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MARITIME ARCHAEOLOGY: A BRIEF INTRODUCTION

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Archaeology is the study of manmade objects and structures. Collectively they are referred to as material culture. Archaeologists use material culture as evidence in developing theories about how people live and understand the world.

Maritime archaeology studies material culture dealing with human activities on the coast, in the ocean or in bodies of freshwater, like lakes. These human activities include trade, exploration, settlement, exploitation, disasters, and war. The objects and structures do not need to be underwater to fall under maritime archaeology's purview.

TOPICS IN MARITIME ARCHAEOLOGY

Frequently people think of maritime archaeology as the discovery of shipwrecks and "sunken treasure," but researchers also study sites such as fish traps, bridges, lighthouses, and canoes, either as individually sites or collectively as part of a maritime cultural landscape.

RESEARCH TOOLS AND METHODS

Archaeologists who study sites underwater may use snorkel gear or self-contained underwater breathing apparatus (SCUBA) as tools to reach their sites. Cameras on remotely operated vehicles (ROVs) can also assist researchers by extending the time and depth beyond human dive limits.

As for the research process, maritime archaeology requires the review of historical documents (if available), field work, analysis, and report writing. Field work includes documentation of artifacts through writing and photography site surveying, otherwise known as mapping. Depending on the site and nature of the material culture, crews may remove artifacts or leave them *in situ*, which is Latin for "in the original place." Analysis includes cataloging or putting together a database of the artifacts and their examination. After analysis researchers write reports about their findings targeting scholarly and general audiences.

Guam divers measure an amphibious assault vehicle in Hågat. Technology can include deep sea submersibles and robots, but measuring tape is still an indispensable tool for many practitioners--professional and amateur alike. This vehicle once carried military supplies. *Image courtesy of Bill Jeffery.*

An aech, or fish weir, named "Daqoloch" in Rikeen, Yap. When tides are high, fishes swim into the structures. After the tide ebbs, they are trapped, either for immediate harvest or further cultivation. Fish weirs are found throghout the world and vary in size, material, and design. This aech is part of a larger collection throughout Yap. They are an important food source, profound source of cultural pride, and link ancestral practice to contemporary culture. *Image courtesy of Bill Jeffery.*

GUAM AND REGIONAL ARCHAEOLOGICAL SITES

Due to the region's significant number of historic military activities, there are various underwater sites associated with World War II occupation and combat. From historical records and discovery, we know that aircraft, ships, construction equipment, cargo, and supplies are submerged throughout Micronesia.

On Guam, some World War II-affiliated sites are located within and south of Apra Harbor. These areas are where the U.S. military dumped equipment or supplies (Seabee Junkyard, Shark's Pit), Japanese boats sank (*Kitsugawa Maru* in Apra Harbor), or remnants of Japanese aircraft exist (Apra Harbor).

In the Federated States of Micronesia (FSM), Chuuk is world famous for the 50+ World War II shipwrecks in its lagoon. In addition to the archaeological interest, they form artificial reefs and are a natural resource teeming with fish and other marine life.

Sites associated with indigenous people predate modern military interventions throughout the region as well. For example, fishing plays an integral role in island cultures. One of Guam's fishing-specific sites include the remains of an ancient fish camp at Litekyan (Ritidian). There are also gigao, or fish traps, in Apra Harbor and Cocos Lagoon, which differ substantially from the 700+ fish traps (also known as weirs) in the FSM's Yap state. Those fish weirs are not only important for their age and history, but also in the maintenance or revival of traditional fishing practices.

Latte sets (Haputo) and settlement sites (Pågat, Pago Bay, Tumon) are found throughout Guam and the Northern Mariana Islands, along with scars from the quarrying of latte components, the haligi (stands) and tåsa (cups). Of quarry sites, Luta has the biggest, most intact area. The latte components therein indicate how the Chamorro people developed these massive stone structures.

Pohnpei state, FSM, houses what has been characterized as a "canal city," the 1,500-year-old Nan Madol containing 90 islets. Thought to have been built next to a more ancient settlement, the area was

A partial section that makes up the 60,000-piece Song Dynasty (960-1279 CE) ceramic cargo from the Nanhai No.1 Shipwreck in China. Maritime archaeologists differentiate themselves from commercial "treasure hunt" companies, both in their methods and objectives. *Image courtesy of Bill Jeffery.*

investigated by maritime archaeologists, but no tangible remains were found.

