

# Chapter 4

## The Archaeological Survey of WWII Underwater Cultural Heritage: A Multiagency, Collaborative Approach

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### Introduction

By far not a novel approach, the Saipan WWII maritime heritage project is yet another example of how “many hands make light work.” This project was conceptualized as an inclusive and collaborative effort to include academia, nonprofit, government agency, and the local community in the study of Saipan’s WWII submerged heritage. By taking this approach, it was hoped that more could be accomplished with fewer resources and a sense of stewardship for long-term preservation would take hold of the island. This chapter discusses the approach, methodology, and recording of Saipan’s WWII maritime heritage.

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## **Previous Archaeological Research on WWII-Era Sites**

Prior to the Battle of Saipan WWII project, a number of submerged cultural resource and maritime heritage surveys were conducted in the waters surrounding Saipan (Thomas and Price 1980; Miculka and Manibusan 1983; Miculka et al. 1984; Pacific Basin Environmental 1985; Carrell 1991, 2009; Lord and Plank 2003; Burns 2008a, b) (see Chap. 3 for discussion of previous surveys). Though these efforts ranged in complexity from basic site identification projects to intensive remote sensing surveys, each provided data that proved valuable for conducting further research on underwater sites in Saipan. Particularly useful were the publications produced as a result of work conducted by the NPS (Carrell 1991), SEARCH (Burns 2008a, b), and Ships (Carrell 2009). The data recorded from these various projects offers the beginnings of a comprehensive survey of the WWII-era sites located in Saipan's lagoons and increased the efficiency of the archaeological surveys conducted for the project.

## **Multiagency, Collaborative Approach**

Three government agencies were critical to the success of this project. The HPO, situated under the Department of Community and Cultural Affairs, is the regulatory agency that governs archaeological, historical, and cultural resources in the CNMI; thus, it was imperative to maintain an open line of communication and collaborate with the office. HPO staff were involved in the project from its inception. First, they participated in trainings run by Flinders University faculty and then assisted with the archaeological recording of the sites. They also participated in the in situ conservation survey and facilitated communication with other agencies and the general public. Throughout the project, they reviewed all interpretative materials as well as archaeological reports and the final preservation plan.

CRM was established on 11 February 1983, with the implementation of Public Law 3-47 within the Office of the Governor. The CRM program was established in order to promote the conservation and wise development of coastal resources. CRM is responsible for general permitting activities that impact coastal resources in Saipan and, in particular, permits for water-related and dive tour operations. They have on-the-water capability to monitor waterborne activities and enforce violations. Similarly, the DEQ and agency mainly concerned with water quality and pollution have on-the-water capabilities and enforcement obligations. Unfortunately, neither of these agencies have staff with cultural heritage training or background; thus, it was important to have their staff involved in the underwater training offered by Flinders early in the project. CRM and DEQ staff were beneficial to the project in many ways. They collaborated in the fieldwork, provided useful information on the types of sites divers visited, provided background on dive industry regulations, assisted with unexploded ordinance (UXO) issues, and developed a mooring buoy project which installed moorings at selected sites on the underwater heritage trail. Combined these

two agencies contributed a great amount of in-kind support through staff participation, boats, and fuel for the field projects.

The MVA, a government-funded office focused on the development of tourism, was also consulted. By providing demographic information on tourist divers and snorkelers, the project was able to understand the market better and create products that were suitable to multiple groups. As an example, the trail products were printed in both English and Japanese and were planned to be translated into Korean, Chinese, Russian, Chamorro, and Carolinian. MVA also provided assistance with dissemination of the posters to locals and tourists, as well as sharing important public feedback.

The NPS American Memorial Park on Saipan and War in the Pacific National Historical Park on Guam were key consultants. The superintendent and staff provided important insights into the needs of visitors. They reviewed the posters and trail guides for accuracy and provided guidance on the interpretive film. Because the film was designed from the outset to be shown in the park visitor centers, their input was particularly important.

The project team also held meetings with smaller community groups including nonprofit organizations. Two that were particularly helpful were the NMHC, a nonprofit supported by government funding, and the PMRI, a nonprofit with interests in traditional Micronesian fishing. Vital support from these organizations was provided in the form of local information about water resources and diving and contacts with smaller user groups including diving and fishing organizations. PMRI collaborated as the funding organization for the NOAA grant which facilitated the HADS training (as discussed in Chap. 1).

