

FORUM

Mexican Underwater Archaeology and Some of its Challenges and Solutions

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In response to Carver's lead article, I'd like to highlight an easily overlooked aspect of archaeology: underwater archaeology. I will offer some examples and experiences from Mexico, which will perhaps resonate in other cities and nations around the world with a rich underwater cultural heritage.

Mexico's submerged cultural heritage is enormous and varied, extending from prehistoric to modern times. Since 1980 the underwater archaeology division of the *Instituto Nacional de Antropología e Historia* (INAH, National Institute of Anthropology and History) has undertaken projects in marine and continental waters, the two main universes of underwater research. Most of these projects take place at sea—either off shore or in coastal waters—and in cenotes (sinkholes) and inundated caves that are located mainly in the jungle in the Yucatan Peninsula. However due to trading amongst pre-Columbian groups marine elements can be found at many inland sites across the country as part of offerings, or as ornaments used by the upper classes.

Many of these groups established their villages and ceremonial centers next to the sea or close to bodies of water like cenotes, lagoons, lakes and rivers – which became sacred spaces where priests and lay people would make offerings to their aquatic dei-

ties. Sea shells, objects carved in mother of pearl or conch shells were deposited or thrown into the water in order to please different gods.

Marine elements have been found by archaeologists in pre-Hispanic structures and pyramids in cities like Teotihuacan and Mexico City. The Aztec city of Tenochtitlan was founded in 1315 in modern downtown Mexico City, and the Spanish conquerors built a Catholic cathedral there in the 16th century. Mexico City's main plaza currently stands over part of the remains of this most important ceremonial and political center of Pre-Columbian times. Maybe the most important and spectacular findings have been those made at excavations at these sites, which began in 1978 and are still ongoing. Many offerings containing marine elements coming from the Caribbean, the Gulf of Mexico and the Pacific were found during these excavations.

In Section II of the Main Temple or Templo Mayor Project excavations, a beautiful sculpture of a *Strombus gigas* sea shell—87 cm long and 74.5 cm wide, carved in pink andesite—was found hidden between the walls of a colonial construction. This was how Aztecs protected their valuables from being destroyed by the conquerors. The sculpture is exhibited at the site museum next to the excavation site and was the central piece of the first exhibition of Pre-Columbian art presented at the Palace of Fine Arts in the Mexican capital in 1980 (Luna Erreguerena 1982) (see Figure 1).

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Figure 1: Sculpture of a *Strombus* sea shell carved in pink andesite with no metal tools. Found in the Templo Mayor excavations and exhibited at the site museum in downtown Mexico City. (Photo by Octavio González, 2013. Courtesy of INAH/SAS.)

Current projects

Today INAH's *Subdirección de Arqueología Subacuática* (SAS, Vice Directorate of Underwater Archaeology) is undertaking several projects, all of which take a multidisciplinary and multi-institutional approach and involve collaboration between Mexican and foreign specialists. Current projects in marine waters include: '1630–1631 New Spain Fleet and Inventory and Diagnosis of Submerged Cultural Resources in the Gulf of Mexico,' 'A Manila Galleon, Baja California,' and 'Protection, conservation, research and divulgation of the Submerged Cultural Heritage in the Yucatan Peninsula.' The main challenges facing these projects are treasure hunter groups (especially from the United States) and minor looting by sport divers.

Current projects in continental waters include: 'Underwater Archaeological Atlas to study, record, and protect cenotes and inundated caves in the Yucatan Peninsula' and

'Hoyo Negro, Tulum, Quintana Roo.' The main challenge facing these projects is the popularity of extreme diving, which attracts divers from all over the world; these divers explore these bodies of water where valuable and fragile prehistoric remains dating from more than 10,000 years ago are located and alter the archaeological context, moving remains and sometimes even taking them home as 'trophies.' Among the prehistoric human remains at these sites are those of the first inhabitants in Mexico.

