Managing the Underwater Cultural Heritage

Zadar, Croatia, September 29th - October 2nd 2011
IKUWA 4

Internationaler Kongress für Unterwasserarchäologie

International Congress on Underwater Archaeology
Managing the Underwater Cultural Heritage

University of Zadar, Croatia, September 29th - October 2nd 2011

Abstract Book

CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABOUT IKUWA</td>
<td>5</td>
</tr>
<tr>
<td>IKUWA 4 Conference Committees</td>
<td>6</td>
</tr>
<tr>
<td>ABOUT ZADAR</td>
<td>7</td>
</tr>
<tr>
<td>VENUE</td>
<td>9</td>
</tr>
<tr>
<td>TIMETABLE</td>
<td>11</td>
</tr>
<tr>
<td>Plenary</td>
<td>11</td>
</tr>
<tr>
<td>Public Access</td>
<td>12</td>
</tr>
<tr>
<td>Research Strategies</td>
<td>15</td>
</tr>
<tr>
<td>Site report</td>
<td>18</td>
</tr>
<tr>
<td>Post Excavation</td>
<td>21</td>
</tr>
<tr>
<td>Good practice</td>
<td>22</td>
</tr>
<tr>
<td>In Situ preservation</td>
<td>23</td>
</tr>
<tr>
<td>Poster presentation</td>
<td>24</td>
</tr>
<tr>
<td>Panel Discussion</td>
<td>25</td>
</tr>
<tr>
<td>Closing of the Conference</td>
<td>25</td>
</tr>
<tr>
<td>REGISTRATION</td>
<td>26</td>
</tr>
<tr>
<td>ZADAR ACCOMODATION</td>
<td>28</td>
</tr>
<tr>
<td>NAS COURSE</td>
<td>29</td>
</tr>
<tr>
<td>ABSTRACTS</td>
<td>30</td>
</tr>
<tr>
<td>PLENARY</td>
<td>30</td>
</tr>
<tr>
<td>PUBLIC ACCESS</td>
<td>35</td>
</tr>
<tr>
<td>RESEARCH STRATEGIES</td>
<td>41</td>
</tr>
<tr>
<td>SITE REPORT</td>
<td>48</td>
</tr>
<tr>
<td>POST EXCAVATION</td>
<td>55</td>
</tr>
<tr>
<td>GOOD PRACTICE</td>
<td>57</td>
</tr>
<tr>
<td>IN SITU PRESERVATION</td>
<td>61</td>
</tr>
<tr>
<td>POSTER PRESENTATION</td>
<td>65</td>
</tr>
</tbody>
</table>
About IKUWA

The first international congress for underwater archaeology (IKUWA 1) was held in February 1999 in Sassnitz on the island of Rügen on the coast of the Baltic Sea in Germany, with the theme "protection of cultural heritage under water". It received considerable support from the Raphael Programme of the European Union, in the context of reinforcing east-west cultural and educational ties, and was organized on the initiative of the Deutsche Gesellschaft zur Förderung der Unterwasserarchäologie (DEGUWA) by 7 German and 5 non-German (Switzerland, UK, Greece, Netherlands and Poland) partner organizations.

The congress was a resounding success, with wide international participation. It had a series of chronological sessions and a series of thematic sessions on subjects such as conservation, recording and management. Particular importance was given to a round table on the protection of the European underwater cultural heritage, with particular reference to the UNESCO 2001 Convention. The participants were mainly from Europe, but also from India, Israel and the U.S.A.

It was agreed at Sassnitz to inaugurate an ambitious program of congresses to build an international network of institutions dealing with underwater archaeology. This was achieved by the holding of IKUWA2 and IKUWA3. IKUWA2 was held in Zurich in October 2004. The organizing committee included German and British members. About 200 participants from 25 countries attended. The proceedings were published in 2006 as "Die Neue Sicht. Une nouvelle Interprétation de l’histoire." The new view in the series Antiqua, vol.40. In the days preceding the congress a postgraduate training workshop was held, with 21 participants from 11 European countries.

IKUWA3 took place under the auspices of UNESCO’s Director-General. It was held in University College London in July 2008, with the title "Beyond Boundaries" and was organized by the Nautical Archaeology Society and the Institute of Field Archaeologists. The Steering Committee included German and Swiss members. 260 participants from over 20 different countries presented 126 papers over the three days.

IKUWA3 was preceded by a professional development field school with participants from almost a dozen nations organized by NAS. One day before, UNESCO held a one-day intergovernmental conference in the British Academy on the 2001 Convention.
IKUWA 4 Conference Committees

**Honorary Committee**

Jasen Mesić  
Minister of Culture of the Republic of Croatia
Radovan Fuchs  
Minister of Science of the Republic of Croatia
Božo Biškupić  
Member of the Parliament of the Republic of Croatia
Stipe Zrilić  
Zadar County Prefect
Zvonimir Vrančić  
Mayor of Zadar
Ante Uglešić  
Rector of the University of Zadar
Anthony Krause  
UNESCO Representative
Friedrich Lüth  
Chair IKUWA
David Blackman  
Vice-chair IKUWA

**Steering Committee**

Friedrich Lüth  
chair
David Blackman  
vice-chair
Christoph Börker  
DEGUWA, IKUWA 1
Timm Weski  
IKUWA, IKUWA 1
Albert Hafner  
GSU, IKUWA 2
Mark Beattie - Edwards  
NAS, IKUWA 3
Ian Oxley  
EH, IKUWA 3
Luka Bekić  
ICUA Zadar, IKUWA 4
Hrvoje Potrebica  
President of the Croatian Archaeological Society, IKUWA 4
Irena Radić Rossi  
University of Zadar, IKUWA 4
Nicoletta Martinelli  
IKUWA 5
Luigi Fozzati  
IKUWA 5

**Organization Committee**

Luka Bekić  
chair, ICUA Zadar
Smiljan Gluščević  
vice chair, Archaeological Museum of Zadar
Tomislav Fabijanić  
secretary, University of Zadar
Vito Turšić  
Ministry of Science of the Republic of Croatia
Damira Tolić  
Representative of the Ministry of Culture at Zadar
Ivan Šimunić  
Representative of the County of Zadar
Radovan Dunatov  
Representative of the City of Zadar
Mladen Pešić  
ICUA Zadar

**Contact persons:**

Tomislav Fabijanić: secretary@ikuwa4.com
Mladen Pešić: info@ikuwa4.com
About Zadar

Zadar is an ancient city, built in the center of the Croatian Adriatic, full of historical and cultural monuments. It is three thousand years old, a city of old, tumultuous and dynamic history, often destructed, looted, devastated, every time emerging from the ruins stronger, richer and more beautiful. Zadar appeared for the first time in history in the 4th century B.C. as a settlement of the Illyrian tribe of Liburnians - the name Jader was mentioned, and through history it changed into Idassa (Greek source), Jadera (Roman source), Diadora, Zara (during Venetian rule and later Italian) up to today’s name of Zadar.

After the year 59 B.C. Zadar became a Roman municipium, and in 48 B.C. a colony of Roman citizens. During Roman rule Zadar acquired the characteristics of a city with a regular road network, a main square - Forum, and next to it an elevated capitolium with a temple. In the 7th century Zadar became the center (capital) of the Byzantine theme (province) of Dalmatia. At the beginning of the 9th century Zadar was mentioned as seat of bishop Donatus and the Byzantine leader Paulus. At the time a church was erected on the Roman forum, the church of the Holy Trinity, today St. Donat, for which it can be said to be the symbol of the city. Larger settling of Croats in Zadar was marked in the 10th century. The foundations of the Romanesque church of St. Mary, the church of St. Grisogone and the cathedral of St. Anastasia have been preserved from that period. In 1202 the city was conquered and burned by the Crusaders and Venetians. The first Gothic churches in Dalmatia, St. Francis and St. Dominic, were built after that time, and the gold-plated silver sarcophagus of St. Simeon must be distinguished among the treasures of the period. The 15th and 16th centuries are characterized by significant activities of Croatian writers who wrote in the national Croatian language (Petar Zoranić, Brne Krnarutić, Šime Budinić, Jerolim Vidulić ...).

The Austrians (1797) took over the government of Zadar after the Venetians, to be followed by the French (from 1806 to 1813). After a short time of French rule, Zadar remained under Austrian rule until 1918. With the Treaty of Rapallo, Zadar fell under Italian rule, and after the II World War it was annexed to Croatia (within the framework of the Federation of Yugoslavia). Following the Republic of Croatia's declaration of independence and subsequent Serbian aggression on Croatian territory, Zadar and its surroundings were attacked in October 1991. The Serbian rebels aimed to conquer and destroy the city and its region, attacking with a destructive force that had never been seen so far. Zadar's hinterland was controlled by rebels and significantly devastated. The city itself was repeatedly targeted and cultural heritage of Zadar was heavily damaged.

Today Zadar is a preserved monument of various historical times and cultures that have placed their boundaries and visible outlines of their urban appearance. During its existence it was for many centuries the home of the Illyrian Liburni and for 1000
years the capital city of Dalmatia. Rich in history, it is currently a focal point in civilization, and most of all city with an unquestionable future: its accepted concept of development into an international, Mediterranean and Adriatic metropolis is being realized. It is a city with a rich Croatian national identity created in the present, which successfully adheres to the newest trends in globalization and informatization.

Zadar is a city rich in spiritual and material culture, as well as in a touristic identity created in the present. It was created around the Roman forum, a city inside well-kept walls, and a city of old Croatian monuments. Full of archives, museums and libraries, it is the keeper of literary and musical treasure; it is the city inside with the oldest University among Croatians (1396). It was long ago the place where the first Croatian novel and the first newspapers in the Croatian language were created. It is protected by four guardian saints: Zoilo, Simon, Grisogone and Anastasia.

Source:
http://www.tzzadar.hr/en/about-zadar/history
Venue

Lectures will be held at the main building of the „Old campus“ - Obala Kralja Petra Krešimira IV. No.2. There are three rooms available, and sessions will be distributed by the timetable. Great hall is on the second floor, Room 143 is on the fourth floor, Room 124 is on the second floor.

Poster presentation and coffee/tea breaks will be held at the ground floor of the Rector’s office - Mihovila Pavlinovića b.b, which is next to the main building of the University.

Registration of the participants will be at the Registration desk situated between main building and Chapel of St. Demetrius - Mihovila Pavlinovića b.b.

Closing party will be held at the Arsenal Zadar - Trg tri bunara 1. Free invitation card includes one complementary drink for every IKUWA 4 participant.
<table>
<thead>
<tr>
<th>September 28&lt;sup&gt;th&lt;/sup&gt;</th>
<th>September 29&lt;sup&gt;th&lt;/sup&gt;</th>
<th>September 30&lt;sup&gt;th&lt;/sup&gt;</th>
<th>October 1&lt;sup&gt;st&lt;/sup&gt;</th>
<th>October 2&lt;sup&gt;nd&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>Thursday</strong></td>
<td><strong>Friday</strong></td>
<td><strong>Saturday</strong></td>
<td><strong>Sunday</strong></td>
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<tr>
<td><strong>DAY 1</strong></td>
<td><strong>DAY 2</strong></td>
<td><strong>DAY 3</strong></td>
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</tr>
<tr>
<td><strong>Arrival</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Registration</strong></td>
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<td><strong>Excursions</strong></td>
</tr>
<tr>
<td>University of Zadar</td>
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<td>Excursion in the city of Nin 10:00 - 14:00</td>
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<td>16:00-19:00</td>
<td>08:00-19:00</td>
<td>08:00-14:00</td>
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<td>Excursion in the city of Biograd n/m 10:00 - 14:00</td>
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<tr>
<td><strong>Opening ceremony</strong></td>
<td><strong>Public access</strong></td>
<td><strong>Good practice</strong></td>
<td></td>
<td>Excursion in the National Park Kornati 09:00 - 17:00</td>
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<td>Great hall</td>
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<td>09:00-10:30</td>
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<td>09:00-13:30</td>
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<tr>
<td><strong>Plenary</strong></td>
<td><strong>Research strategies</strong></td>
<td><strong>In situ preservation</strong></td>
<td></td>
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<tr>
<td>Great hall</td>
<td>Room 143</td>
<td>Room 143</td>
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<td>11:00-19:30</td>
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<td>09:00-13:00</td>
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<tr>
<td><strong>Site report</strong></td>
<td><strong>Poster presentation</strong></td>
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<td>Room 124</td>
<td>Ground floor of the Rectorate</td>
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<td>09:00-13:30</td>
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<tr>
<td><strong>Post excavation</strong></td>
<td><strong>Panel discussion</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Room 124</td>
<td>Great hall</td>
<td></td>
<td></td>
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<tr>
<td>15:00-18:30</td>
<td>16:00-17:30</td>
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<tr>
<td><strong>Closing IKUWA 4</strong></td>
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<tr>
<td>Great hall 17:30</td>
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<tr>
<td><strong>Cocktail party</strong></td>
<td><strong>Closing party</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>University of Zadar 20:00</td>
<td>Arsenal Zadar 20:00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**TIMETABLE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 10:30</td>
<td>Official opening of the IKUWA 4 Conference</td>
</tr>
<tr>
<td>10:30 - 11:00</td>
<td>coffee/tea</td>
</tr>
</tbody>
</table>

**PLENARY**

Thursday, 29th September 2011, Great hall

Chairman of Session: Lüth Friedrich

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
</table>
| 11:00 - 11:30 | Research and Management of Underwater Cultural Heritage: yesterday, today, tomorrow  
Mesić, Jasen - Minister of Culture of the Republic of Croatia, Croatia |
| 11:30 - 12:00 | The United Kingdom and the UNESCO Convention on the Protection of the Underwater Cultural Heritage  
Yorke, Robert - Joint Nautical Archaeology Policy Committee, United Kingdom |
| 12:00 - 12:30 | 1976 and Beyond-Managing Australia's underwater cultural heritage  
Viduka, Andrew - Assistant Director Maritime Heritage, Department of Sustainability, Environment, Water, Population and Communities, Australian Government, Australia |
| 12:30 - 13:00 | Managing UCH in Austerity - the English heritage experience  
Oxley, Ian - Head of Maritime Archaeology, English Heritage, United Kingdom |
| 13:00 - 13:30 | Managing the Underwater Cultural Heritage - MAST a perspective from the Gulf  
Blue, Lucy - Centre for Maritime Archaeology Archaeology, School of Humanities, University of Southampton, United Kingdom |
| 13:30 - 14:30 | Lunch                                                                  |

Chairman of Session: Mesić Jasen

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
</table>
| 14:30 - 15:00 | Heritage awareness, an inductive and deductive approach  
Manders, Martijn - Netherlands Cultural Heritage Agency, Netherlands  
Vatcharankul, Erbprem - The Underwater Archaeology Division, Thailand |
| 15:00 - 15:30 | In situ preservation, pro & contra  
L'Hour, Michel - Director of DRASSM, France |
| 15:30 - 16:00 | Legal framework of management of the underwater cultural heritage  
Kowalski, Wojciech - University of Silesia, Department of Intellectual and Cultural Property Laws, Poland |
| 16:00 - 16:30 | Underwater Cultural Heritage in the Baltic Sea -Common past, common responsibility and common chance |
Bleile, Ralf - Stiftung Schleswig-Holsteinische, Landesmuseen, Schloss Gottorf Archäologisches Landesmuseum, Germany

16:30 – 17:00

**Underwater Archaeology in China**

*Shuguang, Liu - China Academy of Cultural Heritage, China*

17:00 – 17:30

Coffee / Tea

**Chairman of Session: Blackman David**

17:30 – 18:00

**Managing the underwater cultural heritage: The UNESCO World heritage Candidature “Prehistoric Pile Dwellings around the Alps”**

*Hafner, Albert - Leiter Bereich Unterwasser- und Feuchtbodenarchäologie, Erziehungsdirektion des Kantons Bern, Amt für KulturSwitzerland, Switzerland*

18:00 – 18:30

**Towards the Integrated Management Strategy for Preservation of Underwater Cultural Heritage in the Slovenian Territorial Waters**

*Gaspari, Andrej - Ministry Of Culture, Slovenia*

*Erič, Miran - Institute for the protection of Cultural Heritage of Slovenia, Slovenia*

*Poglajen, Sašo - HARPHA SEA d.o.o., Slovenia*

18:30 – 19:00

**Report on the current status of the legal and practical protection of underwater cultural heritage - Italy**

*Fozzati, Luigi - Ministero per I Beni e le Attività Culturali, Italy*

*Zarattini, Annalisa - Soprintendenza per I Beni Archeologici del Lazio, Ministero per I Beni e le Attività Culturali, Italy*

19:00 – 19:30

**Russian underwater cultural heritage: problems and perspectives**

*Fazlullin, Sergey - P.P.Shirshov’s Institut of Oceanology, Moscow, Russia*

20:00

**COCKTAIL PARTY - University of Zadar**

**PUBLIC ACCESS**

Friday, 30th September 2011, Great hall

**Chairman of Session: Skoglund Fredrik**

09:00 – 09:20

**Experience is everything - the Norman’s Bay Diver Trail**

*Beattie-Edwards, Mark - Programme Director, Nautical Archaeology Society, United Kingdom*

09:20 – 09:40

**Bay of Veštar site and the management of the project**

*Bekić, Luka - International Centre for Underwater Archaeology in Zadar, Croatia*

*Pešić, Mladen - International Centre for Underwater Archaeology in Zadar, Croatia*
09:40 – 10:00  Underwater Virtual Maritime Museum in Canary Islands: website and reality proposals  
*Cabrera, Vicente Benitez* - IT7 & Virtual Underwater Archeological Researches, Spain  
*Bolaños, Antonio Becerra* - Spain  
*Millares, Michel Jorge* - Spain

10:00 – 10:20  Underwater Archaeological Sites Management & Tourism Development  
*Della Porta, Katerina* - Ministry for Culture, Greece

10:20 – 10:40  In situ protection and development of the Roman Wreck from Santo Stefano al Mare: the submerged museum project  
*Sanna, Laura* - Tesi Archeologia SRL, Italy  
*Gambaro, Luigi* - Soprintendenza per i Beni Archeologici della Liguria, Italy  
*Grimaudo, Giusi* - Tesi Archeologia SRL, Italy  
*Tiboni, Francesco* - Tesi Archeologia SRL, Italy

10:40 – 11:00  Discussion

11:00 – 11:30  Coffee / Tea

**Chairman of Session: Hanz Gunter Martin**

11:30 – 11:50  Managing of marine cultural heritage in Sicily  
*Tusa, Sebastiano* - Soprintendenza della Soprintendenza per i Beni Culturali di Trapani, Italy

11:50 – 12:10  The Study and Management of underwater site of Marsa Bagoush, Egypt  
*Khalil, Emad* - Director Centre for Maritime Archaeology &Underwater Cultural Heritage, Faculty of Arts, Alexandria University, Egypt

12:10 – 12:30  The Atlas of the 2Seas: giving access to the submerged cultural heritage  
*Momber, Garry* - Hampshire and Wight Trust for Maritime Archaeology, National Oceanography Centre, United Kingdom

12:30 – 12:50  Ask not what underwater heritage can do for you; ask what you can do for underwater heritage*. A view from Biscay (Basque Country, Spain)  
*Matés Luque, José Manuel* - Spain

12:50 – 13:10  Discussion

13:10 – 15:00  Lunch
Chairman of Session: Della Porta Katerina

15:00 – 15:20  Chances and Limits of NGOs in Underwater Cultural Management  
Martin, Hanz Gunter - DEGUWA, Germany  
Winterstein, Peter - DEGUWA, Germany

15:20 – 15:40  A Proposal for the management of Australia’s Private Shipwreck Collections  
Rodrigues, Jennifer - Centre for Archaeology, School of Social and Cultural Studies, The University of Western Australia, Australia  
Richards, Vicki - Research Officer/Conservation Scientist, Department of Materials Conservation, Western Australian Museum-Shipwreck Galleries, Australia

15:40 – 16:00  Management and Engagement: Using Maritime Heritage Trails to Interpret and Protect Submerged WWII Heritage from the Battle of Saipan  
McKinnon, Jennifer F. - Flinders University, Department of Archaeology, Australia  
Scott-Ireton, Della - Florida Public Archaeology Network, USA

16:00 – 16:20  Sailing the SSEAS: A New Program for Public Engagement in Underwater Archaeology  
Scott-Ireton, Della - Florida Public Archaeology Network, USA

16:20 – 16:30  Discussion

16:30 – 17:00  Coffee / Tea

Chairman of Session: Scott - Ireton Della

17:00 – 17:20  Who gives a damn? - Developing relevant tools for the management of maritime and underwater cultural heritage sites in the developing world.  
Sharfman, Jonathan - South African Heritage Resources Agency, South Africa  
Parthesius, Robert - Centre for International Heritage Activities, University of Leiden, Netherlands

17:20 – 17:40  “Shipwreck management through sponsorship; creating cultural heritage awareness amongst Norwegian divers”  
Skoglund, Fredrik - Museum of Natural History and Archaeology, Norwegian University of Science and Technology (NTNU), Norway

17:40 – 18:00  The Project Vrouw Maria Underwater: Public Access via a Blog Site, a Virtual Simulation and an Exhibition  
Tikkanen, Sallamaria - The National Board of Antiquities, Maritime Archaeology Unit, Finland
18:00 – 18:20  **The Young Archaeopark Project: A Public Awareness and Preservation Project on Underwater Cultural Heritage, Kaş, Turkey**  
Varinlioğlu, Güzden - Principal Manager of Kaş Archaeopark Projects on behalf of SAD (Sualtı Araştırmaları Derneği; Underwater Research Society), Turkey  
Reinfeld, Michaela - Archaeologist, Manager of Young Archaeopark Project on behalf of DEGUWA, Germany  
Koşgeroğlu, F. Emrah - Architect, Restoration Specialist, SAD, Turkey  
Ceylan, Hande - Architect, Middle East Technical University, Urban Policy Planning Program and Co-Manager of Young Archaeopark Project on behalf of SAD, Turkey

18:20 – 18:30  Discussion

**RESEARCH STRATEGIES**  
Friday, 30th September 2011, Room 143

Chairman of Session: Weerts Henk

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 09:00 – 09:20 | Norwegian Cultural Heritage Management underwater; shipwrecks, underwater technology and maritime  
  Berg Tuddenham, David - Norwegian University of Science and Technology, Norway |
  Brady, Karl - Underwater Archaeology Unit, National Monuments Service, Department of Environment, Heritage and Local Government, Ireland  
  Moore, Fionnbar - Underwater Archaeology Unit, National Monuments Service, Department of Environment, Heritage and Local Government, Ireland |
| 09:40 – 10:00 | Research Strategies in the Field of Maritime & Nautical Archaeology: Long Term Joint Franco-Croatian Research Project in the Bay of Caska, Island of Pag, Croatia  
  Radić Rossi, Irena - University of Zadar, Croatia  
  Boetto, Giulia - Centre Camille Jullian (Aix-Marseille University-CNRS), France |
| 10:00 – 10:20 | Underwater Cultural Heritage in Estonia: management and public awareness  
  Roio, Maii - Estonian national heritage board  
  Asmer, Marii - Estonian national heritage board |
| 10:20—10:40 | **The Archeomar Project**  
  Fozzati, Luigi - Ministero per I Beni e le Attività Culturali, Italy  
  Zarattini, Annalisa - Soprintendenza per I Beni Archeologici del Lazio, Ministero per I Beni e le Attività Culturali, Italy |
| 10:40 – 11:00 | Discussion |
11:00 – 11:30  Coffee / Tea

Chairman of Session: Benjamin Jonathan

11:30 – 11:50  Predictive modeling and management of underwater cultural heritage
Angelova, Hristina - Centre for Underwater Archaeology, Bulgaria
Draganov, Vesselin - Centre for Underwater Archaeology, Bulgaria
Prahov, Nayden - Dept. of Archaeology, Sofia University St. Kliment Ohridski, Bulgaria
Stoyanov, Totko - Dept. of Archaeology, Sofia University St. Kliment Ohridski, Bulgaria
Dimitrov, Kalin - Dept. of Archaeology, Sofia University St. Kliment Ohridski
Popov, Anton - Dept. Of Cartography and GIS, Sofia University St. Kliment Ohridski, Bulgaria
Kotsev, Alexander - Dept. Of Cartography and GIS, Sofia University St. Kliment Ohridski, Bulgaria
Dimitrov, Stelian - Dept. Of Cartography and GIS, Sofia University St. Kliment Ohridski, Bulgaria