Consultation with diving and fishing groups included visits to local dive shops to receive feedback on needs at the local level. Two important groups, Marianas Dive and Mariana Sports Club, Inc., were consulted. Several members of the Marianas Dive group participated in trainings, and members of the Mariana Sports Club, Inc., provided valuable historical information and insight into the history of the wrecks.

Several off-island partners contributed to the long-term success of the project including organizations from Australia and the USA. Information, participation, and collaboration from all of these organizations materially informed the development of the project considerably and value-added both in knowledge and in-kind support. Researchers from Australian government agencies such as Heritage Victoria and Northern Territory Heritage Branch and the private consulting company Cosmos Archaeology were involved for their background knowledge in heritage trails and conservation. Other researchers and groups such as the Florida Public Archaeology Network in the USA contributed expertise in training and trail development.

The collaboration of the NPS SRC was crucial in bringing the interpretive film to completion. As one of few teams of maritime archaeologists and filmmakers focusing on underwater heritage, they participated directly in the filming, editing, and creation of the 2D and 3D films. WHOI, the videographers, and Windward Media, the film producers, although contracted for their services with grant funding, provided an incredible amount of service and skills in-kind to make the final film happen. Were it not for the collective in-kind services of SCR, WHOI, and Windward Media, the film would not have been possible.



**Fig. 4.1** Conservation survey conducted on a M4 Sherman Tank (Photo: Jon Carpenter)

The project not only involved archaeologists and heritage managers but also included researchers from related fields such as marine biology and conservation science. Researchers from University of Sydney provided marine species identification to supplement the historical narrative of the underwater sites, as divers are equally interested in the marine life (see Chap. 10). Conservation scientists from the Western Australia Museum conducted an in situ conservation survey of sites both on and off the trail in order to collect baseline data about their preservation status for future monitoring (see Chap. 9). This data is critical to understanding how increasing diver visitation affects sites over the short and long term (Fig. 4.1).

Flinders University supported a field school that included 20 students and staff from Australia and the USA. This 2-week field school contributed greatly to the data collection of sites underwater as well as in the intertidal zone. Several master's theses were the result of student participation, four of which are included in this book (see Chap. 8).

## **Legislation and Permitting**

As with all scientific research conducted in the Northern Mariana Islands, prior to commencing fieldwork, it was necessary to consult with appropriate regulatory agencies. At the Federal level, these provisions included the National Historic

Preservation Act of 1966, as amended (PL 89-665); the Archaeological and Historic Preservation Act, as amended (PL 93-291); the Abandoned Shipwreck Act of 1987; and the Advisory Council on Historic Preservation revised 36 CFR Part 800 Regulations. The CNMI government also required that research be consistent with the goals and strategies outlined in *Pacific Preservation: The Commonwealth of the Northern Mariana Islands-2008 Historic Preservation Plan* and that the work is conducted under CMNI statutes including Public Law No. 3-39, Commonwealth Historic Preservation Act of 1982, and Public Law No. 3-33, Removal of Human Remains. After reviewing the proposed research design, HPO determined that the project posed no significant threats to any cultural resources and that no additional permit was necessary as all work would fall under a non-disturbance category.

As a result of increasing pressure on marine and coastal ecosystems from activities such as fishing and tourism as well as indirect impacts associated with pollution and sedimentation, in recent years, the CNMI government has established several marine protected areas (MPAs) (van Beukering 2006, p. 88). Located at different areas around the island, these include a number of sanctuaries and conservation areas intended to protect the different marine environments and allow for their management. Particularly relevant to this project was the Mañagaha MPA which is located within Tanapag Lagoon on the island's western side. Encompassing approximately 12 % of Saipan's total lagoon system, this MPA surrounds the small reef island of Mañagaha and provides protection for a rich diversity of coral and fish species (Schroer 2005). Since some of the site locations for the trail fall within the boundaries of an MPA, consultation with the Department of Fisheries and Wildlife (DFW) was also required. In order to conduct survey operations within the Mañagaha MPA, a Scientific Research License (Subsection 85-30.1-205) was required and issued by the DFW.