Projects that take place near cities, towns and villages—where local communities get involved for better or worse—face different challenges and solutions. The four case studies that follow illustrate this.

Chinchorro Bank, Quintana Roo

Chinchorro Bank is part of the Mesoamerican Reef System running from the northern part of the Yucatan Peninsula to Honduras Bay. It

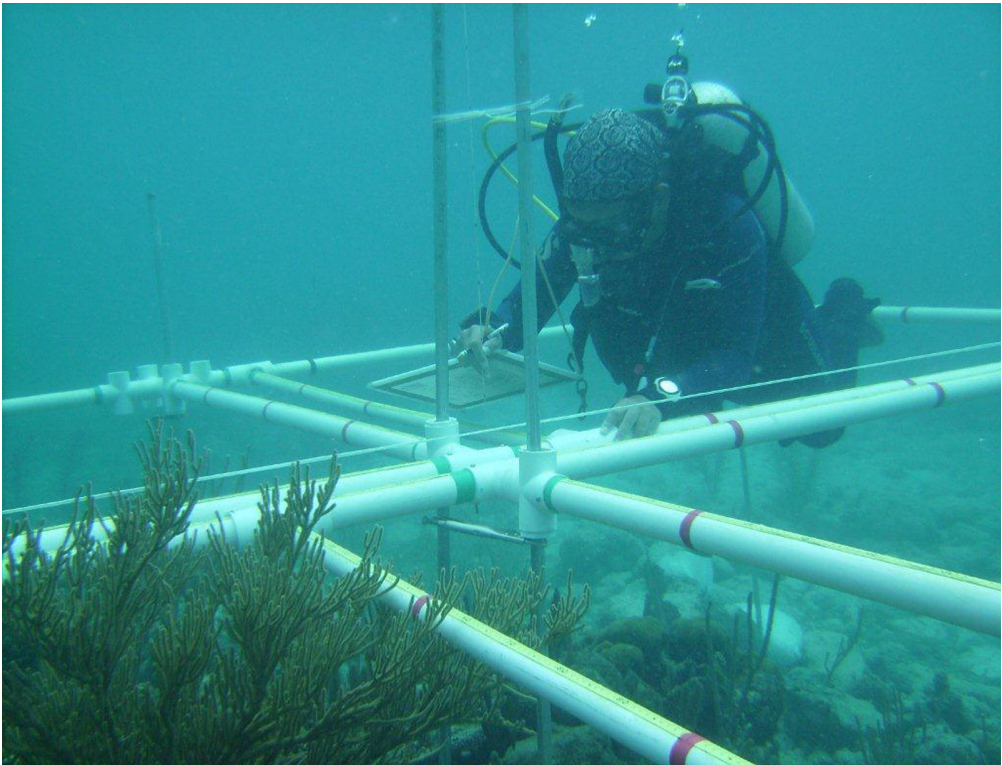


Figure 2: Site known as ‘40 Cannons’ in Chinchorro Bank, Quintana Roo. (Photo by Octavio del Río, 2010. Courtesy of INAH/SAS.)

is the second largest reef barrier in the world after the Great Barrier Reef in Australia. Due to its extraordinary biodiversity in 1996 it was nominated as a Biosphere Reserve, and in 2003 it was designated as a protected wetland site under the Ramsar Convention.

Through INAH’s project ‘Inventory and Diagnosis of the Submerged Archaeological and Historical Heritage in the Biosphere Reserve at Chinchorro Bank, Quintana Roo’ 69 sites have been located and recorded; from isolated elements such as cannons, anchors, propellers, chains, boilers, helms, etc.; to complete shipwrecks dating from the 16th to the 20th centuries (Carrillo Márquez 2012b) (see Figure 2).

