LIBRO VERDE

PLAN NACIONAL DE PROTECCIÓN DEL PATRIMONIO CULTURAL SUBACUÁTICO ESPAÑOL

GREEN PAPER

NATIONAL PLAN FOR THE PROTECTION OF UNDERWATER CULTURAL HERITAGE

Grupo de Trabajo del
Comité de Coordinación Técnica del
Consejo del Patrimonio Histórico

Working Group of the
Technical Coordination Committee of
the Historical Heritage Council

Cartagena 2009

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NATIONAL PLAN FOR THE PROTECTION OF UNDERWATER CULTURAL HERITAGE

MINISTERIO DE CULTURA
DIRECCIÓN GENERAL DE BELLAS ARTES Y BIENES CULTURALES
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This Green Paper expresses the will of all Spanish institutions to develop and build a common area of action with a view to complying with the objectives of Spain's National Plan for the Protection of Underwater Cultural Heritage.

To that end, the Working Group was named by the Technical Coordinating Committee for the implementation of the National Plan for the Protection of Underwater Cultural Heritage passed by the Historical Heritage Council. This group, comprised of the Directors of the three underwater archaeology centres in Andalusia, Catalonia and Valencia, experts from some of the Autonomous Communities, universities and the Ministry of Culture through the *"National Museum of Underwater Archaeology"* (ARQUA), also benefitted from the collaboration and advice of specialists from the navy and national law enforcement officials.

The Green Paper is the fruit of two years of meetings and debates of the Working Group coordinated by the technicians of the "National Museum of Underwater archaeology" (ARQUA) and the Deputy Directorate-General for the Protection of Historical Heritage, for the purpose of analysing the real status of Spain's underwater archaeology, affected by a clear imbalance in favour of the Mediterranean coast over the Atlantic in terms of research, equipment and human resources. The Green Paper establishes the framework on which to plan future actions to meet the objectives and aims of Spain's National Plan for the Protection of Underwater Cultural Heritage.

In this connection, the Green Paper is the agreed commitment of all of the institutions involved and of the Autonomous Communities to develop documentation programmes, compile inventories and sketch archaeological maps to improve and standardise the management of our rich underwater heritage, much of which is yet to be discovered. This requires standardisation of archaeological interventions and of conservation in line with the provisions laid down in the Annex to the UNESCO Convention for the Protection of Underwater Cultural Heritage (Paris, 2 November 2001) ratified by Spain on 6 June 2005. It is also necessary to train future generations of archaeologists and specialists to be the caretakers of this legacy of our historical memory embodied in our Underwater Cultural Heritage, possibly the most universal of our heritages considering Spain's history as a maritime nation open to all oceans throughout its history.

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On 10 October 2007 the Historical Heritage Council (coordination body for initiatives undertaken in Spain within the ambit of Cultural Heritage comprised of representatives of the National Government and all of the Autonomous Communities) accepted Spain's National Plan for the Protection of Underwater Cultural Heritage compiled by the Ministry of Culture. On 30 November 2007 the Cabinet passed the said Plan.

On 12 December 2007 the Heritage Council, through its Technical Coordination Committee, decided to create a Working Group to draft the implementation document of that Plan.

This working group, comprised of specialists in underwater archaeology of the Ministry of Culture, the Autonomous Communities, universities and museums completed its work on 14 May 2009 and submitted this document for discussion and approval, as the case may be, by the Heritage Council.

This document, based on the Decalogue approved in Spain's National Plan for the protection of Underwater Cultural Heritage, proposes priority action which must be carried out in Spain to effectively safeguard Underwater Cultural Heritage based on an analysis of the current situation and within the framework of the UNESCO Convention.

ARQUA: National Museum of Underwater Archaeology.

CAS: Underwater Archaeological Centre of Andalusia.

CASC: Underwater Archaeological Centre of Catalonia.

CASCV: Underwater Archaeological Centre of the Autonomous Community of Valencia.

CNIAS: National Centre for Submarine Archaeology Research.

INSUB: Submarine Research Society (Basque Country).

LIAS: Laboratory for Submarine Archaeological Research (Santander).

PCS: Sub-aquatic Cultural Heritage.

PNPPCS: Spain's National Plan for the Protection of Underwater Cultural Heritage.

SGPPH: Department for the Protection of Historical Heritage, from the Ministry of Culture.

TI: Universidad de Alicante Image Workshop.

UIMP: Universidad Internacional Menéndez Pelayo.

UNESCO: United Nations Educational, Scientific and Cultural Organization.

1 | Underwater Cultural Heritage in Spain

1.1 GENERAL INTRODUCTION

Spanish Underwater Cultural Heritage refers to that heritage which, based on the characteristics of Archaeological Historical Heritage laid down in applicable laws, is found in Spanish inland and continental waters, including the water table, and in marine waters over which Spain exercises sovereignty or jurisdiction. This definition shall also extend to heritage of the same characteristics over which Spain may lay claim or invoke some right by virtue of national or international law.

The constant evolution of scientific knowledge and the high level of scientific and technical competency achieved by our country, comparable in all aspects to the most advanced countries in underwater heritage, and society's growing interest in archaeological historical heritage in general and underwater heritage in particular, has attracted the attention of the public authorities and sparked the decision by the Heritage Council to commission the drafting of a document of principles on which to base public and administrative action taken by the Central Government and the Autonomous Communities within the purview of their respective competencies.

Underwater Cultural Heritage, scientifically covered through work in the field of archaeology, is today a very relevant part of our Heritage. It is a significant part of our history and this importance has been underscored by the entry into force on 2 January 2009 of the *UNESCO Convention on the Protection of the Underwater Cultural Heritage* of 2 November 2001 (hereafter referred to as the 2001 UNESCO Convention).

This heritage and its use for scientific, educational, cultural and social purposes, but never for economic profit, is today the focus of social interest in a society that is paying very close attention to it; on an equal footing with the attention

CASC Headquarters (CASC Archive).

Headquarters of the old CNIAS, Cartagena (ARQUA Archive, 2008).

CASCV Headquarters, Castellón (CASCV Archive).

CAS Headquarters, Cadiz (CAS Archive).

Canons in the wreckage of the Boucentaure.

given by Spanish society to the rest of its historical and cultural acquis as a sign of maturity on the part of our society and the public authorities which govern and manage it.

Spanish society today demands that special attention be given to this heritage in the international context but also very significantly at national level especially in terms of public information and the incorporation of research results into cultural circuits by showcasing them in museums, exhibits and through general dissemination.

Spain, a territory with extraordinary heritage potential due to the length of its coastline and inland and continental waters, and in light of the interest in our heritage spread along the seabed of the seas and oceans of all six continents (including Antarctica), must act decisively in defence of this cultural acquis while adhering to international rules governing these matters and bilateral or multilateral agreements concluded with other countries.

As pointed out in the chapters focusing on legislation, research and training, we are at a very crucial moment which calls for decided and coordinated action through joint or at least complementary policies between the Central Government and the Autonomous Communities.

Each of these, within its sphere of competence and the possibilities which a collegiate body such as the Spanish Historical Heritage Council permits and can establish, should draw up national or regional plans conducive to research and heritage recovery in accordance with the aims and boundaries laid down in applicable laws.

First of all, joint and/or coordinated action on several fronts is considered a priority if we expect to achieve priority objectives which allow for the clear definition of a common denominator policy acceptable to all of the Autonomous Communities on which to base future action.

Secondly, analysis of today's reality –the only possible starting point- clearly indicates that some Autonomous Communities are much more familier with this rich heritage than others due to past policies featuring different action priorities. This has given rise to contrasting degrees of knowledge whose immediate consequence is insufficient protection, clearly varying between the different territories, and differing degrees of scientific knowledge which, in turn, generally leads to very deficient scientific, educational, cultural and social use of heritage as a general rule throughout Spain.

1.2 ARCHAEOLOGICAL MAPS

Awareness of the heritage reality of our coastline should be based on *Archaeological Maps*, inventories and cataloguing instruments which have proven useful in all countries for both land-based and underwater archaeological heritage. In the case of Spain, this speciality is still at the initial stages when it comes to Underwater Heritage with certain very significant exceptions and despite the fact that already in 1984 the then Fine Arts Directorate-General of the Ministry of Culture instituted the first National Plan for the Documentation of the Spanish Coastline. This Plan remained virtually inoperable at global level and was only implemented by a few Autonomous Communities within their territorial sphere of competence.

That is why it is now vitally important to immediately complete this Spanish Underwater Archaeological Map and then to update it on a regular basis as a stand-alone programme or, better yet, as the sum of a number of programmes serving as a standardised minimum common denominator for all of the Autonomous Communities along with the Ministry of Culture and with the collaboration of other national bodies.

The compiling of this basic documentation would have immediate effects in terms of protection, research and the planning of all actions undertaken along our coastline and inland waters by both government administrations and private enterprise. It would also establish our country as a leader among the countries implementing effective policies in this regard in line with the recommendations laid down in the 2001 UNESCO Convention.

The swift implementation or continuation, as the case may be, of this initial national programme requires the decided cooperation of all of the administrations involved, without reservation, in addition to that provided for under law, thus providing the project with the needed resources, impetus and political will and immediate efficiency.

Once this priority objective is achieved, wide-ranging actions in this regard may be programmed in line with national and international criteria governing scientific appropriateness, apart from emergency initiatives requiring immediate action.

Olasso Roman door (Arkeolan Archive, 1992).

Cargo of clay pots in the wreckage of the Bou-Ferrer (CASCV-TI, 2001).

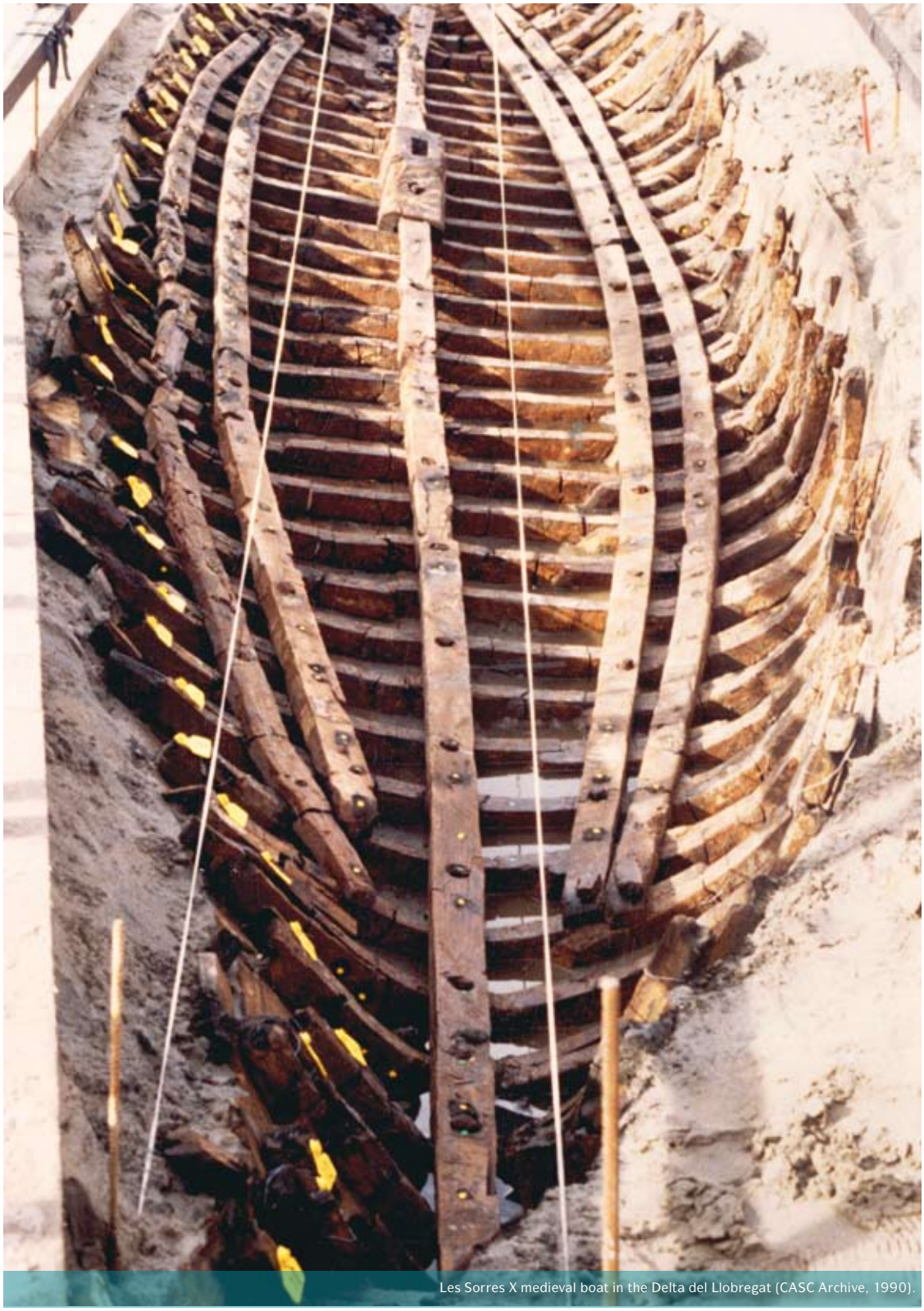
1.3 DOCUMENTARY RESOURCES

The National Plan should foster research based on all types of documentary sources, their most appropriate conservation and the systematic programming of related projects with a view to facilitating underwater research over the short, medium and long-term.

Fortunately for our society, Spain has a wide range of archives forming part of our documentary acquis, especially general and specific national treasures such as the Archive of the Crown of Aragon, the National Archive of Simancas, the General Navy Archive, the General Archive of the Indies and others of lesser importance. It goes without saying that the archives under the control of the Autonomous Communities, and eventually others, must be given similar attention for this specific purpose. We are privileged in that these archives provide researchers with an exceptionally advantageous starting point, far superior to that of other countries which have suffered regrettable losses or which never had such a wealth of information to begin with. These should be used as an extremely useful tool, as work to date has proven, to embark upon a large proportion of the research in these fields.

1.4 MATERIAL RESOURCES

The material resources available for the implementation of the National Plan are scarce and their capacity very limited. The National Plan should,



Les Sorres X medieval boat in the Delta del Llobregat (CASC Archive, 1990).

therefore, as part of a realistic and efficient policy for the immediate future, facilitate access to the most advanced techniques and equipment available or which can be created. This would provide a network of rapid intervention infrastructures capable of handling unique projects arising from the National Plan or elsewhere and/or interventions within the limits of our waters or in other locations through conventions or agreements in strict adherence to the letter and spirit of the 2001 UNESCO Convention.

Undoubtedly, policy and action in this connection would be highly beneficial for the general interests of Spain and would contribute to the training of scientific and technical staff which is so lacking today at national and international level.

1.5 SCIENTIFIC AND TECHNICAL TRAINING

We have managed to progress sufficiently and keep pace with developments in archaeological science with the collaboration of other sciences and auxiliary techniques. Today, know-how is at a high level. The National Plan itself attests to this fact and is supported by publications and completed projects and by the collaboration of Spanish scientific teams in international programmes and projects. However, development has not been uniform throughout all regions of Spain.

Barring exceptions, scientific training in permanent university programmes today is clearly deficient. The fact is that academic curricula –studies now being phased out as well as the new ones fruit of the European Higher Education Area (EHEA)- do not provide for a defined curriculum focusing on underwater archaeology in the future undergraduate, master and doctorate degree programmes.

Obviously, even in the best case scenario, one cannot expect a university degree exclusively in underwater archaeology but it is important to facilitate the development, within the clearly limited possibilities of the National Plan, of a framework for some of this specific training through collaboration with university institutions which stand alone in providing higher training in this field thanks to their scientific capacity.

It is also important to take stock of the need to train middle level technical and professional staff to provide support for the projects being carried out (here the National Plan can be instrumental). These projects obviously require different levels of professionals trained according to an incremental training structure. The National Plan should also be authorised to receive or coordinate the resources needed to facilitate that training to the degree permitted by the educational structures of the different levels and institutions responsible.

Although technical training in scientific diving is not one of the direct aims of this document, it is essential for many of the individuals who will take responsibility for or participate in scientific projects and we therefore state in no uncertain terms that the rules governing scientific diving are even more complex than the already confusing general scientific panorama. This regulatory complexity arises from the fact that all areas of education are governed by the Autonomous Communities but are structured nationally and internationally through bodies such as sports federations and their international counterparts (CMAS), in addition to training in recreational diving offered by commercial operators. This situation does not benefit the application of this training to the scientific and heritage purposes purported by the National Plan.

La Draga neolithic settlement in Banyoles Lake (CASC Archive).

In line with international criteria and in strict adherence to national law, scientific diving (as applied to scientists taking part in Underwater Heritage research projects and not for simple operators or technicians) should not be subject to the regulations governing professional diving (commercial diving) as is currently the case in some Autonomous Communities.