11:50 – 12:10  Using GIS to Manage Underwater Sites: Georeferencing Two Years of ProMare Field Work in Italy
Bartoli, Dante G. - ProMare Inc., Marine Archaeologist Consultant, US-Italy Research Program, Italy

12:10 – 12:30  TRITON – Deep Water Heritage Research Project; 2010 Research Campaign, Island of Hvar, Croatia
Barisic, Matko - University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia
Gambin, Timmy - AURORA Ocean Exploration & Education Trust, Malta
Kruschel, Claudia - University of Zadar, Department of Natural Sciences, Croatia
Radić Rossi, Irena - University of Zadar, Department of Archaeology, Croatia

12:30 – 12:50  The Database of Underwater Cultural Heritages around Japan
Hayashida, Kenzo - Asian Research Institute of Underwater Archaeology, Japan
Iwabuchi, Akifumi - Tokyo University of Marine Science & Technology, Japan
Takano, Shinji - Asian Research Institute of Underwater Archaeology (ARIUA), Japan & Department of Cultural Asset Board of Education, Nagasaki Prefecture, Japan
Nogami, Takenori - Asian Research Institute of Underwater Archaeology (ARIUA), Japan

12:50 – 13:10  Maasvlakte 2 (Port of Rotterdam), a showcase of interdisciplinary research of drowned landscapes
Weerts, Henk - Cultural Heritage Agency, Ministry of Education, Amersfoort, Netherlands
Borst, Wil - Port of Rotterdam, Rotterdam, Netherlands
Cohen, Kim - Department of Physical Geography, Faculty of Geosciences, Utrecht University, Netherlands
Den Ouden, Natasja - Netherlands Centre for Biodiversity, Naturalis, Leiden, Netherlands
Guiran, Ton - Rotterdam Archaeological Agency BOOR, Rotterdam, Netherlands
Hijma, Marc - Faculty of Archaeology, Leiden University, Leiden, Netherlands
Mol, Dick - Museum of Natural History, Rotterdam, Netherlands
Otte, Andrea - Cultural Heritage Agency, Ministry of Education, Amersfoort, Netherlands
Reumer, Jelle - Museum of Natural History, Rotterdam, Netherlands
Roebroeks, Wi - Faculty of Archaeology, Leiden University, Leiden, Netherlands
Smit, Bjørn - Cultural Heritage Agency, Ministry of Education, Amersfoort, Netherlands
Van Kolfschoten, Thijs - Faculty of Archaeology, Leiden University, Leiden, Netherlands
Vellinga, Tiedo - Port of Rotterdam, Rotterdam, Netherlands
Vos, Peter - Deltares, Utrecht, Netherlands
Westerhoff, Wim - TNO Geological Survey of the Netherlands, Utrecht, Netherlands

13:10 – 13:30 Discussion

13:30 – 15:00 Lunch

Chairman of Session: Moore Fionnbar

15:00 – 15:20 Managing submerged prehistoric landscapes; an English Heritage perspective
Salter, Edward - Marine Planning Unit, English Heritage, United Kingdom

15:20 – 15:40 Maritime Archaeological Archives in the UK: Collections, Access & Management Challenges
Satchell, Julie - Hampshire & Wight Trust for Maritime Archaeology, United Kingdom

15:40 – 16:00 Underwater research off the Pontine Islands (Italy)
Zarattini, Annalisa - Soprintendenza per i Beni Archeologici del Lazio, Ministero per i Beni e le Attività Culturali, Italy
Gambin, Timmy - AURORA Ocean Exploration & Education Trust, Malta
Ritondale, Manuela - Soprintendenza per i Beni Archeologici del Lazio, Ministero per i Beni e le Attività Culturali, Italy

16:00 – 16:20 Underwater archaeology in Galician waters, Spain
San Claudio, Miguel - ARCHEONAUTA S.L., Spain

16:20 – 16:30 Discussion

16:30 – 17:00 Coffee / Tea
Chairman of Session: Watkins - Kenney Sarah

17:00 – 17:20  Maritime warfare landscapes in Bocachica, Cartagena de Indias. Colombia. 18th century
Del Cairo Hurtado, Carlos - Anthropologist and archaeologist at National University of Colombia, Colombia

17:20 – 17:40  Finding and Researchers of sunken Ships as Part Researching Project of Historical Trade Routes in North-West Russia
Prokhorov, Roman - National Centre of Underwater Archeology, Russia
Lukoshkov, Andrey - National Centre of Underwater Archeology, Russia

17:40 – 18:00  From Rutilus to MACHU project - some experience on the way to create management system for underwater cultural heritage in Poland
Pomian, Iwona - Maritime Museum in Gdansk, Poland

18:00 – 18:20  The Illyrian Coastal Exploration Program: 2010-11
Dr. Jeffrey Royal - Archaeological Director, RPM Nautical Foundation, USA

18:20 – 18:30  Discussion

SITE REPORT
Friday, 30th September 2011, Room 124

Chairman of Session: Manders Martijn

09:00 – 09:10  New light on the vessels of Indo-Roman trade: Roman period shipwrecks in the northern Red Sea
Blue, Lucy - Centre for Maritime Archaeology, School of Humanities, University of Southampton, United Kingdom
Thomas, Ross - British Museum, United Kingdom
Hill, Jeremy - British Museum, United Kingdom
Emad Khalil - Centre for Maritime Archaeology & Underwater Cultural Heritage, Faculty of Arts, Alexandria University, Egypt

09:10 – 09:20  Silba Pocukmarak - project of underwater archaeological park
Brusić, Zdenko - University of Zadar, Department of Archaeology, Croatia
Parica, Mate - University of Zadar, Department of Archaeology, Croatia

09:20 – 09:30  Pakoštane - presentation and valorization of archaeological material from the Roman port
Ilkić, Mato - Department of Archaeology, Croatia
Meštrov, Marko - Public Institution Agency Han - Vrana, Croatia

09:30 – 09:40  Zambratija boat in the context of Mediterranean shipbuilding
Koncani Uhač, Ida - Archaeological Museum of Istria, Croatia
Uhač, Marko - Ministry of Culture, Conservation Department in Pula, Croatia
09:40 – 09:50  St. Paul wreck - project of international collaboration in research and protection

Miholjek, Igor - Croatian Conservation Institute, Department of Underwater Archaeology, Croatia

Beltrame, Carlo - Universita Ca Foscari di Venezia, Dipartamento di Scienze dell’Antichita e del Vicino Oriente, Italy

09:50 – 10:00  Whose gold is this?

The Namibia shipwreck: a tale of red tape and dragging feet

Monteiro, Alexandre - Universidade Nova de Lisboa, Portugal

10:00 – 10:10  Underwater Researches at Phanagoria

Olkhovskiy, Sergey - Researcher of Department of Protective Archaeology, Institute of Archaeology Russian Academy of Sciences, Russia

Kuznetsov, Vladimir - Head of Department of Classical Archaeology, Institute of Archaeology Russian Academy of Sciences, Russia

10:10 – 10:20  Managing deep sea archaeological wrecks

Tusa, Sebastiano - Soprintendente della Soprintendenza per i Beni Culturali di Trapani, Italy

Royal, Jeffrey - RPM Nautical Foundation, USA

Gambin, Timmy - AURORA Ocean Exploration & Education Trust, Malta

10:20 – 10:30  Tauric Chersonesos' Underwater Research

Reida, Roman - Department of Underwater Heritage, Archaeology Institute, Ukraine

Beylina, Svitlana - Archaeology Institute (Crimean Branch), Ukraine

10:30 – 10:40  Montenegrin Maritime Archaeological Research Project

Zagarcanin, Mladen - Museum of Bar, Montenegro

Blue, Lucy - Centre for Maritime Archaeology Archaeology, School of Humanities, University of Southampton, United Kingdom

Trakadas, Athena - Viking Ship Museum, Denmark

Le Quesne, Charles - RPS Group, United Kingdom

Zdravković, Petra - Museum of Bar, Montenegro

10:40 – 11:00  Discussion

11:00 – 11:30  Coffee / Tea

Chairman of Session: Radić Rossi Irena

11:30 – 11:40  Cultural landscape and structural history - a case study from an underwater archaeological site in southern Norway

Johannessen, Jørgen - Norwegian Maritime Museum, Norway

11:40 – 11:50  Underwater cultural heritage of lake Ohrid with the presentation of the reconstruction of a palafit settlement in the Bay of the Bones at Gradiste, Ohrid region, R.M.

Kuzman, Pasko - Cultural heritage protection office, Ministry of Culture R.M., Macedonia

Todoroska, Valentina - Macedonia
11:50 – 12:00  **Isolino Virginia, the most ancient pile dwelling around the Alps: research results from Varese lake (Lombardy-Italy)**  
Banchieri, Daria Giuseppina - Italy

12:00 – 12:10  **Underwater heritage of North - Western Russia: problems of investigation and conservation**  
Mazurkevich, Andrey - General curator of the Department of archaeology of The State Hermitage Museum  
Dolbunova, Ekaterina - Doctoral student in the Department of archaeology of The State Hermitage Museum

12:10 – 12:20  **Prehistoric pile dwellings around the Alps, world heritage nomination: strengths and weaknesses of managing the underwater sites of Lombardy (Italy)**  
Poggiani, Raffaella - Ministero per i Beni e le Attività Culturali - Soprintendenza per I Beni Archeologici della Lombardia, Italy  
Baioni, M. - Italy  
Cesi, Adele - Italy  
Grassi, Barbara - Ministero per i Beni e le Attività Culturali - Soprintendenza per I Beni Archeologici della Lombardia, Italy  
Mangani, Claudia - Museo Civico Archeologico “G. Rambotti” - Desenzano Del Garda (Bs), Italy  
Martinelli, Nicoletta - Dendrodata, Dendrochronological laboratory, Italy  
Ruggiero, Maria Giuseppina - Ministero per i Beni e le Attività Culturali - Soprintendenza per I Beni Archeologici della Lombardia, Italy

12:20 – 12:30  **Rose Island in Lake Starnberg. A Bavarian lake - shore settlement**  
Schlitzer, Ulrich - Bavarian Society for Underwater Archaeology, Germany

12:30 – 12:40  **The great bridge of medieval Novgorod: newly discovered underwater treasury of old - Russian res publica**  
Stepanov, Aivar - North-west Institute of Cultural and Natural Heritage, Russia  
Troianovskiy, Sergey - Russian archaeological center of Novgorod state museum, Russia

12:40 – 12:50  **A new approach to research of river archaeology in Northern Croatia**  
Zubčić, Krunoslav - Croatian Conservation Institute., Department of Underwater Archaeology, Croatia

12:50 – 13:00  **Networking the past - the Seljuk shipyard of Alanya/Turkey**  
Rutter, Anya - graduate of University of Southampton, programme Maritime Archaeology, Germany

13:00 – 13:30  Discussion

13:30 – 15:00  Lunch
POST EXCAVATION
Friday, 30th September 2011, Room 124

Chairman of Session: Henderson Jon C.

15:00 – 15:20  The conservation of ancient dockyard sites
Blackman, David - University of Oxford, Centre for the Study of Ancient Documents, Ioannou Centre for Classic, United Kingdom
Lentini, Maria Costanza - Servizio Parco Archeologico di Naxos e delle aree archeologiche di Giardini Naxosal and Byzantine Studies, Italy

15:20 – 15:40  Preliminary studies for the conservation of the wooden poles of the pile dwelling in Fiavè (North east Italy)
Dal Rì, Cristina - Soprintendenza per i beni librari archivistici e archeologici, Italy
Bellintani, Paolo - Soprintendenza per i beni librari archivistici e archeologici, Italy
Macchion, Nicola - CNR IVALSA, Istituto per la Valorizzazione del Legno e delle specie Arboree, Italy
Pizzo, Benedetto - CNR IVALSA, Istituto per la Valorizzazione del Legno e delle specie Arboree, Italy
Capretti, Chiara - IVALSA (Trees and timer Institute) CNR, Italy

15:40 – 16:00  Waterlogged wood preservation problems; The case of the Mediaeval Boats of Nin
Fix, Peter - Texas A&M University, Centre for Maritime Archaeology and Conservation, Department of Anthropology, USA
Radić Rossi, Irena - University of Zadar, Croatia
Radović, Mate - Museum of Nin Heritage, Croatia

16:00 – 16:20  Some examples of presentation of archaeological material found in rescue underwater excavations in Croatia
Gusar, Karla - University of Zadar, Croatia
Parica, Mate - University of Zadar, Croatia

16:20 – 16:30  Discussion

16:30 – 17:00  Coffee / Tea

Chairman of Session: Segschneider Martin

17:00 – 17:20  Preserving a submerged Bronze Age city: The Pavlopetri Underwater Archaeological Project
Henderson, Jon C. - Underwater Archaeology Research Centre, Department of Archaeology, University of Nottingham, United Kingdom
Gallou, Chrysanthi - Centre for Spartan and Peloponnesian Studies, Department of Archaeology, University of Nottingham, United Kingdom
Sakellarliou, Dimitris - The Hellenic Centre for Marine Research, Greece
Spondylis, Elias - Department of Underwater Antiquities of the Hellenic Ministry of Culture, Greece

Nayling, Nigel - Newport Ship Project and University of Wales, Trinity Saint David, United Kingdom
Jones, Toby - Newport Ship Project and University of Wales, Trinity Saint David, United Kingdom

17:40 – 18:00  First aids for underwater cultural heritage: preventive conservation from excavation to museum

Huet, Nathalie - DRASSM, French Ministry of Culture, France

18:00 – 18:20  Discussion

GOOD PRACTICE
Saturday, 1st October 2011, Room 143

Chairman of Session: Beattie - Edwards Mark

09:00 – 09:20  Management, research and the new economy: recent developments in the coastal and marine archaeology of Scotland

Benjamin, Jonathan - Wessex Archaeology (Coastal and Marine) and The University of Edinburgh, Scotland

09:20 – 09:40  Managing the fixed link - A Danish-German cooperation project in the Baltic Sea

Segschneider, Martin - Archaeological State Office Schleswig - Holstein, Germany

09:40 – 10:00  Managing the Nord Stream project through Danish waters

Dencker, Jørgen - Head of Marine Archaeology on the Viking, Ship Museum in Roskilde, Denmark

10:00 – 10:20  The shipwrecks in the Eastern part Gulf of Finland in the Russian Zone of project “Nord Stream”

Sorokin, Petr - North-west Institute of Cultural and Natural Heritage, Russia
Stepanov, Aivar - North-west Institute of Cultural and Natural Heritage, Russia

10:20 – 10:40  Bjørvika, Oslo harbour - a Norwegian example of the new millennia’s “post-port” urban seaside. A brief presentation of maritime constructions, boats, artefacts and cultural layers uncovered en route to the future city centre

Vangstad, Hilde - Norwegian Maritime Museum, Norway

10:40 – 11:00  Discussion

11:00 – 11:30  Coffee / Tea
Chairman of Session: Dencker Jørgen

11:30 – 11:50  Management of Maritime and Underwater Cultural Heritage in Kenya
Bita, Caesar - Underwater archaeology, Fort Jesus Museum, Kenya

11:50 – 12:10  The archaeological impact evaluation as a helpful tool in the planning stage of large scale construction projects: The case of P.I.F. in Venice lagoon
Capulli, Massimo - Università degli Studi di Udine, Dipartimento di Storia e Tutela dei Beni Culturali, Italy
Pellegrini, Alessandro - Andreia Studio Associato per L’archeologia delle Acque, Italy
Rizzotto, Riccardo - Andreia Studio Associato per L’archeologia delle Acque, Italy
Traviglia, Arianna - Research Fellow, Department of Ancient History, Faculty of Arts, MACQUARIE UNIVERSITY, Italy

12:10 – 12:30  The “Black Swan” Treasure: A lesson for future management of underwater cultural heritage
Génio, Margarida - University of Coimbra, Portugal

12:30 – 12:50  The State of Underwater Archaeology for CRMs and Industry in Northern America A View from the Pacific Coast
Gusick, Amy E. – Department of Anthropology, University of California, USA
Faught, Michael K. - Panamerican Consultants, USA

12:50 – 13:10  Rescue archaeology in harbour construction projects: the case of Horta bay (Azores, Portugal)
Bettencourt, José - Centro de História de Além-Mar, Portugal
Carvalho, Patrícia - Centro de História de Além-Mar, Portugal

13:10 – 13:30  Discussion

13:30 – 15:00  Lunch

IN SITU PRESERVATION
Saturday, 1\textsuperscript{st} October 2011, Room 143

Chairman of Session: Angelova Hristina

09:00 – 09:20  Developing a guideline for in situ preservation of shipwrecks
Martijn, Manders - Netherlands Cultural Heritage Agency, Netherlands
David, Gregory - The National Museum of Denmark, Department of Conservation, Denmark

09:20 – 09:40  A 14\textsuperscript{th}–century Shipwreck from Reichenau Island, Lake Constance (Germany): Excavation, Documentation, and in situ Conservation
Mainberger, Martin - Ref. Feucht- und Unterwasserarchäologie Landesamt f. Denkmalpflege im RP, Stuttgart, Germany
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<th>Time</th>
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<tr>
<td>09:40</td>
<td><strong>Heritage Management Nirvana: combining outreach, research and</strong></td>
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<td><strong>conservation in the management of historic shipwrecks in</strong></td>
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<td><strong>Victoria, Australia</strong></td>
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<td>Steyne, Hanna - Institute of Archaeology, UCL, United Kingdom</td>
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<td>MacLeod, Ian - Executive Director, Collections Management and**</td>
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<td><strong>Conservation, Western Australian Museum, Australia</strong></td>
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<td>10:00</td>
<td><strong>Management for Conservation of North Carolina's Underwater</strong></td>
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<td><strong>Cultural Heritage</strong></td>
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<td>Watkins-Kenney, Sarah - North Carolina Department of Cultural**</td>
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<td><strong>Resources, Underwater Archaeology Branch, USA</strong></td>
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<td>Coffee / Tea</td>
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<td>11:30</td>
<td><strong>The clash of interests in the management of the underwater</strong></td>
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<td><strong>cultural heritage</strong></td>
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<td>Frigerio, Alberto - PhD student in Management and Development of**</td>
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<td><strong>Cultural Heritage, IMT Alti Studi, Italy</strong></td>
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<td>11:50</td>
<td><strong>The SIMAR project</strong></td>
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<td>Donnabella, Gaetano - Teknomar SRL, Italy</td>
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<td>Iorio, Fabio - Westend SEL, Italy</td>
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<td>Perretta, Francesco - Director, Marine Protected Area, Ventotene and</td>
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<td>S. Stefano, Italy</td>
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<td>Zarattini, Annalisa - Soprintendenza per I Beni Archeologici del**</td>
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<td><strong>Lazio, Ministero per I Beni e le Attività Culturali, Italy</strong></td>
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<td><strong>The Wreck of Rocchetta 1: documentation and preservation</strong></td>
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<td>Capulli, Massimo - Università degli Studi di Udine, Dipartimento di</td>
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<td><strong>Storia e Tutela dei Beni Culturali, Italy</strong></td>
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<td>12:30</td>
<td><strong>Protection and managing of underwater cultural heritage in</strong></td>
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<td>Bezak, Jurica - Protection and managing of underwater cultural**</td>
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<td><strong>heritage, Croatia</strong></td>
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<td>Discussion</td>
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<td>15:00</td>
<td><strong>POSTER PRESENTATION</strong></td>
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16:00 – 17:30  PANEL DISCUSSION
Great hall

Chairman of Session:  Lüth Friedrich

17:30  CLOSING OF THE CONFERENCE

20:00  FINAL PARTY
REGISTRATION

Registration desk at the University of Zadar will be opened according to the following schedule:

- **Wednesday, 28<sup>th</sup> September** from 16:00 till 19:00
- **Thursday, 29<sup>th</sup> September** from 08:00 till 19:00
- **Friday, 30<sup>th</sup> September** from 08:00 till 14:00

**Conference fee can be payed on the registration desk**

Conference fee for participants:

- Early registration until 30<sup>th</sup> June - 60 EUR.
- Late registration after 30<sup>th</sup> June - 70 EUR.

**Exhibition**

Archaeological Museum in Zadar is preparing an exhibition on the underwater excavations of ancient port at Zaton near Zadar.

**Receptions**

Two receptions for the participants are being planned. One shall be hosted by the City of Zadar and the other by the Zadar County.

**Excursions**

For all information and reservation of the excursions, please contact directly tourist agency "Bora Tours" on e-mail: info@boratours.hr

**Excursions to the city of Nin (10.00 am - 14.00 pm)**

Price: 50 HRK for person

Once the first Croatian royal town and an important cultural centre, as evidenced by the many monuments of the early-Croatian architecture from eighth and ninth centuries, as the church of saint Cross - popularly known as the smallest cathedral in the world. In addition, in the centre of the city, on the former Roman forum, rises the monumental remains of a Roman temple which was the largest temple in the Roman province of Dalmatia.

In the Museum of Nin Antiquities special pavilion was built (room 5) to display the results of the many years of underwater excavations in the region of Nin and Zaton, where the Roman harbour of Aenona was located. The room is dominated by the two early Croatian ships (Condura Croatica) discovered at the entrance to the Nin harbour. The larger boat was conserved and entirely reconstructed, while the other was conserved and presented in the condition in which it was preserved. Radiocarbon analysis (C14) of wood samples has dated the boats to the second half of the 11th century. A partly reconstructed serilia, the vessel used by the prehistoric Liburni and Histri, is also displayed with these boats. The name serilia indicated that they were "sewn" or held together by ligatures in the form of linen and broom cords. The last case displays numerous remains of ship equipment, fishing tackle, pottery and glass vessels, coins, jewellery, and other material that was discarded or fell by chance into the silt bottom of the Roman harbour at Zaton.

The price of excursion includes expert guidance through the museum and city guidance.
Excursion to the city of Biograd n/m (10.00 am - 14.00 pm)
Price: 70 HRK for person

Biograd on the sea is a royal Croatian city first mentioned in the mid 10th century, while in the 11th century it was the centre of the Croatian kings and bishops. The city flourished as the seat of Croatian rule of the Middle Ages, and in 1102 the Croatian-Hungarian king Colomanus was crowned here. Once a crown city of Croatian kings, Biograd on the sea is today a well-known tourist and nautical centre in the very centre of the Adriatic coast.

Many material proofs of the rich and tumultuous past of this Biograd region have been stored in the interesting Homeland museum. Its Cargo from the 16th Century Sunken Ship collection preserves more than 10,000 objects taken from the sunken Venetian ship from the 16th century. The ship overloaded with various expensive goods for trade in the Mediterranean ports sunk in 1583, couple of nautical miles distance from Biograd. It was accidentally discovered in 1967 by fishermen. The items from the ship can be divided into two groups: ship equipment and inventory (anchors, canons, copper and tin cooking utensils from the ship’s kitchen and other) and expensive trading goods (luxurious glass items, candlesticks, an iron casket with textile items - silk damask, shirts and woollen hats, thimbles, sewing needles, pins, razors, glass, scissors...). Most of the cargo, according to weight and number, consisted of raw material and semi-manufactured products: brass items, tin bars, balls of cinnabar...

The price of excursion includes expert guidance through the museum and city guidance.

Excursion in Nacional park Kornati (09.00 am - 17.00 pm)
Price: 300 HRK for person

In the central part of the Croatian Adriatic, on the meeting point of Šibenik and Zadar islands, a separate and by many a specific group of islands, called Kornati, is situated. Because of its exceptional landscape beauty, interesting geomorphology, diversity of the coastline and especially because of the rich biocoenoses of the marine ecosystem, greater part of the Kornati maritime zone has been declared a national park in 1980.

Today NP "Kornati" occupies an area of about 220 km² and it includes 89 islands, islets and cliffs, altogether with a coastline about 238 km long. Despite this relatively large number of islands the continental part of the park forms only 1 of the total area, while everything else belongs to the marine ecosystem.

Programme of the excursion:
- departure at 09.00 a.m.
- boat ride in Zadar channel and channel Ždrelac between islands Ugljan and Pašman (cca. 2 hours and 30 minutes)
- sightseeing of the 161 meters height cliffs and stopping in nature park Telašćica, where group has the time to walk to the near salt lake "Mir" and cliffs
- lunch on the boat
- on way back, coffee and local delicatessen fritule are served.

Excursion includes: boat ride, welcome drink, ticket, guide, lunch (fish or meat), free juice and vine whole day, coffee, fritule.
ZADAR ACCOMODATION

During the conference we have managed to book the rooms in hotel Kolovare and Falkensteiner Resorts Borik by lower prices which are listed below. The number of rooms with lower prices in this hotels are limited so we encourage participants to register as soon as possible. Participants are free to choose the place for accommodation during the conference from one of the hotels listed or to arrange accommodation by themselves.