The closest town to Chinchorro is Mahahual, where three main fishermen’s cooperatives participate in fishing activities that represent a threat to natural resources. The main challenge to cultural resources here is the looting of objects such as cannons,

anchors, bottles, and, according to fishermen, silver coins and ceramic pipes; some of these objects have been located in hotels and diving shops. Looting has been carried out primarily by clandestine fishermen who sell the objects to shop owners, tourism agencies or private collectors. It is also known that treasure hunters have visited Chinchorro and used dynamite in some of the sites (Carrillo Márquez 2012b).

INAH has worked jointly with the *Comisión Nacional de Áreas Naturales Protegidas* (CONANP, National Commission of Natural Protected Areas) to make fishermen aware of the importance of heritage resources, both natural and cultural, in the area. In 2012, CONANP and INAH organized the first diving course for fishermen so they can run tourist attractions with the option to explore five shipwrecks which have been selected and prepared by underwater archaeologists. Fishermen were taught how to dive without alter-

ing natural and cultural contexts, according to the guidelines for public visits in historical submerged sites elaborated by INAH's Vice Directorate of Underwater Archaeology. Through this initiative fishermen and tourist agencies have gained a direct benefit, and at the same time have become guardians of these sites (Carrillo Márquez 2012b).

Bahía Vergara, Veracruz

During the 16th and 17th centuries, the port of Veracruz was the main and only gateway to the New World, founded on San Juan de Ulúa – a small island discovered in 1518 by the Spanish captain Juan de Grijalva. Ships coming from Europe, especially from Spain, would arrive and depart back to their ports of origin carrying gold, silver and exotic merchandise from the newly discovered land. Over three centuries, Veracruz became, and remains, an important commercial port with ships arriving from all over the world.

One of the main concerns of INAH's underwater archaeology division has always been the dissemination of its work and findings in order to raise awareness, among authorities and the general public, of the existence and value of underwater cultural heritage in Mexican waters. This has been a huge task, which in many cases has produced amazing results.

In 2009, the *Administración Portuaria Integral de Veracruz* (APIVER, Integral Port Administration of Veracruz) decided to extend port facilities towards Bahía Vergara, a bay located in the north part of the port. Thanks to INAH's campaigns, APIVER authorities were able to ask INAH's Vice Directorate of Underwater Archaeology to perform a survey to verify the existence of cultural remains from five centuries of navigation in the area.

The 'Project Underwater Archaeology Survey in Bahía Vergara, Veracruz' began in 2009, using a digital sidescan sonar and cesium magnetometer. Some anomalies were detected and verified in 2010. None of them contained cultural remains, however archaeologists believe there is a possibility of finding material buried in the sediment,

more than 2 m deep, which would not have been detected with the instruments used (Carrillo Márquez 2012a).

In 2011 there were plans to do a geophysical survey in the northern part of Bahía Vergara, known as Punta Gorda, before the extension works reached that point. However, survey could not be carried using remote sensing equipment because the waters there are not deep enough. Archaeologists returned in March 2012 to make the inspection through direct diving and used a Hummingbird sonar in some parts of the selected area. No cultural elements were found (Carrillo Márquez 2012a).

Since the INAH Center in Veracruz authorized APIVER's extension of the port facilities, they must instruct work to be suspended in the case that any material remains are found, in order to verify them and, if needed, to properly record and rescue the objects. However this project has been delayed because Bahía Vergara is part of a natural protected area: the National Park Reef System of Veracruz. This system is formed by 23 reefs and the official agency in charge of its protection is the CONANP, which states that it is illegal to develop any infrastructure work that could damage any of the reefs (Carrillo Márquez 2012a). Communication between INAH and APIVER continues.

Marina Veramar, Veracruz

In 2010 the INAH Center in Veracruz received two reports from local citizens regarding the discovery of archaeological materials close to the area where a marina and pier for 180 boats was being built at Bajo de Hornos. The idea was to stimulate the growth of nautical tourism.