Scientific diving is recognised as a scientific activity and therefore basic training in diving according to the standards of recreational or sport diving should suffice and this training should then be supplemented by specific courses in scientific diving as exist internationally. The National Plan should therefore formulate a proposal to the Heritage Council, to be then transferred to the Autonomous Communities, concerning the standardisation of diver training programmes through training in scientific diving which would be complementary to diplomas in sport or recreational diving whose validity should be recognised.

1.6 TRANSFER OF KNOWLEDGE TO THE SOCIETY

It is indispensable and urgent (in addition to being culturally and socially advisable) that resources earmarked for the implementation of the National Plan go hand-in-hand, at all different steps along the way, with the necessary effort to heighten society's awareness of the existence of and need for the National Plan and of the enormous importance that protection, research and dissemination of Underwater Cultural Heritage has for the nation's cultural development.

Over the last several years we have observed how the Spanish society and others areound the world have become increasingly sensitive to these issues, especially in glaring cases of pillaging and removal of heritage for commercial purposes in clear violation of the principles of the international archaeological community, those laid down in the 2001 UNESCO Convention and national interests and laws (as the case may be). The need for accurate information for an increasingly educated, inquisitive and demanding public needs to be satisfied and citizens must be convinced that public authorities (National, Regional and Local Governments in the case of Spain) are concerned about this heritage and are doing what is required by applying the available scientific, material and legal resources to protect and/or recover an asset which is becoming increasingly important in learning about our shared past.

Notwithstanding this growing interest, the National Plan would be letting the society down if it failed to take advantage of this platform to promote accurate information campaigns through all of the different media, in coordination with the Autonomous Communities and other stakeholders if possible, to make sure that citizens receive appropriate messages and do not fall prey to misinformation leading to erroneous or contradictory interpretations in detriment of the general interest which should prevail at all times. •

2 | The State of Spain's Underwater Archaeology

Before embarking upon the task of compiling a National Plan for the protection of Underwater Cultural Heritage, it was essential to analyse the evolution of Spanish underwater archaeology over the last several decades in order to identify the actions and omissions which have brought us to where we are today.

2.1 PRECURSORS

It would certainly appear that the III International Congress on Underwater Archaeology held in Barcelona in September 1961 marked the commencement of a new and fruitful era for underwater archaeology in Spain.

We will now try to situate this Congress in its historical context. In 1961 Spain was making an effort to enhance its image abroad and therefore offered to host an international scientific meeting and provided all of the resources needed to make it a success. Starting many months earlier, support was given to all of the ongoing work in this field, all past work was systematised, meetings were held and forces were joined the result being that nine out of the twenty-five presentations were made by Spaniards.

There is a further bit of information that we must not forget. Of the nine Spaniards who were authors of the presentations, not one was a graduate in archaeology; all were underwater specialists or researchers, some brilliant, but none were professional archaeologists. And this despite the fact that congress presidents, secretaries, members or participants were eminent doctors responsible for Spanish archaeology such as M. Almagro, J. Maluquer, A. Martín, L. Pericot or E. Ripoll.

Special mention should also be made of the recommendations included in the Congress conclusions some of which are summarised below:

An excavation of clay pots in the 1970's (CASC Archive).

1. "The Congress urges the Spanish Government to prepare a navy vessel for underwater archaeological exploration".
2. "This vessel should be under the auspices of an Experimental Centre for Underwater Archaeology".
3. "The said Experimental Centre should be annexed to the Ministries of the Navy and National Education".
4. "A spirit of collaboration should be fostered between divers and archaeologists".
5. "It is absolutely essential that all activities undertaken at archaeological sites be managed by archaeologists".

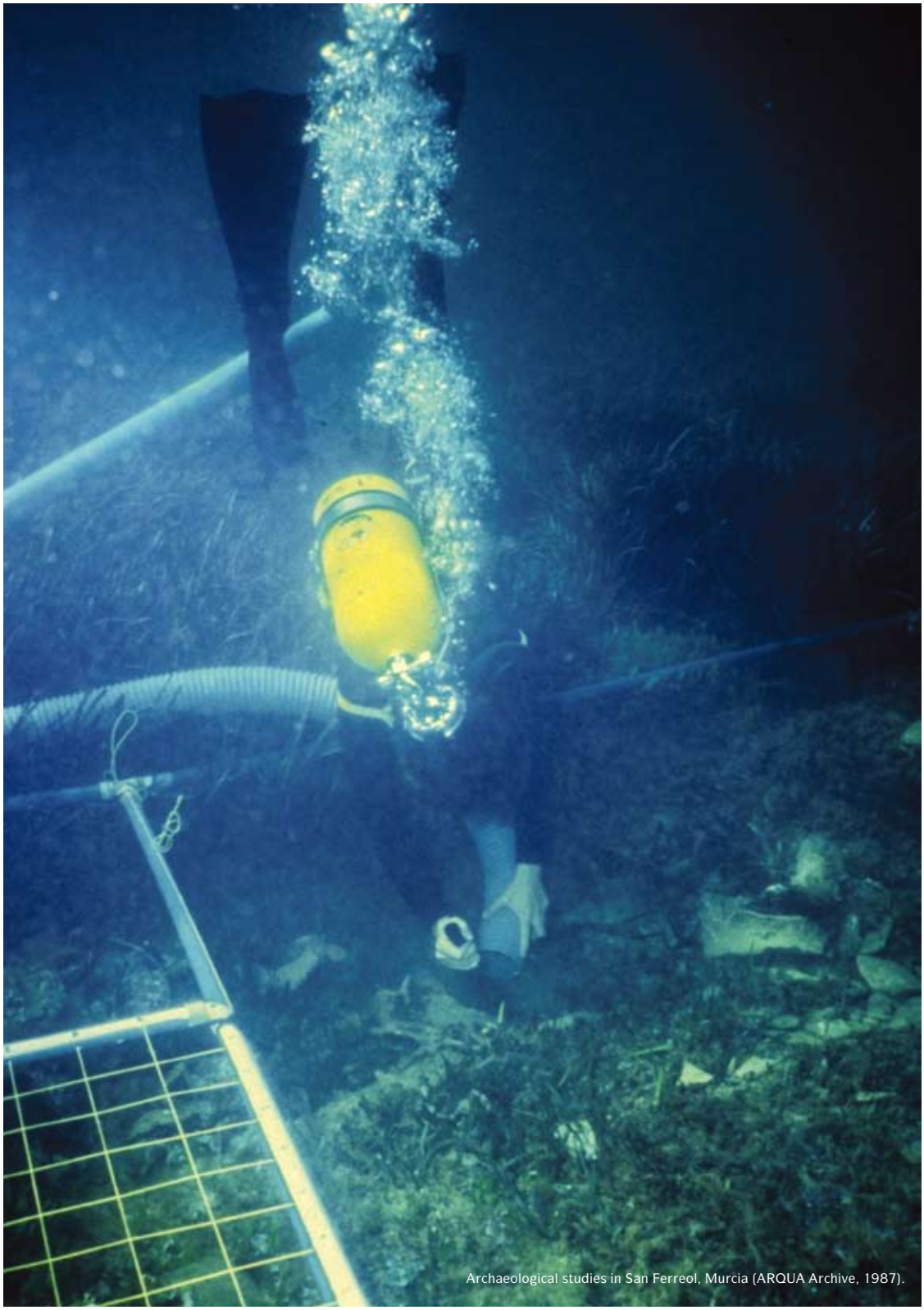
An analysis nearly 50 years later has shown that the Congress was indeed a success for Spain. Encouragement was given to those embarking upon studies in underwater archaeology and they were exposed to international practices. The existence and reality of underwater archaeology was officially recognised. In short, an atmosphere was created enabling, or at least facilitating, subsequent actions including the creation, years later, of the *Patronatos de Arqueología Submarina* (Underwater Archaeology Boards) of the Balearic Islands, Cartagena, Ceuta and Gerona.

This Congress was a reflection of the mindset and situation of the period. Underwater archaeology was an activity in which sport divers belonging to clubs engaged in as a free-time activity. Some professional archaeologists used their post at institutions to give a certain degree of support to this activity which they considered "charming". At least that was the sentiment expressed by the prestigious archaeologist who, as a professor at the University of Madrid and Director of Barcelona's Archaeological Museum, gave the official closing speech of the Congress referring to this "charming branch of archaeology that you practice. Underwater archaeology is sporty, new, young, vigorous and has a bright future […]".

Having concluded the Congress, the doctors and professors returned to their museums and classrooms and a decade went by before a Spanish archaeologist visited underwater sites. Underwater archaeology, considered a "charming" and "sporty," activity remained outside of the sphere of professional archaeology.

It should be recalled that during that same period in other European countries, archaeological

ARQUEOSUB II campaign in San Vincente de la Barquera (LIAS Archive, 1987).



Archaeological studies in San Ferreol, Murcia (ARQUA Archive, 1987).

institutions were becoming actively involved in underwater archaeology. Italy had its *Centro Sperimentale di Archeologia Sottomarina* which used the vessel named *Daino* and later another named *Cycnus* followed by *Cycnulus*; all with the support of the *Ministero dei Beni Culturali*. In 1967 in France the *Direction des Recherches Archéologiques Sous-Marines* (DRASM) was created under the auspices of the French Ministry of Culture which provided the new body with a specially built ship called the *Archéonaute*.

We believe this Congress and its proceedings contain the outline for solutions which are still valid today but we also believe that that scientific meeting contains some of the key points needed to understand why those solutions, proposed nearly 50 years ago, have still not produced the expected results.

2.2 TECHNICAL RESOURCES

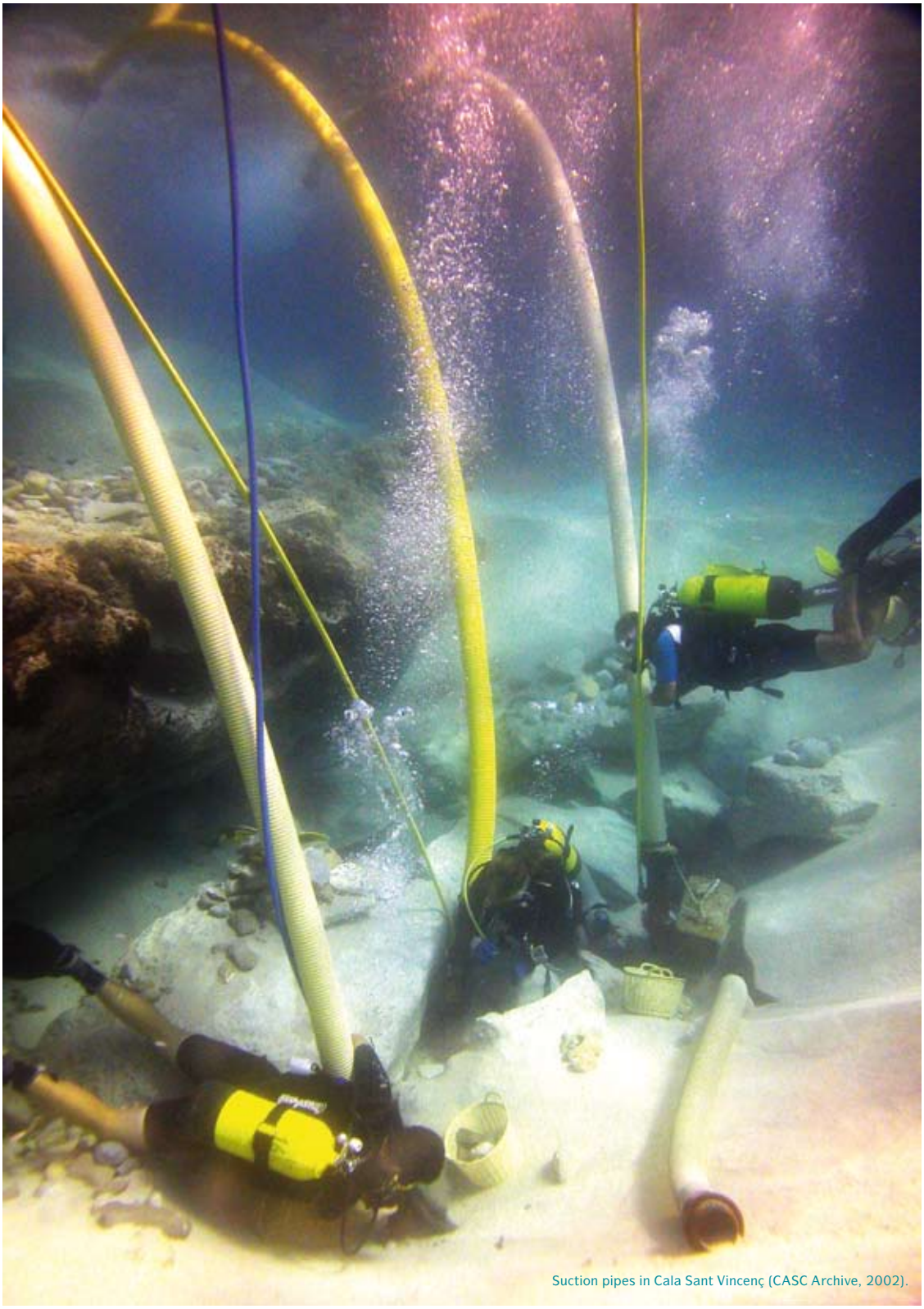
The first conclusion of the 1961 congress was that "The Congress urges the Spanish Government to prepare a navy vessel for underwater archaeological exploration".

Without succumbing to the false belief that underwater archaeology requires enormously complex and expensive technical resources, it is true that this activity requires specific infrastructures which are not used for traditional land-based archaeology.

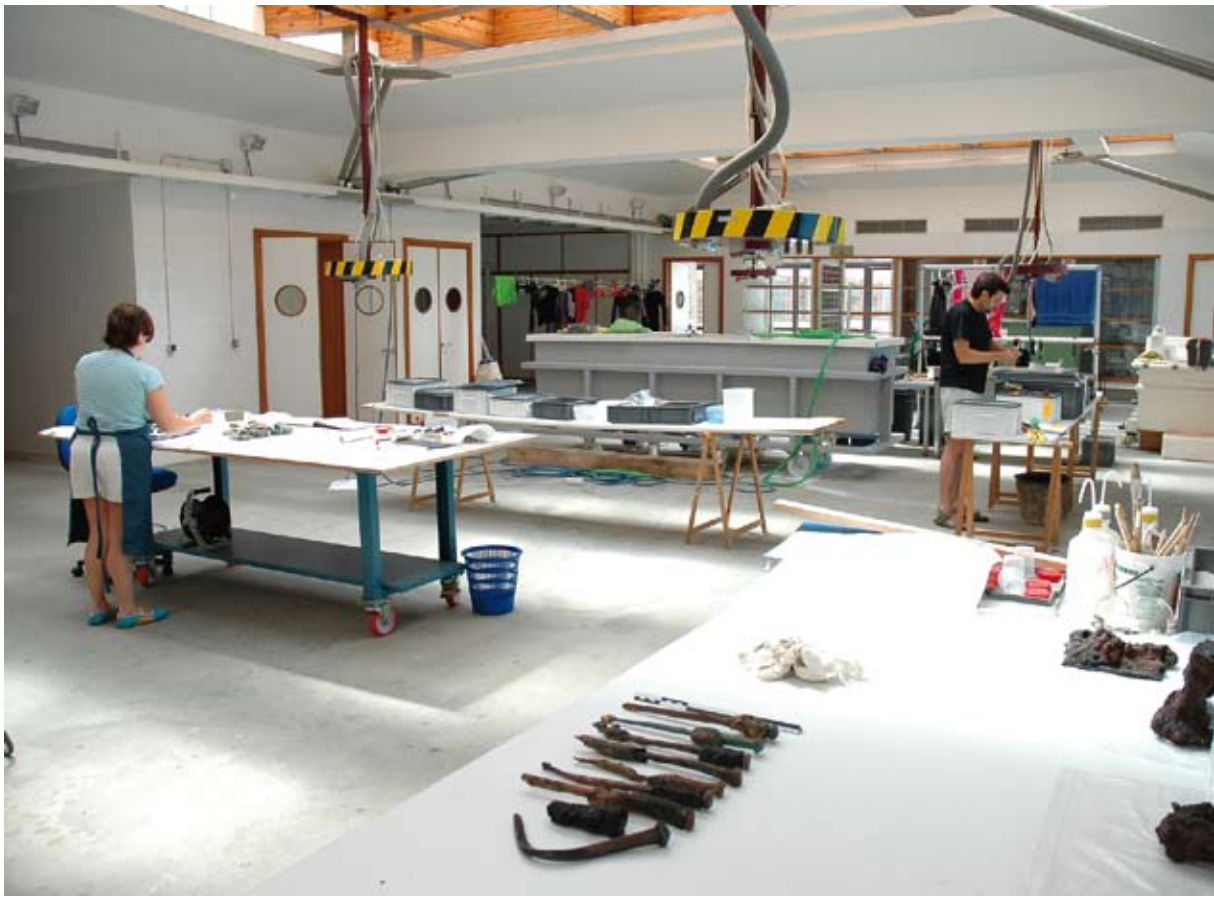
The launch of CASC's Thetis (CASC Archive, 2008).