Hotel Kolovare ****, Zadar
Tel. +385 23 211 017, 203 200
Fax. +385 23 213 079, 203 300
Double room - 427,00 HRK per person and night
Double room with additional bed - 357,00 HRK per person and night
Single room - 557,00 HRK per night
All prices include dinner, overnight, breakfast and residence tax.

Additional information and contact:
katarina.kolovare@hoteli-zadar.hr
kata.kolovare@hoteli-zadar.hr

Falkensteiner resort Borik, Zadar
hotels: club Funimation**** / Adriana****
Tel: 00 385 23 555 600
Fax: 00 385 23 555 680
Single room - 602,70 HRK /day
Double room - 418,95 HRK/day/person
All prices include tax, breakfast, lunch, dinner, drinks with meals and unlimited use of hotel Acquapura Spa&Thalasso center. Deadline for reservation is 28.08.2011. or until the capacity limit is reached.

Additional information and contact:
a.falkensteiner@falkensteiner.com
http://www.falkensteiner.com/en/hotel/borik/

Other possibilities to accomodate in Zadar:

Hotel President
www.hotel-president.hr
Tel: 00 385 23 333 696
00 385 23 332 128
Fax: 00 385 23 333 595

Hotel Porto
www.hotel-porto.hr
Tel: 00 385 23 292 300
Fax: 00 385 23 292 333

Hotel Donat, Hotel Zadar
www.falkensteiner.com
Tel: 00 385 23 555 600
Fax: 00 385 23 555 680

Hotel Bastion
www.hotel-bastion.hr
Tel: 00 385 23 494 950
Fax: 00 385 23 494 951

Hotel Villa Hrešč
www.villa-hresc.hr
Tel: 00 385 23 337 570
Fax: 00 385 23 334 336

Hotel and restaurant Niko
www.hotel-niko.hr
Tel: 00 385 23 337 880
Fax: 00 385 23 337 890

www.hostels.com/zadar/croatia
NAS course
IKUWA 4 Underwater Archaeology Fieldschool
Zaton Harbour, Croatia, 18th - 27th September 2011

Fieldschool aim
The aim of the field school is to provide students of archaeology with an opportunity to participate, under the supervision of archaeologists, in an underwater archaeological excavation of Zaton Harbour.

Field school objectives
The objectives of the field school are thus for participants;

1. To contribute to the research objectives of work at Zaton Harbour being undertaken by the Archaeological Museum Zadar
2. To understand the importance of safety and risk analysis in all archaeological fieldwork
3. To gain experience in archaeological project organization, logistics and management
4. To develop competency in intrusive underwater archaeological investigations
5. To develop competency in finds handling and recording
6. To develop competency archaeological survey techniques
7. To be actively engaged in the creation and compilation of archaeological data and records

Zaton Harbour Background
The ancient port of Zaton near Zadar once belonged to the municipium of Aenona. The main characteristic is a 150m long breakwater which protected the port from westerly winds. It contains a few heaps of ballast stones. On the nearby land there are remains of the related port’s installation walls. Cultural layers are about 70cm deep and contain a rich, primarily ceramic and glass material from all over the Roman world. The most important finds are the remains of three ships which were made with the sewn planks technique, and which are considered to belong to the shipbuilding technique of the Liburnian tribe.

Research Objectives for 2011 fieldwork
We are hoping you will see how to excavate cultural layers and the remains of breakwater/pier. Excavations started after the finding of a third sewn ship. They are being done in the nearest vicinity of the ship and by the inner side of breakwater/pier, where most of the material is expected and cultural layers are probably thicker. Also, one part of the grid will be positioned across the remains of breakwater (perpendicular to) so that we can learn something about the structure of the pier. From these excavations we expect to learn something about the life of the port and about the structure of the ancient breakwater/pier. Students should join this expedition because of the diversity of excavated material, which comes from almost every part of the ancient world. Zaton harbour is the most investigated harbour on the eastern coast of the Adriatic (first excavations took place in 1967).

Field school personnel
The archaeological work being undertaken as part of the IKUWA 4 Underwater Archaeology Fieldschool will be directed by Dr Smiljan Gluščević, Department Head, Department of Underwater Archaeology, Archaeological Museum Zadar. Student training will be coordinated by Mary Harvey, Nautical Archaeology Society Training Manager and Steve Liscoe, Nautical Archaeology Society Instructor. All training will be undertaken in conjunction dr. Smiljan Gluščević.

Method statement
The IKUWA 4 Underwater Archaeology Fieldschool will be undertaken over 10 days and limited to 8 students of archaeology. The field school will be based at Zaton holiday resort, Dražnikova 76t, 23232 Nin, Croatia. The work is planned to include:
- Underwater excavation
- Underwater photography
- Underwater survey and illustration
- Artefact illustration and photography
ABSTRACTS

PLENARY
Friday, 29th September 2011, Great hall

Research and Management of Underwater Cultural Heritage: yesterday, today, tomorrow
Mesić, Jasen - Minister of Culture of the Republic of Croatia, Croatia

From times immemorial and the earliest stages of the human race, people have searched for ways to cross over surfaces of water. Consequently it is a known fact that at least from the Stone Age people began settling on the Adriatic islands and from that time began increasingly navigating. In view of the fact that underwater archaeological activities have been systematically organized in the world for more than forty years now we can assume that throughout the world a large number of undiscovered sites has remained which raises the question of finding ways to protect and process them, as well as to present and use as a cultural development service.

More than 400 sites have been detected in the Republic of Croatia, of which nine are covered with protective nets in order to enable divers to view them, while more than a hundred have been registered and inscribed in the Register of Croatian Cultural Archaeology acquiring in that way physical and legal protection. In order to further the protection of underwater heritage and develop underwater archaeology as a scientific discipline it was necessary to take new steps. Accordingly and bearing the future in mind, active measures are being taken regarding its sustainability by introducing new systems of managing underwater cultural heritage. To that end the popularization of underwater heritage is being initiated, including its presentation on shore and under water, and activities are being developed, such as the restoration and presentation of these treasures, including the establishment in Croatia of the International Centre for Underwater Archaeology. The goals of the Centre are precisely the finding of models that would enable the protection of underwater cultural heritage in smaller environments and its appropriate presentation.

The United Kingdom and the UNESCO Convention on the Protection of the Underwater Cultural Heritage
Yorke, Robert - Joint Nautical Archaeology Policy Committee, United Kingdom

The threat to underwater cultural heritage (UCH) in international waters worldwide from commercial salvage continues to grow and the United Kingdom (UK) is no exception. The UNESCO Convention on the Protection of the Underwater Cultural Heritage (UNESCO Convention) presently offers the only comprehensive framework that could help to address this problem. The number of countries that have ratified is accelerating and the total is now 35.

The UK has chosen not to ratify because its interpretation of the convention suggests the potential loss of protection for its sovereign immune warships in the waters of other countries and the perceived need to designate and protect up to 10,000 historic wreck sites in its own territorial seas. These legalistic arguments date back to 2001 when the UK abstained from voting, but there are now new interpretations that the paper will explore which show an alternative view.

However the argument should now move from a legalistic interpretation of the UNESCO Convention to one of policy. Is the UK serious about protecting the UCH in international waters particularly that part adjacent to its own coast? Can the example of other countries that have ratified assist the UK in changing its mind?

1976 and Beyond-Managing Australia’s underwater cultural heritage
Viduka, Andrew - Assistant Director Maritime Heritage, Department of Sustainability, Environment, Water, Population and Communities, Australian Government, Australia

The Maritime Heritage Section, Heritage Division of the Commonwealth Department of Sustainability, Environment, Water, Population and Communities is the primary underwater cultural heritage management agency in Australia. It administers the Historic Shipwrecks Act 1976 and advises the Commonwealth Historic Shipwrecks Delegate and Minister in regard to policy decisions. The Maritime Heritage Section is also the coordinating body for Australia’s Historic Shipwreck Program and is responsible for the delivery of uniform management outcomes around Australia.
This paper outlines the various roles of the Maritime Heritage Section and addresses some of the significant underwater cultural heritage management issues currently faced by Australia including: legislative change, deepwater shipwreck management, the need for better integration of underwater cultural heritage into development planning, capacity building in the maritime archaeology profession to undertake development initiated activities, the conservation and collection management of protected relics and the need for a better centralized communication and community engagement strategy.

Managing UCH in Austerity - the English heritage experience

Oxley, Ian - Head of Maritime Archaeology, English Heritage, United Kingdom

Many heritage organizations are experiencing budget reductions and staff cuts as a result of the deteriorating economic climate. English Heritage, as the United Kingdom Government’s statutory advisor on the historic environment of England, land and sea, is no exception.

To mitigate for these pressures, strategies have to be developed to focus available resources and capacity on core activities and responsibilities, whilst enabling supporting players such as other Government Departments, industry, and the wider sector to play an effective role themselves, through partnerships and external collaboration, in the care and protection of the common underwater heritage.

This presentation will outline English Heritage’s approach, to the present circumstances, of developing major initiatives including the National Heritage Protection Plan, Heritage at Risk, Marine and Maritime Research Frameworks, together with collaborative schemes with industry such as the English Heritage/British Marine Aggregates Producers Association Protocol for recording finds from aggregates dredging.

Managing the Underwater Cultural Heritage - MAST a perspective from the Gulf

Blue, Lucy - Centre for Maritime Archaeology, School of Humanities, University of Southampton, United Kingdom

This paper outlines some recent initiatives undertaken by MAST (Maritime Archaeology Stewardship Trust) to help promote maritime archaeology and coastal heritage in the Arab world (with a particular focus on the Gulf). It highlights a range of capacity building proposals that are being adopted through liaison with academics, antiquity departments, ministries and museums responsible for the protection of maritime heritage in the region which aim to promote responsible management and protection of the coastal and underwater cultural heritage.

MAST was established in response to a need in the region to raise awareness of maritime culture through training, education, publications and projects, and ultimately aims to establish self-sustaining stewardship of the coastal and underwater heritage in the region. It is the hope that this paper will provide comparative experience and expertise to discuss further the challenges faced in many parts of the world in promoting and protecting the underwater cultural heritage.

Heritage awareness, an inductive and deductive approach

Manders, Martijn - Netherlands Cultural Heritage Agency, Netherlands
Vatcharankul, Erbprem - The Underwater Archaeology Division, Thailand

Awareness is often regarded as the best possible way to preserve our cultural heritage. There is much to say in favour of this. Only when we understand and accept the existence, richness, the beauty, the historical significance and the threats to these relics of the past, we can make judgments on how to treat. Only then the public can be mobilized helping to protect our cultural heritage.

But what is the public and how do we need to address them? Is this a one way street? Do cultural heritage professionals have the task to create this awareness or is it the responsibility for all? According to the classical trinity of Heritage Management, the future perspective of a tangible past is determined by political commitment, public awareness and economic feasibil-
ity. Without public awareness, political commitment will lose its legitimacy and economic feasibility will lose its sustainability. For that reason public awareness is of main importance. Heritage awareness can be created by collecting, sending out and sharing information. This can be done in an inductive and a deductive way. Inductive means building upon experiences from the past; a trial and error approach: bottom up. A deductive approach means creating heritage awareness working from a theoretical base on how to do so: top down. Usually this approach has political backing: Although developed within a scientific framework, the thoughts have been taken over at a political level and put into force often within legal or policy frameworks.

This proposed paper will focus on the two different approaches which may be both as important. It will give us an insight on how it is and can be applied in underwater cultural heritage management, with a focus on Asia and Europe.

In situ preservation, pro & contra
L’Hour, Michel - Director of DRASSM, France
Preferred by UNESCO and often presented as the ultimate solution to ensure conservation of underwater archaeological sites, /in situ/ preservation is often more wishful thinking than a coherent strategy. The destruction caused by human activities related to industries, looting or fishing, makes in most cases the /in situ/ preservation of underwater cultural heritage illusory. Without falling into the controversy, this paper propose to highlight the limits of the concept through the French experience of managing underwater cultural heritage.

Legal framework of management of the underwater cultural heritage
Kowalski, Wojciech - University of Silesia, Department of Intellectual and Cultural Property Laws, Poland
In proposed paper various legal aspects of management of the underwater cultural heritage would be discussed. As it is known, such management is not free of regulations, quite contrary, it is regulated party by Montego Bay Convention and more extensively by UNESCO Underwater Heritage Convention. These regulations are however very general and at some points have to be explained in the light of other conventions or multilateral treaties.

At the end we cannot forget about domestic regulations introduced by states, who have certain rights at least to control any activity to be undertaken in their territorial waters. Taking all these together, when managing underwater heritage one faces quite complicated legal landscape which often is not clear enough to be sure what decision should or could be made in particular circumstances. Dilemmas can be even more difficult if the problem of ownership of wreck or issue of human remains is at stake. In the proposed paper author is going to address all these issues and possibly answer questions resulting from them.

Underwater Cultural Heritage in the Baltic Sea - Common past, common responsibility and common chance
Bleile, Ralf - Stiftung Schleswig-Holsteinische Landesmuseen, Schloss Gottorf Archäologisches Landesmuseum, Germany
The history of the Baltic Sea has begun more than 12,000 years ago, as gather-hunter societies lived on the coasts. Their dwellings, destroyed by waves of rising water, are located today in up to 12 meter deep water. Later on warriors and merchants sailed over the sea and lost their boats and ships in dangerous sceneries often close to the shores and islands. Whole fleets were destroyed during the period of sea-war from the 16th to 18th century AD. All these sites, wrecks, goods, human remains and artefacts lay well preserved in a very special condition: salinity and temperature of the Baltic Sea are very low and the muscle teredo navalis had no chance for a long time. That is the reason for unique preservation conditions especially for organic material. But the spread out of teredo navalis and different building activities in harbors or connected with gas pipelines, windmill parks and bridges becomes more and more dangerous for the underwater cultural heritage.

To develop an international network of underwater archaeologists and to establish accountable authorities the Working group of Underwater Cultural Heritage of the Baltic Sea was found 1997 under the patronage of the Monitoring Group on Cultural Heritage of the Baltic Sea States (http://mg.kpd.lt/). The group consists of members of all Baltic Sea states and discuss current problems of protection, education, exploration and management of underwater heritage. Most important results which will be presented and explained in this lecture are
the "Code of Good Practice for the Management of Underwater Cultural Heritage in the Baltic Sea Region" (COPUCH) and the "100-list", the latter being a heritage-list of the hundred most valuable underwater sites of the Baltic Sea. Particular attention in the lecture will be laid on the development of criteria for those sites which should be involved in the 100-list.

Underwater Archaeology in China
Shuguang, Liu - China Academy of Cultural Heritage, China
China has a long coastline, with numerous underwater cultural heritages in the seabed. From 1987, China underwater archaeologists started the investigation and excavation work of underwater cultural heritages, with considerable discoveries and achievements. To maintain sustainable development, it calls for upgraded ideas to promote the conservation work of underwater cultural heritages in China.

Managing the underwater cultural heritage: The UNESCO World heritage Candidature “Prehistoric Pile Dwellings around the Alps”
Hafner, Albert - Leiter Bereich Unterwasser- und Feuchtbodenarchäologie, Erziehungsdirektion des Kantons Bern, Amt für Kultur, Switzerland
The lakeside settlements in the Alpine region count among the most important archaeological cultural assets in Europe. Because the pile-dwelling sites are shared by all Alpine nations, it was clear at the outset that candidacy for inscription in the World Heritage List must be serial and transnational. The nomination as a UNESCO World Heritage site will further increase the awareness of this extraordinary cultural heritage among the wider public. In addition, the international exchange of knowledge and experience with regard to the protection and presentation of pile-dwelling sites will be promoted in the context of the candidature.

The international candidature ‘Prehistoric Pile Dwellings around the Alps’ is being staged under the auspices of the Swiss committee. All Alpine countries - Austria, France, Germany, Italy, Slovenia and of course, Switzerland, are involved. From about 1000 sites we actually know, the 156 with the greatest scientific potential have been chosen for this serial nomination. The nomination file ‘Prehistoric Pile Dwellings around the Alps’, submitted in January 2010 was reviewed in September 2010 by an expert from ICOMOS (International Council on Monuments and Sites). The final decision for the candidature will be made at the annual meeting of the UNESCO World Heritage Committee (Bahrain, June 2011). The lecture will present the process of inscription from the tentative list in 2004 to the final decision.

Towards the Integrated Management Strategy for Preservation of Underwater Cultural Heritage in the Slovenian Territorial Waters
Gaspari, Andrej - Ministry of Culture, Slovenia
Erič, Miran - Institute for the Protection of Cultural Heritage of Slovenia, Slovenia
Poglavjen, Sašo - HARPHA SEA d.o.o., Slovenia
The muddy and relatively shallow seabed of the southeastern part of the Trieste Gulf was considered poor in underwater archaeological sites all until the late 1980s. This was in spite of clear indications for a considerable potential of the area provided by the early interventions at Savudrija Cape wreck from the early 1st c. BC and the research of Roman port structures at San Simone Bay and Fizine near Portorož in the 1960s. The potential was all the greater through information from fishermen, who reported pieces of wooden ships caught in their nets and locations to be avoided during trawling, an unmistakable sign of the presence of sunken cultural remains. Of the underwater sites, the wrecks of ships and airplanes of the First and Second World Wars were in the domain of the ordnance disposal teams till the adoption of the new law on cultural heritage in 2008, which included military remains as a cultural resource.

The number of known locations has increased after the high-resolution multi-beam bathymetric survey, conducted by the Harpha Sea company in 2006 - 2008. The survey produced by far the most accurate digital model of the seabed available, displaying even anomalies a few decimeters in extent. This information was supplemented with a sub-bottom profiler survey that enabled the recognition of geomorphological phenomena such as tectonic features, river channels, solid ground areas and, in combination with the radiocarbon data from boreholes, also changes in sedimentation rates through time. Understanding environmental changes, particularly relative sea-level rise during the Late Pleistocene and Early Holocene
can lead to the isolation of the possible areas of Prehistoric occupancy.

The identification, documentation and research of the sites discovered by the bathygraphic survey are currently the principal objectives of the Centre for Preventive Archaeology of the Institute for the Protection of Cultural Heritage of Slovenia. All the information collected is being put into the central cultural heritage database managed by the Ministry of Culture of Slovenia, which facilitates the adoption of a long-term strategy for management and preservation of underwater sites. At the same time, it represents good grounds for negotiating cross-sectoral coordination in maritime spatial planning, especially with regard to international navigation routes and corridors of approach to the cargo ports of Koper and Trieste and to the anchorages.

Surveys at some of the wrecks, dating to as early as the 1st c. AD, focused on the ever more important issue concerning the preservation measures to be taken while assuring public access. Measures reducing the damage of natural erosion and impacts of biological and chemical nature remain to be implemented at the most endangered off-shore sites in the near future. Exchange of experience and sharing best practices for preservation and presentation through joint research projects and education programs is assured by the longtime cooperation between governmental bodies, research institutes and universities from Croatia, Italy, and France. This ranks among the best examples of the implementation of the provisions contained in the UNESCO Convention on the Protection of the Underwater Cultural Heritage (Paris, 2001).

Report on the current status of the legal and practical protection of underwater cultural heritage - Italy

Fozzati, Luigi - Ministero per I Beni e le Attività Culturali, Italy
Zarattini, Annalisa - Soprintendenza per I Beni Archeologici del Lazio, Ministero per I Beni e le Attività Culturali, Italy

As regards the situation in Italy, before the entry into force of the law 157/2009, the protection of the underwater cultural heritage was governed by article 94 of “the code of cultural and landscape heritage” adopted by Legislative Decree of 22 January 2004, n. 42. According to this article archaeological and historic objects discovered in the area between the 12 and 24 nautical miles had to be protected in accordance with the rules of the annex to the UNESCO 2001 Convention. While there was a welcome reminder of the rules of the annex, on the other the failure to ratify the Convention and the expectations of the system of protection for a single article did not guarantee the development of a system of protection adequate under all circumstances.

On April 8th 2010 the Convention on the protection of underwater cultural heritage, has come into force in Italy through the law number 157 on October 23rd 2009.

This report aims to give a detailed overview and evaluation of the current protection of underwater cultural heritage in Italy through the analysis of the main principles of the UNESCO Convention 2001, the most important rules of its Annex, and the core points of the Italian law. 8 April 2010 the Convention (including the attachment) came into force in Italy through the Act of ratification. The law consists of 12 articles, contains a series of measures aimed at practical implementation of the principles of the Convention in order to guarantee an effective mechanism for protection and promotion of cultural heritage in our regions.

Ultimately the entry into force of the Convention through the Archeomar project represents a fundamental stage under Italian legislation as regards the implementation of the preservation and enhancement of the underwater cultural heritage.

Russian underwater cultural heritage: problems and perspectives

Fazlullin, Sergey - P.P.Shirshov’s Institut of Oceanology, Moscow, Russia

The development of underwater archeology, in Russia, has five stages (Okorokov, 2008). Scientific stage of this work began in 1934 and is linked with the problem of compiling underwater archeological maps of the Soviet Union initiated by an academician R. Arbel. The work was carried out most widely and productively in 1980-90 years and was virtually collapsed due to social upheavals and the breakdown of the Soviet Union. The UNESCO Convention for the Protection of Underwater Cultural Heritage was developed and adopted at a time when Russian State was not engaged with the questions of underwater cultural heritage. However, separate groups of fans of underwater activities have been working under the guidance of the
Confederation of Underwater Activities in Russia (Fazlullin, 2006). Their work allowed us to maintain and develop experience in underwater archaeological work, accumulated during the Soviet era (Fazlullin, 2010).

Since 2010, Russia began to show interest in the protection of underwater cultural heritage, through the Ministry of Culture. The advisory council on underwater cultural heritage established under the Ministry, started to develop the foundations of public policy in this area.

The report covers all stages in development of underwater archeology in Russia, in detail. It assesses the current state of the problem of Russia's underwater cultural heritage. Also, the concept of management of underwater cultural heritage of Russia under limited material and human resources is presented.

PUBLIC ACCESS
Friday, 30th September 2011, Great hall

Experience is everything - the Norman's Bay Diver Trail
Beattie-Edwards, Mark - Programme Director, Nautical Archaeology Society, United Kingdom

In January 2011 in the United Kingdom there were 61 wreck sites protected under the Protection of Wrecks Act (1973). These wrecks are identified as being the most important historical and archaeological wrecks in UK territorial waters. Many of these wreck sites are buried, and therefore rather uninspiring to the public perception. Some of them are fragmented and therefore difficult to understand, whilst others are fragile and like any delicate archaeological assemblage cannot withstand large numbers of visitors on a regular basis. Since 2005 the Nautical Archaeology Society has worked to not only facilitate access to these heritage assets but to also contribute to the research aims of the volunteer custodians. This paper will highlight the opportunity that a new diver trail on the designated wreck know as the Norman’s Bay wreck launched in 2011, will offer to the UK heritage sector in facilitating the engagement of the recreational diver.

The paper will look at other diver trails in the UK as well as the Norman’s Bay wreck and will demonstrate the role that guided access can play in both education provision and public access. The paper will argue that whilst the Protection of Wrecks Act (1973) remains the principle legislation used to protect and manage historic material on the seabed, licensed public access must remain a cornerstone of any associated heritage management strategy.

Bay of Veštar site and the management of the project
Bekić, Luka - International Centre for Underwater Archaeology in Zadar, Croatia
Pešić, Mladen - International Centre for Underwater Archaeology in Zadar, Croatia

After many years of under water surveys in the Bay of Veštar near city of Rovinj, in 2009 archaeological excavations were started. The research right now is focused on the Roman pier in length of 50 meters, which is located on the southern coast of the bay. With time, it is planned to expand research to other potential Roman pier as well as other architectural traces and piers from roman and younger periods in the bay. Research goal is to clarify the role of this natural maritime port through the different periods.

Through this concrete example, this presentation provides evidences of possibilities to integrate local communities and other stakeholders in the project through various forms of cooperation or financing. It also points to their abilities other obstacles for the development of this project. Eventually the outcome of the Veštar bay project should be an active point of reference for under water heritage, serving the local community and the visitors.

Underwater Virtual Maritime Museum in Canary Islands: website and reality proposals
Cabrera, Vicente Benitez - IT7 & Virtual Underwater Archeological Researchs, Spain
Bolaños, Antonio Becerra - Spain
Millares, Michel Jorge - Spain

Canary history is linked to sea, it came from sea, from Atlantic Ocean. Our Underwater Culture Heritage, wide and unknowledge archeological Heritage, is due to from oral tradition, mainly seamen, fishermen, and divers, who had brought from past times and grown sea storyes currently running. Thats why we have created and designed our web Museo Virtual Submarino, means Underwater Virtual Museum.