Both reports described the findings as parts of ships' hulls, fragments of plates, bottles, olive jars, animal bones and metal. These documents were sent to the Vice Directorate of Underwater Archaeology, and archaeologists Laura Carrillo and Roberto Junco were commissioned to inspect the site. The existence of the reported elements, including five



Figure 3: Location of the Marina Veramar and the five sites with archaeological materials found in Veracruz highlighted in yellow. (Source: Google Maps.)

sites with cultural remains corresponding to different chronologies was confirmed (Carrillo Márquez et al 2010; Junco 2010).

A proposal to investigate Bajo de Hornos and recover some of the artifacts was presented to INAH's Council of Archaeology, the academic body in charge of evaluating all projects, national and foreign, that want to be undertaken in Mexican territory, either on land or underwater. The proposal was approved and a field season took place in 2011. Archaeologists, supported by divers and local fishermen, located and recorded the five sites as well as isolated elements (see Figure 3). Samples of wood were taken and

sent to INAH's laboratory in Mexico City in order to identify the species and their origin. Preliminary results indicate that the chronology of these findings ranges from the early Colonial period to the present (Carrillo Márquez et al 2010; Junco 2010).

Archaeologists asked APIVER to save a space within the marina to exhibit the materials which were recovered and to present the results through diverse means. The building contractors agreed to detour the construction in order to preserve the sites containing cultural remains, once the second and last stages, which consisted of building commercial facilities and a small hotel, were finished.



Figure 4: Cone and fragments of copal resin, a Pre-Columbian incense which is still used today, recorded at the Lake of the Moon in the crater of the Nevado de Toluca volcano. (Photo by Roberto E. Junco, 2007. Courtesy of INAH/SAS.)

The first stage of the marina is already operational (Carrillo Márquez 2013, pers. comm. 20 July).

Nevado de Toluca Volcano

Nevado de Toluca volcano is situated in the Valley of Toluca, one hour west of Mexico City. In its crater there are two lakes: the Lake of the Sun and the Lake of the Moon. This is one of the highest altitude diving sites in the world, and it was an important offering place for the Pre-Hispanic groups that inhabited the area.

In three field seasons (2007, 2010 and 2012) archaeologists from SAS/INAH recovered archaeological material including wood serpent shaped ceremonial rods, pointed leaves of the Agave plant used for self-penitence, fragments of baskets, and cones and spheres made of copal resin (a Pre-Columbian incense

which is still used today in diverse ceremonies) (see Figure 4). A group of students from the *Escuela Nacional de Antropología e Historia* (ENAH, National School of Anthropology and History) excavated test pits in selected areas close to the lakes and found lithic materials such as fragments of turquoise; jade and serpentine beads; small knives and arrow points made of green obsidian; and ceramics, including the head of a serpent part of an incense burner. According to analysis, these date to the Late Postclassic period (Junco, 2009).

The volcano is still a sacred place for ethnic communities living nearby. This has had an unexpected impact on underwater archaeological work. RE Junco (2013, pers. comm. 25 July) said that after the 2007 field season, a group called the 'New Fire of the Sixth Sun in defense of Mother Earth'

traveled to INAH's facilities in Mexico City to demand that all the recovered pieces be re-deposited in the lakes because, according to them, the extraction of these sacred objects had affected the balance of the cosmos. Fortunately, things settled down after the benefits of archaeological studies were explained to them.

This experience led archaeologists to intensify their campaigns to raise awareness within these communities. One permanent exhibition took place in 2010 and one itinerant exhibition has been circulating the towns around the volcano for the past three years. Groups of school children are taken by their teachers to visit the traveling exhibit. Researchers go to talk about the work and to answer questions as often as possible. In 2011 SAS/INAH published 10,000 copies of a comic entitled 'Underwater archaeology and the mysteries of the volcano,' which is being freely distributed in all elementary and high schools in the region with much success (Junco and Vigliani 2012).