Lateral-sweep sonar equipment (ARQUA Archive, 2008) .

ROV to compare archaeological anomalies (ARQUA Archive, 2008).



Suction pipes in Cala Sant Vicenç (CASC Archive, 2002).



Conservation and restoration laboratories (CAS Archive).

Technical resources can be grouped into two large categories: those enabling actions at sea and those necessary for subsequent work, especially the conservation and restoration of heritage items.

2.2.1 Resources for action at sea

In this section a distinction must be drawn between the vessel and its equipment. Today, only Catalonia has a vessel suited for underwater archaeology works. Andalusia, the National Museum of Cartagena (ARQUA), the Universidad de Zaragoza and the Maritime Museum of the Cantabrico have light vessels considerably limiting the extent of action.

In terms of equipment, a distinction should be drawn between electronic devices for archaeological survey and equipment for underwater excavation and immersion.

2.2.2 Electronic survey resources

Experience gained over the last several years has taught us that certain sophisticated electronic devices, including ROVs, lateral scanning sonar, magnetometers and multi-beam probes, have proven to be useful tools in certain cases for use by underwater archaeologists but alone do not meet all of the scientific and technical needs of an underwater archaeology project. They are simply auxiliary equipment. Experience has also

Restorers working in the laboratory (ARQUA Archive, 2008).

taught us that these are expensive devices and that this technology develops at such a speed that any of these devices runs the risk of becoming obsolete rather quickly. For these reasons (and others) it is advisable to lease rather than purchase. The fact that Spanish research centres lack these devices does not, therefore, constitute a major problem.

2.2.3 Excavation and immersion resources

While there is always room for improvement, at present the centres have equipment of this sort which meets the needs of the work being undertaken. Of course, more equipment should be acquired if there is a plan to increase activity.

2.2.4 The illusion of treasure hunting companies

It is very important to not make the mistake of thinking that underwater archaeology centres should acquire the resources, sometimes spectacular, which television reports show as equipment owned by some treasure hunting companies. One must be able to distinguish an activity whose ultimate objective is the location and commercial recovery of sunken ships, even at depths of hundreds of metres, and underwater archaeology whose objective is quite different, i.e. to provide the society with historical knowledge requiring specific technical resources.

It would be dangerous if Spanish underwater archaeology made the mistake of taking part in a media contest to find the biggest, the oldest or the most spectacular remains.

The dangers affecting Underwater Cultural Heritage vary depending on the depth of the waters. Spanish underwater archaeology should be prepared to face both of these challenges with a set of priorities, technical and human resources and legal tools tailored to each case.

2.3 LABORATORY RESOURCES

Although some Autonomous Communities lack minimum specialised infrastructures, this is most likely the area in which Spanish underwater archaeology has made the greatest headway over the last several years, the ARQUA, Catalonian, Andalusian, Universidad de Zaragoza and Maritime Museum of the Cantabrico centres being reasonably albeit unequally equipped to meet the needs of the activities they undertake.

2.4 MANAGEMENT BODIES

The 1961 Congress also reached the following conclusions:

"2. "This vessel should be under the auspices of an Experimental Centre for Underwater Archaeology".

"3. "The said Experimental Centre should be annexed to the Ministries of the Navy and National Education".

These recommendations dating back nearly 50 years show that even then it was believed that underwater archaeology should be undertaken by specialised bodies different from those which then and now engage in land-based archaeology.

This was the belief of political administrators who, as from the 1980's, created the underwater archaeology centres in Cartagena, Gerona, Burriana and Cadiz. A few words about the circumstances surrounding their creation are called for.

The National Centre for Underwater Archaeology (ARQUA), with headquarters in Cartagena and attached to the Ministry of Culture, was created at a time when the State, as a consequence of the 1978 Constitution, was in the process of developing a new framework of competences which would transfer responsibility for archaeology to the Autonomous Communities. As a consequence of this responsibility transfer process, different Autonomous Communities created their own underwater archaeology centres.

This framework led to some significant events which have marked and conditioned underwater archaeology in Spain today:

1. The National Centre's sphere of action was greatly reduced.

2. Due to the sum of resources contributed by the Autonomous Communities, there was a spectacular increase in technical, human and economic resources in Spain as a whole compared with what existed in the 1970's placing Spain today among the most advanced among neighbouring countries. It is also true, however, that these resources are used in each Autonomous Community with little or no collaboration between the different centres or sharing of institutional scientific equipment.

3. The different Autonomous Communities created their centres at a time when their respective archaeological organisational charts

First meeting of the board of governers of the Sub-aquatic Archaeology Museum (Archivo ARQUA, 2008).

had already been designed focusing on the most readily accessible land-based archaeology. At that time a proper place had not yet been made for this novel and unknown activity which was still considered "charming", complex and glamorous.

The fact is that the majority of today's underwater archaeology centres are really consultation and advisory bodies but are not creators, decision takers or executors of programmes and projects having to do with the management of Underwater Cultural Heritage, giving rise to the paradoxical situation that the most recent technical reports regarding this heritage are the responsibility of technicians who are not specialists in underwater archaeology.

2.5 DISSEMINATION AND PROTECTION

Another recommendation of the 1961 Congress was that "a spirit of collaboration should be fostered between divers and archaeologists".

At the time when this recommendation was made there were no diver-archaeologists and sport divers were the main cause of the destruction of underwater heritage mostly due to ignorance. That recommendation is understandable in this framework and remains valid today despite the passage of time and the change in the overall panorama.

Over the last several years public and private works have been the main cause of the destruction of Underwater Cultural Heritage probably because most of the visible archaeological remains have already been pillaged. Furthermore, the mentality of this sporting sector is gradually changing in the direction of environmental conservationism in all aspects with the exception of a few stubborn divers.

In this new framework the recommendation made at the Congress remains valid in the sense of getting the society at large to take part in this heritage, especially groups most directly related to the sea. Archaeology finds its true justification to the degree that it contributes knowledge and social benefit, and the society's collaboration, support and protection of heritage which it considers its own depends on its degree of participation.

2.6 TRAINING AND THE AVAILABILITY OF SPECIALISED TECHNICIANS

The 1961 Congress also highlighted the following in its conclusions:

"It is absolutely essential that all activities undertaken at archaeological sites be managed by an archaeologist".

Naturally, this recommendation made in 1961 remains fully valid for both technical and scientific aspects. Increasingly, underwater archaeology engenders the emergence of related fields of research generating new approaches for historical research.

Accepting this need, it is paradoxical that there are no standard training programmes for these specialised technicians. Spanish universities focus almost exclusively on land-based archaeology in terms of technical, methodological and scientific aspects. Subjects such as naval architecture, the organisation of naval transport and trade and naval history in general are barely touched upon in university curricula. The fact is that today our underwater archaeologists are, to a large degree, self-taught by attending the few excavations undertaken and assuming the expense of taking part in training programmes at foreign universities.

This is a serious problem even after the establishment of underwater archaeology centres over 20 years ago and the consequences can be observed, for example, in the scant number of scientific publications which should give rise to dissemination documents, exhibits and other initiatives designed to bring this heritage closer to the general public with suitable scientific precision.

If, in addition to these training deficiencies, we add the scant number of professional underwater archaeologists in Spain, we will continue to suffer over the next several years from the lack of the essential human element

allowing for the implementation of any Underwater Cultural Heritage protection plan.

Notwithstanding the above, the quantitative change has been spectacular: in the mid 1970's there were virtually no archaeologists with training in underwater archaeology while today there are over 200 who have received at least some sort of specific training. Unfortunately, only a few have been able to continue with their professional activity in this field.

2.7 AN INSUFFICIENT ORGANISATIONAL AND MANAGEMENT MODEL

Summarising the current situation of Underwater Cultural Heritage and Spanish underwater archaeology, we must acknowledge that spectacular change has taken place over the last 20 years.

In terms of *legislation*, underwater and land-based archaeological sites receive the same protection under both national and regional law. Furthermore, having ratified the 2001 UNESCO Convention, Spain must now create a new legislative and regulatory framework in this connection.

As for *organisation*, Spain has a national centre and three regional ones guaranteeing the continuity of actions and denoting optimism in terms of political support.

As for *infrastructure*, there is a lack of suitable vessels for work at sea but the number of buildings, tools and laboratories is, with varying degrees of development, acceptable for small and medium-sized projects.

The *human resources* situation is even more bleak both in terms of the number of professionals working in the public or private sectors and the possibility that new archaeologists have to receive training enabling them to continue in activities offering scientific and heritage guarantees.

Despite advances made (especially the inauguration of ARQUA as the first museum specifically focusing on underwater archaeology), *dissemination and protection* are still insufficient. This is even more true now when the endemic destruction of heritage has been exacerbated by that resulting from the enormous volume of public and private works along our coasts and the proliferation of enterprises and private individuals taking advantage of the drastic fall in the price of electronic and mechanical devices with which to locate and remove archaeological artefacts.

Based on this summarised (albeit objective) diagnosis of the situation, we must conclude that the circumstances exist for Spanish underwater archaeology to produce acceptable results but, unfortunately, that is not happening.

There are a number of causes for this which link together forming a vicious circle which can clearly be traced back to the administrative organisational system within which this activity is carried out:

1. The first cause is the erroneous conclusion (reflected in applicable laws) that everything which is valid for land-based archaeology is also valid for underwater archaeology, losing sight of the enormous technical difference between working in one environment or the other. People also tend to forget that the body of regulations applicable to the sea has little to do with land, partial municipal planning or urban factors, not to mention the

different authorities and bodies responsible for the two environments.

2. Based on these errors and mindful of the scant number of underwater archaeologists and the virtual lack of technical bodies with decision-taking authority, it should come as no surprise that presently the decisions affecting Spanish underwater archaeology are taken by individuals with little or no knowledge of the real problems facing this heritage. Given this situation, too many poor decisions are taken or no decision is taken at all due to fear of making a mistake resulting from lack of knowledge. This has become the main stumbling block slowing down the development of Spanish underwater archaeology.

3. The preceding two points lead one to the conclusion that, despite the existence of human and technical resources, these are underused and do not produce the desired results.

4. The situation has become so serious that the different underwater archaeology centres, to a greater or lesser degree, are mere advisory bodies meaning that the public administration technicians who are not specialised in underwater archaeology are the ones often taking the decisions relating to the different actions plans and are even conducting the technical inspections of ongoing underwater works.

5. An example of this is the conceptualisation and organisation of the so-called preventive excavations when these are conducted exclusively by private companies. The solutions adopted for land-based archaeology have simply been transferred to the underwater environment without considering, among other things, that private companies companies do not have access to the human and technical resources needed to work work at sea due to their cost and the uncertainty of future work making heavy investment in these costly infrastructures very risky.

Experience has proven that these solutions are inappropriate and dangerous. On some occasions, all of the equipment is leased and this greatly increases the cost of the operation causing distrust and opposition on the part of construction companies. In other cases it is the companies themselves which provide the resources and also pay the archaeologists who are then subjected to the economic interests and pressure of the construction companies that know little or nothing about the scientific problems which go hand-in-hand with activities of this nature.

The problem is even more serious in post-excavation work which requires complex laboratories and processes which can take years, requirements which private underwater archaeology companies cannot meet given the definition of the contract itself. The result is the decay of wet archaeological material and the lack of studies and publications on the work carried out.

6. The participation of private underwater archaeology companies is desirable but always within a legal and regulatory framework which takes stock of the specific peculiarities and needs of Underwater Cultural Heritage.

In light of this situation and the implementation of a National Plan for the protection of Underwater Cultural Heritage, a new model must be developed for the organisation and management of underwater archaeology. •

3 | Documentation Regarding Spain's Underwater Cultural

3.1 DOCUMENTARY RESEARCH

Familiarity with everything having to do with the finding, dating, interpreting, studying and evaluating Underwater Cultural Heritage is an essential prerequisite for the latter's protection. This knowledge, especially in recent times, is mostly the product of documentary research and ethnographic surveys canvassing groups related to the marine environment, essential initiatives in compiling the underwater archaeology map and for drawing up plans and project proposals and thoroughly managing the whole process. All of this allows for the conducting of scientific research targeting this type of heritage and its subsequent study, interpretation and conservation so that it can be enjoyed by the entire society.

Fortunately, Spain has an extraordinary wealth of documentation which can be used for this purpose. Especially detailed records can be found as from the end of the Middle Ages to the present and is distributed between national, regional, provincial, ecclesiastical, local and private archives. In addition to this, we have all of the information from research articles published in Spain and abroad regarding Spanish shipwrecks.

The areas of knowledge in this regard range from sailing history –including fishing, trade and warships- to understanding of the technology needed to undertake these activities, shipbuilding procedures, navigation systems, weapons, logistics, etc., in addition to the most thorough possible inventory of the Spanish fleet throughout the different historical periods and the shipwrecks along our coast or suffered by Spanish vessels in any part of the world.

The library at the National Museum of Sub-Aquatic Archaeology (ARQUA Archive, 2008).

3.1.1 State of affairs

Historians to date have produced little concerning Spanish maritime history, especially with regard to its main technical aspects. Clear evidence of this is the need to consult works on this subject dating back approximately a century.

Things began to change about two decades ago thanks to the production of Spanish authors and some foreign hispanicists as well. The *Gran Armada* project undertaken during the 1980's and the celebration of the Quincentenary of the Discovery of America sparked studies which appreciably improved the situation; in the former case the appearance of Spanish shipwrecks in European, American and Pacific waters served as an incentive to the latter.

Moreover, treasure hunting campaigns have financed the study of documentation, especially at the General Archive of the Indies, producing information used more for pillaging than for the defence of Underwater Heritage.

The few centres which have been working systematically on compiling underwater archaeological maps have also, in some cases, engaged in interesting documentary and ethnographic research campaigns. These campaigns have been conducted by groups making incidental finds such as fishermen and professional and sport divers. However, available information is very dispersed and is enormously lopsided between the different Autonomous Communities meaning that a huge amount of work remains to be done requiring coordination between the different principal players which has not existed up to now.

Cantabric boat, one of the discoveries in a document from 1478 (LIAS Archive).

3.1.2 Definition of objectives

For these reasons, our intention to:

1. Gather all of the information published or available into one common resource.

2. Promote efforts paving the way to the gathering and interpretation of information not yet available.

3. Create the necessary coordination mechanisms between the organisations involved in managing Underwater Cultural Heritage in order to compile the aforementioned information resources and promote its distribution among them.

4. Compile the scientific works conducted and published to date and available public works reports affecting Underwater Cultural Heritage and coastal dynamics studies.

5. Promote programmes whose aim is to thoroughly delve into sources liable to

contain information on these aspects in all of the Autonomous Communities.

6. Set up a coordination unit entrusted with establishing a standard coding system and disseminate the resulting information among all Spanish centres devoted to underwater archaeology, interested universities and other national and foreign research centres.

7. Put together a national database in which to deposit the results of all of the aforementioned initiatives and provide it with the mechanisms needed for permanent update necessary for a field of knowledge as open to new trends as this one.

3.1.3 Priority actions

From among the priority actions envisaged, special mention should be made of the following:

1. Documentary rebuilding of the Spanish fleets and infrastructures making them possible and a thorough inventory of shipwrecks from the documentary resources of municipalities and coastal towns, notarised documents, parish records of the deceased and documents relating to maritime activity in regional and national archives.

2. Ethnographic survey of the elderly members of fishing, diving and marine communities before time erases once and for all this information.

3.2 ARCHAEOLOGICAL MAPS

The aim of the National Plan for the Protection of Underwater Archaeological Heritage is to set some general guidelines which should be adopted with a view to implementing an

Areas with archive information about Trafalgar shipwrecks (CAS Archive).

Geophysical exploration areas related with the shipwrecks of Trafalgar (CAS Archive)

effective policy to protect this heritage in accordance with the terms of the 2001 UNESCO Convention. From among the measures proposed in this Plan, we would especially highlight the need to draw up or finalise underwater archaeological maps in Spain.

3.2.1 Precursors

Based on the premise that you cannot protect what you are not familiar with and bearing in mind that archaeological heritage is an extremely fragile asset subject to a number of negative natural and anthropological impacts, it goes without saying that proper protection of this heritage requires a good general knowledge of it.

While this need to compile an inventory of archaeological heritage has had the attention of the different bodies responsible for its protection during the 20th century, it was not until the Second World War that international organisations, following the creation of the UNESCO, addressed the need to compile a Heritage Inventory to be used as an effective tool in its protection.

In Paris in 1968 UNESCO enacted the *Recommendation concerning the Preservation of Cultural Property Endangered by Public or Private works*, Article 4 of which spoke to the need to draw up inventories to protect important cultural property regardless of whether it is registered as such or not. In the event that these inventories do not exist, priority should be given to establishing them by conducting a detailed and complete examination of cultural property in areas where these assets are endangered by public or private works.