In this first phase, we are adding multimedia content on the shipwrecks in the littoral of the Eastern Canary Islands (Gran Canaria, Lanzarote and Fuerteventura). Main goal has been create a website to promote and published Maritime
History, Canary and explained knowledge of historic and cultural heritage and promoting conservation.

Underwater Archaeological Sites
Management & Tourism Development

Della Porta, Katerina - Ministry for Culture, Greece

Underwater archaeological evidence need to be protected and preserved from any activity damage; on the other this heritage should be accessible to the public as happens on land archaeological sites. How underwater ancient settlement or ancient shipwrecks can be made discover, accessible and visited to the public?

Taking account the recommendation about the *in situ* preservation of the UNESCO’s Convention for the Protection of Underwater Cultural Heritage, the purpose of the paper is to present the legal frame of management for the littoral and coasts as well as the challenge of underwa-ter tourism development in Greece.

In situ protection and development of the Roman Wreck from Santo Stefano al Mare: the submerged museum project

Sanna, Laura - Tesi Archeologia SRL, Italy
Gambaro, Luigi - Soprintendenza per i Beni Archeologici della Liguria, Italy
Grimaudo, Giusi - Tesi Archeologia SRL, Italy
Tiboni, Francesco - Tesi Archeologia SRL, Italy

In this piece we would like to present a project studied by the archaeologists of TESI Archeologia srl and the Soprintendenza per i Beni Archeologici della Liguria with the aim to protect and present to the public the Roman Wreck sited at 58 m depth just in front of Santo Stefano al Mare. Funded by the Provincia di Imperia together with Area 24 SpA, to become part of the Museums net of Imperia, this museum has been projected to enrich the touristic offer of the Bike Route created on the old coastal railway of the region.

In this project, archaeologists have decided to introduced the modern idea of in situ protection and development, as suggested by the UNESCO convention, recently adopted by the Italian Government with the 157-2009 law.

The project can be divided into these three main phases:

1. Archaeological analysis of the site by using all the new west geophysical methods, as for instance ROV, mini-submarine, Side Scan Sonar, photogrammetry and so on.
2. Archaeological protection by using a submerged camera system, connected with a 70 meters high floating structure (meda) and working 24/24 h 7/7 days, to acquire images of the wreck and send them to an on land station;
3. Creation of a multimedia museum in the territory of Santo Stefano al Mare, in which the visitors can feel like diving on the sea and can observe the images coming live from the sea bottom, by using modern technologies borrowed from theatre and cinema.

Managing of marine cultural heritage in Sicily

Tusa, Sebastiano - Soprintendente della Soprintendenza per i Beni Culturali di Trapani, Italy

Sea is not only a great biological reservoir, but also an immense historical and cultural archive whose benefits should invest not only the scholars but also all citizens. Today underwater archaeological research is an highly technological task that must give answer to the requirements of historical research as well as to the spirit of knowledge of the people. Moreover we have to limit the practice to rescue objects from the bottom of sea. Our museums are full of amphorae, anchors and other paraphernalia coming from the sea bed. On the other side a major cultural sensibility should be taught to the divers that want to exploit the happiness of a dive in a beautiful sea. In order to avoid illegal activity against cultural underwater heritage we have to fight on different fields. Educative programs must be addressed mainly to those people that have close connections with sea activity such as charters and diving companies, as well as clubs and associations. Those are the best guards of the cultural underwater heritage because it is on this field that they can optimize and increase their commercial offer.

In Sicily we selected some underwater archaeological sites and entrusted them to such associations or single divers with a regular annual contract. Those divers or association are allowed to lead the divers around the sites, but they have the responsibility of the archaeological objects and contexts left on the sea bed. Underwater cultural heritage management is rapidly increasing, but till some years ago this important aspect of our heritage was left behind. First of all we are controlling seas around Sicily with the help of Coast Guard, Carabinieri and Guardia di Finanza in order to avoid sack-
ing and controlling new and old sites. Secondly we built a GIS of underwater cultural heritage of Sicily that till now shows about 500 sites. Beside all we organize also an intense activity of scientific education towards school and people in order to spread the respect and knowledge of underwater cultural heritage. Thirdly we realized many underwater archaeological parks where divers can dive with the guidance of local trained diving clubs. The areas are protected and controlled. In some cases we installed video control systems in order to control the area and also to give the opportunity to have a direct sight of the site to those people that are not divers and that make a visit in the museum. The same site can be seen via internet and used for didactical purposes.

Video control systems are going to be used to control and watch deep sea wrecks like in the case of four cargos identified in the Aeolian archipelago (Panarea).

The Study and Management of underwater site of Marsa Bagoush, Egypt

Khalil, Emad - Director Centre for Maritime Archaeology & Underwater Cultural Heritage, Faculty of Arts, Alexandria University, Egypt

The harbour of Marsa Bagoush (ancient Zygris), was mentioned by the ancient geographer Claudius Ptolemy (150 AD), who made a list of the main towns and harbour sites between Alexandria and Mersa Matrouh. At present, Mersa Bagoush is the location of the annual summer camp of Alexandria University. The small bay is well protected by a rocky headland that projects from its eastern end and by a series of submerged reefs that reduces wave action inside the bay. This made the place suitable for ancient ships to seek protection and anchorage during the voyage between Alexandria and the west. However, the existence of submerged reefs close to the surface represents a hazard for ships entering the bay during rough seas.

In June 2010 a group of researchers from the Alexandria Centre for Maritime Archaeology and Underwater Cultural Heritage were able to locate the remains of an ancient shipwreck at the northeast site of the bay of Marsa Bagoush. The site contained large concentration of Roman pottery, intact amphorae and wooden remains. The nature and location of the site made it suitable to be a training location for students of Maritime and Underwater Archaeology. This paper will present the management plan that has been designed for utilising the site for educational, training and cultural purposes.

The Atlas of the 2 Seas: giving access to the submerged cultural heritage

Momber, Garry - Hampshire and Wight Trust for Maritime Archaeology, National Oceanography Centre, United Kingdom

The Archaeological Atlas of the Two Seas project (A2S) is a venture between France, Belgium and England that is raising awareness and understanding of the underwater cultural heritage (UCH). The aim of the project is to collate information about the maritime past by researching, discovering and recording archaeology in common waters. The project necessitates cooperation between international archaeologists by sharing resources and information. Data gathered, including archive material, site plans, video footage and stills will be accessible to all through an online database via a trilingual geoportal. The data is being collated to a common standard that complies with each of the national databases.

A further objective is to involve a wider community of non-specialists. Volunteer, terrestrial researchers and diving enthusiasts are being encouraged to contribute to the international web site through the project partners and participate in fieldwork activities. The inclusive nature of the project means it is increasing the skill sets for a cross section of people who can help enhance our itinerary of UCH assets. This is vitally important as informed management is not possible without baseline knowledge. The A2S project is showing how involvement, education and technology can be combined effectively to help manage our UCH.

Ask not what underwater heritage can do for you, ask what you can do for underwater heritage. A view from Biscay (Basque Country, Spain)

Matés Luque, José Manuel - Spain

A key element on managing the underwater cultural heritage is how to make it available to the public. In Spain, few artefacts or vessels are on display and many are just a small part of what maritime, fishing, naval or archaeological museums display.

Spain have produced a book (Route of the Portuguese and Spanish Maritime Archaeological Heritage, 2008) for the public to know where
some of those museums will be reviewed and so it will the Urbieta wreck – a late 15th century clinker built boat found in 1998, and the Bakio shipwreck – perhaps a late 18th century British warship found in 2005. The Urbieta wreck has already been displayed by two museums and for the Bakio shipwreck a panel will be placed on the beach explaining what is known so far about it. This must be mentioned as Biscay is demonstrating interest in the underwater heritage.

These two cultural resources will be assessed to check their impact on the public.

**Management and Engagement: Using Maritime Heritage Trails to Interpret and Protect Submerged WWII Heritage from the Battle of Saipan**

*McKinnon, Jennifer F. - Flinders University, Department of Archaeology, Australia  
Scott-Ireton, Della - Florida Public Archaeology Network, USA*

While the Second World War is not too far in the past, those who were involved in the Pacific Theater Battle of Saipan are becoming scarce and with their passing the knowledge of this incredible event is fading. What remains are the stories and material culture which can be recorded and interpreted for those who wish to revisit, remember, and learn about the war. Through an American Battlefield Protection Program Grant, archaeological and historical investigations of submerged WWII heritage (i.e., planes, tanks, landing craft, ships) currently are underway with the purpose of creating a WWII maritime heritage trail for both local people and diving tourists.

This project aims to educate citizens and visitors about the importance of our underwater cultural heritage and to provide a sustainable heritage tourism product which will stimulate the economy of the island of Saipan. Project personnel conducted training courses in underwater archaeology to enable local divers to participate in the recording of the island’s history, and presented courses in underwater historic preservation to encourage the long-term protection of these fragile sites. This paper describes these efforts and will present plans for trail interpretation and management.

**Chances and Limits of NGOs in Underwater Cultural Management**

*Martin, Hanz Gunter - DEGUWA, Germany  
Winterstein, Peter - DEGUWA, Germany*

Reviewing the efforts and results of two decades of voluntary commitment of DEGUWA two aspects are focused on: archaeological research and cultural protection on one hand and integration of amateurs on the other hand. Occasion and background of the founding of DEGUWA, the original program, its realization and its acceptance by the authorities, universities and sports divers as well as the response of the international community will be illustrated. A critical view is applied to claims and possibilities of influencing political decisions regarding the preservation of underwater cultural heritage and the commercial „archaeology“. Finally the education campaign, the sensitizing of the broader public and especially of the sports divers is described. Which is the status quo and what will come next?

**A Proposal for the management of Australia’s Private Shipwreck Collections**

*Rodrigues, Jennifer - Centre for Archaeology, School of Social and Cultural Studies, The University of Western Australia, Australia  
Richards, Vicki - Research Officer/Conservation Scientist, Department of Materials Conservation, Western Australian Museum–Shipwreck Galleries, Australia*

A nationwide amnesty in 1993 resulted in approximately 20,000 objects from historic shipwrecks across Australia being declared and recorded, though the vast majority were retained by the custodians. After seventeen years, little has been done to manage these private collections due to a combination of differing attitudes amongst the maritime archaeologists responsible, and the complications of dealing with private collections and collectors. Problems also include difficulties in administration, research and interpretation with many objects also remaining insufficiently documented.

In this presentation, the authors seek to explore the realities facing maritime archaeologists in Australia in relation to the management and conservation of private shipwreck collections that are in danger of being permanently
lost from the public record. As well, possible solutions to consider in dealing with this dimension of maritime cultural heritage management are also addressed.

Sailing the SSEAS: A New Program for Public Engagement in Underwater Archaeology

Scott-Ireton, Della - Florida Public Archaeology Network, USA

Sport divers generally are very interested in shipwrecks and in the work of underwater archaeologists, and often want to get involved in research and investigation. Training programs that enable divers to effectively volunteer on archaeological projects have been around for years and have proven extremely effective in promoting the goals and value of scientific inquiry while enabling the diving public to participate. The problem is that, once trained, divers want to help and often there are no projects in progress for them to work on. Divers can lose interest, become disillusioned with archaeology or, worse, seek out commercial salvage projects.

The Florida Public Archaeology Network (FPAN) is embarking on a new program in public outreach and education in underwater archaeology to address this need. The Submerged Sites Education and Archaeological Stewardship program, known by its acronym SSEAS, is intended to train sport divers in the methods of non-disturbance archaeological recording and then give these trained divers a mission. This paper will present this new program, will discuss methods used in Florida to engage and educate sport divers, and will describe how SSEAS-trained divers can effectively participate in the management and protection of the underwater cultural heritage.

Who gives a damn? Developing relevant tools for the management of maritime and underwater cultural heritage sites in the developing world

Sharfman, Jonathan - South African Heritage Resources Agency, South Africa
Parthesius, Robert - Centre for International Heritage Activities, University of Leiden, The Netherlands

With an increase in interest in the ratification of the UNESCO Convention on the Protection of Underwater Heritage, a number of southern African states have initiated training programs to build capacity in the maritime and underwater cultural heritage (MUCH) management sector. These programs have begun to address ways in which to locally apply global rules and practices.

South Africa’s MUCH management legislation has traditionally emphasized the management of shipwrecks. In this regard, South Africa has struggled to engage large sections of its population in protecting underwater and maritime sites. Although the implications of the European trade, colonization and expansion reflected in shipwrecks around the South African coast have been recognized and incorporated into the countries heritage themes, the sites themselves have been viewed either as targets for recovery of treasure or as sites of little local historical value. In order to better protect these sites, it has become necessary for heritage managers to place them within a broader, “seamless” MUCH context which includes heritage of local relevance such as sacred water bodies, maritime infrastructure or intangible links to lakes, rivers and the sea. To promote this, a number of case studies have been chosen as examples and used in developing community based management toolkits.

This paper will discuss the development of new approaches to MUCH site management in the developing world.

“Shipwreck management through sponsorship; creating cultural heritage awareness amongst Norwegian divers”

Skoglund, Fredrik - Museum of Natural History and Archaeology, Norwegian University of Science and Technology (NTNU), Norway

The Norwegian Cultural Heritage Act protects shipwrecks older than 100 years. This annually results in a growing number of protected metal wrecks, heavily increasing the workload of the cultural heritage institutions. These wrecks are regarded as great dive sites though divers often visit them without knowledge of their heritage status. The challenge of the heritage management is thus to protect and manage these wrecks, simultaneously communicating enthusiasm and responsible conduct amongst divers.

The Museum of Natural History and Archaeology in Trondheim, has initiated a project targeting these imminent challenges. Dive clubs are invited to act as sponsors of local wrecks, and are activated in important non-intrusive documentation work. Monitored changes may then instigate relevant protective measures.
Involving dive clubs through sponsorship will hopefully contribute to awareness and knowledge in the wider diving community.

In collaboration with the sponsoring clubs cultural heritage signs are placed on these sites. The signs officially mark the wrecks as protected, subsequently preventing inadvertent damage being done.

The paper will present the project concept; the challenges and possibilities. Preliminary results from the meeting between archaeologists and enthusiastic divers, further ideas for scientific monitoring and how the project may affect the management of the underwater cultural heritage in Norway will also be addressed.

The Project Vrouw Maria Underwater: Public Access via a Blog Site, a Virtual Simulation and an Exhibition
Tikkanen, Sallamaria - The National Board of Antiquities, Maritime Archaeology Unit, Finland

The Project Vrouw Maria Underwater is operated in 2009 – 2012. It aims to preserve the wreck in situ and to display it by the help of a fieldwork blog (started in 2010), a virtual simulation showing the wreck in its underwater landscape and sound scape (the making of simulation has started) and a museum exhibition (shall be opened in 2012). These methods are suitable ways for public access for a wreck located in Natura 2000 Area where sport diving is prohibited.

The Young Archaeopark Project: A Public Awareness and Preservation Project on Underwater Cultural Heritage, Kaş, Turkey
Varinlioğlu, Güzden - Principal Manager of Kap Archaeopark Projects on behalf of SAD (Sualtý Araştýrmalarý Derneði; Underwater Research Society), Turkey
Reinfeld, Michaela - Archaeologist, Manager of Young Archaeopark Project on behalf of DEGUWA, Germany
Koşgeroğlu, F. Emrah - Architect, Restoration Specialist, SAD, Turkey
Ceylan, Hande - Architect, Middle East Technical University, Urban Policy Planning Program and Co-Manager of Young Archaeopark Project on behalf of SAD, Turkey

Kaş stands out with its rich material culture preserved at ancient Phellos and its harbor, Antiphellos, partially integrated into the modern village of Kaş. Excavations of the Uluburun and Gelidonya shipwrecks fundamentally influenced the development of nautical archaeology and our understanding of maritime trade networks around the Mediterranean world. Surveys off coastal Turkey indicate the need for systematic research on underwater cultural heritage as well as the necessity to raise the public awareness towards its presentation and preservation.

In 2007, as part of Kaş Archaeopark Projects, SAD (Underwater Research Society) initiated systematic surveys along the coastal region of Kaş. With the participation of archaeologists and other professionals, a recording methodology based on in situ preservation has been developed along with a specialized training program. In 2010, supported by EU Young Initiatives Program, a joint project of SAD and DEGUWA (German Society for the Promotion of Underwater Archaeology) has launched initiatives to raise public awareness for the protection of cultural heritage.

This paper discusses our approaches to the protection and preservation of underwater cultural heritage in Turkey. The "Young Archaeopark" aims to be a pioneer project for underwater archaeological research, through its focus on the sustainable protection of cultural heritage through the involvement of local people, sport divers and young scientists.
RESEARCH STRATEGIES
Friday 29th September 2011, Room 143

Norwegian Cultural Heritage Management under water; shipwrecks, underwater technology and maritime
Berg Tuddenham, David - Norwegian University of Science and Technology, Norway
Shipwrecks older than 100 years in Norwegian waters came under cultural heritage management (CHM) in 1963 with the implementation of section 12a of the Norwegian Cultural Heritage Act. Simultaneously with the introduction of section 12a a new sub-discipline within archaeology evolved with its own distinctive features. One such feature has been a heavy focus on methodology and underwater technology, a focus that also has been recognized as a source of alienation between land and sea archaeologists. A central objective within maritime archaeology as a discipline has in later time been to overcome the boundaries between land and sea, where the concept of maritime cultural landscapes has been proposed as a means to achieve this. Today this is a fully integrated way of thinking within Norwegian CHM under water. But still the difference between maritime and terrestrial within Norwegian legislation and CHM creates paradoxes that give reason to ask about the nature of the management object.
This paper reviews Norwegian CHM under water, and discusses the creation of a new management object with the introduction of §12a specifically focusing on Actor Network Theory. What makes maritime related artefacts different from other cultural remains? Can the sorting between maritime and terrestrial as identified in legislation and research be viewed as a network-based product that maintains a maritimity - here understood as the conception of a fundamental division between land and sea?

Brady, Karl - Underwater Archaeology Unit, National Monuments Service, Department of Environment, Heritage and Local Government, Ireland
Moore, Fionnbar - Underwater Archaeology Unit, National Monuments Service, Department of Environment, Heritage and Local Government, Ireland

The Underwater Archaeology Unit (UAU) of the Department of Environment, Heritage & Local Government is responsible for the quantification, management and protection of Ireland’s underwater cultural heritage. This paper will provide an overview of the range of strategies the UAU employs to manage, protect and promote the underwater cultural heritage and will describe the difficulties and challenges encountered in doing so.
The primary brief of the UAU is to compile a comprehensive record of all shipwrecks and underwater sites in Irish territorial waters and in this regard over 12,000 records relating to wrecks have been compiled and integrated into the Shipwreck Inventory of Ireland database. While the Shipwreck Inventory of Ireland is principally a desk-based survey, it is the primary management tool used to assess developmental impacts on known or potential archaeology. This has helped to ensure that appropriate mitigations measures are put in place to protect the archaeological heritage, which has in turn led to the discovery, preservation and/or the excavation of many newly discovered shipwrecks and underwater sites. The integrated approach the UAU takes to quantifying and protecting the resource will also be presented, highlighting the results of some the dive surveys and excavations the UAU has undertaken including the recent assessment of a Spanish Armada wreck and a possible Dutch East Indiaman shipwreck.

Underwater Cultural Heritage in Estonia: management and public awareness
Roio, Maili - Estonian national heritage board, Estonia
Asmer, Marii - Estonian national heritage board, Estonia

The presentation will address the issues concerning the management of underwater cultural heritage incl. legislation, the practice so far, public access and awareness and the activities and results of an international project Shipwreck Heritage: Digitizing and Opening Access to Maritime History Sources - (SHIPWHER), which was launched in spring 2010.
The various Estonian water areas constitute 39% of the Estonian territory and 47% of the jurisdiction areas. Although the first underwater monuments were placed under State pro-
tection in 1999, the juridical and also the actual steps, necessary for the protection of the monuments, have been taken in the last five years. Management issues which are accompanied by large scale construction projects and the increasing dimensions of recreational diving on the one hand, the extreme scarcity of public resources on the other hand, require the regulation at a national level and in cooperation between various ministries. By this day a number of processes, such as the amendment of the Heritage Conservation Act with additions about the protection of underwater cultural heritage, the accession to the UNESCO Convention on the Protection of the Underwater Cultural Heritage and adding the supervision and protection of underwater cultural heritage into the national maritime development program, are close to completion.

When it comes to creating public awareness, it is important to mention the SHIPWHER project, which has received subsidy from the European Regional Development Fund. During the project implementation period a new database has been created under the Estonian National Registry of Cultural Monuments, into which there will be entered information found from archival records about shipwrecks and also information gathered from underwater archaeological fieldworks.

**The Archeomar Project**

Luigi Fozzati - Ministero per I Beni e le Attività Culturali
Annalisa Zarattini - Ministero per I Beni e le Attività Culturali

Over the course of the millennia the Mediterranean Sea has represented a crossroads of civilizations and for the exchange of goods that have left traces and important testimonies along the coastline and on the seabed. The sea is the custodian of an important underwater archaeological heritage, of which the knowledge of, and the precise locating, are the basic elements in ensuring its protection and management. In accordance with an ever greater understanding regarding the conservation of the underwater archaeological heritage, the Archeomar Project represents a major initiative to build the first underwater archaeological map of Italy. This is aided by the provision of a custom designed Geographical Information System (GIS) that contains information derived from previous research and the new data and documentation collected by the Archeomar project. The Archeomar Project, initialed in April 2004, thanks to which 316 underwater sites have been recorded and described in the regions of Campania, Basilicata, Puglia and Calabria in Southern Italy are now continuing - with good results - in Lazio and Tuscany regions. The Project, was undertaken by a specially formed consortium (ATI) and is coordinated by the Italian Ministry of Cultural Heritage. It is undertaken in close collaboration with the Super intendencies responsible for each of the Italian regions and the police forces, responsible for the protection of the national heritage.

The Archeomar Project has opened a new direction in the field of underwater archaeological research and has created a beginning for the improved management and understanding of submerged archaeological sites.

**Research Strategies in the Field of Maritime & Nautical Archaeology: Long - Term Joint Franco - Croatian Research Project in the Bay of Caska, Island of Pag, Croatia**

Radić Rossi, Irena - University of Zadar, Croatia
Boetto, Giulia - Centre Camille Jullian (Aix-Marseille University-CNRS), France

Archaeological work on land and underwater in recent decades has helped change our understanding of the Island of Pag (Croatia). To gain an understanding of the potential for research and to manage the site in the face of increasing pressure on its finite resources, a research program on the maritime archaeological heritage of Caska Bay was begun in 2009 and will continue until 2013. This program continues a previous Franco-Croatian cooperation in the field of maritime and nautical archaeology (the Pasko project). The work is supported by the Municipality of Novalja, the Ministry of Culture of the Republic of Croatia, the Ministry for Foreign and European Affairs of France, the University of Zadar and the French National Research Centre (CNRS). The project aims to: (1) develop techniques of intrusive and non-intrusive evaluation and survey of submerged cultural resources in shallow waters; (2) gather information using a multi-disciplinary approach; and (3) conduct scientific training and stimulate the exchange of ideas among scholars and students. The programs great potential is signaled by the discovery at Caska of a native sewn boat, which was re-used as a quay or similar shore-side structure.
Predictive modeling and management of underwater cultural heritage

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Dimitrov, Kalin - Dept. of Archaeology, Sofia University St. Kliment Ohridski, Bulgaria
Popov, Anton - Dept. Of Cartography and GIS, Sofia University St. Kliment Ohridski, Bulgaria
Kotsev, Alexander - Dept. Of Cartography and GIS, Sofia University St. Kliment Ohridski, Bulgaria
Dimitrov, Stelian - Dept. Of Cartography and GIS, Sofia University St. Kliment Ohridski, Bulgaria

The paper addresses the importance of predictive modeling in archaeology, maritime archaeology in particular, and its implication on the management of underwater cultural heritage with emphasis on Bulgaria.

Underwater archaeological sites are considered much more fragile and more often overlooked compared to their land counterparts. Despite that most national legislations require an advance research of subsea areas prior to the start of development projects, environmental impact assessment considerations of underwater heritage in Bulgaria are most often confined to the statement there are or there are no sites that could be affected by a specific project. If such sites are present, efforts are by rule concentrated on their research defined as rescue excavation/survey while development of mitigation plans and activities to address the in-situ preservation and management of cultural heritage in the affected project areas is most often missing.