For the 2010 field season, underwater archaeologists took special care to ask the shamans of concerned ethnic groups to perform a ceremony in order to ask their deities permission to carry out archaeological work in the two lakes. At the end of the field season, they performed another ceremony to give thanks for the undertaken works (Junco and Vigliani 2012).

Taking the sea to the city

Since 2003 underwater archaeologists in the State of Campeche have worked very closely with local civic and military authorities, fishermen, informants, tourism agencies, and divers. Through a consistent and efficient information campaign, archaeologists have been taken by natives to dozens of sites containing cultural remains, where some pieces were recovered and turned in to INAH. In some cases, fishermen have helped to protect sites.

Campeche is without any doubt where underwater archaeological work and disse-

mination campaigns have been more intense and systematic. Through exhibits and lectures, archaeologists have gotten in touch with people not only in the capital city but also in towns and villages both near the coast and far from it, where people have never even seen the sea. Terrestrial archaeologists from INAH have worked together with underwater archaeologists and historians.

A couple of years ago, terrestrial archaeologists mounted an exhibition on the Maya culture in a bus and went to different points of Campeche. Besides taking the exhibition to villagers, they also brought villagers to the city so they could visit the underwater archaeology exhibit entitled 'A World under the Waves' and to have an opportunity to see the ocean for the first time in their lives.

As part of this effort to take the sea to the cities, SAS/INAH have displayed enlarged photos and informative panels about the underwater archaeological work done under water in places such as the Main Plaza of Campeche City (see Figure 5) and in a gunship which is now a museum in Veracruz. Pieces recovered through SAS projects are exhibited in local museums or parks.

Legal aspects and struggles against treasure hunters

Mexico's position of defense for its cultural heritage is well known in the world. There are museums as well as archaeological zones and sites all over the country, which are visited each year by millions of people from all around the world. Inland archaeological heritage is protected by the *Ley Federal sobre Monumentos y Zonas Arqueológicas, Artísticas e Históricas* (Federal Law on Archaeological, Artistic and Historic Monuments and Zones) (1971) and the *Disposiciones Reglamentarias para la Investigación Arqueológica en México* (Regulations for Archaeological Investigation in Mexico) (1977).

Even if only the regulations mention underwater cultural heritage specifically, these, together with the federal law, have been quite useful in the struggle against treasure hunter



Figure 5: Enlarged photos and informative panels about archaeological and biological work done by INAH's underwater archaeology division were placed at the Main Plaza of Campeche City. (Photo by Helena Barba, 2009. Courtesy of INAH/SAS.)

groups that constantly try to get permits to exploit the shipwrecks in Mexican waters that are known to have carried gold and silver.

Mexico played an important role in the elaboration of the text of the UNESCO's Convention on the Protection of the Underwater Cultural Heritage, adopted in 2001 and put into force in January 2009. Since Mexico was the eighth country to ratify this Convention (in 2006), it became one of the members of the Scientific and Technical Advisory Body (STAB). In addition, Mexico also took part in the elaboration of the Operational Guidelines that were passed in May 2013 and will rule Convention, an international instrument that has become a crucial factor to support Mexico's constant struggle against treasure hunters.

Each country has its own challenges, responsibilities and solutions regarding its underwater cultural heritage. There are no

recipes. It does not matter if a nation does not have enough resources to develop underwater archaeology projects; in such cases, the best way to protect this legacy is by not giving permission to exploit a patrimony that also belongs to humanity. Everything has its right moment in life, and opportunities will arise. There are archaeologists and academic institutions willing to support and to contribute in this important task. Our commitment is to preserve this legacy in order to share it with present and future generations.

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How to cite this article: Luna Erreguerena, P 2013 Mexican Underwater Archaeology and Some of its Challenges and Solutions. *Papers from the Institute of Archaeology*, 23(1): 23, pp. 1–9, DOI: <http://dx.doi.org/10.5334/pia.442>

Published: 9 October 2013

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