting our maritime heritage.

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**Educational Framework of Underwater Archaeology in Greece:
Perspectives for a New Era**

K. Baika - Greece, University of the Peloponnese

Greece is between several countries in Eastern Mediterranean with rich underwater cultural heritage, but where education in underwater archaeology at all levels and for diverse groups is at an initial state.

However, the potential is strong, as neither the technological infrastructure nor the experience is lacking in contacting high quality underwater research and managing joint interdisciplinary projects.

In consequence, it has now become a common need to create a solid educational theoretical and practical framework of maritime archaeology and underwater cultural management in Greece and the Eastern Mediterranean region, developing meanwhile new learning initiatives for the academic community, the maritime museum education and the wider public of all age groups; training, thus, the new generation of underwater archaeologists and promoting public awareness.

This objective can only be achieved by exploiting existing strengths and infrastructures in national and regional level. This practically means the creation of an interdisciplinary network of all existing bodies in underwater archaeology, marine science and underwater cultural management (governmental and non-governmental institutions, universities, maritime museums, etc.), that will work together and contribute to the implementation of a common educational protocol in underwater archaeology.

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**Underwater Archaeological Research in the Mediterranean:
Problems and Possibilities for the Cooperation of Governmental and Non-
Governmental Institutions**

H. Tzalas - Greece, Hellenic Institute for the Preservation of Nautical Tradition

Most Mediterranean countries have opened or are in the process of opening their seas to underwater archaeological research. A close cooperation between the governmental administration, who by law regulates such activities, and non-governmental institutions, who often have the scientific and technical know-how and the financial possibilities, would certainly be most beneficial for the development of this highly specialised scientific field, in a sea rightly considered as the cradle of many civilisations.

The fact that there is no uniformity in the legislations governing such activities, with regulations varying from country to country, is a major drawback for the perspective of a wider collaboration. Another serious obstacle is that often permissions/concessions granted to a non-governmental institution by the governmental authority responsible for underwater antiquities are subject to additional permissions from military and security agencies.

Presently, there is not even a faint possibility for a unified policy between Mediterranean countries for the cooperation of governmental and non-governmental institutions: obtaining permission for a non-governmental institution in France, Egypt, Turkey, Greece, Israel, or Libya is a totally different experience, often a traumatic venture, and there is no *Esperanto* that could be applied to the Babel of what can and what cannot be.

But there is more than the security difficulties; sometimes, too, there are feelings of mistrust, as the governmental administration considers itself the exclusive beneficiary of the national cultural heritage that lies in its seas – while in fact this is often a Mediterranean cultural heritage. There are also cases when, although at government level concessions are granted, at the individual level the staff of the department that is ultimately supervising underwater research is obstructive because of envy or antagonism.

Certainly one should not be deterred because of these difficulties and a first step in the right direction would be to catalogue the regulations prevailing in each country, understand how these rules are applied, and exchange experience-based information.

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Mapping, Digging and Documenting Using Sound: Limitations and Perspective in Marine Geoarchaeology

G. Papatheodorou, M. Geraga and G. Ferentinos - Greece, Laboratory of Marine Geology and Physical Oceanography, Department of Geology, University of Patras

The main research challenge in underwater archaeology is to overcome the physical barrier: the underwater environment. The underwater remote sensing techniques most commonly applied to underwater archaeology employ: (i) side scan sonar (acousting imaging), (ii) laser line scan (optical imaging) (iii) subbottom profiler, (iv) marine magnetometer and (v) undersea vehicles. Marine geoarchaeology is a recent field of research that uses high resolution remote sensing techniques and accurate position systems in combination with disciplines from earth/marine sciences.

There are two general approaches regarding the application of marine geoarchaeological methods in underwater archaeology: (i) detection and investigation of ancient shipwrecks lying on the seafloor or partly buried in it, and (ii) mapping of submerged sites of archaeological interest (submerged ancient cities, settlements, ports and man-made structures) and palaeogeographic reconstructions.

Over the last two decades, the application of these methods has led to exceptional great findings. However, their application to underwater archaeology involves limitations regarding mostly the conditions of the surveyed environment and the specific demands of the archaeological sites.

The most prominent sectors of improvement in underwater archaeology seem to be: (i) the development of methods filtering the sound information and allowing reliable detections of man-made targets and (ii) small scale surveys involving interdisciplinary techniques.

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