We address the need for the development of predictive modeling related to the management of maritime cultural heritage and the importance of integrating in GIS environment the information obtained by different methods of both - coastal land and subsea areas, with a special emphasis on LiDAR application (light detection and ranging), airborne bathymetry included and multibeam echo sounding. The paper will present the preliminary results of a project of the Centre for Underwater Archaeology on the Development of Predictive models for Identification of Archaeological Sites along the Bulgarian Black Sea coast in GIS Environment and its relation to underwater cultural heritage management.

Using GIS to Manage Underwater Sites: Georeferencing Two Years of ProMare Field Work in Italy

Bartoli, Dante G. - ProMare Inc., Marine Archaeologist Consultant, US - Italy Research Program, Italy

In the summer of 2008, ProMare Inc., a US-based non-profit organization promoting marine research and exploration, began working in Italy with the aim of foster the field on nautical archaeology. After having worked in three different areas of the country (Latium, Tuscany, Calabria), ProMare began a systematic Georeferencing project for all the archaeological artifacts and sites located during its field work. A purposely-built GIS, 2D-site mapping and 3D graphic renderings of archaeological items are being used to help archaeologists to increase the accuracy of their mapping operations, creating also virtual renderings of the site for the larger public, and sharing their data with other scholars easily. The database created is available for archaeologists, geologists, and scholars, as well as the government offices responsible for the management of the identified cultural heritage.

TRITON – Deep Water Heritage Research Project; 2010 Research

Campaign, Island of Hvar, Croatia

Barišić, Matko - University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia
Gambin, Timmy - AURORA Ocean Exploration & Education Trust, Malta
Kruschel, Claudia - University of Zadar, Department of Natural Sciences, Croatia
Radić Rossi, Irena - University of Zadar, Department of Archaeology, Croatia

TRITON is an international interdisciplinary deep water heritage research project realized in cooperation between the University of Zadar, University of Zagreb, and the AURORA Ocean Exploration and Education Trust. The project focuses on deep water surveys, aiming to locate and map valuable cultural and natural heritage resources and to provide a solid basis for their long-term protection, preservation and management. It is the first scientific project of its kind in the Croatian Adriatic. At the present stage, the project involves scientists and
students from the fields of electrical engineering, maritime archaeology and marine biology. The first research campaign was successfully accomplished in October 2010 at the eastern part of the island of Hvar, focusing a depths ranging between 70 and 85 meters and an area including the Pelegrin Promontory, the Pakleni Channel and the Pakleni Islands.

Investigations are based on methodologies developed by the AURORA Trust team and already applied successfully at several other sites throughout the Mediterranean Sea. First, a long range medium altitude sonar survey with widely spaced survey lines facilitates quick coverage of the entire survey area. Secondly, the sonar device is towed again over potentially interesting locations identified from the previous long range sonar images. This time the sonar scanning is applied closer to the bottom using a short range and high frequencies which allows for higher resolution sonar images. The same pre-selected locations were, as a third step, visited and inspected by a remotely operated vehicle (ROV) equipped to produce high resolution photographic images and videos useful in the documentation and quantitative analysis of archeological artifacts and biological communities. Finally, a sub-bottom profiler was applied at the archeologically most interesting locations.

Three archaeological sites were discovered and at 30 locations the abundance and diversity of fish and macroinvertebrate assemblages associated with rocky outcrops and their surrounding bare sediments were estimated. Considering the scarcity of access to deep water research technology in Croatia another important result of this and the aim of future campaigns is the education and training provided to local scientist.

The Database of Underwater Cultural Heritages around Japan

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Iwabuchi, Akifumi - Tokyo University of Marine Science & Technology, Japan
Takano, Shinji - Asian Research Institute of Underwater Archaeology (ARIUA), Japan &Department of Cultural AssetBoard of Education, Nagasaki Prefecture, Japan
Nogami, Takenori - Asian Research Institute of Underwater Archaeology (ARIUA), Japan

Since 2009 the Asian Research Institute of Underwater Archaeology at Fukuoka has been conducting for the database of underwater cultural heritages around Japan, financially endorsed by the Nippon Foundation. This is the first academic project inside Japan, which lasts three years, to examine or re-examine them. In cooperation with Tokyo University of Marine Science & Technology, Kanazawa University, Okinawa Archaeological Operations Center, and so forth, first of all, the institute has been making on-the-spot surveys of almost all heritages around the Japanese archipelago, which is divided into five research zones. Each zone has thoroughly been researched by a group of underwater or maritime archaeologists, some of whom organize an advisory committee over the project. Land-based observations such as referring to historical documents as well as underwater investigations have been conducted, which is sometimes supported by local city councils.

Based upon all information out of each zone, secondly, a detailed atlas of the heritages will be completed, and then all the data will widely be publicized on a web database in the near future, although the part has already been on the institute’s homepage. To be reviewed the institute also holds workshops or seminars on this project inside Japan or publishes some leaflets and journals in Japanese.
Maasvlakte 2 (Port of Rotterdam), a showcase of interdisciplinary research of drowned landscapes

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Borst, Wil - Port of Rotterdam, Rotterdam, Netherlands
Cohen, Kim - Department of Physical Geography, Faculty of Geosciences, Utrecht University, Netherlands
Den Ouden, Natasja - Netherlands Centre for Biodiversity, Naturalis, Leiden, Netherlands
Guiran, Ton - Rotterdam Archaeological Agency BOOR, Rotterdam, Netherlands
Hijma, Marc - Faculty of Archaeology, Leiden University, Leiden, Netherlands
Mol, Dick - Museum of Natural History, Rotterdam, Netherlands
Otte, Andrea - Cultural Heritage Agency, Ministry of Education, Amersfoort, Netherlands
Roebroeks, Wi - Faculty of Archaeology, Leiden University, Leiden, Netherlands
Smit, Bjarn - Cultural Heritage Agency, Ministry of Education, Amersfoort, Netherlands
Van Kolfschoten, Thijs - Museum of Natural History, Rotterdam, Netherlands
Vellinga, Tiedo - Port of Rotterdam, Rotterdam, Netherlands
Vos, Peter - Deltares, Utrecht, Netherlands
Westerhoff, Wim - TNO Geological Survey of the Netherlands, Utrecht, Netherlands

The Port of Rotterdam (PoR) is presently expanding the Rotterdam harbor to the west into the North Sea. More than 200 million m³ sand is dredged from the North Sea floor to build the harbor. A new 20 m deep harbor canal will connect Maasvlakte 2, the new harbor, with the existing harbor. Weichselian and Early Holocene landscapes are being removed in the process of dredging and digging. From artefacts found earlier in the vicinity, it is known that Palaeolithic and Mesolithic hunter-gatherers were present in the area at stake. The offshore location of the drowned landscapes and the considerable water depth (20 to over 30 m) make that the conventional Dutch guidelines based on the Valetta treaty for (geo)archaeological research are not fully applicable. Hence, the PoR authorities and the Cultural Heritage Agency (CHA) signed an agreement for a research program funded by the PoR and carried out by a consortium of research institutions, museums and universities under supervision of CHA and BOOR. Animal fossil remains not under the Valetta jurisdiction are covered by a separate agreement between the PoR and the Rotterdam Museum of Natural History. The program serves as a test-case to develop new methods and techniques which can be applied in a more systematic way in future. We present here the first results of the program that is now in full swing.

Researching, conserving and managing submerged prehistory: national approaches and international collaboration

Salter, Edward - Marine Planning Unit, English Heritage, United Kingdom

With rapidly increasing exploitation of our seas, heritage professionals face formidable challenges in managing the cumulative impacts on submerged prehistoric landscapes. International collaboration is plainly essential, since submerged landscapes do not respect modern political boundaries. However, national jurisdiction, and hence the extent of agencies’ legal responsibilities, may not extend to cover the requisite area. Moreover, approaches to heritage management, even in adjacent nations, can be strikingly different. Nevertheless, within Europe, a common Research and Management Framework for the North Sea has been developed between the Netherlands, UK and Belgium (Peeters, Murphy & Flemming 2009). In this paper, progress in developing coordinated management of submerged prehistory in Europe and elsewhere in the world is reviewed. We draw on our experiences in the management of underwater cultural heritage, with subjects considered including:

- Current research, legislation and funding;
- Benefits of collaboration with marine industry;
- Research and management of submerged prehistory across Europe and elsewhere;
- Lessons learnt and future challenges.

This paper is based on a forthcoming chapter submission of the same name. The paper is to be presented by Edward Salter on behalf of its authors; Edward Salter, Peter Murphy (English Heritage) and Hans Peeters (Groningen Institute of Archaeology).
Maritime Archaeological Archives in the UK: Collections, Access & Management Challenges
Satchell, Julie - Hampshire & Wight Trust for Maritime Archaeology, United Kingdom
In the UK maritime archaeological archives have not been treated in parity with those from terrestrial investigations, with few archives being deposited with museums or public repositories. Differences in roles, remits, policy and practice mean that maritime archaeological archives of national and international significance are being dispersed, are deteriorating, remain un-interpreted and un-curated, are sold or sometimes abandoned. The net result is that unique cultural heritage is placed out of reach of researchers, educators and the public as a whole. Recognition of this situation lead to a major study to quantify the extent of the problem.
Between 2008-09 the Securing a Future for Maritime Archaeological Archives project examined maritime archives within England and Scotland. The project aimed to:
- Understand how museum and archive repository collection areas and collection policies consider the marine zone;
- Review where maritime archaeological archives are currently held and assess their public accessibility; and
- Analyse present maritime archive creation and assess the scale and nature of future maritime archives.
This paper presents the results of the study, with particular emphasis on issues and findings of relevance to maritime archaeological archive management in an international context.

Underwater research off the Pontine Islands (Italy)
Zarattini, Annalisa - Soprintendenza per I Beni Archeologici del Lazio, Ministero per i Beni e le Attività Culturali, Italy
Gambin, Timmy - AURORA Ocean Exploration & Education Trust, Malta
Ritondale, Manuela - Soprintendenza per i Beni Archeologici del Lazio, Ministero per i Beni e le Attività Culturali, Italy
Over the past four years, the Soprintendenza per I Beni Archeologici del Lazio, Italian Ministry of Cultural Heritage, in collaboration with the AURORA SP Trust has conducted a systematic survey off the coast of the Pontine Islands in the Lazio region of Italy. Through the deployment of various remote sensing technologies, the research team have surveyed and mapped over 60 square kilometers of seabed - discovering, mapping and studying a number of important and previously unknown sites in the process.
This collaborative project started in the summer of 2008 and continued in 2009 and 2010. Throughout the three seasons of survey and mapping, the project team have deployed various technologies including side scan sonar, sub bottom profiler and a remote operated vehicle. To date, the systematic approach has ensured the near total coverage of the seabed around Ventotene and Zannone down to the 150 meter contour. Through this survey, the team were able to find, map and record nine ancient shipwrecks off the islands of Ventotene and Zannone.
This paper will focus on the methodologies used for the survey as well as on the preliminary results of archaeological studies conducted thus far. Furthermore, attention will also be given to the way in which information gathered in the course of this project has been used to protect, manage and valorize the sites.

Underwater archaeology in Galician waters, Spain
San Claudio, Miguel - ARCHEONAUTA S.L., Spain
In the west of Europe lays the Iberian Peninsula. In the very west of this peninsula is located the autonomic Spanish Galicia. Its position over the seaways across the Atlantic makes that the navigation from northern Europe to near the rest of the world flew beside these coasts.
The presence of numerous ships of all the European nations in rough seas along the centuries caused the actual archaeological richness of the sea bottom around this coast.
The authorities had conscience of this fact and started the way to guarantee the integrity of the heritage that lies below the surface.
The control in public construction operations and the inventory of shipwrecks and others archaeological sites, realized great results. The confection of an inventory supposed the identification of more than 700 shipwrecks included in the category of cultural heritage.
Four years ago started the field operations to locate archaeological sites concerning geophysical resources and divers. All these works
means the adoptions of new methodological process and tools in order to achieve the best results.
The lack of information about archaeological operations in Spanish waters makes this contribution more interesting from the point of view of a first hand knowledge about the reality of underwater archaeology in Spain actually.
Miguel San Claudio is underwater archaeologist owner of Archeonauta S.L. a company dedicated to the management of underwater heritage.

Maritime warfare landscapes in Bocachica, Cartagena de Indias
Colombia - 18th century
Del Cairo Hurtado, Carlos - Anthropologist and archaeologist at National University of Colombia, Colombia

The war between Spain and the army enemies in the New World in the eighteenth century allowed that the new ways of sea and land control develop, where the military architecture and military engineering were the base of domination, control and articulation of the espace lisse and the espace strié (marine and terrestrial areas) of the Bay of Cartagena de Indias.
The French attack in 1697 and the British attack in 1741 which occurred in the port of Cartagena, turns out to be a case study of interest to the archeology of war, where the elements such as military construction, the numerous modifications made for tactical purposes in the natural environment of the Bay, the intentional sunken ships and the natural modifications of the coast line, compose a diversity of maritime warfare landscapes.
Through the Actor Network Theory, this research based on historical sources and underwater and coastal archaeological evidences in the zone of Bocachica, Tierra Bomba Island (the only access to the city), is aimed at identifying an hybrid relation between land and sea and consolidating three layers of landscapes - battlefields, defense and industrial production for military construction.

Finding and Researching of Ancient Ships as Part of Researching Project of Ancient Trade Routes
Prokhorov, Roman - National Centre of Underwater Archeology, Russia
Lukoshkov, Andrey - National Centre of Underwater Archeology, Russia

"Maritime heritage of Russia" project presents special program of reconstruction and researching of ancient water transport ways. Mainly the researching was held at international sea routs which connected North - West Rus with Europe. In our expeditions we had found more than 150 wooden wrecks and some of technical buildings.
The age of sunken ships that we had found from 4000 to 200 years. Comparing of numbers and kinds of wrecks of different ages demonstrates evolution and developing of ships and intensity of trade connections. We can already make a sequence about exploitation of the ships of Slavic, Karelian, Turkic type.

From Rutilus to MACHU project - some experience on the way to create management system for underwater cultural heritage in Poland
Pomian, Iwona - Maritime Museum in Gdansk, Poland

Rutilus project has been initiated in 2004 by the Underwater Group – a working group within the Baltic Sea Heritage Co-operation (BSHC) – with the overall vision to raise awareness of the potential of underwater cultural heritage in the Baltic Sea states, and to develop a joint strategy for its long-term preservation and sustainable use for tourism.
MACHU (Managing Cultural Heritage Underwater) was a three year project sponsored by the Culture 2000 program of the European Union.
The primary goal of the Machu project has been next step to create management system for underwater cultural heritage in Poland. Authors put place emphasis on collecting data which can help to create management plan for underwater cultural heritage in chosen testing areas. One of results of two and a half a year of our work was reconstruction of the palaeolandscape of the all testing areas. This information should be important for planning of underwater archaeological excavation and for the proper interpretation of poled environment context of archaeological findings.
The Illyrian coastal exploration program: 2010 - 2011
Rolay, Jeffrey - RPM Nautical Foundation, USA
A systematic littoral survey of the eastern Adriatic coast began in 2007 with initial field work in Albania. By 2009, the Illyrian Coastal Exploration Program (ICEP) had included a littoral survey of Montenegro, and is slated to have its inaugural field work in Croatia in 2011. The littoral surveys in Albania and Montenegro are the first systematic archaeological surveys on these sections of the ancient Illyrian coast, and have as a goal to survey and document all submerged cultural material to the c. 100-m contour. Although Croatia has received much coastal survey, such as systematic deep-water survey has not been undertaken. Although all finds are recorded and documented for the archives of each respective government, this paper will focus on the finds from the Greek and Roman eras. Thus far, the ICEP surveys have brought to light new evidence along coasts where nothing was previously known that address a wide range of archaeological research areas including colonization, overseas exchange routes, trade connections, and artifact distributions. This paper will highlight recent finds and their relation to these research questions.

SITE REPORT
Friday, 30th September 2011, Room 124

New light on the vessels of Indo-Roman trade: Roman period shipwrecks in the northern Red Sea
Blue, Lucy - Centre for Maritime Archaeology Archaeology, School of Humanities, University of Southampton, United Kingdom
Thomas, Ross - British Museum, United Kingdom
Hill, Jeremy - British Museum, United Kingdom
Emad Khalil - Centre for Maritime Archaeology & Underwater Cultural Heritage, Faculty of Arts, Alexandria University, Egypt

Understanding of the nature of vessels in the Red Sea and Indian Ocean during the period of Indo-Roman trade is limited, with direct evidence for shipwrecks being restricted to a few scattered amphorae finds on the seabed. Our knowledge of the vessels of trade has thus been confined to limited iconographic depictions of boats, descriptions in ancient texts, and elements of ship structure and rigging recovered from port sites in terrestrial contexts.

In the summer of 2010 the University of the Southampton in collaboration with the British Museum, the University of Alexandria and the Underwater Department of the Supreme Council of Antiquities, Egypt undertook a fact finding survey in the Fury Bay region off the southern Red Sea coast of Egypt. A number of new sites were assessed and one known wreck, the 1st century Fury Shoals wreck, was re-evaluated.

A further survey is planned for the summer of 2011 and this paper will present the preliminary findings from both season’s field surveys, in order to examine the information these sites afford with regard to furthering our understanding of vessels of Indo-Roman trade and the dynamic nature of the cargoes they transported. Essentially this paper will present the first systematic survey of Roman period shipwrecks of the northern Red Sea.
Silba Pocukmarak - The project of underwater archaeological park
Brusić, Zdenko - University of Zadar, Department of Archaeology, Croatia
Parica, Mate - University of Zadar, Department of Archaeology, Croatia

In Pocukmarak bay on the island of Silba, systematic underwater archaeological research was conducted on a small pier whose largest part of structure contains the Late Antique sarcophagi. Investigations are almost at the end, so researchers have to think about conservation and then underwater presentation of the sestone monuments. This method of presentation could be very successful because the site lies near the attractive beaches, at the depth of only two meters.

The authors reflect several types of presentations, ranging from in situ setup, until the minor or major intervention in arrangement of the stone sarcophagi. Therefore, after the exploration we will present these Late Roman tombs under the sea, so an ordinary swimmer with just a diving mask could meet the small part of Silban and Croatian heritage.

Pakoštane - presentation and valorization of archaeological material from the Roman port
Ilkić, Mato - Department of Archaeology, Croatia
Meštrov, Marko - Public Institution Agency Han - Vrana, Croatia

Owing to excellent cooperation of the Pakoštane Municipality and the Department of Archaeology of the University of Zadar two campaigns of underwater archaeological explorations were undertaken in Pakoška vala in 2004 and 2005. A thick cultural layer of previously unknown Roman port was discovered on that occasion. In addition, remains of a late antique ship were discovered as well. Although only a small segment of the underwater site was explored, rich and diverse archaeological material was discovered. This abundance of underwater cultural heritage attracted great attention of the local community which financed the explorations.

At the same time an idea about forming a local collection was born so that archaeological material from the Roman port was temporarily exhibited in the town hall of Pakoštane. This material will be permanently housed and presented in the local museum which is in the process of founding. Pakoštane represents an excellent example of how a local community takes care of its cultural heritage.

Zambratija boat in the context of Mediterranean shipbuilding
Koncani Uhač, Ida - Archaeological Museum of Istria, Croatia
Uhač, Marko - Ministry of Culture, Conservation Department in Pula, Croatia

In the bay of Zambratija, south of Savudrija an important archaeological site was found along the northern coastline. A wooden ship hull was discovered at the depth of ~2, 20 m. At the area of 1.5 x 0.8 m of the hull five strakes and a frame connected by means of sawing were partially visible. Analysis of one part of the ship strake using technique 14C revealed the absolute age of 2535±60.

However, the preliminary research shows that the detail differs from previously known archaic Mediterranean sawn ships. Oldest parallels of using lath for sealing purposes are found on the Cheops hulls and UK Bronze Age ships (Ferriby boats, Dover boat).

Sewing examination did not demonstrate the fact that shipbuilders used transversal dowels for additional connection of strakes using the so-called shell first construction technique. It’s also important to notice, the mode of simplified diagonal parallel sewing of strakes, which was commonly used in Roman age, but is rare on archaic ships. Considering preliminary results of a scientific surveys and radiocarbon dating, we can ascertain the importance of this site for further research of prehistoric shipbuilding technique.

Whose gold is this?
The Namibia shipwreck: a tale of red tape and dragging feet
Monteiro, Alexandre - Universidade Nova de Lisboa, Portugal

This paper deals with the astonishing discovery, in April 2008, of a shipwreck in the beach sands of the Sperrgebiet - the fabulously rich, and famously off-limits, De Beers diamond mining lease close to Oranjemund, in the Karas region of southern Namibia.

The ship was in all likelihood of Portuguese origin, which foundered after October, 1525, on outward-bound voyage, from Portugal to India. Historical research done by the author indicates that the wreckage is probably that...
Managing deep sea archeological wrecks

Tusa, Sebastiano - Soprintendente della Soprintendenza per i Beni Culturali di Trapani, Italy
Royal, Jeffrey - RPM Nautical Foundation, USA
Gambin, Timmy - AURORA Ocean Exploration & Education Trust, Malta

A new frontier of under water archaeology is deep sea research. We started in Sicily this kind of research with the help of RPM Nautical Foundation and Aurora Trust.

Two wide projects were set up. One was devoted to search with RPM Nautical Foundation the traces of the battle between Romans and Chartaginians of 241 b.C.. We were able to find the exact place where that battle was fought thank to the discovery of many connected items, among which there three bronze ram (two Romans and one Punic) and a helmet. That discovery was done in the frame of a wide and long lasting activity of research done with the help of Hercules oceanograhic ship. The first step was the survey of the area with side scan sonar that selected a lot of targets that were, afterwards, seen by ROV.

The second project was carried on with Aurora Trust in the sea around Panarea where, with almost the same methodology, we identified four ancient wrecks at a depth of about m 100.

Tauric Chersonesos' Underwater Research

Reida, Roman - Department of Underwater Heritage, Archaeology Institute, Ukraine
Beylina, Svitlana - Archaeology Institute (Crimean Branch), Ukraine

Archaeological research in the Tauric Chersonesos water area (Sebastopol, Ukraine) was commenced in 2009. Situated at the cape framed by two profound bays, Chersonesos was an important trading center in the Northern Black Sea region from the 4-th century BC till the 14-th century AD. Due to a continuous coastal abrasion and hydrophysical influence (breaking waves’ energy and currents) a beaked cape’s part keeps collapsing. Only Quarantine Bay (Ancient Chersonesos’ sunken dock area), safeguarded against strong currents, keeps the archeological material in an approximate stability, although in a redeposited condition (except massive buildings’ remains).

The material dates to the Hellenistic, Roman, Byzantine periods and that of the Eastern War. Predominant finds in the inshore zone are mi-
nor metal objects and fractions together with some rolled ceramic pieces. The 4-20 meters depths contain pottery fragments, anchor stones and anchors. Protecting the bay’s bottom from a complete devastation is the greatest challenge today, because an inevitable hydrophysical destructive activity is supplemented with an anthropogenic one: bay’s shore development, dredging and boat traffic. Chersonesos’ underwater heritage requires preservation for thorough research.

Montenegrin Maritime Archaeological Research Project (MMARP)
Zagarcanin, Mladen - Museum of Bar, Montenegro
Blue, Lucy - Centre for Maritime Archaeology
Archaeology, School of Humanities, University of Southampton, United Kingdom
Trakadas, Athena - Viking Ship Museum, Denmark
Le Quesne, Charles - RPS Group, United Kingdom
Zdravković, Petra - Museum of Bar, Montenegro

The MMARP developed in response to recent discoveries in Maljevik Bay, Bar, southern Montenegro. The remains – columns and dressed stone blocks – are unusual for their deposition in the bay, an area without any known associated archaeological material. A field-school project comprised of Montenegrin archaeologists and University of Southampton staff and students was conducted in the summer of 2010. The aims of this field-school focused upon documentation of the Maljevik site and the identification of any associated archaeological material. A maritime archaeological project in Montenegro also presents an opportunity for archaeologists and the government of Montenegro to develop and promote maritime archaeology in the region and establish training for students. Perhaps the most urgent issue is the documentation and conservation of maritime heritage of this part of Montenegro’s coastline, an area that faces accelerated development, increasing numbers of tourists, and long-term looting. For this reason this project design includes other elements. Through the establishment of the MMARP, international expertise is combined with that of local archaeologists and heritage professionals; it aims both to document this previously unknown resource, to bring it to the attention of a wider public, and to encourage the management and protection of these fragile and significant sites.