Four years later in 1972, UNESCO addressed this topic once again in its *Recommendation on the national protection of the world cultural and natural heritage* known as the "Paris Charter". Article 29 of that Recommendation called on each Member State to promptly compile an inventory for the protection of cultural and natural heritage including properties which, while not being of exceptional importance in and of themselves, are inseparable from the environment to whose character they contribute.

However on this occasion the UNESCO went a step further indicating in Article 30 of the Recommendation that the results of the cultural and natural heritage inventory should be properly organised and updated on a regular basis. Moreover, Article 31 established that in order to actively integrate cultural and natural heritage at all levels of planning, Member States should prepare maps and documentation with as much detail as possible making reference to the cultural and natural properties in question.

These aspects, formulated previously and in greater detail in the *Charter on the Protection and Management of Underwater Cultural Heritage* adopted by ICOMOS in Sophia in 1996 (the "Sophia Charter"), have been laid down and intensified in the 2001 *UNESCO Convention for the Protection of Underwater Cultural Heritage*. Hence, Article 22 establishes that, in order to ensure the proper implementation of this Convention, States Parties shall establish competent authorities or reinforce the existing ones where appropriate, with the aim of providing for the establishment, maintenance and updating of an inventory of underwater cultural heritage, the effective protection, conservation, presentation and management of underwater cultural heritage, as well as research and education.

However, those aspects that have traditionally been the basis of archaeological inventories such as sufficient documentation for the management and safekeeping of underwater cultural heritage (site description, location and marking of boundaries) is insufficient today and an appropriate tool urgently needs to be designed to that end.

In the case of Spain, underwater archaeological maps date back to the beginning of the 1980's when provincial and regional authorities and the Ministry of Culture through its National Plan for the Documentation of the Spanish Coast attempted (with very inconsistent results) to obtain the information needed to learn more about and protect underwater cultural heritage.

Up until that time, most of the information available came from informal finds out of context (archaeological artefacts found by chance and turned over by sport divers or fishermen) such that said archaeological elements provided only scant or no information whatsoever on the site they were taken from since they represented the mere recovery of objects in a context void of archaeological methodology. In most cases, there was no record of the specific location where these artefacts were found. On some occasions these actions, undertaken in the absence of suitable conservation measures, also led to the destruction of archaeological material or the deterioration of its state of conservation with the ensuing loss of archaeological information and exhibitory potential.

During this period, inventory work focused especially along the coasts of Valencia, Ibiza, Gerona, Almeria, Almuñecar and the Canary Islands.

3.2.2 Methodology

Proper safekeeping of archaeological heritage inevitably requires a comprehensive understanding of the latter especially through the use of non-destructive techniques and non-intrusive reconnaissance and survey of the site as described in the fundamental principles laid down in the 1996 Sophia Charter and the 2001 UNESCO Convention.

It is vital for Spain to compile an underwater archaeological map serving not as an end in itself but rather as an indispensable tool allowing for the gathering of sufficient information to draft suitable Underwater Cultural Heritage management policies. Hence, the archaeological map must pursue the following basic objectives:

(a) Find, identify and assess heritage which could be the object of research using archaeological methodology;

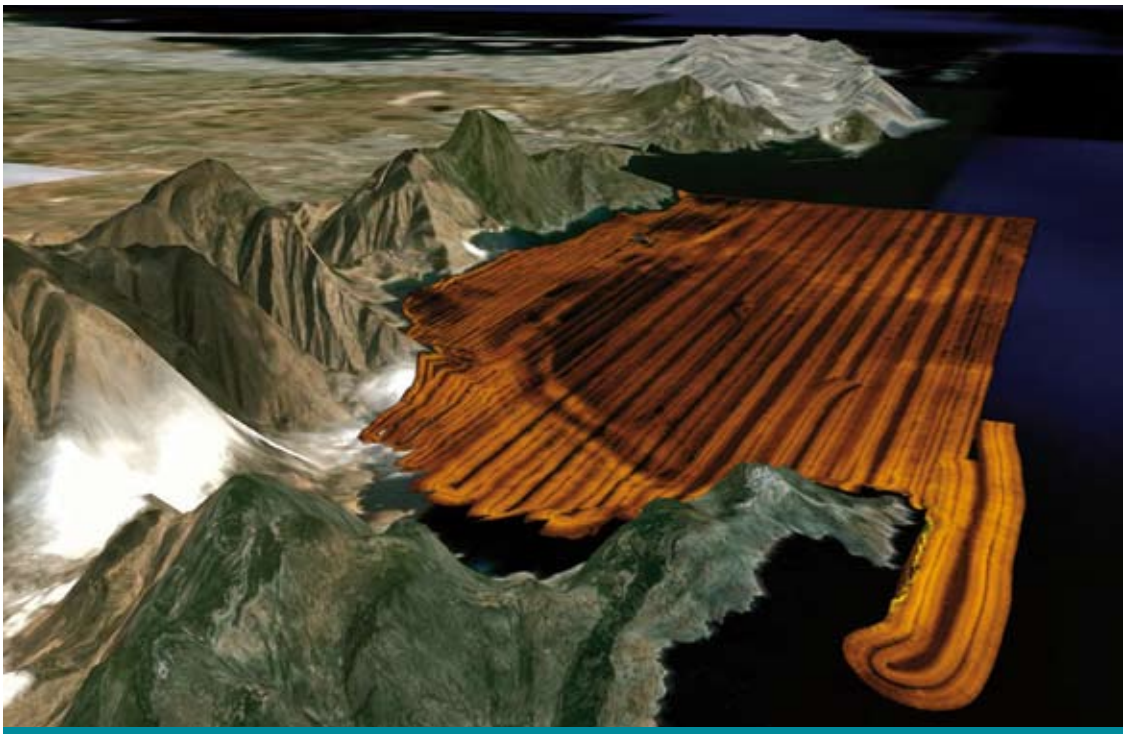
(b) Diagnose its state of conservation and possible conservation risks; and

(c) Propose actions intended to protect, conserve, research and teach about this heritage.

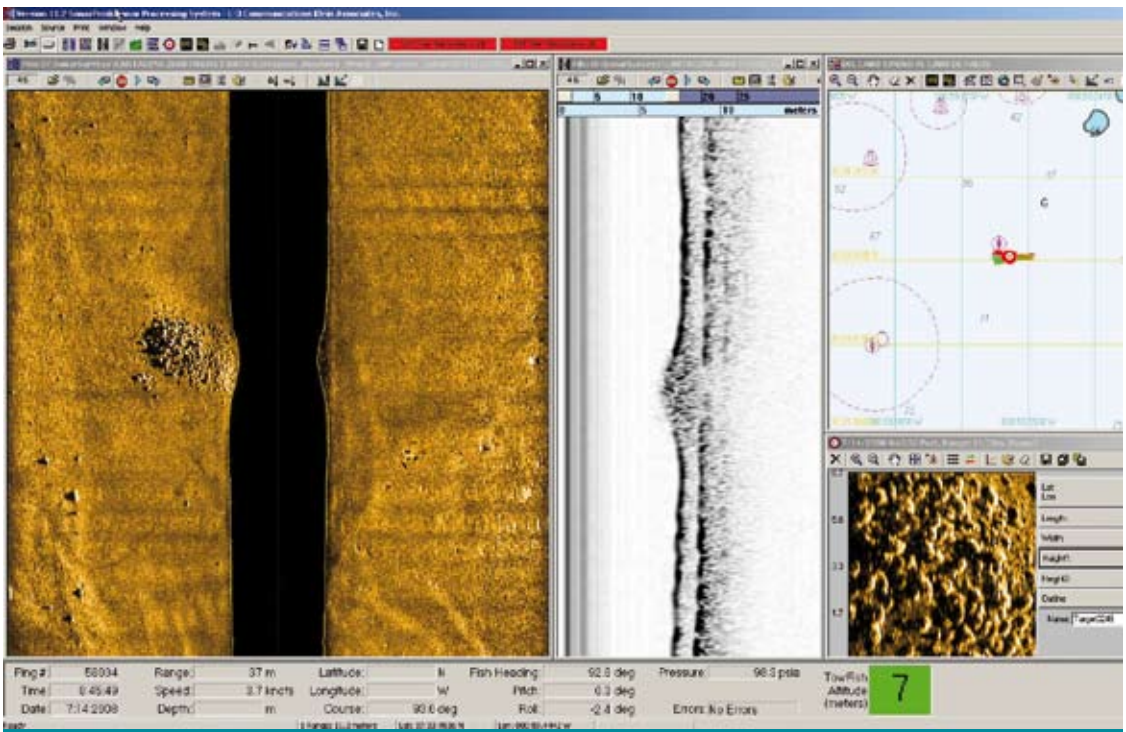
The following studies need to be conducted if we expect to achieve these objectives:

3.2.2.1 Documentation phase

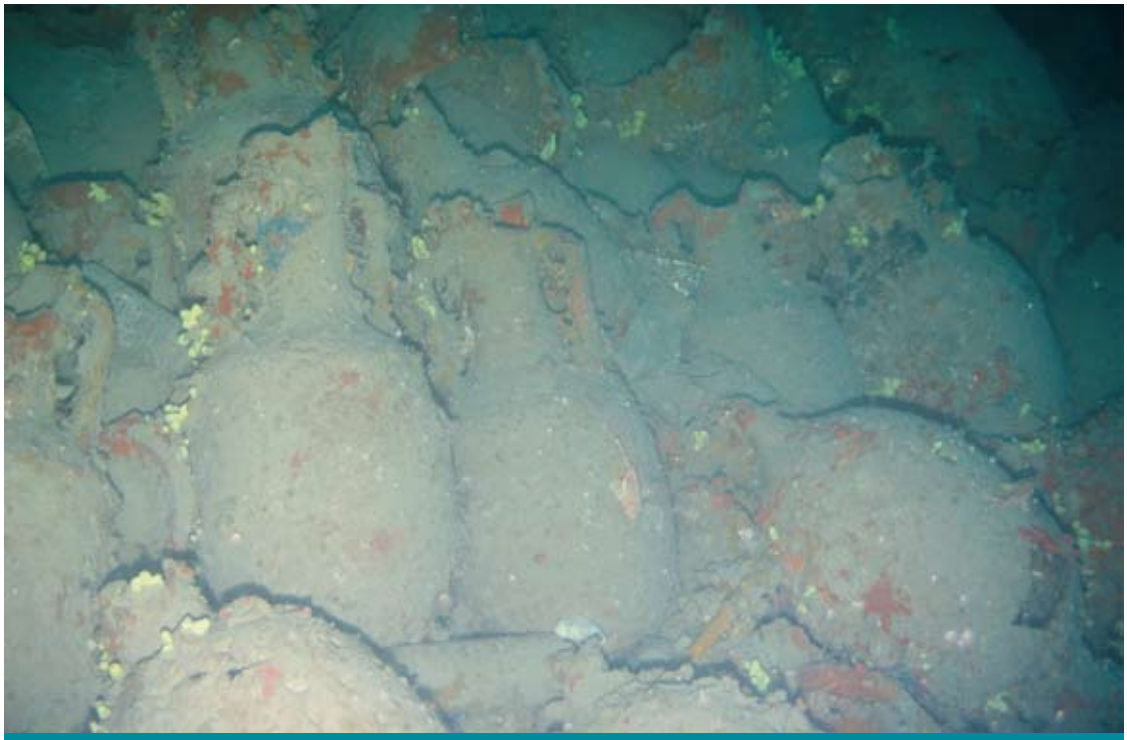
Preliminary analyses of underwater and coastal graphic documentation, bibliographical documentation, archives and documentation concerning coastal infrastructures and archaeological espeditions carried out in the target area of the study will be conducted. All of this information is then processed with a view to defining the areas apt for investigation using archaeological methodology. The compiling of information gained by



Geophysical exploration of Cartagena Bay (ARQUA Archive, 2008).



Sonar scanner and profiler of a deep shipwreck (ARQUA Archive, 2008).



ROV documentation of a deep Roman shipwreck (ARQUA Archive, 2008).

speaking with local people most directly related to the sea should not be overlooked.

3.2.2.2 Archaeological study of the area

An archaeological study of the defined area should be conducted based on the data collected during the first stage. To that end, non-intrusive activities are recommended such as non-destructive techniques and the preferable use of excavation for the removal of samples.

This stage will focus on the location of sites using suitable and sufficient survey systems to find and map the sites found within the study area.

If geophysical survey techniques are used, subsequent to the requisite processing, analysis and study of the data obtained, anomalies should be visually checked in order to assess the importance of the remains and their state of conservation and to then establish the proper archaeological safeguards guaranteeing protection of the heritage.

These checks should be undertaken by archaeologists who are also divers. When this is not possible, submergible remotely operated vehicles (ROV's) equipped with still picture and video cameras or other similar technical equipment will be used. Similarly, the precise location of the site using the differential global positioning system; high resolution photographs; a planimetry or sketch of the site; reconnaissance of the site such that a typological or chronological association can be established; the establishment of boundaries; and the sampling of water and sediments in order to establish the conditions of the site from a

protection-conservation point of view are required.

Occasionally, when sediments must be disturbed in order to properly visualise and assess the site, test probing minimising any disturbance of the remains and their natural environment is conducted, prioritising on-site conservation of the materials and their covering unless there is a risk of pillaging, deterioration or destruction.

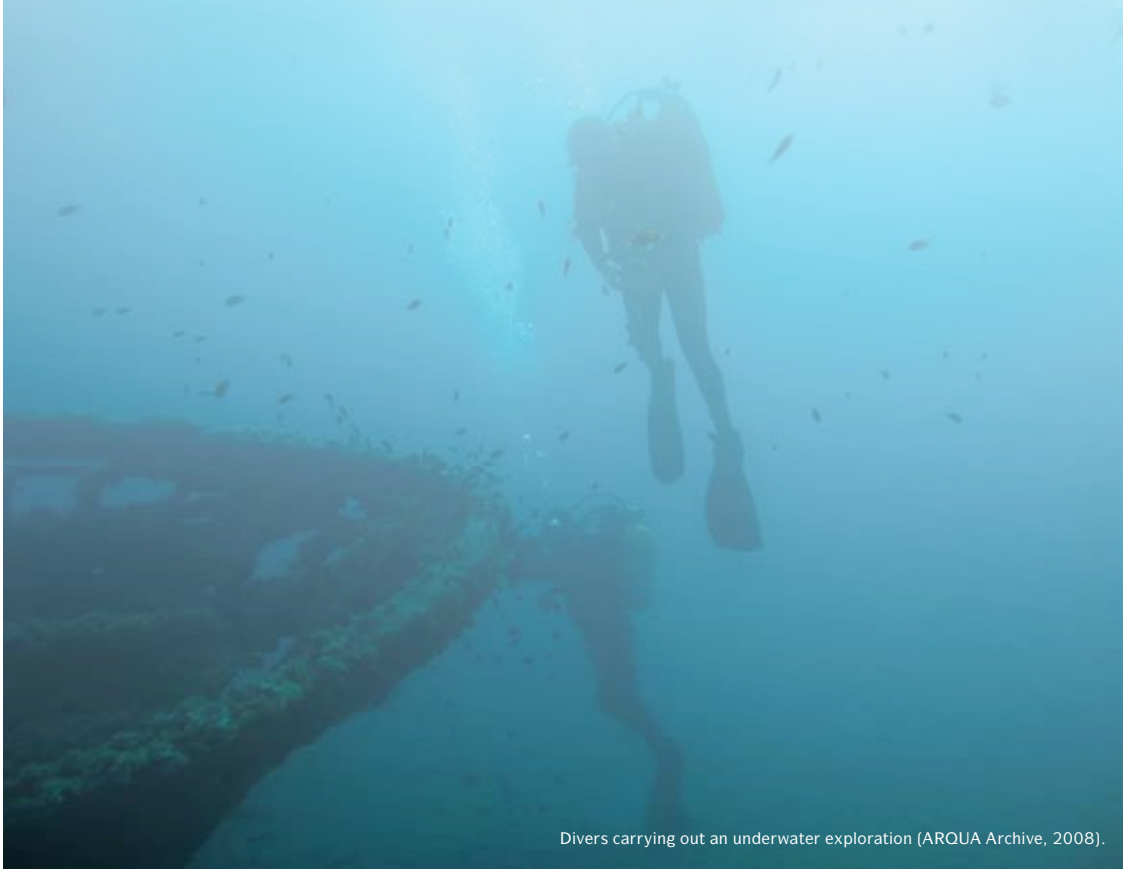
The archaeological study of the area will also include an analysis of the state of conservation of both the moveable and immoveable property found and a study of the origin and geomorphologic and sedimentologic evolution of the research area.

Analysis of this information will be instrumental in designing the general lines of action by the bodies managing this heritage which subsequently will give rise to specific research, protection-conservation and educational actions.

3.2.2.3 Standardisation of information

Data obtained will be saved in a database through the systematic filling out of data sheets.