## **Project Location and Logistics**

The underwater sites investigated for this project are all located within two of Saipan's three lagoons. Created by a shallow fringing reef that runs along much of the island's western side, these are typical high-island barrier reef lagoons (Amesbury et al. 1979; Burns 2008a, b) and provide an exceptional environment for conducting underwater archaeological surveys. The northernmost and largest of the two is Tanapag Lagoon, which is characterized by a sandy seabed interspersed with a multitude of patch reefs. Depths in Tanapag range from less than one meter at its northern end to approximately 14 meters (m) in the shipping channel near its southern end. Located just to the south of Tanapag Lagoon and much smaller in area, Garapan Lagoon has an average depth of less than 3 m (Amesbury et al. 1979; Burns 2008a, b) and is largely covered with sea grasses and patches of sand. Though it is likely that many other wrecks associated with the Battle exist in deeper water on the seaward side of the fringing reef near both lagoons, those areas were not included in the project boundaries.

## *Project Vessels*

Because the fringing reef provides protection by acting as a break to the large swells experienced offshore, the operational conditions in the lagoons are generally favorable year-round. Though occasionally affected by inclement weather, the sea state within the lagoon is usually calm with wave heights of less than half a meter. As a result, the size of the vessels used for this project varied based on the number of divers onboard and the planned activities. During the July 2009 and February 2010 fieldwork, CRM and DEQ provided support to the project through the use of vessels and staff. The center console-style boats ranged in length from 5 to 7 m and proved to be optimal for the skin diving, scuba diving, and towboarding activities undertaken during this phase of the project.

The Flinders field school held in June 2010 required larger working platforms, and local dive boat charter Saipan Aqua Jet was contracted to provide two 9 m rigid hull inflatable vessels. Equipped with jet propulsion systems, these were a safe and effective diving platform for the almost constant diving operations each day. Though these vessels were later sold to another charter company—Axe Murderer Tours—one of them was again chartered in February 2012 for the in situ survey and filming project.

## *Diving Safety Considerations*

Saipan's tropical location is also ideal for diving operations. Since the air and water temperatures fluctuate only slightly throughout the year, the lagoons are home to an abundance of coral species and tropical fish, and the reefs are well known to divers around the world. Though the island has a thriving diving tourism industry, the local hospital does not house an operational recompression chamber. In cases of diving-related injuries requiring a chamber, victims are transported to Guam for treatment. For daily diving operations, oxygen safety kits were kept onboard at all times.

Diving conditions were considered comfortable and most participants could work underwater for extended periods in a bathing suit or 1 millimeter (mm) dive skin. Currents experienced in the lagoons are seasonal and result from tidal activity; they are, however, generally less than 1 knot so posed little threat to project divers. With the exception of a few sites located in the shipping channel, visibility on sites surveys averaged 20 m, which maximized working time underwater. The visibility also helped divers avoid contact with the fragile coral growth attached to most of the sites as well as with any hazardous marine life such as lion fish, striped catfish, or cone shells that can be found in Saipan's lagoons.

All skin and SCUBA divers were overseen by experienced and qualified project staff, and relevant information for each dive was recorded in an official log. A number of the air cylinders required were supplied by CRM as support to the grant, while others were rented on a daily basis through one of the island's many dive shops.

Though the shallow depths at most of these sites would have allowed for extended dives, a 60 min maximum dive time was observed. To ensure that divers had sufficient time to rest between repetitive dives, a surface interval of 60 min was also required. Basic archaeological equipment including tapes and slates were utilized during the survey and mapping of the sites. Though the majority of the necessary equipment was supplied by Flinders University as an in-kind contribution to the grant, HPO and CRM also provided the use of some underwater survey gear.

## ***UXO***

Perhaps the most serious safety concern for this project was the potential for encountering UXO. US ships anchored offshore provided an almost constant barrage of cannon fire in support of the forces attempting to land on the island's beaches, while Japanese forces were fending off the invasion with their own fire power. Aircraft also flew almost incessant strikes throughout the battle, dropping bombs and strafing heavily armed Japanese ships and planes within the harbor. And though many of the projectiles successfully hit their intended targets, others fell short and failed to detonate. As a result of wartime and postwar demolition activities, the seabed around the island is littered with unexploded ammunition. Despite numerous efforts to clear the UXO from the lagoons, its presence on at least some of the sites surveyed was expected, and all project staff was made aware of its dangers. Due to the potentially volatile condition of UXO, when it was identified, operations in those areas ceased. The location of the ordnance was then recorded using the global positioning system (GPS), and a description of it was reported to DEQ, the agency tasked with professionally removing it from the lagoon.