Cultural landscape and structural history - a case study from an underwater archaeological site in southern Norway
Johannesen, Jørgen - Norwegian Maritime Museum, Norway

Four ship wrecks dating from 15th – 17th centuries and material such as ceramics, bottles and claypipes have been found in a sheltered strait in the southern part of Norway. The dense clustering of finds is closely connected to the strait as a safe haven after voyages crossing the ocean between northern Europe and southern Norway, as well as exploration along the coastline. At present there has been a smaller excavation on a carvel built, Dutch vessel, dating from early 17th century. This is an early dating for carvel finds in Norway. Finds also includes a so called Hansekanne from northern Germany ca 1400, ceramics from Siegburg in Germany ca 1400 and a variety of Dutch and English clay pipes from 17th-19th centuries. Summer 2011, students from Syddansk Universitet in Denmark are conducting a field school at another wreck. This wreck includes a load of plaster and the wreck is clinker built. Results from the excavation, such as new finds, dating and origin are to be presented at the IKUWA 4 Conference. The site is discussed on the background of the Annales School with emphasis on Fernand Braudels’ concepts of history and time as the long run, cyclic and event based.

Underwater cultural heritage of lake Ohrid with the presentation of the reconstruction of a palafit settlement in the Bay of the Bones at Gradiste, Ohrid region, R.M.
Kuzman, Pasko - Cultural heritage protection office, Ministry of Culture R.M., Macedonia
Todoroska, Valentina - Macedonia

This presentation will aim to represent the cultural underwater heritage of Lake Ohrid. Its main focus will be site “Ploca Micov grad” in the Bay of Bones, where a complete reconstruction has been made and a complex of authentic structures, as well as a museum where the movable material of this prehistoric settlement has been presented. It is located along the east coast of Lake Ohrid in the Gradiste Bay. The first underwater archaeological research was conducted in 1997. At a depth of 3-4m we discovered numerous wooden piles
pinned at the lake bed and numerous movable archaeological material, mainly ceramic-integral and fragmented ceramic vessels, chronologically belonging to the end of bronze and beginning of iron age. In 2008, part of the reconstruction of this locality was promoted, while in 2010 with was fully presented to the wider public. Here we would like to present the reconstruction, protection and conservation of this locality, as well as the realized measures for its presentation to the wider public and raising their awareness.

Networking the past - The Seljuk shipyard of Alanya / Turkey

Rutter, Anya - graduate of University of Southampton, program Maritime Archaeology, Germany

The physical structure visible today was built in the 13th century during Seljuk reign, which bridges the Byzantine with the Ottoman era in the region. The historical developments leading to its founding show a process of emergence that went beyond the planning of the Seljuk rulers. The site had worked as a nodal point connecting land and sea for centuries, and continued to do so almost into the present. Drawing together the wide variety of sources reveals the complex network that surrounded the shipyard in its time. Ethnographic research provides multiple perceptions regarding this space that will also have existed among contemporaries. Today, the tourist town extends into the hinterland, leaving the shipyard almost isolated. An attempt is currently made to develop it as a tourist attraction. Such a process carries the danger of reducing site treatment to the conservation of a physical structure. Fishermen, neighbors, former shipbuilders from Greece and foreign visitors might all be integrated into the development. The potential of the shipyard as a nodal point for joint activities, living memories and shared traditions, for communication and identity-building could be of mutual benefit to users and developers. After all, a site comes only alive with its context.

Isolino Virginia, the most ancient pile dwelling around the Alps: research results from Varese lake (Lombardy-Italy)

Banchieri, Daria Giuseppina - Italy

New investigations in various areas of Isolino site offers to know the connection among lake, dwelling and environment during the different Neolithic phases, but also for Eneolithic and Bronze Age. Thanks to the good condition of the wood it is possible to study and know more about building technologies of Neolithic period.

Underwater heritage of North-Western Russia; problems of investigation and conservation

Mazurkevich, Andrey - General curator of the Department of archaeology of The State Hermitage Museum, Russia

Dolbunova, Ekaterina - Doctoral student in the Department of archaeology of The State Hermitage Museum, Russia

Lacustrine pile-dwellings situated under water are traditionally regarded to be the phenomenon of a strictly alpine zone. Whereas the same sites were found in North-Western Russia in the 1960s. These sites conserved under water and in peatbogs with rich rests of constructions, organic and other materials are unique evidence of European past. They appeared at the same time as alpine lacustrine sites in the same ecological niches. As is the case with alpine sites these sites are cultural phenomenon. In the course of research several aspects are regarded to be important, one of which is the question of conservation of this cultural heritage. The other concerns problems of independence of cultures existed on this territory and their relationships with synchronous cultures of alpine zone.

Chain of lakes between North-Eastern Poland and Valdai valley is poorly investigated. That is why it is not possible to understand completely the cultural phenomenon of lacustrine pile-dwellings in the east of Europe. Results of underwater investigations, conducted from the 1980s, of pile-dwellings situated in the Upper Dvina river will be represented in this report. Problems of conservation concern also sites situated in the North-Western Russia that will be demonstrated on the example of sites of lake Sennica (Pskovsky region).
Prehistoric pile dwellings around the Alps - World heritage nomination:
Strengths and weaknesses of managing the underwater sites of Lombardy (Italy)

Poggiani, Raffaella - Ministero per i Beni e le Attività Culturali - Soprintendenza per i Beni Archeologici della Lombardia, Italy
Baioni, M. - Italy
Cesi, Adele - Italy
Grassi, Barbara - Ministero per i Beni e le Attività Culturali - Soprintendenza per i Beni Archeologici della Lombardia, Italy
Mangani, Claudia - Museo Civico Archeologico "G. Rambotti", Desenzano Del Garda (Bs), Italy
Martinelli, Nicoletta - Dendrodata, Dendrochronological laboratory, Italy
Ruggiero, Maria Giuseppina - Ministero per i Beni e le Attività Culturali - Soprintendenza per i Beni Archeologici della Lombardia, Italy

As everybody knows, Italy has a rich cultural heritage and many of its sites have been included in the UNESCO - World Heritage List. Till now, Italy is the country most represented in the List, with more than 40 properties:
- historic centers, monuments, archaeological sites, cultural and natural heritage.
- At present, Italy is taking part in the transnational nomination for inscription in UNESCO's World Heritage List of the "Prehistoric Pile Dwellings around the Alps". The project involves, besides Switzerland, which promotes the nomination, France, Germany, Austria and Slovenia.
- Among the 19 the sites identified to take part in the project in northern Italy, 10 are in the region Lombardy.
- The most ancient structures date back to the Early Neolithic (ca. 5000 BC) but the phenomenon intensifies and spreads during the Early and the Middle Bronze Age (2200-1400 BC) and comes to conclusion at the end of the second millennium BC. The highest concentration of pile dwellings is located on the shores of Lake Garda, where there are more than 30 villages, and in the area of Varese's Lakes: important sites are also in the morenic hilly region.
- The nomination of pile dwellings around the Alps has been an opportunity to highlight and analyze overall the protection and the management of these sites, with particular attention to the underwater ones (for instance Bodio-Varese and Sirmione - Brescia), also located in tourist areas. The paper will outline the weaknesses and the strengths in the management of the Lombard sites, which came to light during the works for preparing the nomination files.

Rose Island in Lake Starnberg
A Bavarian lake - shore settlement

Schlitzer, Ulrich - Bavarian Society for Underwater Archaeology, Germany

Bavaria, the southernmost state of Germany, is situated at the periphery of the distribution area of prealpine lakeshore and wetland settlements. However, the region provides a remarkable site - Rose Island in Lake Starnberg - that was included in the international, serial World Heritage Nomination "Prehistoric Pile Dwellings around the Alps" under the auspices of Switzerland.

The lake is the only water in Bavaria where clear proof has been found for the existence of pile-dwelling settlements. Rose Island itself has always been the focal point of Bavarian pile-dwelling research. Large shallow water areas with well preserved archaeological remains from numerous prehistoric and historic times offer wide research opportunities. Iron Age features from the middle of the 1st millennium BC - an era usually characterized by the abandonment of water-edge locations - make the settlement unique among other pile-dwelling sites. The former royal island is an excellent example for the complexity of successful site management.

Requirements as an inscribed World Heritage, needs of stakeholders and public authorities, the legal and physical implementation of monument protection and nature conservation have to be taken into consideration as well as aspects of scientific research and tourism interests.

The great bridge of medieval Novgorod: newly discovered underwater treasury of old - Russian res publica

Stepanov, Aivar - North-west Institute of Cultural and Natural Heritage, Russia
Troianovskiy, Sergey - Russian archaeological center of Novgorod state museum, Russia

Since 2005 in Novgorod (Russia) continuing research program of exploring underwater remains of medieval wooden "Great bridge".
Technical and methodological support of the underwater diving operations has become the first successful experience of underwater archaeological research on the territory of Ancient Russia. As a result of underwater archaeological works on the bottom of the river Volkov were found pillar’s constructions of the bridge piers referring to XII and XIV centuries. Around them were collected thousand evidences (inc. coins, seals, jewelry, weapons, tools, locks and keys, pottery, bricks, frescoes etc.) of the bridge history, which are quite important for historical view on this oldest stationery bridge in unique old-Russian republic.

The archeological information received broadened the field for the research of the building, topographic and socio-political “life” of the Great Bridge and became a prominent addition to the materials of the wide-scale excavations on the territory of Novgorod. After this works area of riverbed inside the historical core of Novgorod were included in the ring-like perimeter of "Cultural layer of medieval Novgorod", as an archeological object of UNESCO (since 1992).

The next step of project will be creation of new type museum "Great Bridge", as a real underwater "treasury" and important part of tourists branding of city Novgorod.

A new approach to research of river archaeology in Northern Croatia

Zubčić, Krunoslav - Croatian Conservation Institute, Department of Underwater Archaeology, Croatia

The paper will present recent research of the rivers Kupa and Mrežnica near Karlovac and of the rivers Drava and Danube in the regions of Slavonia and Baranja. The strategy of the research was the survey of large portions of the rivers using a side-scan sonar to determine possible areas for diving survey. The differences between results are caused by different hydro- and geological conditions of the rivers.

The area were the ruins of a Roman bridge crossing the Drava river in Osijek were found, was then scanned with a multibeam sonar. The bathymetrical data showed the positions of rests of four pilons.

Underwater archaeological investigations on the origin of the numerous Bronze Age human finds in the Tollense valley,

North - East Germany

Brinker, Ute - State Authority for Culture and Protection of Monuments, Department Archaeology, Germany

Krüger, Jochen - Institute of History, University Greifswald, Germany

Lübke, Harald - Centre for Baltic and Scandinavian Archaeology, Schleswig-Holstein State Museums Fundation Schloss Gottorf, Germany

An outstanding Bronze Age site of the 13th century BC from Tollense valley, North-eastern Germany, is currently the object of systematical interdisciplinary research. Weapon finds and human skeletal remains discovered in a distance of about 5 km along the River Tollense indicate an unusual situation, currently interpreted as the remains of a Bronze Age group conflict.

Up to now, skeletal remains of more than 80 individuals, mostly young males, have been identified. Several of them exhibit traces of violence, e.g. a skull with a severe impression fracture or an upper arm bone with embedded flint arrowhead. The presented article is a preliminary report of the results of dive-surveys carried out up to now in addition to the wetland excavations and describes the future tasks of the under water archaeology in the frame of the research project which is supported by the „Deutsche Forschungsgemeinschaft“ (DFG) since 2010.
POST EXCAVATION
Friday, 30th September 2011, Room 124

The conservation of ancient dockyard sites
Blackman, David - University of Oxford, Centre for the Study of Ancient Documents, Ioannou Centre for Classic, United Kingdom
Lentini, Maria Costanza - Servizio Parco Archeologico di Naxos e delle aree archeologiche di Giardini Naxos and Byzantine Studies, Italy

Recent excavations of ancient dockyard sites have revealed a number of examples of a type not previously well known: with built up ramps of hard-packed earth, or earth and rubble, or sand. These are less easy to conserve than rock-cut slipways or slipways with built up stone ramps; there is some evidence that they needed maintenance already during their period of use. Examples of all these types will be discussed, with the methods being proposed for their conservation, in order where possible to make them permanent and accessible.

Preliminary studies for the conservation of the wooden poles of the pile dwelling in Fiavè (North east Italy)
Dal Rì, Cristina - Soprintendenza per i beni librari archivistici e archeologici, Italy
Bellintani, Paolo - Soprintendenza per i beni librari archivistici e archeologici, Italy
Macchioni , Nicola - CNR IVALSA, Istituto per la Valorizzazione del Legno e delle specie Arboree, Italy
Pizzo, Benedetto - CNR IVALSA, Istituto per la Valorizzazione del Legno e delle specie Arboree, Italy
Capretti, Chiara - Italy

The archaeological area of Fiavè, in the alpine Trentino region in Italy, at 646 m a.s.l. and 10 km northbound the Garda lake, was discovered due to the industrial exploitation of the peat that filled the original "Carera" basin, a small glacial lake almost completely disappeared. During the period 1969 – 1975 some campaigns of systematic excavations directed by Renato Perini allowed bringing to the light pile dwellings pertaining to different periods and of different typologies, dated back to the IV – II millennium B.C.

After the excavations the wooden poles remained on site, with preserving conditions completely changed: partially or completely covered by the water table. In order to design the layout of an archaeological park on the pile dwellings it was decided to measure the evolution of the decay of the wooden artefacts from the excavation up to present times. During summer 2010 several samples were drawn from a large number of poles, trying to take the samples including the inner portions of material.

The paper will describe the sampling methodologies and the principal results of the decay measurements, made according to a deep protocol: anatomical micromorphological analyses, physical analyses (to determine MWC% and densities) and chemical analyses through gravimetric and spectrophotometric methodologies.

Waterlogged wood preservation problems; The case of the Mediaeval Boats of Nin
Fix, Peter - Texas A&M University, Centre for Maritime Archaeology and Conservation, Department of Anthropology, USA
Radić Rossi, Irena - University of Zadar, Croatia
Radović, Mate - Museum of Nin Heritage, Croatia

The excavation and conservation of the two mediaeval era boats from Nin figures today as Croatia’s only realized nautical archaeology project. Located in the area of ancient Aenona, or later Nona during 1967 and 1968, the two well preserved hulls were documented during three campaigns preceding the raising of the finds in 1974. After ten years of conservation treatment the boats were put on display in the local museum.

For many years following their installation, a conservator monitored the timbers; however, upon his retirement museum staff cleaned and maintained the timber, only by vacuuming and dusting. That is until a multi-toned grey or yellowish orange powder was observed precipitating from the polyethylene glycol (PEG) stabilized wood. Several samples of the powder were evaluated by gravimetric means and the unofficial results identified the presence of both chloride and sulphide ions. In April 2010, on request of the Archaeological Museum of Zadar, the University of Zadar and the Center for Maritime Archaeology and Conservation, Texas A&M University provided the technical assistance to assess the preservation state of two archaeological boat remains.
The purpose of the project is to identify the precipitate; attempt to understand the chemical or biological activity generating the powder; determine if the powder or mechanism poses a specific risk to the long term preservation of the crafts; recommend key areas for improvement of conditions, work, or further to be undertaken.

Some examples of presentation of archaeological material found in rescue underwater excavations in Croatia

Gusar, Karla - University of Zadar, Croatia
Parica, Mate - University of Zadar, Croatia

The paper analyzes possible ways to approach the presentation of archeological material found in underwater archaeological excavations of the sites Grotica and Martinšćica on the island of Cres, Foša in Zadar and Matejuška in Split. These sites are ports where rescue underwater investigations revealed mainly Modern Age pottery finds. Given the fact that these findings until recent were not considered part of archaeology, and it is still difficult to find them in museum showcases, the basic idea is that this material after the research and conservation is presented in various local institutions. Apart from the various museum collections, this kind of material fitted into historical context of the settlement, can be exhibited in the public institutions that operate in the area such as galleries, a variety of educational institutions, administrative centres and tourist offices, which will certainly contribute to better understanding of the history of the settlements, but is also important for raising cultural awareness among the local population.

Preserving a submerged Bronze Age city: The Pavlopetri Underwater Archaeological Project

Henderson, Jon C. - Underwater Archaeology Research Centre, Department of Archaeology, University of Nottingham, United Kingdom
Gallou, Chrysanthi - Centre for Spartan and Peloponnesian Studies, Department of Archaeology, University of Nottingham, United Kingdom
Sakellariou, Dimitris - The Hellenic Centre for Marine Research, Greece
Spondylis, Elias - Department of Underwater Antiquities of the Hellenic Ministry of Culture, Greece

Pavlopetri, off the coast of Laconia, Greece, is the oldest submerged city in the world with remains dating from at least 3,500 BC through to the end of the Mycenaean period c.1,180 BC. Remains can be traced over 8 hectares, submerged by 3 to 4 metres of water, and consist of intact domestic buildings, larger public structures, courtyards, streets, graves and rock-cut tombs. In 2009 the University of Nottingham began a 5-year project, in collaboration with the Department of Underwater Antiquities of the Hellenic Ministry of Culture and the Hellenic Centre for Maritime Research, to outline the history and development of Pavlopetri. A fundamental aim of the project is to promote the international significance of Pavlopetri ensuring its survival and protection for future generations.

This paper will discuss the proposed preservation strategy for Pavlopetri, the use of cutting edge survey technology to both preserve the site digitally and allow meaningful engagement with the public, as well as plans for in-situ preservation and presentation. It is hoped that the model developed at Pavlopetri will have an application for other shallow submerged coastal sites.

Managing the Evidence - Implications of Digital Developments on the Documentation, Analysis, Presentation and Archiving of Ship Hull Assemblages

Nayling, Nigel - Newport Ship Project and University of Wales, Trinity Saint David, United Kingdom
Jones, Toby - Newport Ship Project and University of Wales, Trinity Saint David, United Kingdom

The utilization of digital methods for the documentation of ship hull assemblages, showcased at the workshop preceding the last IKUWA conference, has become increasingly widespread. The implications of this development, including the impact on approaches to such key research themes as hull design, construction sequence and theoretical hull reconstruction; modes for dissemination of the results of such analysis through publication and display, and the opportunities and challenges for the creation of accessible digital archives are now being explored.

Using the Newport Medieval Ship Project as a case study, this paper reflects on these devel-
opments, examining how these can deliver not just three-dimensional documentation of ship hulls but also innovative methods of visual analysis, presentation, and audience interaction. The effective management of the resultant outputs will require the creation of digital archives which encourage interrogation and comparative research, and ensure migration of data as file formats and computer operating systems evolve.

First aids for underwater cultural heritage: preventive conservation from excavation to museum

Huet, Nathalie - DRASSM, French Ministry of Culture, France

In submarine environment, organic material are well preserved whereas in terrestrial contexts most of the time they are totally degraded. For metallic objects and ceramics, the salts are going to accelerate their alterations at once they are uncovered. Consequently the conservation of these artefacts have to be conducted during the excavation as soon as possible and initial conservation adapted to each material. The operational link from excavation to study or restoration have to be well managed otherwise in few years all these artefacts will be in a bad state.

In 2010, the Drassm created a preventive conservation section responsible of the management of underwater archaeological artefacts. They have to deal as well with amphora as 2nd world war aircraft. Their missions are to do the first aids for these objects, to manage initial conservation section on-site, to inform the professional archaeologists and volunteer excavators. Moreover the management of the artefacts from the last 40 years underwater excavations, they have to prescribe new rules for the current and future surveys and excavations.

GOOD PRACTICE
Saturday, 1st October 2011, Great hall

Management, research and the new economy: recent developments in the coastal and marine archaeology of Scotland

Benjamin, Jonathan - Wessex Archaeology (Coastal and Marine) and The University of Edinburgh, Scotland

Research and management in coastal and marine archaeology has expanded on an international scale ranging from ships and boats to submerged prehistory. In order to meet the growing energy demands of a low-carbon economy, Europe’s offshore sectors are exploiting resources in an unprecedented manner. New development requires planning permissions and a comprehensive impact assessment of the environment that includes cultural heritage. In Scotland, a small country that has <1% of Europe’s population, but 25% of its wind resources, major offshore development is under way with a plan in place and long-term goals set out to 2050. Work has begun in order to assess the archaeological potential and heritage resources in the submarine environments of Scotland.

This paper will discuss our experience relating to the initial interrogation and consolidation of marine data, and seascape characterization of Scotland’s marine heritage and archaeological potential.

Managing the fixed link - A Danish - German cooperation project in the Baltic Sea

Segschneider, Martin - Archaeological State Office Schleswig-Holstein, Germany

In this project, the Danish Viking ship Museum, Roskilde, and the German Archaeological State Office Schleswig-Holstein, are closely cooperating. The crossing of the 18 km wide Fehmarnbelt between these two countries by a tunnel started an ambitious work on the protection and investigation of the underwater cultural heritage in this marine area. The project is carried out in five stages: 1. archival studies; 2. a complete overview of the building area by means of Side scan-Sonar and magnetic measurements; 3. checking the anomalies in waters deeper than 10 meters with the help of a ROV, and, if detected as objects of possible cultural
value, visited by surface-supplied divers. In the shallow water, all anomalies were also checked by divers, especially submerged forests, but no stone-age sites could be detected so far. Two war-ship wrecks lying in water 35 metres deep dating to the 17th century will be thoroughly investigated due to the fact that they might be removed in advance of the building activities (5.). As a special matter, fresh-water sediments from a former lake were also cored to do a paleo-ecological analysis of the rapid landscape changes and marine transgressions flooding the Baltic Sea basin.

Managing the Nord Stream project through Danish waters

Dencker, Jørgen - Head of Marine Archaeology on the Viking, Ship Museum in Roskilde, Denmark

Just now Nord Stream AG is establishing a gas pipeline in the Baltic Sea between Russia and Germany. The pipeline traverses Danish territorial waters near Bornholm. In total, a track of approximately 138 kilometers by 2 kilometers has been affected.

The Viking Ship Museum who is responsible for the Marine Archaeology in that area has checked the geophysics survey data and produced a cultural-historical evaluation of the positively identified shipwrecks. In the 1638 kilometer long surveyed distance 951 anomalies were pointed out and of these 30 were wrecks, parts of wrecks or possible wrecks. Most of the wrecks could be typological dated on basis of underwater video and it was quite striking that no wrecks seemed to be more than 400 years old. Where were the older ones?

In connection to the lay down of the pipeline the Viking Ship Museum had defined zones around the wrecks which had to be protected against anchors and anchor wires during the anchor handling in a 2000 meter wide zone. One wreck was that close to the alignment that the Viking Ship Museum was on board the huge platform when the lay down operation passed that wreck to secure that everything went as agreed and that the wreck wasn’t damaged. Besides of a rudder which lay directly in the alignment nothing has been recovered.

The shipwrecks in the Eastern part

Gulf of Finland in the Russian Zone of project “Nord Stream”

Sorokin, Petr - North-west Institute of Cultural and Natural Heritage, Russia
Stepanov, Aivar - North-west Institute of Cultural and Natural Heritage, Russia

In 2006 - 10 in the Eastern part of Gulf of Finland were conducted scales underwater researches in a zone of a line of the North European gas pipeline. Its total length in the Russian waters is about 110 km. The projected pipeline route crosses the historic water communications, which connected the Baltic Sea with the Eastern part of the Gulf of Finland and St. Petersburg. In the course of these works have been found and searched 18 shipwrecks not known before. The significant amount of sunken wrecks was revealed near to the Northern Hohland bank. According to archival documents in this place the largest cemetery of the ships in the Russian waters of Baltic is located. All of them lie down on depth about 50-60 m., therefore preservation of their hulls are good preserved. Their inspection was conducted by sonar and ROV. Underwater investigation by skin-divers was in exceptional cases made. Design features of the ships and the finds allow dating those 18-20 centuries.

Bjørvika, Oslo harbor - a Norwegian example of the new millennia’s “post-port” urban seaside

A brief presentation of maritime constructions, boats, artefacts and cultural layers uncovered en route to the future city centre

Vangstad, Hilde - Norwegian Maritime Museum, Norway

Through the two decades following year 2000 a massive urban development project is scheduled to take place in Bjørvika, Oslo harbor, as is the situation in various comparable harbors round the world. The Norwegian Maritime Museum has been responsible for the registration and excavation of maritime sites protected by the Norwegian Cultural Heritage law in Bjør- vika. As a result the museum has been engaged in several small and large scale projects from 2003 and till this day. More than 30 boat wrecks dating from late 16th century to 20th century has been revealed and well known and unknown harbor constructions have come to light. The documentation of seabed sediments
and fillings has led to a far better understanding of the local natural and cultural processes in the harbor, and a vast number of artefacts have been collected. In 2011 - nearly half-way through the development project it's time not only to present some of the results. It is also time to discuss the fact that we are about to lose most of the city’s archaeological maritime “archives” holding information of boat and ship constructions, harbor constructions, dockyards, maritime trade and urban harbor life in Oslo through the last 1000 years.