Based on the information obtained through the studies conducted, a document may be compiled to facilitate the rational programming of future archaeological actions both concerning protection and conservation and the design of research strategies



Divers carrying out an underwater exploration (ARQUA Archive, 2008).

Filming the Aiguablava IV shipwreck (CASC Archive, 2007).

thus setting the stage for the legal and physical protection of underwater archaeological sites.

3.3 PRIORITY ACTIONS

In light of the importance of the foregoing, a series of priority actions to accompany the implementation of the underwater archaeology maps within the National Plan for the Protection of Underwater Archaeological Heritage is deemed vital. From among these priority actions, special mention should be made of the following:

1. Conclude collaboration agreements with the different Autonomous Communities to foster underwater archaeological maps as joint defence mechanisms and an information sharing tool.

2. Continue developing archaeological maps in accordance with the rules on activities addressing Underwater Cultural Heritage laid down in the 2001 UNESCO Convention.

3. Establish computerised databases using standard criteria and formats so that they are compatible and can be easily used at least in the Western Mediterranean and Eastern Atlantic, including the Cantabrian Sea. These databases will be provided with different levels of accessibility control to guarantee the security of the sites. Public access to the said maps must be regulated under law with an accent, as mentioned, on the security of the sites.

4. Apply protection measures existing in our law in accordance with the data obtained in the archaeological maps. •

4 | Legal Protection

As alluded to above, the 2008 adoption of the Spanish National Plan for the Protection of Underwater Cultural Heritage, the entry into force on 2 January 2009 of the 2001 UNESCO Convention and certain recent events in detriment of our underwater heritage, put Spain at a crossroads when it comes to reviewing and enhancing the regulatory and institutional framework intended to protect and highlight this heritage in compliance with the constitutional mandate laid down in Article 46 of our 1978 Constitution.

4.1 CURRENT STATE OF AFFAIRS

National and regional law regulating Cultural Heritage features a specific regulation concerning archaeological heritage which includes underwater archaeological heritage. However, despite the fact that archaeological heritage is specifically addressed in the law and the thoroughness of regulations governing archaeological actions, broadly speaking the regulation lacks the detail needed for the effective protection of Underwater Cultural Heritage.

Specialists generally agree on the need to provide specific protection for this sort of heritage. Underwater heritage, unlike land-based sites, lacks some of the most effective sectoral legal protection such as zoning laws, which regulate the different uses and actions permitted.

This circumstance, together with the fact that regulations concerning authorisation for archaeological activity virtually make no distinction between underwater or land-based archaeological activity, generally results in deficiencies in defining the objectives of underwater projects and even shortfalls in the composition of teams, safety plans or the preservation of archaeological remains.

These lacunae in the legislation are most typically offset by the technical criteria of the administrative personnel responsible for managing these projects meaning that these technicians must have specific knowledge and training in this field which is currently not the norm in public administration. In many cases there are not even any specific centres to manage these types of projects and therefore there are no qualified personnel either.

This lack of suitable control over many actions which could potentially harm underwater heritage and the lack of action protocols to prevent this from happening, highlight the shortfalls of cultural heritage legislation and the need to set up preventive measures.

All of this is further exacerbated by the difficulty of physically protecting archaeological remains in a constantly changing environment where hidden remains may be uncovered and visible ones concealed over a very short span of time and the arduous task of surveillance and inspection requiring the development of specific technical resources and effective coordination with police and security forces (both national and regional) and the expertise of specialised archaeologists technically prepared to undertake these duties.

4.2 EXISTING VARIABLES

It is first of all important to recall some of the variables which must be considered when drafting a regulatory reform proposal which should include the following:

(a) Threats to Underwater Cultural Heritage could be incidental or not. This means that both legal activities (fishing, diving, laying of underwater cables, etc.) and illegal ones (pillaging, unauthorised topographical works

and salvage, etc.) can have a profound effect on the preservation of Underwater Cultural Heritage and must therefore be envisaged by legal regulations.

(b) Spain's decentralised structure means that general legislative authority concerning the protection of Cultural Heritage is shared by the Central Government and the Autonomous Communities and lesser authority is also held by Local Governments. It must also be recalled that Article 28 of the UNESCO Convention provides that "When ratifying, accepting, approving or acceding to this Convention or at any time thereafter, any State or territory may declare that the Rules shall apply to inland waters not of a maritime character." Thought should be given to the degree to which Spain should apply the provisions laid down in the Annex to the Convention to its inland waters considering that, in principle, these are under the authority of the Autonomous Communities. If it is not applied, two different legal systems will prevail: one governed by the UNESCO Convention and its implementing legislation for marine underwater cultural heritage and another with its own characteristics and essentially under regional authority strictly referring to heritage under inland waters. For the sake of unified management, Spain should apply Article 28 of the Convention.

(c) Moreover, legislative authority in other spheres of action with potential repercussions

Conference on the legal protection of sub-aquatic cultural heritage (ARQUA Archive, 2009).

on Underwater Cultural Heritage are likewise shared between the Central Government and the Autonomous Communities (fishing, the environment, scientific policy, etc.).

(d) As already mentioned, Spain ratified the 2001 UNESCO Convention on 6 June 2005 meaning that at the time this Green Paper was being drafted the Convention was already in force in 24 States including Spain. Once it was officially published in Spain on 5 March 2009, the UNESCO Convention formed part of Spain's domestic legal system, taking precedence over any legislative act (national or regional) enacted either prior or subsequent to that date (Article 96.1 of the Spanish Constitution).

(e) Furthermore, it is likely that in the near future the European Union will take up a legislative initiative abandoned by the Council of Europe in 1985. Having taken stock of the problem, especially the presence in Spanish, Italian, British and French waters of treasure-hunting enterprises, a Community initiative can be expected along the lines expressed by the Council of Ministers of Culture held in November 2007 or at the Euro-Mediterranean Ministerial Conference on Culture held in May 2008 in Athens. Special mention should also be made of the stance taken by the Latin American Ministers of Culture at a May 2008 meeting in favour of the Spanish proposal (protection and cooperation) ratified at the XVIII Ibero-American Summit held in San Salvador (October 2008). All of this means possible future legal obligations with domestic repercussions.

For all of the above, we highlight the need to enact a specific regulation on the protection of Underwater Cultural Heritage forming part of the future Spanish Cultural Heritage Act which:

takes stock of the Spain's international obligations;
sets up a coordinated system between the different public administrations involved; and
is capable of regulating both incidental and intentional activities affecting Underwater Cultural Heritage undertaken by public and private, national and foreign entities and individuals.

4.3 GENERAL PROBLEMATIC ISSUES

The following problematic issues were detected:

1. the very definition of Underwater Cultural Heritage for the purposes of future legislation;
2. problems deriving from activities incidentally affecting Underwater Cultural Heritage, especially trawling and marine scientific research;
3. the need to promote measures to protect Underwater Cultural Heritage;
4. application of the salvage, find and treasure arrangement to Underwater Cultural Heritage; and
5. establishment of an Underwater Cultural Heritage surveillance and inspection system.

4.3.1 Definition of Underwater Cultural Heritage for the purpose of future legislation

There is no precise definition of Underwater Cultural Heritage in Spanish law. Article 1.2 of the current Spanish Historical Heritage Act (Spanish acronym LPHE), Law 16/1985 defines Spanish Historical Heritage as:

"immovable property and moveable objects of artistic, historical, paleontological, archaeological,

ethnographic, scientific or technical interest. Also included is documentary and bibliographical heritage, archaeological sites and areas as well as natural sites, gardens and parks possessing artistic, historic or anthropological value".

Article 40(1) of the LPHE incorporates archaeological heritage into Spanish Historical Heritage specifying that the former forms part of the latter:

"movable and immovable property of an historical nature liable to be studied following archaeological methodology regardless of whether it has been removed from the site or not and whether the site is found on the land surface, underground, in territorial waters or on the continental shelf. Geological and paleontological elements related to the history of man and his origins and predecessors likewise form part of this heritage".

In short, according to Law 16/1985, the only prerequisite for the consideration of a given property as archaeological heritage is the likelihood that archaeological methodology will be applied to its study. Legislators have tried to intensify the protection of archaeological property thus justifying its declaration as public property (Article 44 LPHE).

In general terms, regional law on cultural heritage uses a similar description and regulatory approach in defining archaeological heritage and its inclusion among the historical or cultural heritage of each Autonomous Community. It is a very broad, meta-legal and vague definition.

However, Article 1.1 of the 2001 UNESCO Convention provides a very precise definition of Underwater Cultural Heritage:

"(a) Underwater cultural heritage means all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years such as:

i) sites, structures, buildings, artefacts and human remains, together with their archaeological and natural context;
ii) vessels, aircraft, other vehicles or any part thereof, their cargo or other contents, together with their archaeological and natural context; and
iii) objects of prehistoric character.

b) Pipelines and cables placed on the seabed shall not be considered as underwater cultural heritage.

c) Installations other than pipelines and cables, placed on the seabed and still in use, shall not be considered as underwater cultural heritage."

The text of the 2001 UNESCO Convention is a minimum and not a ceiling. In other words, the degree of protection under the Convention can be enhanced *in foro domestico* and through the conclusion of subsequent bilateral or multilateral agreements (Article 6 of the Convention). With due consideration for all of this and the current definition of archaeological heritage laid down in Law 16/1985 and the corresponding regional regulation, a new definition of Underwater Cultural Heritage needs to be drafted for our legal system. To that end, special mention should be made of the following:

(a) "Underwater Cultural Heritage" –regardless of the definition used in the end- should form an integral part of Spanish

archaeological heritage which, in turn, forms an integral part of Spanish historical heritage as property belonging to the public domain. Archaeology is simply one more way of explaining history and, as such, should be at the service of the explanatory continuum of our past. It therefore stands to reason that, despite the specificity of Underwater Cultural Heritage, the latter's regulation must necessarily be included in the regulation of Historical Heritage in general.

(b) The broad notion of Underwater Cultural Heritage (*"all traces of human existence"*) must co-exist in our legal system with the most strict definition laid down in current national and regional law which typically refers to *"all movable and immovable objects of an historical nature liable to be studied in line with archaeological methodology"*.

(c) In any case, the notion of Underwater Cultural Heritage must include, with the necessary legal nuances, objects removed from the seabed as well as those left behind.

(d) The time frame referred to in the Convention (*objects which have been partially or totally under water, periodically or continuously, for at least 100 years*) can be sidestepped if objects liable to be studied following archaeological methodology, regardless of whether they are removed from the seabed or not, are protected as they have been since 1933 under our legislation, thus avoiding the use of the time factor as part of the fundamental definition of heritage. In any case, it should be recalled that these 100 years do not necessarily refer to the last 100 years.

Course for Guardia Civil [Civil Police] on the protection of sub-aquatic archaelogical heritage (CAS Archive).

(e) For the sake of clarification, a series of examples of Underwater Cultural Heritage should be included following the example of the UNESCO Convention.

(f) As suggested by the working group, it is important to assume that our law applies to heritage found on the seabed or the subsoil of the seabed, in inland and continental waters including ground water, territorial seas and the Spanish continental shelf. This would suggest the extra-territorial enforcement of our law since, for the time being, international law only clearly recognises this right in territorial waters and the contiguous zone but not the continental shelf although there is a trend in that direction. The current status of our legislation should be maintained despite the practices of other States.

(g) Despite the indications set out in Article 1(1)(c), protection should be afforded to *"Installations other than pipelines and cables, placed on the seabed and still in use"*, such as certain fishing gear along our coastline which is still used despite being underwater for over 100 years.

And lastly, a clear reference should be made to Spain's legal position concerning state vessels and aircraft in line with recent declarations made by Spain to the international community and before foreign courts where Spain has filed claims regarding its Underwater Cultural Heritage. Spain's position is that it maintains, indefinitely, all of its rights over its sunken vessels and aircraft in accordance with the rules of international law regardless of where these are located or the time elapsed since their demise. Under Spanish law, rights over any such vessels or aircraft may only be transferred or abandoned by an express act of public law.

4.3.2 Problems arising from incidental activities

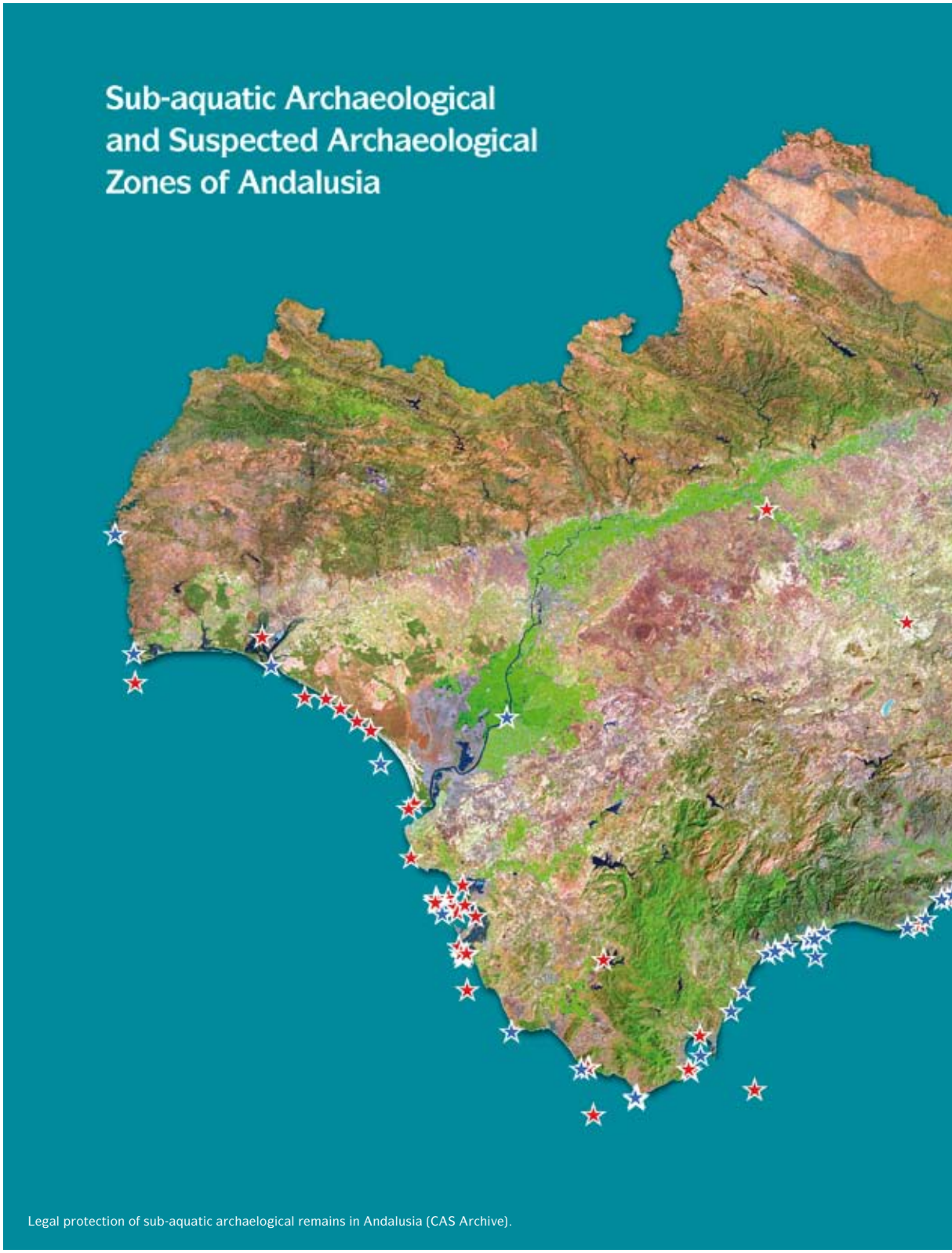
Article 5 of the UNESCO Convention provides the following general principle:

"Each State Party shall use the best practicable means at its disposal to prevent or mitigate any adverse effects that might arise from activities under its jurisdiction incidentally affecting underwater cultural heritage."

This Article creates a blanket obligation for Spain concerning all activities undertaken under its jurisdiction or control. Special mention should be made of some national and regional laws affected to a greater or lesser degree having to do with heritage and museums, national and regional archives, criminal activities and smuggling, trade and customs law, defence and security, fishery regulation, diving and sports activities, marine scientific research, educational and scientific policy, port and sailing regulations, public works and urban planning regulations, environmental norms, hydrocarbon and energy legislation, tourism, health and hygiene at the workplace and social assistance, finds and treasures, intellectual property, legislation concerning rivers and inland waters and many others.

This calls for major legislative reform which should be tackled when transposing the 2001 UNESCO Convention into Spanish law. It must be assumed, for example, that the awarding of a public works permit, the use of certain fishing gear, the laying of an underwater cable, the concession of diving permits in certain areas or the approval of a marine scientific research project, all legal activities envisaged in our legal system, could cause serious damage to Underwater Cultural Heritage. When these activities carried out in the marine environment, typically subject to an environmental impact study, the need for an individualised archaeological impact study is overlooked. This is largely due to the fact that the latter is normally included in the former. However, the cultural impact study, always under the supervision of the public administrations, should be independent of the environmental impact study, conducted prior to the latter and be compulsory and binding with regard to these activities.