The intangible cultural heritage associated with maritime archaeological sites is a valuable part of what constitutes Micronesia's maritime archaeological heritage, as it is in many other parts of the Pacific. The connection people have had with the sea and coastline for 3,500 years in Guam and the region contributes to our understanding of the significant maritime cultural land and seascapes.

ISSUES IN MARITIME ARCHAEOLOGY

Impacts on artifacts. Humans impact the environment in all sorts of ways, and archaeological research is no different. Researchers change the nature of sites, including detaching sea grass that has grown over artifacts, taking away sediment that has settled over objects, and removing artifacts from the site altogether.

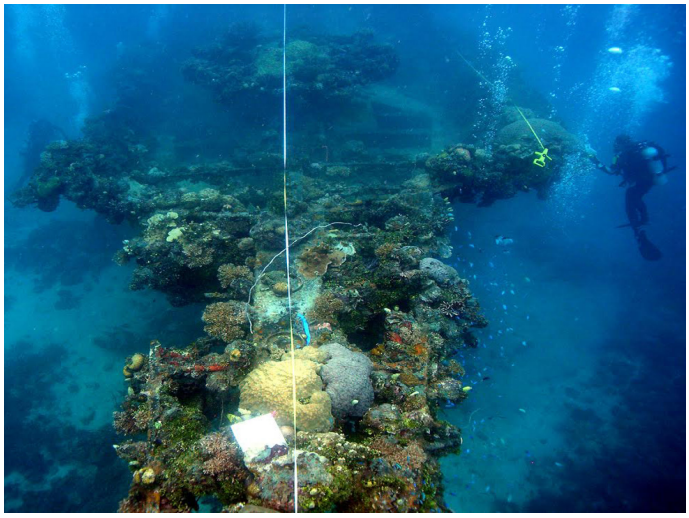
Furthermore, site disturbance can actually lead to an artifact's speedier deterioration. For example, removing sediment from a buried metal artifact leaves it exposed to elements in the water that can cause rust to occur more quickly.

At other times, objects can be recovered but must be followed by conservation work to protect them. Or, in cases where researchers leave objects *in situ,* they may monitor them to observe changes over time and do recovery work if necessary. Additionally, as technology improves or becomes cheaper, an item subject to corrosion twenty years ago might be saved by a new technique today.

Private versus public good. The removal of objects for commercial sale is controversial and declared illegal in most countries. Some companies fund expeditions to look for a wreck, take artifacts, and then sell them to private collectors. This is not appropriate as documented in best practices for maritime archaeology.

Archaeologists affiliated with a university or government body aspire to study, interpret, and display objects for the public. Removing objects from a wreck without documentation, or for private collections, can prevent the community from learning about its maritime heritage, and could be construed as vandalism.

Values. Archaeological sites and artifacts have different meanings for different audiences. For example, while U.S. naval history enthusiasts want to dive the Chuuk Lagoon to see wartime remains, others might consider them sacred graveyards and prefer that they not be photographed or touched. There can also be significant differences in how a community that "hosts" the site and



A diver surveys the World War II shipwreck "Dockboat" in the Chuuk Lagoon. Structures can provide areas where coral reefs grow and support an astonishing variety of life. *Image courtesy of Bill Jeffery.*

visitors perceive the worth of a site. The management of maritime archaeological sites depends on understanding many of these values.

People dive sites in many places of the world to experience firsthand these values and to see the spectacular natural beauty of the underwater world. Museums around the world display material recovered from maritime archaeological sites, and innovative museums are using underwater sites as part of their museum displays.

MARITIME ARCHAEOLOGIST SKILLS

Maritime archaeologists generally study archaeology for several years; some go on to earn advanced degrees.

Additionally, they pursue specialized training related to field work. For those who intend to do the majority of their field work underwater, they develop their SCUBA competency, which can include technical diving, deep diving, nitrox or mixed gas breathing, rebreather use, using dry suits in very cold water, and using photography to develop 3D models. Dive skills that make a maritime archaeologist effective include underwater writing and sketching, photography, multitasking, dive supervision/ safety planning, and buoyancy control.

Aspiring maritime archaeologists should also work on being patient, persistent, and collaborative. Field work is expensive, sometimes frustrating, and requires the many talents of people working together. But the rewards are worth the efforts!

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