Management of Maritime and Underwater Cultural Heritage in Kenya

Bita, Caesar - Underwater archaeology, Fort Jesus Museum, Kenya

Management of Maritime and underwater cultural heritage in Kenya is placed under the National Museums of Kenya (NMK), a state cooperation established by an Act of Parliament called the National Museums and Heritage Act (NMHA) of 2006. This ACT gives the NMK the powers to put in place sound policies for managing heritage sites and materials, provides for the establishment, control, management and development of national museums and identification, protection, conservation of Maritime heritage within Kenya waters, archaeological sites, artifacts etc. in Kenya. NMK undertakes the following:

Enactment of the maritime cultural heritage conservation and exploration policy, training of personnel in maritime archaeology (4 trained in the field of underwater archaeology). NMK has set up a unit of underwater archaeology within the larger department of archaeology in one of its big museums, Fort Jesus Museum in the coast, it conducts of surveys and documentation of maritime archaeological resources (a database is developed). There is stakeholder involvement as well as bilateral and multilateral relationships with countries that have more highly developed coastal and marine heritage management capabilities. NMK carries out Underwater Cultural Heritage Impact Assessments (UWCHIA) on proposed development projects before they are carried out to identify possible effects and propose measures to mitigate adverse effects etc. Challenges include few trained personnel, lack of equipment and lack of funds.

The archaeological impact evaluation as a helpful tool in the planning stage of large scale construction projects:

The case of P.I.F. in Venice lagoon

Capulli, Massimo - Università degli Studi di Udine, Dipartimento di Storia e Tutela dei Beni Culturali, Italy

Pellegrini, Alessandro - Andreaia Studio Associato per L’archeologia delle Acque, Italy

Rizzato, Riccardo - Andreaia Studio Associato per L’archeologia delle Acque, Italy

Traviglia, Arianna - Research Fellow, Department of Ancient History, Faculty of Arts, MACQUARIE UNIVERSITY, Italy

Preventive archeology has the aim to locate sites during the data acquisition phase that should run before or during the planning stage of a work. The archeological impact evaluation (VIA) exposed in this paper, preliminary to the realization of the water pipe planned by Fusina Integrated Project (PIF), concerned an extended zone including the central and south part of the Venice Lagoon. Morphology of this area is very complex and various with the presence of canals, shelf and dry land and many modifications were brought during the past centuries.

In submerged and wet sites VIA is a multidisciplinary analysis of data coming from different studies: historical, archaeological, geomorphologic and paleoenvironmental, collected with information retrieved by air photo interpretation and direct or instrumental survey. Synthesis of these data allows us to identify the potential archaeological risk of an area, the evaluation of which becomes part of the planning stage and a useful tool to support decision makers.

In the case of PIF, by this study, it was possible to locate some anomalies and also a submerged archaeological site, which has been preserved from damages by planning the deviation of the course of the project.

The "Black Swan" Treasure;

A lesson for future management of underwater cultural heritage

Génio, Margarida - University of Coimbra, Portugal

In May 2007, the largest and most valuable shipwreck treasure in history, a seventeen-ton haul of 500 thousand gold and silver coins, copper and tin ingots, and other
valuable objects was raised by the US treasure hunting Company Odyssey Marine Exploration. The cargo was recovered from the Spanish galleon Nuestra Señora de las Mercedes that sunk off the Portuguese Coast in the 19th century, during the excavation operation carried out in secret under the codename “Black Swan”. The unauthorized withdraw of the Spanish Treasure from Portuguese contiguous waters was taken to court in the USA for a formal legal process that lasts until today, where the Spanish government claims the recovery of the shipment. While the 500 thousand million Euros treasure gets all the attention, the shipwreck remains underwater and seems forgotten, as well as other objects that are not worth the money, but have surely more archaeological and historical value. This case is a good example of the lack of appropriate management, including archaeological research, conservation and dissemination of knowledge.

The author will bring insights into the formulation of a management plan and considerations on how it should be executed.

The State of Underwater Archaeology for CRMs and Industry in Northern America
A View from the Pacific Coast
Gusick, Amy E. - Department of Anthropology, University of California, USA
Faught, Michael K. - Panamerican Consultants, USA

While the discipline of submerged prehistoric archaeology has been gaining in popularity in North America over the past couple decades, this growth has not been consistent. Concern of and interest in submerged prehistoric sites within the cultural resource community and within industry has lagged in North America, particularly in the western portion of the continent. Cultural resource managers (CRMs) and permitting agencies in the south east and east, close to the Gulf of Mexico and the Atlantic Ocean, are becoming increasingly aware of the need for management plans that include mitigation measures for submerged archaeological sites. This concern has resulted in a boost to underwater research and discovery of numerous submerged sites in the region. The western portion of the continent has not seen this same type of awareness within CRM and industry projects. There has recently, however, been a focus within academia on identifying locales on submerged paleo landscapes off the western coast, in the Pacific Ocean, that may favor preservation of prehistoric archaeological sites.

As these projects become more fully disseminated, we hope that permitting agencies and CRMs in the western portion of the continent will begin considering management plans that include submerged prehistoric archaeological sites.

Rescue archaeology in harbour construction projects: the case of Horta bay (Azores, Portugal)

Bettencourt, José - Centro de História de Além-Mar, Portugal
Carvalho, Patrícia - Centro de História de Além-Mar, Portugal

The reorganization of the maritime front of Horta, in Faial island (Azores), promoted by the Azores Government, includes the modification of a 170000 m$^2$ submerged area, through the construction of a dock with more than 300 m length and the dredging of a turning and maneuvering basin. This project, that begun in June 2009, was preceded by an Environmental Impact Assessment (EIA) study, which resulted in the definition of several mitigation measures to be implemented before and during construction works – the survey, excavation and removal of archaeological materials discovered and the monitoring of the dredging works.

This approach allowed us to identify and preserve remains related to Modern navigation in the Atlantic. The most important is Baía da Horta 1 site (BH-001), due to the diversity of materials found (elephant tusks, artillery, firearms, ceramics, glass and metal or wood objects) and the complexity of the strategy adopted to rescue this scattered 18th century shipwreck.

This paper presents the methods, strategies and results of this intervention and discusses the specificity’s of archaeological mitigation related to harbor constructions in scattered shipwrecks sites.
IN SITU PRESERVATION
Saturday, 1st October 2011, Room 143

Developing a guideline for In situ preservation of shipwrecks
Manders, Martijn - Netherlands Cultural Heritage Agency, Netherlands
Gregory, David - The National Museum of Denmark, Department of Conservation, Denmark

Quite a few international regulations concerning the protection of maritime heritage underwater are stating that preservation “in situ” should be considered as the first option (The Treaty of Valletta of 1992, UNESCO Convention on the Protection of Underwater Cultural Heritage of 2001 and the ICOMOS Charter on the Protection and Management of Underwater Cultural Heritage of 1996). But what does that mean and what does it imply? The EU - 7th Framework - project (2009-2011) Wreck Protect has focused on developing tools for predicting the spread of marine borers into the Baltic and effective methods for in situ protection of the historical wreck and submerged settlements. This has resulted in two guidelines for maritime archaeologists and cultural heritage managers, one on the prediction of spread of the shipworm (Teredo navalis) in the Baltic Sea - a major threat for the outstanding well preserved shipwrecks that have been discovered there - and a more general guideline on the use of physical in situ protection of submerged sites.

This last guideline can also be used in other areas in the world. It suggests methods to secure the long term preservation of underwater wooden cultural heritage. In order to provide a complete picture, instructions on use, pro and cons of the applied methods and cost-benefit analyses are included. Additionally also pre and post installation work will be discussed, like regular monitoring on site. The proposed paper discusses the final results of this research.

A 14th century Shipwreck from Reichenau Island, Lake Constance (Germany): Excavation, Documentation, and In situ Conservation
Mainberger, Martin - Ref. Feuchtboden- u. Unterwasserarchäologie Landesamt f. Denkmalfpflege im RP Stuttgart, Germany

Watercraft was crucial for the economy and communication of the renowned monastery on Reichenau Island (founded in 824) in Lake Constance, which is today a UNESCO World Heritage site. Archaeological remains of ships represent therefore important sources for the historical understanding of transport and fishing at the island. In 2004 a shipwreck, dating to the early 14th century, was discovered in the shallow water zone near the southern shore. Monitoring dives showed that the object suffered badly from anchors, waves and sediment erosion and that it was falling apart increasingly. In consequence, the Landesamt für Denkmalschutz im Regierungspräsidium Stuttgart, in the framework of an Interreg IV - programme („Erosion und Denkmalschutz im Bodensee und Zürichsee“), started rescue operations. Loose components were recovered or excavated if still embedded in sediment. The wooden components were documented using a laser scan device. After archaeological documentation the components were transported back to Reichenau Island, where they were reburied on a more sheltered site in the shallow water zone. In this way a second shipwreck discovered near the reburial site will benefit from the experience gained from the first in-situ conservation of a historical shipwreck in Lake Constance.

Heritage Management Nirvana: combining outreach, research and conservation in the management of historic shipwrecks in Victoria, Australia
Steyne, Hanna - Institute of Archaeology, UCL, United Kingdom
MacLeod, Ian - Executive Director, Collections Management and Conservation, Western Australian Museum, Australia

Heritage Victoria is the State Government agency responsible for the management of non-indigenous cultural heritage assets in Victoria, Australia. Around 250 historic shipwrecks have been located and protected in Victoria, ranging in date from the early 1830’s to World War II. As a result of significant expansion of the international commercial port and development of smaller marinas around Port Phillip Bay, monitoring works and active site management regimes have been established on a number of significant shipwrecks, which survive largely intact within the Bay.

This paper presents some of the work undertaken by Heritage Victoria, in conjunction with the Western Australian Museum and Maritime
Archaeology Association of Victoria, over the past two years to actively protect and conserve historic shipwrecks in Victoria. Two sites will be discussed in this paper; the iron hulled steamer City of Launceston and the twin turretted monitor HMVS Cerberus. Both these sites have been the subject of long term corrosion studies and more recently conservation through the use of anodes. Integral to the work has been the training and inclusion of local volunteers to assist with all phases the work.

Management for Conservation of North Carolina’s Underwater Cultural Heritage

Watkins-Kenney, Sarah - North Carolina Department of Cultural Resources, Underwater Archaeology Branch, USA

North Carolina, on the eastern seaboard of the United States, has a rich maritime heritage. Maritime archaeological sites may be at risk from environmental and cultural factors. Cultural factors arise from varied, sometimes conflicting, interests. Since the 1960s, the State of North Carolina has employed a professional staff whose duties include protection and preservation (i.e. conservation) of underwater archaeological remains to which the State has title. To achieve this requires developing and implementing management strategies for conservation that balance professional, political and public interests.

This paper will briefly review the history of provision for the protection and preservation of the underwater cultural heritage of North Carolina, and introduce the research I am doing for a doctorate in the Coastal Resources Management Program at East Carolina University. The goal of my research is to examine past and current strategies to manage underwater archaeological resources in North Carolina, to understand decisions made and to observe the outcomes of actions taken. This will provide data for the development of better strategies for future conservation management of our submerged cultural heritage.

The NC Department of Cultural Resources Office of State Archaeology has records on some 900 underwater sites on which various archaeological actions have been taken, 1960-2010. My investigation of management strategies for these sites will include multivariate analysis to determine relationships between actions, factors and outcomes. Five possible actions for conservation management are: 1) do nothing; 2) record; 3) in situ preservation; 4) partial recovery and in situ preservation; and 5) complete recovery. Factors that influence actions taken are site characteristics, political, professional and public interests. The outcome of actions is the effectiveness of the conservation management strategy as indicated by the current risk of loss of remains. This paper will report on initial research into actions, factors and outcomes, in relation to underwater archaeological sites in North Carolina.

The clash of interests in the management of the underwater cultural heritage

Frigerio, Alberto - PhD student in Management and Development of Cultural Heritage, IMT Alti Studi, Italy

Nowadays the management of the underwater cultural heritage is a topic of great interest and debate. Different solutions have been suggested and adopted: the classic display of underwater cultural properties in on-land museums (for instance, the Vasa museum in Stockholm, Sweden, or the Bodrum Museum of Underwater Archeology, Turkey), the development of underwater museums (like the Baiheliang Underwater Museum in Chogging, China, or the plan for underwater museum in Alexandria, Egypt), the creation of underwater archeological parks (for example, the underwater archeological park of Baia, Italy, or the Florida’s Museum in the Sea, USA), the promotion of new networks between maritime museums and other institutions (as a strengthened cooperation between aquariums and maritime museums), the implementation of management through new technologies (such as the EU Venus Project). The point is that several interests, like preservation, protection, conservation in situ, promotion, access and economic factors affect the management of the underwater cultural heritage and it is not always simple to conciliate all of them.

The aim of this paper is, firstly, to propose a preliminary analysis of the impact of each interests on the different methods of management and, secondly, to suggest possible ways to reach a good compromise among the different elements in game.
The SIMAR project

Donnabella, Gaetano - Teknomar SRL, Italy
Iorio, Fabio - Westend SEL, Italy
Perretta, Francesco - Director, Marine Protected Area, Ventotene and S. Stefano, Italy
Zarattini, Annalisa - Soprintendenza per i Beni Archeologici del Lazio, Ministero per i Beni e le Attività Culturali, Italy

The Project was inspired by the extraordinary discoveries - in the waters of Ventotene at depths of between 100 and 150 meters - of an ancient wreck, whose load is still perfectly intact. The project aims to develop an integrated system for the sustainable management of archaeological sites placed in deep water, never attempted before.

Through the Web will be possible at the same time to make available and protect archaeological sites placed at depths exceeding 100 meters.

The system offers an alternative to save cultural heritage sites normally inaccessible.

The Integrated System for Marine Archaeology (SIMAR) will be performed by two companies (Westend and Teknomar) and two public institutions (Archaeological Superintendence of Lazio and Marine Protected Area of St. Stephen Ventotene);

Main objectives are:
- Protection of underwater archaeological sites;
- Fruition of cultural heritage;
- Real-time monitoring of environmental parameters;
- Stream video via the Web or satellite network, offering full use of the image and environmental data.

Indeed, the facility of cameras around a wreck must not be misleading because the system is operating in a particularly hostile environment where the main elements of difficulty are:
- the pressure;
- the presence of galvanic currents;
- the inability to perform work directly with divers at an affordable cost.

Video signal on fiberoptic and power supplies to place on these abed near the site.

MANAGEMENT: The Italian underwater cultural heritage requires new methods for its management and protection. Furthermore, since 01/02/2010 is in force in Italy the UNESCO Convention on Underwater Heritage; with this even the underwater environment has begun to play a key role for the actors involved in cultural heritage. The SIMAR System responds perfectly to the spirit of the Convention based on the assumption of identifying the archaeological find and left in place in case there is no danger of damage or theft. Thanks to the systems and methods we are working for, the cultural heritage will be accessible to the experts, the students, and the people all over the world.

Promote direct tourism on the concern edarneas. The possibility to see and appreciate in real-time sites, natural beauty and cultural growth will also produce an indirect local tourism promotion.

PROTECTION: The huge cost presented by the recovery of archaeological finds in deep water requires the addition of any further consideration of alternative strategies for the protection of these findings. The Integrated System aims to address and resolve this matter. The protection is exercised by surveillance video, which is realized with the installation of cameras that frame and submerged sites the tare available online in real time to ensure continuous coverage. In addition to the video system you can place the multi-parametric probes useful for verifying the maintenance of the conditions of the surrounding waters. These data also can be made available on line and can be used both by students and simple users.

The wreck of Rocchetta 1:
documentation and preservation

Capulli, Massimo - Università degli Studi di Udine, Dipartimento di Storia e Tutela dei Beni Culturali, Italy

Before the realization of mobile dikes designed to protect the city of Venice from high tides, during preliminary surveys, several wrecks were located and among these the one called "Rocchetta 1".

This wreck interfered with the construction of the defense system; so, at first, an underwater archeological excavation was done, and then the wreck, that was broken in two different main parts, has been recovered, by removing it from the depth and finally retrieving it up to surface. In this way the working area has been cleared.

On the surface several activities were carried out: analyses, documentation and nautical study. Laser scan technology and Faro Arm were used for the documentation of detached elements of the wreck; in this way it was possible to realize a 3D model of the wreck and to manipulate single elements in order to straighten the hull and to identify the water-
lines. At the end of these operations the wreck was covered by geotextile and carried out of Malamocco inlet; than it was submerged and placed into a hole excavated in a sedimentation area.

**Protection and managing of underwater cultural heritage in Croatia**

Bezak, Jurica - *Protection and managing of underwater cultural heritage, Croatia*

The paper brings an overview of underwater sites which were protected in situ with iron grid cage.

As this method of protection is in use from 1990 to these days this article present analysis and report of achieved results. During this period a new structures are developed and various materials was used. Transformation of iron grid, from cage form to the underwater museum, from physical protection to the presentation is kind of preservation required achieve.
POSTER PRESENTATION

An attempt to on-site conservation of underwater cultural heritage: The Baiheliang Underwater Museum in China
Chuan Ping, Wang - People’s Republic of China
The Baiheliang Inscription is located in the Yantze River to north of Fulin Town of Chongqing city, which recorded the water level of 72 dry years in a history of over 1200 years; therefore it is named as an intact ‘Primary Ancient Hydrometric Station’ and a rare ‘Stele Forest Underwater’, with very high value in science, history and art. The Baiheliang Inscription will permanently rest under water in the bottom of Three gorge reservoir after the normal water level reaches 175 meters.

In order to ensure the authenticity and integrity of The Baiheliang Inscription, The Baiheliang Underwater Museum was built according to a theory of pressure-free containers, realizing the on-site protection and presentation of the site. It was finally completed and opened to public on May 18, 2009, and it is now the only underwater heritage museum in the world that is built at a water depth of over 40 meters.

The conservation and restoration of an engobed and engraved jug and a bronze vessel from the Lastovo - cape Cuf site
Čurković, Martina - Croatian Conservation Institute, Croatia
A large bronze vessel that contained an engraved ceramic jug with angels depicted in relief was found among other finds during underwater archaeological research in 2007 at the Lastovo, Cape Cuf, site. This kind of jug with boys or angels depicted in relief was manufactured in Venice from the late 15th to the late 16th century. These two artefacts were completely joined by encrustations and iron oxides, the by-products of the decay of iron artefacts. The artefacts were extracted from the sea and delivered for further treatment at the Croatian Conservation Institute’s Department for Conservation of Underwater Archaeological Finds in Zadar.

Iberian ships, wrecks and tree-rings: assessing and sampling of timbers for dendrochronological research
Dominguez - Delmas, Marta - Cultural Heritage Agency, The Netherlands
Nayling, Nigel - University of Wales Trinity Saint David, United Kingdom
Tree-ring dating has become a mainstream tool in the characterization of shipwreck assemblages in Northern Europe, allowing precise absolute dating, provenance of timber and, with appropriate sampling strategies, investigation of forest management and exploitation. Such studies have however been restricted to timber production regions where contemporary reference chronologies have been developed. Due to the paucity of such reference chronologies in the Iberian Peninsula (Spain and Portugal), the application of dendrochronology to important shipwrecks sites including those assigned to the Iberian-Atlantic tradition has been limited and generally unsuccessful. As part of a wider project aimed at developing Iberian historical dendrochronology studies, nine shipwrecks suspected or known to have an Iberian origin were assessed and sampled for dendrochronological research. Interim results are presented, and strategies for further development of this approach proposed.

Stone anchores in Adriatic Sea
Ettinger Starčić, Zrinka - Lošinj Museum, Croatia
The author presents an overview of the now uncovered the stone and the stone-wooden anchores in the underwaters of the Adriatic Sea with special emphasis on the newly discovered findings. Stone anchors its appearance and the material does not attract attention, and due to poor visibility on the seabed make them hard to find. A basic problem with stone anchores is their chronology if they are not found in context. The second problem is to determine the origins.
Basket from ancient port in Zaton
Glukić, Smiljan - Archaeological museum Zadar, Croatia
Katović, Drago - University of Zagreb Faculty of Textile Technology, Croatia
Katović, Andrea - University of Calabria, Faculty of Engineering Department of Chemical Engineering and Materials Via P.Bucci, Italy
Vričak, Zlatko - University of Zagreb Faculty of Textile Technology, Zagreb, Croatia
Bischof Vukušić, Sandra - University of Zagreb Faculty of Textile Technology, Zagreb, Croatia

Underwater archaeological excavation in the materially rich ancient port in Zaton near to Nin revealed organic materials. Amongst these were also the remains of what was probably a basket. The composition of the material (basket) based on two intermingled plies was evaluated. The SEM images were used for the morphological identification together with the EDX unit, used for elementary chemical analysis. The XRD was used for the structure analysis while the characteristic groups of the material were determined by FTIR spectroscopy. The rate of material decomposition was evaluated by TGA.

The Origin of the Stone in the Ancient Port of Zaton
Glukić, Smiljan - Archaeological museum Zadar, Croatia
Velić, Josipa - Croatia
Belak, Mirko - Croatia
Velić, Ivo - Croatia
Premec Fuček, Vlasta - Croatia

The ancient port of Zaton, near to Nin existed during the first three centuries AD. Besides the huge amount of various cultural materials a large part of different types of stone was also found. The fragments and massive blocks of limestone are of the Cretaceous age (from 100 to 80 million years) and Eocenic age (from 48 to 40 million years ago). The geographic origin of the rocks may be from the island of Silba itself, more precisely the bay of Prapatnica, then the Adriatic Coast from Monfalcone to Savudria and from Kvarner to Ulcinj and the Peloponnesse, the Aegean islands and Turkey.

The Cargo of Stone from the Shipwreck on the Reef near the Island of Silba
Glukić, Smiljan - Archaeological museum Zadar, Croatia
Velić, Josipa - Croatia
Velić, Ivo - Croatia
Premec Fuček, Vlasta - Croatia

On the reef near the island of Silba in the middle of the 1st century AD, an ancient ship sank with an exemplarily cargo of Dressel 2-4 amphora. A part of the carco consisted of irregular stone.

Out of 40 lithic fragments all belong to the sedimentary rocks, a smaller part (10 percent) to limestone and most of them (90 percent) to sandstone. On the basis of microfossils in these rocks their geological age is determined. The limestone is of the Cretaceous age (from 100 to 80 million years ago) and the sandstone of middle- Eocenic age (from 48 to 40 million years ago). The geographic origin of the rocks may be from the island of Silba itself, more precisely the bay of Prapatnica, then the Adriatic Coast from Monfalcone to Savudria and from Kvarner to Ulcinj and the Peloponnesse, the Aegean islands and Turkey.

Visual Media Expression of Underwater Cultural Heritage
Fan, Yiran - China Academy of Cultural Heritage, National Conservation Center for Underwater Cultural heritage

Public can appreciate the charm of underwater cultural heritages intuitively through video documentary. So it is an important way of publication and education. Through some documentary films and television direct transmissions of underwater archaeology work, it has aroused wide public concern about underwater archaeology in China.

This paper tries to figure out the pattern of underwater heritage video documentary, through sample collection and analysis. It also aims to find some systematic methods to instruct the practice and achieve the ideal combination of underwater archaeology work with video documentary.
A 17th Century Shipwreck on the Reef near the Island of Silba

Gluščević, Smiljan - Archaeological museum Zadar, Croatia
Zglav Martinac, Helga - Croatia

On the north side of the Southern reef, the remains of a modern age shipwreck were found. Two complete iron anchors with rings were discovered as well as two groups of cannons, one group containing four and the other three guns. Alongside some incomplete square glass bottles with metal lids, several complete examples of various types of glazed ceramic pots were also found. A part of this belongs to the usual inventory of monastic ceramic production of the Ligurian area in the second part of the 17th century. The exceptions are the jug and the conical dish of Venetian production. According to the preliminary data it can be assumed that the findings belonged perhaps to an armed merchant ship from the 17th century at least 30m in length.