To this we would add that the Annex to the Convention provides a series of general protocols which should govern the conservation of this heritage and any activities affecting it and the drafting of the underwater archaeology project, objectives, methodology, funding, etc., and the compiling of action reports, their filing and dissemination. It is, therefore, a basic document to be incorporated into the future Law and into regulations governing archaeological activity. It must not be forgotten that, far from being mere headings, according to Article 33 the Rules listed in the Annex to the Convention form an integral part of the latter with the same international and domestic legal value as the rest of the Convention's articles.



Legal protection of sub-aquatic archaelogical remains in Andalusia (CAS Archive).


Suspected Archaeological Zone
Archaeological Zone

Particularly, approval of marine scientific research projects in waters under Spanish jurisdiction (territorial seas, continental shelf and the Exclusive Economic Zone) is the responsibility of the central government which must receive all of the information generated through the project. Therefore, as for the legislation protecting Underwater Cultural Heritage we would emphasise the legal arrangement for marine scientific research liable to be applied to Underwater Cultural Heritage, all projects having to be evaluated and approved even if they only have indirect repercussions on the said heritage.

4.3.3 The need to create specific means for the protection of Underwater Cultural Heritage

The need to provide for specific protection of Underwater Cultural Heritage calls for a specially tailored protection system and procedure and special administrative measures. First of all, by legal imperative, all underwater sites already declared as "archaeological areas" and others which are well known, delimited and protected archaeological sites are declared Cultural Interest Sites (Spanish acronym BIC) or the equivalent under regional law, with a view to providing them with the greatest possible legal protection.

Having established that, and considering that the material objects constituting this cultural heritage and the environment in which they are located are of public domain, they should be considered "archaeologically protected areas". These protected areas should cover extensive stretches of coastal waters where archaeological remains are known or presumed to be located. This form of protection is already being used and is apparently quite effective in Andalusia and Catalonia where, by means of the so-called "archaeological buffer zones", "archaeological protected areas" or "archaeological surveillance areas", normal, legal, commercial and urban development initiatives are curtailed. Within these areas and adjacent zones, the creation of reserves or archaeological parks could be encouraged serving as submerged cultural landscapes where, if compatible with their protection and management, *in-situ* public access to this heritage could be fostered. In cases where presumption, backed by substantiated finds and other circumstances, gives rise to certainty on the part of specialists, a protection arrangement is applicable which could range from their declaration as "archaeologically protected areas" to the declaration of certain areas and/or sites as Cultural Interest Sites (BIC).

Application of these protection measures requires three types of additional measures:

(a) The creation of a register of underwater archaeological sites as one of the first protection measures to be carried out. Inventories, with a specific database incorporated into a shared computerised management system, should provide for management of the protection of these sites and encourage their legal protection by compiling inventories or declaring them as Cultural Interest Sites. Public access to these registers must be effectively regulated while respecting the right to information but without endangering the integrity, security, protection and access of the different registered sites.

(b) Implementation of administrative procedures to secure specific legal protection of the sites implies publicity of this heritage. Increased awareness and dissemination could spell greater effectiveness in terms of legal and

physical protection but it will be necessary to evaluate (and incorporate into current legislation) the publicity arrangement applicable to that information. Just as in the preceding section, but here referring to the processing of the dossiers, particular attention should be given to analysing which data should be kept confidential owing to the risks facing heritage which is undergoing the protection process but is not yet protected. Here, consideration must be given the difficulty in arranging for surveillance while also looking out for citizen's access to the information and the heritage itself.

(c) Specific underwater heritage management and conservation centres staffed with specialised personnel need to be created to manage archaeological projects and to also promote research focusing on the conservation and dissemination of this heritage.

Together with all of this, it is important to raise awareness as to the specific nature of Underwater Cultural Heritage protection and the action procedures and protocols which need to be followed by the different public administrations responsible for this heritage. As mentioned above, the rules laid down in the Annex to the Convention provide a good guideline for the development of these protocols.

These protocols should have an impact on preventive measures, studies and preliminary consultations and a procedure should be established whereby to guarantee the proper execution of consultations, reports and authorisations. They should also provide for coordinated action between the administrations with jurisdiction over Cultural Heritage protection matters. Hence, a principle ought to be established whereby any works undertaken in the marine environment be subject to an archaeological study on their possible effect on Underwater Cultural Heritage. Barring national defence issues, the Ministry of Defence should adapt these action protocols to military installations.

Evaluation criteria, documentation guidelines and visual and geophysical field surveys using non-intrusive exploration techniques and methods should also be legally established and defined by the competent administration for each specific project for the proper assessment of the Underwater Cultural Heritage found in the areas affected by the works. Priority should always be given to on-site protection of Underwater Cultural Heritage.

A detailed analysis of each specific site should allow for the establishment of the necessary correction and protection measures: project feasibility, works modifications, stipulation of needed supplementary archaeological actions such as probes, control and monitoring, etc.; and, as needed, archaeological conservation and/or excavation.

In the event of preventive or emergency intervention, the following aspects must be considered:

(a) Works plan including objectives, detailed description, diagrams of surface areas and cross-sections affected and planned stages of execution.

(b) Information regarding previous infrastructures built and dredging undertaken in the area with details on maximum dimensions, dump area, results, etc. to be included as a section of the preliminary documentation.

(c) Assessment of the effects on heritage and the archaeological and cultural impact of the planned works on the areas affected. To this end, nearby heritage will be analysed and the effects on known Underwater Cultural Heritage (archaeological sites) and potential Underwater Cultural Heritage (archaeological buffer zones) will be assessed and rated (none, moderate, high).

(d) Proposed precautionary measures: correction and protection measures, modification of work plans, the need for supplementary archaeological action (probes, excavation, conservation, etc.).

(e) Surveillance programme coinciding with works execution (checks, monitoring, etc.) or even after the conclusion of the works.

Following analysis of the archaeological impact study submitted by the development or construction firm and signed by the chief archaeologist, the administration responsible for the protection of Underwater Cultural Heritage will forward its conclusions to the interested party: (a) final conclusions paving the way for the drafting of the Environmental Impact Study; (b) conclusions calling for further preliminary action; or (c) negative conclusions declaring the action or activity incompatible with the heritage in question.

Once the administrative process has concluded, a final report is issued specifying, as necessary, corrective or protective measures or other precautions. If new actions were called for, the corresponding procedures would be developed culminating in a new study and final report.

Lastly, we would recall that Article 17 of the UNESCO Convention requires State Parties to impose sanctions for infringements committed against Underwater Cultural Heritage and these must be

"adequate in severity to be effective in securing compliance with this Convention and to discourage violations wherever they occur and shall deprive offenders of the benefit deriving from their illegal activities".

This involves reviewing the criminal and administrative sanction procedures (including confiscation procedures).

4.3.4 Application of the law of salvage, finds and treasure to Underwater Cultural Heritage

Article 4 of the Convention as it relates to Rules 1 and 2 laid down in the Annex, clearly prevents the application of the law of salvage and finds to Underwater Cultural Heritage. Article 4 provides as follows:
Any activity relating to underwater cultural heritage to which this Convention applies shall not be subject to the law of salvage or law of finds, unless it:

(a) is authorized by the competent authorities, and
(b) is in full conformity with this Convention, and
(c) ensures that any recovery of the underwater cultural heritage achieves its maximum protection.

Considering the cumulative nature of the conditions imposed under that Article; that paragraph (b) of Article 4 requires that the salvage act "be in full conformity with this Convention"; that "[t]he Rules annexed to this Convention form an integral part of it and, unless expressly provided otherwise, a

reference to this Convention includes a reference to the Rules" (Convention Article 33); that Rule 1 of that Annex provides that "[t]he protection of underwater cultural heritage through *in situ* preservation shall be considered as the first option"; and that Rule 2 clearly points out that "[t]he commercial exploitation of underwater cultural heritage for trade or speculation or its irretrievable dispersal is fundamentally incompatible with the protection and proper management of underwater cultural heritage" and that [u]nderwater cultural heritage shall not be traded, sold, bought or bartered as commercial goods", salvage law as laid down in applicable Spanish and international law does not apply to Underwater Cultural Heritage.

Now, as this Green Paper is being drafted, the Spanish *Cortes Generales* are working on a general draft law on maritime navigation. The Ministry of Culture, through its Deputy Directorate-General for Heritage Protection, has submitted certain amendments for the consideration of the *Cortes* in order to safeguard the special arrangement applicable to Underwater Cultural Heritage in the future Maritime Navigation Act, especially as concerns exercise of the right to innocent passage through Spanish territorial waters, the removal and extraction arrangement, the system applicable to shipwrecked or sunken property or the salvage arrangement which, in the opinion of this Working Group, should remain entirely outside of the specific scope of Underwater Cultural Heritage as indicated in the UNESCO Convention itself and in adherence to Spain's international commitment through its recent ratification of the International Convention on Salvage of 28 April 1989, reserving the right to refrain from applying the Convention (*ex* Article 30(1)(d) "when the

Committee meeting on the Technical Coordination of the National Plan for the Protection of PCS in Cartagena (ARQUA Archive, 2009).

property involved is maritime cultural property of prehistoric, archaeological or historic interest and is situated on the sea-bed."

As concerns finds and treasure, our Civil Code (CC) defines the latter as "the hidden and unknown deposit of money, jewels or other valuable objects whose lawful owner is unknown (Article 352 of the CC). Article 351 of the CC provides that "[t]he hidden treasure belongs to the owner of the property on which it is found. However, when the discovery is accidental and is found on someone else's or on government property, half will go to the party discovering it. If the articles discovered are valuable for the Arts or Sciences, the State may acquire them for a fair price based on the articles declared".

However, that definition is for the purposes of the CC and the arrangement provided under the Spanish Historical Heritage Act (Spanish acronym LPHE) is different. While consideration is given to accidental finds, in no case could Article 351 of the CC be applicable to "objects and remains with value inherent to Spanish Historical Heritage discovered as a result of excavation, movement of earth or any other circumstance or by chance", these being declared "public domain" (Article 44.1 LPHE). A specific award arrangement is provided for these items. We would note that this system, subject to needed revision, will be addressed in different scenarios as concerns the "discoverer". In the case of an archaeological excavation of the sort referred to in LPHE Article 41(1) it is not likely that there would be any "discoverer" per se given that this term is reserved for chance situations (here we can eliminate any activity *targeting* Underwater Cultural Heritage such as that engaged in by treasure hunters) or an activity incidentally affecting Underwater Cultural Heritage by finding a portion of the latter "as the result of any other type of movement of earth, demolition or works of any other kind" (LPHE Article 41.3). This illustrates the importance that should be given to archaeological impact reports and to the archaeological buffer zones already established by some Autonomous Communities.

For all of the above, and considering the importance of preventing the removal of underwater archaeological remains without following the proper methodology (due to possible damage to the materials and, as the case may be, to the shipwreck where they were found and often leading to confusion as to the exact provenance of those materials), we propose the exclusion of the notion of a chance find eligible for an award in this case considering all of the effects of public domain, especially when there could be doubts as to the valuation of the objects not removed and remaining on the seabed and, as the case may be, the value of unfound objects from shipwrecks. In any case, a find in archaeological buffer zones should be excluded from classification as a chance find eligible for reward.

4.3.5 Establishment of a surveillance and inspection system applicable to Underwater Cultural Heritage

The most effective way to protect Underwater Cultural Heritage is to raise public awareness as to the importance of preserving this shared property. This will be achieved insofar as governments and archaeologists are able to implement actions which make people feel that Underwater Cultural Heritage (and everything it implies) is an integral part of our society and has a lot to offer culturally.

The involvement of fishermen, divers and local residents in the conservation of sites has proven to be the most effective way to protect them but specialised techniques and measures making heritage accessible to the society are needed if this is to be achieved.

However, aware of the difficulties involved in monitoring our coastline in this and other contexts, more complicated still when it comes to the seabed, surveillance programmes need to be developed to protect underwater archaeological heritage in coordination with the Navy and state police and security forces, especially the *Guardia Civil*, local police, customs services and specific regional institutions. This surveillance could be manned or furnished by surface or underwater video.

The public administrations must jointly set up suitable surveillance and control procedures so that heritage is not left unprotected and of course to ward off attacks and pillaging. Joint cooperation mechanisms need to be explored and strengthened with a view to enhancing the protection of Underwater Cultural Heritage. Moreover, Autonomous Communities, responsible at regional level, must bolster the mechanisms already in force and analyse new ways to control incidental or intentional activities which could affect Underwater Cultural Heritage.

Indirect surveillance systems should be tested and include archaeological areas as pilot experiences in already existing surveillance systems such as the European Border Surveillance System. Research and development projects likewise need to be fostered to develop new systems adapted to Underwater Cultural Heritage. This all requires clear and precise legal regulation, permanent coordination between governmental administrations and the creation of early warning and rapid response mechanisms at all levels.

In any case, initiative for and control of these systems should not be left to private enterprise; public administrations (national and regional) must explore the most effective and efficient systems for the protection of Underwater Cultural Heritage.

4.4 PRIORITY ACTIONS

In light of the above, we propose the following priority actions in this specific area of regulation and legislation:

1. It should be stressed both politically and from a regulatory standpoint that Underwater Cultural Heritage in waters under Spanish sovereignty or jurisdiction forms an integral part of Spanish historical heritage as public domain property. Public authorities have a constitutional mandate to protect and showcase that heritage.

2. The uniqueness of underwater archaeology calls for the enactment of a specific regulation to be included in the future Heritage Act implementing the 2001 UNESCO Convention in Spain. This future Spanish Historical Heritage Act should include a specific heading on underwater archaeological heritage. Then, within their purview, each Autonomous Community would review its legislation to adapt it to the new regulatory scenario.

3. This new law on Underwater Cultural Heritage should highlight the priority of conservation *in situ* and guarantee that any authorisation of archaeological activity contributes to its protection, dissemination and

showcasing, excluding projects where there is the possibility of commercial exploitation. In this connection, the find and treasure and salvage systems should be excluded from anything relating to Underwater Cultural Heritage.

4. Underwater Cultural Heritage should not be vulnerable to sectoral regulations which tarnish effective protection. Protection should be designed so that the government body responsible for cultural heritage can take part in the decisions on the use and exploitation of the marine environment. As public domain, this use must safeguard the cultural wealth of these waters while allowing for sustainable development and must put an accent on the conservation of these fragile, non-renewable assets.

This regulation must adapt to the UNESCO Convention on the Protection of the Underwater Cultural Heritage. It should not be forgotten that this Convention sets minimum standards and therefore Spanish law (national and regional) can provide for greater protection. It must also include a complete criminal and administrative penalty system in order to ensure respect for Underwater Cultural Heritage and punish, where appropriate, crimes committed against it. To that end, close collaboration between the competent national, regional and local government, the navy and the state police and security forces is vital.

5. Archaeological maps, whose dissemination needs to be controlled, should define extensive protection areas ("archaeological buffer zones") and certain maritime areas should be given historical interest status as locations likely to contain archaeological sites where significant archaeological remains could be waiting to be discovered. In these areas specific studies would be mandatory before any type of work is carried out which could affect them. Also, comprehensive protected areas ("archaeological protection areas") which could be declared Cultural Interest Sites where activities would be limited and completely controlled, have to be defined to prevent any possible damage to archaeological remains.

6. All activity in the marine environment, especially in the "archaeological protection areas" and the "archaeological buffer zones", must submit to an archaeological impact report which must always be conducted under government supervision. This report must be done prior to any activity and be compulsory and binding for the said government administrations and must be independent of the environmental impact report.

7. The government administration responsible for Underwater Cultural Heritage must have technicians specialised in underwater archaeology to design, process and manage underwater archaeology projects and carry out inspection duties. Government administrations must also have centres specialised in underwater archaeology serving as coordination hubs for this activity and to conduct research and conservation of archaeological heritage removed from the seabed or preserved *in situ*.

8. In any case, the new law must devise a way for the general public and specialists to gain orderly access to Underwater Cultural Heritage. •

5 | Archaeological Intervention

5.1 RESEARCH PROJECTS TARGETING UNDERWATER ARCHAEOLOGY

5.1.1 General issues

Investment in archaeological endeavours is justified insofar as it meets two objectives: conservation of heritage and putting it at the disposal of society which is its rightful owner under the protection of the State.

There are problems which need to be tackled and resources needed in making Underwater Cultural Heritage available to the public which will be addressed in other sections of this Green Paper. Here we would like to stress that dissemination must unavoidably be based on thorough research giving rise to conclusions which can then be used by technicians in dissemination efforts.

Without research, serious and up-to-date dissemination would cease to exist and would deprive us of the necessary synergies between public institutions, the society and underwater archaeologists, the most evident result of effective dissemination being enhanced protection of Underwater Cultural Heritage.

