

# Japanese Midget Sub at Pearl Harbor: Collaborative Maritime Heritage Preservation

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*The views expressed in this article are the personal opinions of the author and do not necessarily represent the official positions of the US government, the National Oceanic and Atmospheric Administration — NOAA, or the Department of Commerce*

## History

On December 7th, 1941, the surprise attack on Pearl Harbor immediately involved the United States in the war against Japan in the Pacific. This was a watershed moment and today it would be difficult to overestimate the importance of this single event on local, regional, national and international history. Some may not realize, though, that in addition to naval aviation, the operation included the deployment by the Japanese Imperial Navy of five two-man midget submarines, known in code as *ko-hyoteki* or “A-targets.” These advanced secret weapons, developed in the 1930’s, were to make their way into Pearl Harbor and launch their torpedoes. One of the five submarines in this special attack unit inadvertently initiated armed response from the US forces more than an hour before the arrival of the Japanese aircraft squadrons. A small submarine was spotted outside the harbor attempting to enter the channel behind an incoming tug and barge. At 6:40 AM a PBV flying boat on morning patrol and the World War I-era destroyer *USS Ward* commenced the attack. One shot from the *Ward’s* #3 gun appeared to strike the conning tower of the sub, which then submerged amidst exploding depth charges, not to be seen again. Though this contact failed to sufficiently alarm those in command at the time, this was the first combat action of the events of that fateful day, the first shot of the war in the Pacific.

## The Site

The air attack inflicted a tremendous amount of damage, but had a submarine really been sunk before the bombing started? The search to confirm the reported contact began in the early 1980s with a collaborative National Park Service/US Navy operation called Seamark. Throughout the last two decades of the 20th-century there followed a number of subsequent attempts by a variety of projects to locate the site in the deep water area outside the entrance to Pearl Harbor. It was not until 2002, though, that the Hawaii Undersea Research Lab (or HURL, part of the National Oceanic and Atmospheric Administration’s National Undersea Research Center at the University of Hawaii) finally came across the 24 meter long midget sub, sitting intact and upright on the sea floor in over 400 meters of water, a 10 centimeter shell hole at the starboard base of the conning tower corresponding to the *USS Ward’s* action report. The site is of considerable historic significance, and also a war grave due appropriate treatment and respect.

It is one of a very few physical artifacts from the momentous attack still in its original context. But what actions are needed to preserve the site? What are the threats?

## Evolving Site Management

In September of 2002 the National Oceanic and Atmospheric Administration (NOAA), HURL, and the National Park Service (NPS) met to define goals and begin the formulation of a project design. Clearly this heritage resource deserved proper preservation management, but how and by whom? Immediate threats to the site were identified: dumping of waste or disposal of dredged material, entanglement from fishing activities, looting and salvage, potential explosion of munitions, and damage from anchoring. The natural environment posed preservation threats as well in terms of both corrosion and seafloor instability. Currents on the bottom had scoured sediments from beneath both the bow and stern, setting the sub’s 46 ton displacement firmly amidships on harder substrate.

NOAA and the NPS agreed to work closely together and with HURL and the University of Hawaii in the pursuit of long term preservation management. NOAA’s programs (National Marine Sanctuary Program and its Maritime Heritage Program, Office of Ocean Exploration) have the capacity for deep sea research and heritage management, and the NPS’ Submerged Resources Center has long experience in maritime archaeology and steel warship preservation (Pearl Harbor and *USS Arizona*). Importantly, both management agencies agreed on a precautionary approach, seeking to gather appropriate data with minimal interference to the site for achieving long term preservation goals, in accordance with the National Historic Preservation Act, the National Environmental Policy Act and other applicable laws and policies. UNESCO’s Convention on Underwater Cultural Heritage annex rule #1 *in situ* preservation (and Rule #3 as well as others), along with established protocol for war grave sites, guided the creation of the project design from the very beginning. Both the US Naval Historical Center (Underwater Archaeology Branch) and the Navy’s Office of Naval Research have also become involved as active partners in the joint preservation project.

### Science Mission:

To gather appropriate data for long term preservation and site management.