## **Recording Known and Unknown Sites**

Among the first considerations for undertaking the archaeological component of this project was identifying and evaluating underwater WWII sites to determine their possible inclusion on the heritage trail. Initial consultation with staff from the various agencies, data contained in previous survey reports, and information obtained from local divers all indicated that a number of wrecked aircraft, ships, and landing vehicles were known and dived on regularly. Several of these sites were first identified by local scuba divers and have become well known as recreational diving spots. These include the remains of the possible Japanese freighter *Shoan Maru*, known locally as "the shipwreck" or "chinsen"; an H8K Kawanishi "Emily" flying boat, known locally as a "B-29"; the remains of a possible Japanese submarine chaser; and a Japanese Aichi E13A "Jake" float plane, known locally as a "Zero" (Fig. 4.2).

GPS coordinates for these known sites were obtained and cross checked with the locations for sonar and magnetic anomalies identified by SEARCH (Burns 2008a, b).



**Fig. 4.2** Bow of Japanese Daihatsu landing craft (Photo: Brett Seymour)

Each of these corresponded with significant remote sensing targets, and from this review, a list of potential targets was ascertained and used to initiate a program of site assessment and diver visual surveys beginning in April 2009 and continuing throughout the project. A site inspection sheet was completed for each site, and photographs and video of the site were collected. A professional photographer and videographer, Valeo Films, was hired to collect high-quality photographs and video for use in interpretive materials. This proved advantageous as often maritime archaeologists are not trained in photography or the photographs collected are typically more scientific and therefore are often not suitable for interpretation.

An assessment was prepared to determine whether or not the site would be included in the trail. This assessment was made based on several criteria including accessibility for scuba and snorkel, site interest (i.e., visually stimulating, marine life, intact, and recognizable), safety (i.e. existence of UXO), existing dive traffic (i.e., already a regular dive site or a new site), vulnerability or uniqueness (which might exclude a site), and representativeness (i.e., US versus Japanese and aircraft versus shipwreck versus vehicle).

For the sites that were ultimately destined for the trail, up-to-date and accurate site plans were necessary for the interpretive materials as was collecting baseline data on their condition for future monitoring. The project employed several techniques including baseline offsets and trilateration. For the sites that had existing scaled construction plans, those plans were copied onto Mylar and used to annotate changes and check measurements underwater. This process worked well as it sped up the measuring and drafting processes tremendously.



All data was stored centrally and later supplied to HPO as a package along with the reports. The locations of sites were also added to a geographic information system (GIS) database. A KOKOA analysis (Key Terrain, Observation and Fields of Fire, Cover and Concealment, Obstacles, Avenues of Approach) was conducted as a condition of the ABPP grant and presented in the final grant reports.

## *The Sites*

A total of 24 sites were recorded during the 2010 and 2012 underwater archaeological surveys in Saipan; these include 10 shipwrecks, 5 aircraft, 7 assault vehicles, and 1 aid to navigation (Table 4.1). Several of these sites were known through previous survey but had not been fully recorded archaeologically. The majority of the sites now have archaeological site plans; however, all of them are photographically documented and site assessment reports have been completed. It is hoped that with future funding, these sites can be assessed for and included on the National Register as a group or district listing and may be added to and expand the existing national landmark in the Landing Beaches area.

**Table 4.1** List of underwater WWII sites recorded in Saipan, CNMI

Name of site	Affiliation	Date recorded	Trail
Merchant Ship, presumably <i>Shoan Maru</i> /Chinsen	Japanese	2010	Y
Possible auxiliary submarine chaser—main site	Japanese	2010	Y
Possible auxiliary submarine chaser—secondary site	Japanese	2010	N
Sherman tank 1	US	2010	Y
Sherman tank 2	US	2010	Y
Sherman tank 3	US	2010	Y
LVT(A)·4	US	2010	Y
Fishing base landing vehicle	US	2010	N
Fishing base landing vehicle 2	US	2010	N
Landing craft	US	2010	N
Possible landing craft in shoreline	US	2010	N
Barges	US	2010	N
Barge near Japanese lighthouse	US	2010	N
Daihatsu landing craft 1	Japanese	2010	Y
Daihatsu landing craft 2	Japanese	2010	Y
Kawanishi H8K “Emily” aircraft	Japanese	2010	Y
Aichi E 13A “Jake” aircraft	Japanese	2010	Y
Martin PBM Mariner aircraft	US	2010	Y
TMB Avenger aircraft	US	2010	Y
Navigational marker	Japanese	2010	N
Unidentified steamship	Japanese?	2012	N
LVT 2	US	2012	N
Daihatsu landing craft 3	Japanese	2012	N
PB2Y Coronado aircraft	US	2012	N