Under the current structure of research in Spain, public and private universities, museums and research centres are the drivers of research and therefore need specialised staff or to train personnel to ensure production and continuity in the projects.

This requires an administrative structure and resources which, for the time being, do not generally exist in Spanish universities. While some universities have developed programmes of this nature, it is more a matter of interest and sporadic action on the part of some faculty members rather than a sufficiently institutionalised and pervasive situation to satisfactorily meet the needs of Spain's Underwater Cultural Heritage.

Nor are there specialised research centres. Although there are national and regional underwater archaeology centres which conduct some research in this field, it is not part of their core mission. And even in these cases they lack the necessary personnel both in terms of number and quality.

If we accept that a breakthrough was made in the 1980's in Spain in underwater archaeology setting the stage for the current situation, we must conclude that in these 25 years the headway made in underwater archaeology has been noteworthy in the conception of the activity and in terms of management, human and material resources and even research. Despite all of that, scientific research has been insufficient.

It could be deduced that the reason for this situation is that this activity is relatively young in Spain, barely 30 years old, which is not much time for a generation to finish its studies, specialise and acquire enough experience to produce quality scientific results. This is probably partly true and would be entirely true if there were a young generation just about to rise and produce brilliant scientific results. But this is not the case.

It is true, however, that over the last 25 years a large group of new underwater archaeologists has received very competent training and are able to compete from a methodological and technical perspective with their counterparts in economically and culturally comparable countries. But they have not reached, barring a few noteworthy exceptions, the same level in terms of scientific knowledge or research

Excavation of a wooden anchor from the boat Mazarrón 2, from the Phoenician era (ARQUA Archive, 2001).

capacity. Clear evidence of this is the lack of scientific production in Spain in this field over the last several years judging from the number of publications.

As is well known, researchers do not improvise and require a long training process which begins at university where they form part of a research groups. Unfortunately the Spanish university, traditionally focused on land-based archaeology (basic and indispensable training which underwater archaeologist must acquire), does not provide an environment encouraging specialisation in underwater archaeology.

In these circumstances, many budding Spanish underwater archaeologists find that they must teach themselves and take advantage of courses and seminars which are sporadically organised in Spain and possible training outside of Spain.

In any case, it should be remembered that an underwater archaeologist is an archaeologist whose basic training is in land-based archaeology and who has subsequently specialised in underwater archaeology and no archaeologist should begin their internship in underwater archaeology without

Cleaning of the Phoenician-era boat, Mazarrón 2 (ARQUA Archive, 2008).

prior practical experience in terrestrial excavation.

5.1.2 Priority actions

We therefore propose a set of priority actions which include the following:

1. Collaboration between current and future underwater archaeology centres with universities, museums and other research centres is indispensable if underwater archaeological research is to make headway.

2. This collaboration should envisage the inclusion of standard courses on underwater archaeology taught by specialists from the field of underwater archaeology who are given the opportunity to join university departments with a view to standardising the curricular development of new underwater archaeologists.

3. Government administrations should use underwater archaeology centres to guarantee that underwater archaeological initiatives comply with the prerequisites for the scientific and social use of results.

4. In light of the current level of training, the government administrations responsible for the awarding of permits for underwater archaeology initiatives should be more thorough in assessing the real capacity of the participants in those initiatives to prevent the loss of irreplaceable historical documents.

5.2 PREVENTIVE AND EMERGENCY ACTIONS

Preventive and emergency actions merit specific attention owing to their importance. The first is to limit and define exactly what we are referring to in each instance.

5.2.1 Definitions

Preventive archaeological activity shall mean activity undertaken in compliance with applicable laws on heritage protection. In other words, actions designed to prevent risks to heritage deriving from works and human activity. In many cases, these actions are related to similar Environmental Impact Studies conducted to assess the feasibility of future maritime or river works or checks and monitoring of the execution of such works. These are actions related to known projects that could potentially affect underwater archaeological heritage and which can and should be planned and programmed long enough in advance to prevent any negative effects.

Emergency archaeological activity is that which must be implemented in the case of sudden unexpected circumstances endangering archaeological heritage and typically entails the precautionary suspension of works. The cause is normally the unexpected unearthing of archaeological remains which, in this case, are located in ground water reserves or on the seabed.

5.2.2 Current situation

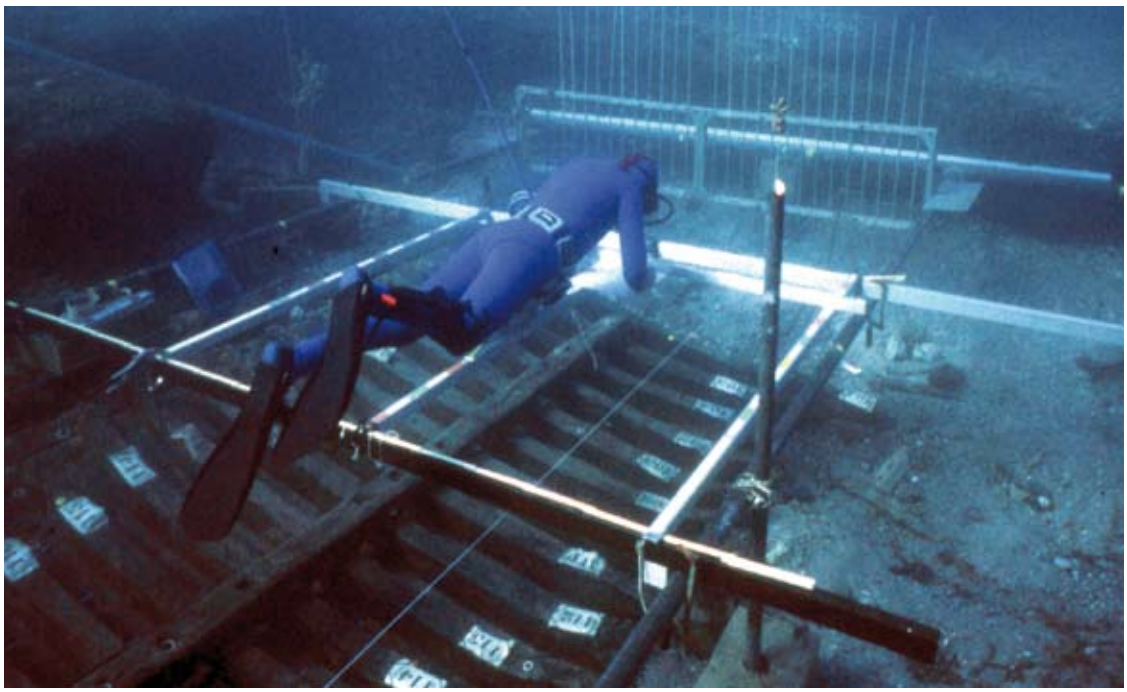
Underwater archaeological intervention has changed significantly in Spain over the last several decades. Preventive and emergency archaeological initiatives related to maritime or river works are increasingly frequent compared to the number of research projects.

It must be pointed out, however, that land-based archaeological methodology, procedure, management and control are being applied to underwater archaeology without considering

Surveying the shipwreck of the Bou-Ferrer (CASCV Archive, 2006).

Documenting the shipwreck of the 19th Century Camposoto (CAS Archive, 2008).

Excavating the greek boat, Cala Sant Vincenç (CASC Archive, 2004).



Drawing the 14th Century Culip VI boat (CASC Archive, 1990).

the specific circumstances of archaeological action in the underwater environment. This has been and continues to be responsible for a number of problems.

There is also a lack of uniformity concerning the management of preventive and emergency action regulated and carried out by each Autonomous Community. Lastly, as has already been mentioned, Spanish national and regional law must adapt to today's reality and to the new regulatory framework laid down in the 2001 UNESCO Convention. The following points are intended to summarise the problem as it stands today:

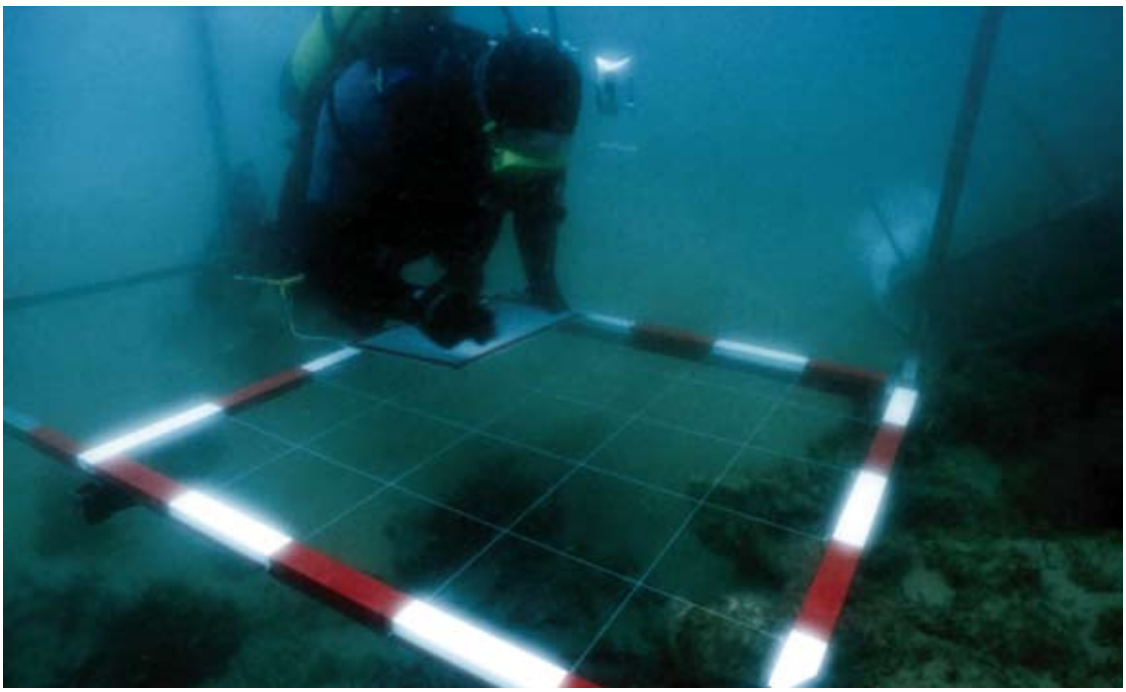
(a) There are significant differences in the criteria applied by the different territorial governments concerning the precautionary measures taken in the case of works calling for preventive or emergency action. Very different archaeological actions are required, for example, in response to the same construction project affecting more than one Autonomous Community.

(b) Generally, the administrative management of Underwater Cultural Heritage is in the hands of non-specialised archaeologists.

(c) In most cases, prevention and emergency actions are executed by private archaeology companies hired by the developers themselves. This sometimes puts those archaeology companies under pressure.

(d) It is generally impossible to truly monitor or inspect underwater archaeological interventions due to a lack of personnel and/or specialised technical resources.

(e) These interventions are very costly in terms of both technical and human resources and the execution of these works



Levelling out the wreck of the 19th Century Camposoto (CAS Archive, 2008).

by private companies means added costs which result in a spectacular rise in the final price of intervention projects. Given that private archaeology companies are striving to survive and in light of the difficulty in winning contracts, it comes as no surprise that they go to great lengths to avoid investing in infrastructure. This gives rise to a number of different situations: they work under precarious conditions which has a negative effect on results; they lease needed infrastructure for each contract which is very costly and leads to mistrust on the part the construction companies which engage them; or the construction company itself provides the needed material eroding even further the professional independence of the archaeologists.

(f) We would also note that the archaeological objects removed from the marine or river environment (especially organic and metallic material) require conservation which needs to be done in laboratories which, in some cases, requires complex installations which private centres do not have and processes spanning years of treatment.

(g) And finally, in these cases specialists are under contract only until the conclusion of the works and their report is usually limited to administrative aspects and does not include scientific assessment of the results. Only exceptionally are these results used for scientific purposes.

5.2.3 Priority actions

The following priority actions are proposed to standardise preventive and emergency intervention:

1. Specific legislation must be developed to regulate underwater archaeological initiatives. It goes without saying

that such legislation must consider the 2001 UNESCO Convention, especially its Annex.

2. All of the Autonomous Communities must adopt the same common protocol for archaeological impact studies and for works at ports, underwater pipelines, etc. This would guarantee standard protection of Underwater Cultural Heritage regardless of in which Autonomous Community it is located. As stipulated in the 2001 UNESCO Convention, these protocols should define the stages of the action, in other words, preliminary studies, evaluation, binding reports, corrective or protection measures, monitoring of works, etc.

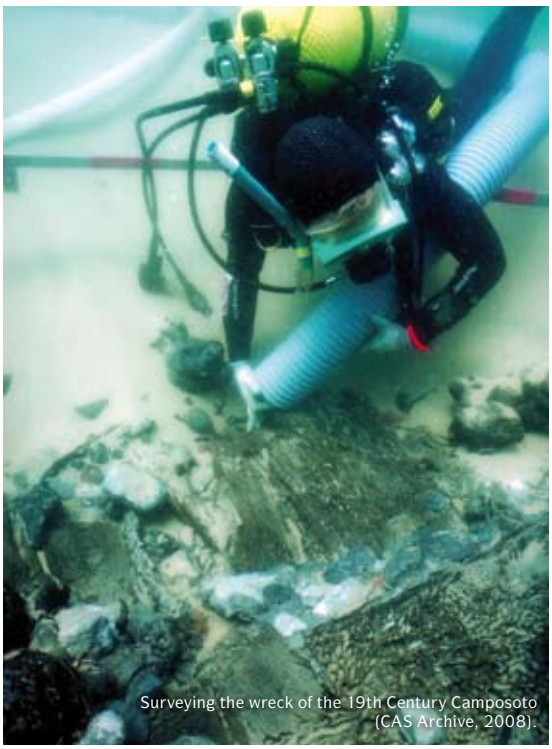
3. Sufficient specialised human and technical resources are essential for the management of Underwater Cultural Heritage and the inspection of underwater archaeological actions. All of the Autonomous Communities involved must have technicians specialised in underwater archaeology on hand to take decisions throughout this process targeting Underwater Cultural Heritage: programming, management, protection and the processing, inspection and follow-up on underwater archaeological intervention.

4. In light of the current level of training, the government administrations responsible for the awarding of permits for underwater archaeology initiatives should be more thorough and demanding in assessing the real capacity of the participants in those initiatives to prevent the loss of irreplaceable historical documents. In this connection, the terms of the 2001 UNESCO Convention on the competence and qualifications of the project director and team should be applied: the regular presence of, a qualified underwater archaeologist with scientific competence appropriate to the project (Rule 22). Also, all persons on the project team shall be qualified and have demonstrated competence appropriate to their roles in the project (Rule 23).

5.3 PREREQUISITES FOR ALL ARCHAEOLOGICAL PROJECTS

Intrusive projects should be kept to an absolute minimum while prioritising conservation *in situ* and authorisation should not be given for any project unless the latter's focus on the cataloguing of the heritage, the benefits for scientific research and protection against clear risk of damage to the heritage are clearly proven.

Excavation is not archaeology. Action taken at the underwater site itself is, in terms of time,



Surveying the wreck of the 19th Century Camposoto (CAS Archive, 2008).

Pile of munitions from the shipwreck of the 19th Century Deltebre (CASC Archive, 2009).

effort and economic cost, only a small proportion of the archaeological process allowing for the protection of heritage and its enjoyment by society.

All projects targeting Underwater Cultural Heritage must strictly adhere to the letter and spirit of the 2001 UNESCO Convention, especially the rules laid down in its Annex.

In light of all of this, following are the prerequisites for all projects and the teams destined to carry them out.

5.3.1 Project prerequisites

All archaeology projects must have at least five clearly differentiated parts:

Documentation and preliminary actions;
Direct actions envisaged at the site (survey, excavation, covering, etc.);
Temporary or permanent *in situ* site conservation measures throughout the process and upon completion;
Immediate and ongoing conservation measures of the materials removed; and
A scientific study, dissemination and publication project.

Each of these parts should have its own time line, budget, personnel and sufficient resources and guarantees for proper and continued execution throughout the entire process.

5.3.2 Prerequisites applicable to the team members participating in underwater archaeological expeditions

The following people may take part in an underwater archaeology initiative:

(a) Vessel crew members who will carry out the duties laid down in applicable laws.

(b) Professional divers (if any) who will not play a direct role in the archaeological

initiative and who must have the credentials and employ the safety measures laid down in applicable laws.

(c) Auxiliary excavation technicians (photographers, restorers, geologists) forming part of the scientific team.

(d) Auxiliary archaeologists forming part of the scientific team.