### Preservation Mission:

To protect and preserve the Japanese midget sub site as a significant maritime heritage resource and war grave for the benefit of present and future generations.

The project design received critical attention, but who ultimately had jurisdiction over the site? Soon after the discovery, contacts were made with both the US Department



**Figure 1: Portside of midget sub and HURL research submersible *Pisces V* (image HURL 2002)**

**Figure 2: Torpedoes at bow and current scour beneath the forward section (image HURL 2002)**





**Figure 3: Sakamaki's midget sub HA-19 ashore on Oahu, December 8th, 1941 (official U.S. Navy photograph)**

of State and the Government of Japan. On February 12th, 2004, the Government of Japan and the US exchanged diplomatic notes agreeing that: the US owned and controlled the midget sub; the site should be respected as a war grave as well as an historic resource; it should be protected and managed in accordance with international law, US historic preservation laws, and the US Policy for the protection of Sunken Warships (January 19th, 2001); and that under the maritime law of salvage the US, as the owner, is exercising its right to preserve its property where it has been discovered, and provides notice that it should not be salvaged or disturbed in any manner without the express authorization of the owner.

## Current Status

Research missions to the site have been conducted opportunistically from 2002-2005. (HURL conducts pre-season check-out dives in the vicinity.) These dives focused on retrieving environmental parameters (salinity, dissolved oxygen, pH, temperature etc.), video survey footage, limited sediment and corrosion samples, and measurements of corrosion potential (Ecorr) at selected positions along the hull. The midget sub rests on the seafloor with a slight list to port. An even layer of concretion including rusticles covers the exposed areas of the hull. Both Type-97 (mini) torpedoes are loaded in the forward tubes. The shell hole on the conning tower is the only visible entry point on the submarine, and there is no evidence of explosion or major depth charge damage. A limited interior visual survey (via the shell hole) revealed considerable sedimentation, as well as marine life (sponges and crab). Marine life growing on the underside of the sub suggests that the current scouring at the bow and stern is not a new process, but may reflect a relatively stable seafloor profile.

The NPS' Submerged Resources Center, in partnership with researchers at Michigan State University, University of Nebraska-Lincoln, University of New Mexico, and Eglin Air

Force Base, has been developing a low impact model for the measurement of steel hull corrosion rates. The Japanese sub offers an excellent opportunity to test this model in a deep water environment. Preliminary results suggest a corrosion rate of 0.5 mil per year, equivalent to a metal thickness loss of 0.9mm over a 60 year period (original hull material 8mm cold rolled MS44 steel plate). It must be emphasized that these data are approximations, and the corrosion investigation represents ongoing work.

There are still a number of issues to be resolved regarding this site. Which of the five subs is this? (Only one, Kazuo Sakamaki's HA-19 now on display at the Museum of the Pacific War in Fredericksburg, Texas, has been positively identified.) What are the oxygen and pH levels in the interior? What are the stresses on structural integrity, and how dynamic are the sea floor processes scouring the supporting sediments beneath the sub? As a heritage resource, how can the site be "accessed" by the public, and what is the best venue for sharing information from such deep water wreck sites? The site's association with the Pearl Harbor National Historic Landmark warrants its inclusion and nomination to the National Register. NOAA and NPS are addressing these specific maritime heritage issues in the Pacific.

On the management side, what type of protection is most suited for this site? Since the sub's discovery, the Sunken Military Craft Act now helps to define management of naval vessels, but this leads to an interesting situation. The Japanese midget sub is no longer a foreign military vessel, nor is it a US warship, but it is property owned by the United States. NOAA, NPS and the US Navy, along with the US Department of Justice and the State Department, are currently working together to better define these management and site protection issues. The Japanese midget sub preservation project continues to be a work of collaboration commemorating one of the major events of the 20th-century.

## Information Sources

[http://sanctuaries.noaa.gov/maritime/expeditions/midget\\_sub.html](http://sanctuaries.noaa.gov/maritime/expeditions/midget_sub.html)

<http://www.soest.hawaii.edu/HURL/midget.html>

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