## Conclusion

Over the course of 6 weeks of fieldwork in 2010 and 2012, a large number of WWII-era underwater sites were archaeologically recorded, and several other potential targets were tested. This achievement would not have been possible were it not for the multiagency approach implemented early in the development of this project. The island of Saipan has a diverse array of stakeholders, managers, agencies, and public who are vested in the submerged heritage that lies in its waters. Through a collective, inclusive approach that recognizes the strengths and benefits of all stakeholders, a small proportion of Saipan's WWII heritage is now known and the outlook is bright for its protection. The more involved means the more invested.

## References

- Amesbury, S. S., Lassuy, D. R., Myers, R. F., & Tyndzik, V. (1979). *A survey of the fish resources of Saipan Lagoon* (Technical Report No. 52). Hagåtña, GU: University of Guam Marine Laboratory.
- Burns, J. (2008a). *Archaeological survey of lagoons of on the West Coast of Saipan, commonwealth of the Northern Mariana Islands*. Report Prepared for the CNMI Department of Community and Cultural Affairs, Division of Historic Preservation, Saipan, by Southeastern Archaeological Research, Pensacola, FL.
- Burns, J. (2008b). *Archaeological survey of Tanapag Lagoon Saipan, Commonwealth of the Northern Mariana Islands*. Report Prepared for the CNMI Department of Community and Cultural Affairs, Division of Historic Preservation, Saipan, by Southeastern Archaeological Research, Pensacola, FL.
- Carrell, T. L. (Ed). (1991). *Micronesia submerged cultural resources assessment*. Santa Fe, NM: National Park Service Submerged Cultural Resources Unit.
- Carrell, T. L. (2009). *Maritime history and archaeology of the commonwealth of the Northern Mariana Islands*. Report Submitted to the CNMI Department of Community and Cultural Affairs, Division of Historic Preservation, Saipan, by Ships of Exploration and Discovery Research, Corpus Christi, TX.
- Lord, C., & Plank, C. (2003). *Surveys of abandoned vessels: Guam and the Commonwealth of the Northern Mariana Islands*. A Report Prepared for National Oceanic and Atmospheric Administration, National Ocean Service, Office of Response and Restoration by Research Planning, Columbia, SC.
- Miculka, J. E., Carter, K. J., & Ichihara, N. (1984). *Submerged cultural resources assessment Saipan Lagoon 03–05 December 1984*. Hagåtña, GU: War in the Pacific National Historical Park.
- Miculka, J. E., & Manibusan, R. S. N. (1983). *Submerged cultural assessment American Memorial Park*. Hagåtña, GU: War in the Pacific National Historical Park.
- Pacific Basin Environmental Consultants, (1985). *Underwater survey of Tanapag Lagoon for historic properties*. A Report Prepared for Community and Cultural Affairs, Historic Preservation Office, Saipan, by Pacific Basin Environmental Consultants, Hagåtña, GU.
- Schroer, G. (2005). *Management plan for Managana Maria conservation area*. A report prepared for Dept of Lands: Natural Resources, Saipan, Commonwealth of the Northern Mariana Islands.
- Thomas, M., & Price, S. (1980). *Cultural resources reconnaissance report for the Saipan small boat harbor study area*. A Report Prepared for US Army Corps of Engineers Pacific Ocean Division by Pacific Studies Institute Hagåtña, GU.
- van Beukering, P. J. H. (2006). *Economic value of the coral reefs of Saipan Commonwealth of the Northern Mariana Islands*. Report prepared for the US Department of the Interior and National Oceanographic and Atmospheric Administration, by Cesar Environmental Economics Consulting, Washington, DC.