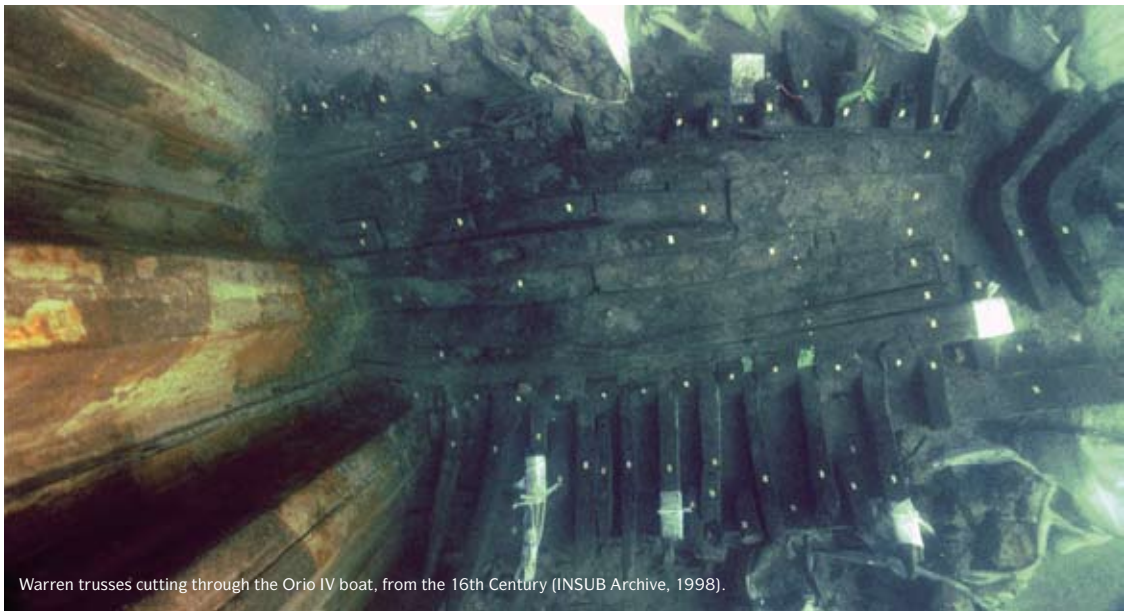
(e) The archaeologists forming part of the management and scientific team.

Archaeologists should account for at least 2/3 of the scientific team. The archaeologists forming the management team must have previously managed at least one underwater archaeological intervention of similar characteristics or have participated as an auxiliary archaeologist in at least three underwater archaeology campaigns of similar characteristics lasting at least 15 days and must possess a post-graduate diploma, master or PhD degree specifically in underwater archaeology.

Auxiliary archaeologists must have participated in at least one underwater archaeology campaign lasting at least 15 days carried out by a public institution specifically devoted to this activity.

A scientific diving diploma or its equivalent under applicable laws is required of all archaeologists in addition to the other degrees legally required of divers. In no case shall they be required to have what is known as a professional or industrial diving degree.

Student interns may participate in projects run by public institutions or centres and will be considered members of the scientific team. Given their status as students, they are not required to be university graduates although they should be engaged in studies allowing them to eventually form part of archaeology teams or to become auxiliary technicians. Student interns may not account for over 50% of the scientific team and must act at all times under the supervision of an archaeologist. •



Warren trusses cutting through the Orio IV boat, from the 16th Century (INSUB Archive, 1998).

6 | Conservation of Underwater Cultural Heritage

6.1 STATE OF AFFAIRS

According to Article 2(5) and Rule 1 of the 2001 UNESCO Convention, *in situ* conservation of archaeological remains is considered a priority and therefore techniques such as reburying using burial mounds and covering by means of metallic structures must be used. However, heritage must sometimes be removed to prevent permanent loss or to facilitate scientific use. Specific conservation techniques must be applied in all cases and range from simple checks of the integrity of the buried object or its protective structure to more complex conservation interventions applied to organic elements.

Today, protection and conservation techniques are not uniform and depend on each Autonomous Community's degree of development in underwater archaeology. There are even substantial differences among those which have underwater archaeology centres in terms of necessary infrastructures, facilities, equipment and technical specialisation. This is more evident when it comes to equipment and specialists for the processing of especially delicate organic and inorganic elements such as iron and its alloys. The current state of affairs can be summarised in the following four points:

(a) There is a growing number of underwater elements which need proper protection and conservation.

(b) There are not enough laboratories equipped to undertake these treatments.

(c) Currently there are not enough technicians with the necessary training and specialisation to tackle this problem.

(d) Long-term processes are not guaranteed when undertaken by private enterprise due to future uncertainty.

Stabilizing ceramic material (CASC Archive).

6.2 SPECIFICITY OF UNDERWATER ARCHAEOLOGICAL OBJECTS

The conservation of Underwater Cultural Heritage raises specific problems arising from the extended period of time spent in wet environments or completely submerged. Once these objects are removed, they require a series of conservation techniques which are often specialised due to different deterioration factors.

As already mentioned, the 2001 UNESCO Convention emphasises *in situ* conservation as opposed to removal. Both options must be addressed with sufficient guarantees and the destination of shipwrecks and their context should be clearly defined beforehand in the Archaeological Intervention Project (Rules 10 and 24 of the Annex to the Convention). This means that when archaeologists approach a site by means of a suitable

Ceramic conservation and restoration (ARQUA Archive, 2008).

Wood laboratory (CASC Archive).

Wood laboratory. Freeze-dryer (ARQUA Archive, 2008).

project, they must have previously decided what conservation strategies to apply.

One of two alternatives is chosen depending on site characteristics, the type of archaeological intervention and the final destination of the objects to be removed and studied: *in situ* conservation or the removal of objects.

6.2.1 In situ conservation

This is the preferable option because it allows objects to remain in the same stable conditions in which they have been preserved over long periods of time.

This is the option selected if the site is not going to be altered or even destroyed by pillaging, maritime works (dredging, laying of underwater pipelines, port construction, regeneration of beaches, etc.) or any other circumstance. *In situ* conservation or transfer to an underwater location other than its original position (reburying) must consider certain fundamental aspects for the proper conservation of artefacts:

(a) In the case of *in situ* covering, the conditions existing prior to excavation must be maintained and to do this they must be analysed and reproduced as accurately as possible. A probe must also be used to monitor the conditions of the covering installed and allow for the extraction and analysis of samples.

(b) If metallic structures are chosen as cover elements, be these "boxes" or "cages", it is very important to prevent corrosion of the metal used in building the protective structure. Iron should not be used (paradoxically the most frequently used material to date) because rust could have a negative effect on the elements being protected. This is especially important in the case of organic elements which could suffer irreversible damage. These techniques should, therefore, completely isolate the objects from the protective structure either by means of burial mounds or some other technique. Contact with metallic mesh should likewise be avoided for the same reason. In any case, corrosion of the protective metallic structure can be prevented by installing systems such as sacrificial anodes

which have proven to be highly effective against iron corrosion.

This becomes even more important if the object is transferred because of conservation needs. Elements such as the type of sand used as cover, salinity and biological conditions need to be reproduced at the new site because any modification will produce unavoidable re-adaptation processes to the new environment with the ensuing deterioration of the objects. As in the case previously described, probes must be installed in order to continuously monitor the site and take samples.

Mechanic cleaning of a bronze figure (CAS Archive).

6.2.2 Removal of objects

Alterations in the state of conservation of objects in underwater locations are very specific and mostly due to their being in an environment causing different alterations depending upon the composition of the object and the conditions of the site (basically exposure to salt water and macro and microorganisms). In these cases, objects removed must undergo a long and costly conservation process in laboratories with adequate means to undertake the necessary conservation work, whose future is guaranteed and which are endowed with the necessary stable budgetary resources.

In general terms, when objects are subjected to underwater conditions they undergo an adaptation process following which they tend to reach a state of equilibrium with the surrounding environment. In addition to these irreparable transformations, further damage is produced by micro and macroorganisms which, depending on the composition of the object, are more or less severe. In all cases, regardless of whether the objects in question are inorganic or organic, they tend to reach a state of equilibrium with the different sorts of water-saturated environments depending on their nature.

Following underwater archaeological interventions it is often necessary to remove the object from its resting place. When this happens, the equilibrium established is interrupted causing the decomposition process to speed up subjecting the object to the risk of irreversible damage.

Inorganic non-metallic objects present the fewest problems because their decomposition is slow if the moisture conditions of their resting place remain stable and they are not attacked by biological agents. Specific problems arise, for example, from processes such as recovery of a portion of the water lost during the heating process of ceramics fired at low temperature. In the case of glazed ceramics, glaze loss caused by dissolved salts (sulphates and calcium carbonates) is the main problem.

Corrosion is the main problem associated with metals. Most metals are not in their natural state because they have undergone a transformation process necessary for use by man converting raw minerals into metal. Corrosion is the inverse process causing the destruction of the object whereby metals return to their most stable state (mineral) as they exist in nature. Iron from underwater environments is the metal most difficult to conserve.

Bone and ivory suffer ossein loss due to hydrolysis leaving only the calcareous substance. They may even fossilise once organic content is lost resulting in the crystallisation of the calcareous substance in the form of quartz.

Organic material was the most commonly chosen until the 19th century for the construction of ships and gear. Once deposited, chemical and biological processes cause the complete disappearance of the objects whose mass is fully returned to the environment. However, in extremely moist environments these decomposition processes are extremely slow due to the absence of oxygen. This allows objects to reach a stable equilibrium with their surroundings and they are conserved in their original resting place. In contrast with metallic or ceramic materials, the conservation of organic objects found underwater is the most difficult and complex due to their peculiar chemical and structural makeup. They have altered structures, are not homogeneous and in many cases show varying degrees of deterioration even within the same object. If they are not quickly covered following their deposit thus depriving them of oxygen, they will be attacked by macro and microorganisms which will destroy them.

In light of this information, it is easy to see why conservation needs to be carried out by specialists in the conservation of materials found under water. Within this field, specific specialisation in certain materials is called for

(mostly wood and some metals) which require more specific treatments.

6.3 MANAGING CONSERVATION

Many Autonomous Communities lack specific Underwater Cultural Heritage conservation programmes (not to mention the facilities and experts required for the treatment of objects from underwater environments), which is why collaboration between different institutions is sometimes encouraged.

However, it is common for each Administration to take responsibility for objects recovered in their territory by means of authorised interventions either requiring excavators to treat them or treating the objects themselves.

In the case of intervention by private companies (not recommended for the reasons already cited), the company awarded the contract should take charge of the conservation treatment and related costs for the latter's duration. This is not overly attractive to companies which engage in processes which are too short, incomplete or ineffective in preventing the continued deterioration of the objects. Moreover, as mentioned above, it is not unusual for underwater archaeology companies to be short-lived due to market fluctuations which further complicates the conservation treatments required by objects recovered through excavations temporarily under their care until works are completed.

Two different situations are detected when the competent government administrations take responsibility for post-removal conservation treatments: those with underwater archaeology centres which are more or less well endowed in terms of specialised resources and staff able to guarantee quality conservation and those lacking such centres. The latter tend to use the services of restorers which are not specialised nor are even familiar with the conservation processes required for objects removed from their underwater resting place meaning that, barring treatment of some

Store-rooms (ARQUA Archive, 2008).

types of materials such as ceramic, stone or simple metals, they lack the necessary training to provide a guarantee of proper conservation treatment.

6.4 PRIORITY ACTIONS

The following priority actions are proposed based on the foregoing:

1. In order to guarantee the conservation of Underwater Cultural Heritage, archaeological intervention projects have no choice but to resort to professionals in the areas of conservation (restorers, chemists, physicists), divers and specialists in the removal and treatment of organic and inorganic archaeological remains and the application of basic treatment protocols and a description of available equipment. Project budgets should include a specific item showing the estimated cost of conservation treatment.

2. Improvisation should be avoided in the conservation of Underwater Cultural Heritage and the necessary economic resources should be procured to guarantee the integrity of the objects after the excavation process.

3. Conservation treatments should be preferentially carried out in public facilities which means improving infrastructure and specialised equipment and staff at already existing laboratories and boosting the role of laboratories entrusted with the treatment of organic and inorganic materials. The National Museum of Underwater Archaeology (ARQUA) can collaborate with interested Autonomous Communities and other scientific institutions in the treatment and conservation of these materials. These typically long-term treatments can therefore be guaranteed since they would not be at the mercy of private companies which are very vulnerable to market fluctuations.

4. Archaeologists need to be trained in *in situ* protection techniques including the necessary precautions concerning materials, analyses and indispensable monitoring protocols to guarantee site conservation providing these professionals with basic conservation knowledge allowing for the effective management of archaeological intervention. These professionals may also be specialists in treating different sorts of objects as, for example, at the wood laboratory of the National Museum of Underwater Archaeology, who could then provide specific treatments in their areas of expertise to other institutions.

5. It is vital to train specialists in restoration and conservation of objects taken from underwater environments in order to address the specific problems posed by each different type of material.

6. Each underwater archaeology centre should be endowed with specific conservation and restoration laboratories.

7. Owing to the complexity and duration of conservation and restoration processes of archaeological materials taken from underwater environments and the risk posed by interrupting these processes, sufficient guarantees must be required of private conservation and restoration laboratories concerning their infrastructures and their long-term commitment to persevere in their activities until processes are complete. Government administrations must see to it that these guarantees are upheld. •

8 | Dissemination

Included among its different attributions, the Spanish Heritage Council is responsible for "developing an effective awareness-raising and educational policy and promoting Underwater Cultural Heritage".

8.1 CURRENT SITUATION

The Spanish population in general has a distorted view of what Underwater Cultural Heritage actually is owing to the influence on public opinion of television documentaries and information from private companies responsible for the pillaging of this heritage, not to mention the powerful images found in literature and cinema of mythical treasures and piracy. The most frequently heard excuse to justify non-scientific intervention is that of being able to effectively and swiftly recover objects from the seabed which otherwise would be useless to anyone with the added reproach that government administrations are doing nothing in this connection.

Visit to the submarine remains of the Puerto de Ampurias (CASC Archive).

These arguments, together with the objective importance that heritage has for the nation, point to the need to build a clear, powerful, suggestive and detailed image of the real nature of Underwater Cultural Heritage and the enormous possibility we have to increase our common heritage and the complex knowledge about the past which it holds.

However, a preliminary reservation should be made in this respect: all virtual images run the risk of masking, if not replacing, reality. To prevent his, we propose strictly controlling the content of all action taken in this regard so that it does not stray or detract from the main objective, i.e. that of raising the awareness of citizens and politicians through objective knowledge of reality gained through diagnoses resulting from rigorous scientific method applied to attainable and feasible proposals.

8.2 DEFINITION OF OBJECTIVES

We propose organising a national campaign involving all of the Autonomous Communities interested to communicate to the society:

(a) a knowledge and understanding of the true nature of Underwater Cultural Heritage;
(b) involvement of citizens in the sense of satisfaction and pride in the shared possession of such important public heritage.

A dramatized visit to exhibition of the battle of Trafalgar (CAS Archive, 2005).

The aim is to make the leap from specific local or regional initiatives carried out up to now to a *Coordinated National Dissemination Programme* designed to reach the entire Spanish population and extend beyond our borders as far as possible optimising all available resources.

8.3 PRIORITY ACTIONS

We therefore suggest the following priority actions comprising a National Underwater Cultural Heritage Dissemination Campaign:

1. Compile an inventory of all action taken in this respect in Spain up to the present.

2. Work together with the national and provincial archaeological and maritime museums focusing on the Spanish coast to programme both permanent and temporary and/or travelling exhibits.

3. Work in a coordinated fashion to programme a *National Publications Scheme* covering the

Presentation of the Maritime Archaeological Heritage Route Book of Spain and Portugal. (ARQUA Archive, 2009).

following three types of publications: scientific (there is a wealth of unpublished material regarding this heritage), mass dissemination and teaching publications adapted to different levels of education.

4. Build a national Web page with links to the Autonomous Communities as an easy to use and instructional tool covering all aspects of protection and promotion of Spanish Underwater Cultural Heritage.

5. Film a series of documentaries to be broadcast by the main international, national and regional televisions channels on the current state of Spanish Underwater Cultural Heritage, its universal and local importance and protection and research possibilities for the immediate future.

6. Work together with the Autonomous Communities to create and manage *Educational Classrooms* at especially emblematic locations along the Spanish coast and include archaeological sites suited for visitors.

7. Encourage the creation of *Underwater Archaeological Parks* in Spanish coastal waters which, in compliance with the mandate set out in the 2001 UNESCO Convention, permit and promote the responsible access of citizens to this important part of Cultural Heritage.

8. Help define and implement quality tourist routes focusing on Underwater Cultural Heritage combined with Terrestrial Maritime Heritage.

9. Work in a coordinated fashion to programme educational activities for students and the public at large, teaching dossiers, brochures at different levels, guided visits, visits to archaeological areas, courses, workshops and internships, film festivals, etc. and put together programmes for inclusion in school curricula.

10. Arrange information and awareness-raising programmes on Underwater Cultural Heritage targeting the groups most likely to make fortuitous finds such as fishermen, professional divers, sport divers and those responsible for public works in the marine environment. •

Permanent exhibition in the National Sub-aquatic Archaeology Museum (ARQUA Archive, 2008)

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