Protection, Preservation, and Possession: The 4th century BC vessel in Kyrenia, Cyprus

Harpster, Matthew - Independent Scholar Institute of Nautical, Turkey

The northern Cypriot coastline experienced a flurry of underwater archaeological activity beginning in 1967 including surveys, the development and testing of underwater magnetometers and metal detectors and, particularly, the excavation of the 4th century BC vessel near the town of Kyrenia. As a result of the military events in the summer of 1974, however, all of this activity came to an unexpected and premature halt; archaeological activity in the northern portion of Cyprus since that time has been virtually absent.

The vessel excavated near Kyrenia, once a nexus of this activity and a significant representative of is, has suffered from this absence in a variety of ways. The management and cura-tion of the assemblage has been intermittent and haphazard, the exhibition is out of date, material in storage needs further stabilization, and the exhibit building itself is in need of repair.

Prompted by the implementation of a new project to revitalize the Kyrenia ship exhibit and modernize the management of this maritime artifact, this paper will focus on issues perhaps unique to this project - how differing claims of ‘ownership’ or ‘possession’ of the material by each community on Cyprus manifest themselves in the archaeological, governmental and political realms.

The conservation and restoration of underwater archaeological finds from the Murter - Mijoka site

Jelić, Anita - Croatian Conservation Institute, Croatia

The results of three underwater archaeology campaigns carried out at the Murter—Mijoka site is the location of over 700 finds from the remains of the cargo of a sunken early 17th century merchant vessel. The majority of finds consist of small archaeological objects manufactured of brass, bronze, lead, glass, glass paste, wood and bone. This material was brought for treatment to the Croatian Conservation Institute’s Department for Conservation of Underwater Archaeological Finds in Zadar.

The conservation and restoration of underwater archaeological finds from the Premuda site - shipwreck Szent Istvan

Jozić, Antonija - Croatian Conservation Institute, Croatia

On the Premuda site there have been find the remains of an Austrian-Hungarian sunken ship Szent Istvan. During the pre-examination of the site 2009 some parts of the ship’s equipment were extracted from the sea. One ship’s telemeter, one shell and one nozzle made of copper alloy and the remains of a rubber boot are the finds that were delivered for further treatment at the Croatian Conservation Institute’s Department for Conservation of Underwater Archeological Finds in Zadar.

Ex situ preservation of underwater cultural heritage: Nanhai I project as example

Jun, Wei - People’s Republic of China

Nanhai I, a shipwreck of 12 century, is the most important underwater archaeological discovery in China till now. Based on the submerged environment and character of the shipwreck, the Integral Salvage and Conservation project is formulated. As a UCH preservative project, this project practiced an ex situ preservation in collaboration of underwater archaeology and marine engineering, and actualized an innovative
pattern of excavation and presentation of this vital underwater cultural heritage in "crystal palace", a man-made underwater environment in the museum. The method in protecting the underwater cultural heritage which advocated by this archaeological project is completely consistent with the spirit of "Authenticity" and "Integrity" in the conservation of UNESCO cultural heritage.

Evaluating UWCH Sites in the light of Conventions and Guidelines

Khakzad, Sorna

The poster aims at offering a methodical evaluation system for underwater sites. It also aims at highlighting various issues which should be considered as crucial factors while discussing and deciding about underwater cultural heritage sites. An evaluation system is proposed in the form of tables which have been developed according to different values and significances of submerged sites which have been highlighted in the conventions and guidelines. These tables have been shaped according to the theoretical documents, also considering the issues which might occur during projects executions. Different scenarios have been studied and a combination of different factors such as the impact of industry, development, economy, education and training, politics and so on, have been assumed to be crucial in every case.

Based on an analysis of evaluation and management systems used in different countries, the poster brings together all the possible results of those tools and creates a more consistent system.

This homogeneous system makes it possible to have a common understanding of the different sites world-wide. The poster also aims at opening a platform in order to discuss and evaluate the practical use of theoretical documents when projects are being implemented.

The history of dealing with underwater cultural heritage at the international level is sketched. An overview of international guiding documents and legislation on the field is summarized. Using similar guiding documents and publications used in the field of cultural heritage, mainly in the field of monuments and sites, and for cultural landscapes, the debate can be widened and concepts used in the 2001 UNESCO Convention on Protection of Underwater Cultural Heritage can be questioned and updated to improve Underwater Cultural Heritage management.

Using side - scan sonar for recording and cataloging of underwater archaeological objects with a view to for their protection and study

Lebedinski, Victor V. - Institute of Oriental Studies of Russian Academy of Sciences, Russia
Pronina, Julia A. - Institute of Oriental Studies of Russian Academy of Sciences, Russia

Now the problem of the protection and use of underwater archaeological sites is very acute, especially by conducting of various engineering works, using waters for anchoring the largest tonnage of ships, etc.

One of the ways for solving this problem is to conduct underwater archaeological investigation and compilation of underwater archaeological maps. However, the organization and conduct of such research, especially on large areas, is a rather complex and expensive task.

In this connection the optimal solution to this problem is the use of modern technology, for example, such as side-scan sonar and established on its basis search facilities. Using these modern tools and the optimal organization of research it’s possible to conduct an effective underwater archaeological investigation of large areas at low cost.

It’s confirmed by positive experience of research recently conducted by the authors in the Northern Eastern part of the Black Sea region.

Negotiating Best Practices for Underwater Archaeology and UCH Stewardship: The 2010 Penn - Brock Statement

Daniels, Brian I. - Penn Cultural Heritage Center, USA
Greene, Elizabeth S. - Brock University, Canada
Leidwanger, Justin - Institute for the Study of the Ancient World (New York University), USA
Leventha, Richard - Penn Cultural Heritage Center, University of Pennsylvania, USA

Fewer than half of the states that border the Mediterranean Sea are signatories to the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage. In 2009-2010, a two-part forum brought together an international panel to cooperate in developing ethical guidelines for effective and responsible professional archaeological exploration and stewardship of UCH regardless of its location.

Through this debate, consensus emerged in the form of the "Penn-Brock Statement of Principles and Best Practices for Underwater Archaeo-
ology and the Stewardship of Underwater Cultural Heritage in the Mediterranean," the main ideas and challenges of which are outlined in this poster.

The Map of Underwater Archaeology for Cultural Heritage

Surja, Lela - Archaeological Service Agency, Albania

The survey during 2007 began at Albania's southern border with Greece with a goal to complete a multibeam survey of the seafloor between the 25- and 100-m contour.

Survey Area

The survey plan for the 2008 field season designated the gaps and unfinished areas within the section surveyed during the former season and subsequently continued northwards. From the southernmost point the survey has progressed to date systematically northward approximately 37 km along the coastline into the southern portions of Kakomea Bay. Based on the multibeam equipment's depth constraints, the survey extended to the 100-m contour wherever that may lie out from the coast; however, the survey area was limited when it intersected with foreign controlled waters. The primary area of border encounters were the straits between the Albanian coast and the Greek island of Corfu.

Even when there was no border restriction, the coverage area extended only a few km out from shore due to the steep angle of decline generally found along this section of coast. One of the governing geologic process again this season was the outflow of the Butrint River. The river runs through the rough, rocky coast and empties into the sea with episodes of periodic highly erosive flows. A large amount of sediment is moved by this river that forms a thick deposit emanating from the river's mouth. This sediment deposit is moved by the prevailing N-S current.

The areas surveyed north of Saranda around Cape Qefallit and parts of Kakomea Bay possessed a large number of rock formations. Those formations near the cape form linear patterns extending tens of kilometers, while the formations further from shore are more heterogeneous in size and pattern. This data allowed more precise identification of anomalies. Additionally, the completed areas between Saranda and Butrint Bays revealed a deep scour produced from the currents funneled through the Corfu Straits. These currents are responsi-ble for the large amount of suspended sediment in the lower water column throughout the survey area. This suspension reduced video quality.

2008 Anomaly Verification

During ROV verification of anomalies all areas were explored in order to determine the nature of the seafloor and, therefore, the character of the anomalies in the multibeam data. Areas in the north-western portion of the survey area were consistently rock outcrops and the number of anomalies were revised accordingly.

A similar reassessment occurred for the large scour area at the center of the survey area. Targets were verified near shore as well as runs made at the 35- to 45-m contour in certain areas of coast to ascertain the degree of material culture. By the end of the season over half of the current anomalies have been identified.

Scientific Analysis and Protection on Ancient Marine Porcelains Recovered from Huaguangjiao I in South China Sea

Li, Naisheng - Chinese Academy of Cultural Heritage, People's Republic of China

The Huaguangjiao I was a Song Dynasty (12-13c A.D.) shipwreck located in Huaguang Reef of Xisha Islands. A great number of bluish-white glazed porcelains which were produced in Hutian Kiln, and celadon which were produced in Fujian province, were found in Huaguangjiao I shipwreck.

Most of the ceramic artefacts are disks, bowls, vases, pots and powder boxes. Some of them were covered by thick encrustations. Industry computed tomography (CT), EDX analysis, X-ray diffraction (XRD), and Ion Chromatography (IC) were employed to investigate the disease in these porcelains. On the basis of above work, feasible chemicals were selected to remove the coagulations. In order to remove the harmful salts, monitored by Conductivity Meter and Ion Chromatography, still water, alternating hot and cold, and ultrasonic cleaning were performed.

Then contrasting the results of them, a appropriate method about the desalination of porcelain came up out of water found at Huaguangjiao I shipwreck was founded.
Development of International
Underwater Park of Sunken Ships in
The Gulf of Finland
Lukoshkov, Andrey - National Centre of Underwater Archeology, Russia
Prokhorov, Roman - National Centre of Underwater Archeology, Russia

By the last nine years our project “Maritime heritage of Russia” has provided finding more than 450 sunken objects. Most of them are situated in the eastern part of The Gulf of Finland near Finnish-Estish border. They include ancient ships and war and trade ships of 17, 18, 19 centuries. It is full collection of all kinds of ships of that time in The Northern Europe. Almost all of wrecks are in a very good condition.

The problem is, that we find more and more sunken ships every year, and we fisically can not provide researching, that is needed.

As a solution of this problem we have conception of creating The Underwater Park Museum, which could present information about history of shipbuilding, sailing catastrophes. According to the conception of our project we are planning to provide our guests with opportunities for detail researching of the objects. The same objects are situated on Finnish and Estish territories, so we are arranging the way to combine objects from three countries in common exposition.

Managing the Underwater Cultural Heritage in Cyprus
Michael, Maria - Managing the Underwater Cultural Heritage, Cyprus

The main purpose of this paper is to discuss the ways that archaeologists have to follow, in order to protect and manage the underwater culture in shallow and in the deep seas of Cyprus. Although Cyprus is a small island within the Mediterranean Sea, it is an island with a long history in the maritime activity of the eastern Mediterranean. Its history is represented by cultural materials that have been found in terrestrial and underwater surveys and excavations. However, underwater archaeology is a new developed field in Cyprus; consequently, the underwater cultural heritage has not received the attention that it deserves. Many underwater sites, which were investigated, have not been protected via the legislation, while they have not nominated as archaeological parks, which tourists can visit. Additionally, divers pillage some of these sites. Thus, this paper chiefly aims to represent the present situation of Cypriot underwater sites, while it aims also to answer questions, such as how the underwater cultural heritage in Cyprus can be managed, can underwater cultural heritage play a positive role in the promotion of recreation and tourism, if it managed sensitively or does the public access harm these sites.

The underwater archeology in Portugal
Martins, Adolfo Miguel - Institute for managing, the architecture and archeological heritage, Portugal

The underwater archeology in Portugal as global project was born in middle of the Eighties, fixed in a department of the National Museum of Archaeology. In this period excavations took place in the shipwreck called L’Ocean, in the south of the country.

However only in 1997, with structural modifications in the center of the Portuguese archeology, the National Center of Nautical and Underwater Archaeology was created, as national authority for the accomplishment of the underwater archaeology. With the natural evolution of this disciplines, were created laws for the protection of the underwater cultural heritage, what would go to promote the management of the fortuitous findings, of the projects of inquiry, inspection technique and examination and interventions in public works, as well as the creation of the Portuguese underwater archeological Registry.

Currently the safeguards of the underwater cultural heritage, seats not only in the shares developed by the Division of Nautical and Underwater Archaeology, but also by the universities, with archaeologists and historians who develop works of high scientific severity, many of the times with the help of others you discipline as biology, the geophysicist and chemistry among others.

The management of the Underwater cultural Heritage, is reaching a new stage, a time that will develop a set of shares that foment the accomplishment of underwater archaeological works and history of navigation, in some regions of the country, with the creation of centers of nautical and underwater archaeology wants to not only count on underwater archaeologists as with restoring conservatives. Of this evolution there are already some cases of success, as it is the case of the Museum of
Portimão, that already have laboratories for the conservation of archeological artifacts and many other centers will be establish.

Recent underwater archaeological research off the Croatian coast

Miholjek, Igor - Croatian Conservation Institute, Croatia
Zmaić, Vesna - Croatian Conservation Institute, Croatia

The Department for Underwater Archaeology exists and operates within the Croatian Conservation Institute and, as the leading team in the area of underwater archaeology, it carries out systematic and protective research of underwater archaeological sites, conducts underwater surveys and explorations in rivers and lakes and participates in expert surveys of numerous already known and newly found sites along the Croatian coastline, as well as in inland waters.

The Department’s field of work covers a large time span and encompasses prehistory, classical antiquity, the Byzantine period and the Middle Ages, post-medieval shipwrecks dating from the 16th to the 18th centuries and shipwrecks and sunken aircraft from World War I & World War II.

Managing an 8,000 year old submerged Mesolithic landscape

Momber, Garry - Hampshire and Wight Trust for Maritime Archaeology National Oceanography Centre, England

Work by the Hampshire and Wight Trust for Maritime Archaeology has been ongoing into the submerged landscapes of the western Solent for over 10 years. A site that has attracted particular attention is Bouldnor Cliff, 11m below water off the Isle of Wight. Worked wood, hearths, flint tools, food remains, twisted plant fibers and an enigmatic assemblage of intercalated timbers dating to the Mesolithic are just some of the recoveries from beneath the water to date. Each year the location is eroded away a bit more, revealing fresh artefacts, deposits and features.

The investigations at Bouldnor Cliff are presented as a case study that has revealed unique and significant artefacts demonstrating the potential to open the door on this little understood phase of north European human occupation. This site is currently unique but represents an example of what may remain buried at many similar locations offshore. This talk reviews the submerged archaeological and 6 palaeo-environmental resource, the processes that have preserved and exposed it, the methods used to recover it and its value to help understand a neglected area of our cultural heritage.

Crimea project - underwater expedition 2008 - 2011 from cape Aju-Dah to cape Plaka

Nowakowska, Magdalena - Institute of Archeology Warsaw University, Poland

The Polish - Ukrainian venture Crimea Project - Underwater Expedition, was being executed since year 2007. The aim is to discover, explore and protect from destruction and robbery the wrecks, anchorages or other archaeological underwater sites located by the southern coasts of Crimea.

During the last three seasons scientific research has been basically focused on verification already known sites and searching for the new ones in the Bay of Karasan – from the Cape Aju-Dah until a small cape called Mys Plaka and the rocks of Adalary which enclose the bay from the East. As a result, the information about three antic wrecks published by Ukrainian researchers has been verified and there have been localized new underwater sites.

At the Eastern edge of the Karasan bay, in the shallow water, at the depth of 6-10 meters, between rocks was found a large cluster of pottery. Fragments of amphorae and pithoi were lying on a not large space of ca. 150 m². Among them was distinguished the Mediterranean type common in this area from the 11th c. and fragments of older amphorae type carrots dated to the 8th - 9th c. So big concentration of ceramic in one spot could be an effect of sea waves’ and currents’ movements which were being transported crashed pottery from sunken ships. The exploration at the site was carried on using ejector. There were dug up two small probing trenches to determine the thickness of a layer that had been accumulated on hard bottom.

Besides exploration, there was being conducted also systematic survey using side scan sonar and active sonar (echo sounding). The area which has been covered with the survey encompasses the whole bay of Karasan until the depth of 50 meters and waters around Cape Aju-Dah. As a result there were registered several bottom anomalies deeper then 40 meters.
Researches around Cape Aju-Dah, the place that undoubtedly used to be in the past an important navigation point, brought about localization of antic anchors. Two of them, of T-shape construction, belong to types already well known from former seasons, found before in the eastern part of the bay.

The Black Sea called by the ancient people The Inhospitable Sea, slowly uncover to us its treasures and thanks to more and more experience at its waters, professional survey and exploration devices we can obtain better and better results.

In the year 2010 the works were done with help of participants of Specialist Course of Underwater Archaeology, conducted during the years 2010-2011 by Institute of Archaeology at Warsaw University within the confines of project 'Underwater archaeology - widening and enrichment the education offers and staff’s potential of Institute of Archaeology at Warsaw University'. On behalf of Institute of Archaeology at Warsaw University the manager of the researches is Magdalena Nowakowska, from the Ukrainian side the leader is Wiaceslaw Gerasimov from Ukrainian National Academy of Science - branch in Symferopol.

Underwater archaeological parks:
some ideas for the underwater archaeological sites of Leptis Magna and Apollonia (Libya)

Pizzinato, Claudia - Archeotema Company, Italy

In the 2008 and 2009 the Archeotema society (Venice-Italy) was in charge from the Libyan Government to draw some projects for the managing of the underwater archaeological sites of Libya as places for underwater tourism. The project was inside a general work of Evaluation and Conservation of the Cultural Libyan Heritage.

The two sites selected were Leptis Magna in Tripolitania and Apollonia in Cyrenaica. Two different kind of approach were proposed based on the different kind of place and structure. In one case, Leptis Magna, we proposed a glass bottom boat and some different itineraries because the place is spread in different points of interests.

In the other case, Apollonia, the nature of place, a harbor with all its structure, let us imagine a real park with an itinerary for divers and even in this case, a glass bottom boat for people who just want to see from the surface without jumping in the water.

Conceptually, an underwater archaeological park is supposed to be extremely useful not only in the protection and enhancement of the archaeological heritage, as the UNESCO convention on the protection of the Underwater Cultural Heritage would ask, but also in the generation of new employment in towns and cities located close to the area.

In addition there is the potentiality, in such areas, of setting up research projects on the field of maritime archaeology, marine biology and conservation and thereby creating new professional opportunities for graduates in these subjects.

The organization structure of the underwater archaeological parks will be composed basically by:

- a diving centre;
- a ship with flat transparent bottom or simple zodiacs;
- the submerged area for both surface and underwater tours;
- a didactic centre.

Ratac promontory on the Island of Koločep

Radaljac, Mario - Croatia

In 1997 local divers pointed out the position of a well-preserved post-mediaeval shipwreck with six iron guns clearly visible on the seabed. A short term rescue excavation campaign the following year revealed the presence of a cargo composed of glass ware, metal tools, other metal products such as wire or sheet, semi-finished products and raw material. Although the site is well preserved and easily reachable by divers, and therefore exposed to looting, the site was left without any particular attention until recently, when the work of documenting of the site in detail started.

Gulf of Finland - Wrecks of 17 - 19 centuries

Egorov, Yuriy - Neptune Research Expedition, Russia

Rodionov, Andrey - Neptune Research Expedition, Russia

Stepanov, Aivar - Neptune Research Expedition, Russia

The Archaeological works in the gulf of Finland (Baltic sea) were carried out in 2009-2010 by "Neptune Research Expedition" with scientific
management of «Northwest scientific research institute of a cultural and natural heritage»
The researches purpose is inspection of a vessel and statement of this vessel under protection as object of a cultural heritage.
The three-mast wooden trading vessel, was found out Nord Stream companies at side-scan sonar research in 4,7 km to Northeast from Gogland island. The vessel is on the depth of 48 meters.
The hull of a vessel: length of 26 m, width of 7 m. The vessel was kept on 70%
Cargo of a vessel - sack with wheat.
Onboard of a vessel were found:
- Kitchen utensils (on a deck in ruins of a superstructure). On spoons - the arms of Amsterdam;
- Coins (Russian and Netherlands) - earliest of the Netherlands of 1699, late - Russian 1769;
- The Dutch clay pipes with marks of workshops of the city of Gauda. One of them with the image - the Arms of King Fridrih Wilhelm of II Prussian and with the text VIVAT REX / PRUYSE last quarter XVIII. Master: Joris de Liefde. / Meulen J. van der Goudse Pijpennmakers en hun Merken. 2003/.
Analogue of the found vessel - three-mast галиот « Fridrih Wilhelm 2 » 1789. Its model is exhibited at the Technological museum in Berlin. Schriftenreihe des Museums für Verkehr und Technik, Band 15, Berlin (Nicolai)
The found vessel - Holland three-mast Galiot second half of 18 century.

Two different treatments for two underwater origin iron balls
Sanchez Pedreno, Inmaculada - Independent conservation group, Spain
This article exposes the results in the removal of chlorides of two underwater origin pieces of cast iron using the technique of the electrolysis with different densities of current, 50 µA cm⁻² and 1000 µA cm⁻² intending to observe the differences between both treatments. We use two cannon balls from the 18th century with similar extracted in the vicinity of the bridge Zuazo in San Fernando ( Cádiz ) in 2009. Extraction of the Cl⁻ ions is equal to general levels at two densities of flows. Although chloride extraction is initially more powerful in the piece submitted to 50µA. cm⁻², the results for both pieces across the board are the same in a similar time period. Therefore we cannot say that the different densities of currents have influenced effectiveness or the speed of the treatment applied in these pieces in particular.

Eastern coarse ware in the layers of ancient harbor in Zaton
Taras, Dino - Archaeological museum Zadar, Croatia
Eastern coarse ware from the ancient harbor in Zaton is a category of pottery finds that is commonly found on roman sites. In case of this site, it constitutes the largest group of pottery finds found here. The material that is represented here is a result of 5 years of excavation. It was excavated using an arbitrary method with layer thickness of 10 cm. This way we ensured relative chronology of various pottery finds. Different dimensions and standardized forms point to workshop origins of this material, and different types of clay also points to the fact that it was probably manufactured in other parts of the world, not only in Aegean. A large quantity of the material was used before being deposited on the seabed, which is evident from the traces of burning on the outer walls of pots and pans. Post excavation statistical analysis obtained results that pointed to the conclusions about the intensity of life, as well as to some conclusions about duration of certain forms of eastern coarse ware in this part of Mediterranean. Dates obtained by excavating do not differ greatly from the dates already set in the contemporary literature.

Flat-bottomed amphorae of for limpopoli type from the site of ancient harbor in Zaton near Zadar
Romanović, Dušanka - Archaeological museum in Zadar, Croatia
In the ancient harbor in Zaton a large quantity of pottery finds of different provenance was found, and amphorae make only a small part of it. The port was discovered in 1960s, and the excavations have been carried out systematically since 2002, which gave us more detailed insight into chronological problems. A particular group of amphorae are north italic amphorae, so called flat-bottomed amphorae of For limpopoli type, which were primarily produced in the workshops of Northern Italy in the Emilia Romagna between 1st and 3rd century. This type of amphorae was imitated in the local workshops on the eastern Adriatic coast (type Crikvenica).
Managing the sterling castle maritime archive

Dellino-Musgrave, Vir - The Hampshire & Wight Trust for Maritime Archaeology, United Kingdom

It has been recognized that, in the UK, roles and responsibilities for maritime archaeological archives is often unclear from local to national levels. This can result in undeposited archives which are out of reach for academic research, amenity and educational purposes for present and future generations. This paper focuses on the case study of the Stirling Castle, a wreck site designated under the Protection of Wrecks Act 1973. The Stirling Castle was a pre-Establishment Third Rate Ship of the Line of 70 guns launched in 1699, and wrecked off Kent, on the Goodwin Sands, in 1703. The archive of the Stirling Castle is based in different national, regional or private repositories with various states of curation and accessibility. The aim of this paper is to discuss the challenges faced in auditing, appraising and assessing this unique maritime archive. Importantly, this discussion will allow an assessment on which to build future solutions for the maritime archive of this nationally significant wreck site.

The use of autonomous underwater vehicle (AUV) in archaeological research in Croatia

Zubčić, Krunoslav - Croatian Conservation Institute, Croatia

The poster will present the use of an autonomous underwater vehicle (AUV) in the research and documentation of the remains of an ancient harbor and Roman villa on the island Murter. Side-scan sonar combined with a digital still camera was used in documenting the sea bottom and the site.

Research of the deep water wreck “Giuseppe Garibaldi”

Zubčić, Krunoslav - Croatian Conservation Institute, Croatia

The poster will present the use of a small submersible in the research of the wreck of the Italian World War I armored cruiser “Giuseppe Garibaldi”. The ship is sunk 120 m deep and is the deepest researched wreck in the Croatian part of the Adriatic Sea.