

Inventory of Submerged Cultural and Historical Resources of Maloelap Atoll

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Summary of Maloelap Sites Map copied from: *USSBS, 1947*. All other maps copied from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

CHAPTER ONE: INTRODUCTION

RESEARCH DESIGN

Preliminary research, primarily the identification of potential sites for this report, was done by archival military and historical research, oral history by local informants, and by my own past experience in SCUBA diving at Maloelap Atoll. The research has been over a period of some 24 years, since my first dive on the Terushima Maru in 1981. This information generated a list of known sites that were explored and documented for this survey. Every site, person, aircraft and vessel name was additionally checked within Internet search engines, such as *www.Dogpile.com* for any hits that may add, expand or correct information within the scope of this final report.

The actual fieldwork was done during August of 1998, July of 2000, October of 2003, and on assorted visits of a day or more beginning in 1981 to present for tourism charters or my own leisure. It has copied the basic format, with a few improvements, of my previous underwater surveys for the RMI HPO. This inventory of the submerged cultural and historic resources of Maloelap Atoll was done in the format of a non-intrusive archaeological underwater survey. No site or individual artifact was removed or negatively disturbed. Photography, both still and video, was used to record these sites and artifacts, and in the rare cases of posing items for photographic identification, they were replaced to their exact original or more protective immediate locations.

Each site was assigned three two-letter abbreviations followed by a three-digit number, as adopted by the RMI HPO office. The first abbreviation identifies the site as located in the Marshall Islands (MI), the second, the atoll, Maloelap (Mp), and the third, underwater (Lg), followed by a number identifying the site, (001). In this report Maloelap sites were numbered clockwise around the atoll, starting from the North to the South. Sites were recorded using GPS, and some sites additionally logged using compass coordinates to conspicuous points on shore. The Arc View GIS system was not used, as the internal software data for the Marshall Islands is incorrect, that is it is in error by 300 to 600 yards to the north of true and 300 to 400 yards to the east of true, and even if corrected, is not currently transferable to other programs. Soon other navigation programs will allow transferable corrections, and then the GPS coordinates will be added within a revised report. All GPS work referenced known points on the Department of the Navy, Oceanographic Office chart number 6014 of Maloelap and Aur atolls, later revised by the Department of Defense to chart number 81771, both taken from Japanese surveys of the atoll between 1928 and 1941. All sites are clearly mapped.

The sites and artifacts were evaluated using the formal criteria of their levels of significance a listed in the RMI Historic Preservation legislation of 1992. A separate section, Chapter Four, lists and categorizes each of the sites and their importance and

significant artifacts. Recommendations for preservation are listed within this section, and a general Conclusion, Selected References, Bibliography, and Appendices conclude the report.

LIMITATIONS TO RESEARCH

The primary limitation to research is the fact Maloelap Atoll is 100 miles from the district center of Majuro, and has no modern infrastructure of any kind. This meant there was no electrical power, no SCUBA compressors, very limited supplies or support of any means, nor any way to quickly remedy any problem or emergency with only one air-flight per week. Everything, including gasoline, SCUBA tanks, camera equipment, generator, food, even bedding, had to be shipped via yacht, small boat or aircraft before or with my expeditions. Extra items for essential equipment, repair kits, even first aid, all had to be included, and they *all* had to be sealed against water damage from the ocean or the rains. Maloelap is also occasionally windy on the water and thick with mosquitoes on land. As most outer islands in the Marshall's, it is a wonderful place to visit, but a difficult place to work.

The secondary limitation to research was environmental, as occasional wind and hard rain made difficult survey days. This affected some of the photo work adversely, but most sites were still filmed well enough to complete the analysis of each site. Only the pier at Pigete Island, Maloelap (Site 6), lacks underwater footage, as the day's work ran out of daylight.

Site age and search area size created another limitation, as most of the sites of this survey were created before or during the battles of World War Two. Even if artifacts weren't bombed war relics, the effects of over 60 years of water action and decay have depreciated both their condition and cultural significance. Thus merely locating all the pieces of an aircraft that crashed into a plain of coral rubble or the analyzing of a ship bombed into a puzzle of metal shards becomes part of the *normal* limitations to research for many sites in this report. This is a survey, not a historical resurrection.

PREVIOUS RESEARCH

The final limitation to this survey was that there was virtually no prior research into the submerged history of Maloelap atoll, and most of the known work was lacking in detail. Previous research was done in the fields of Archaeology, Anthropological or historical studies, mainly within the Republic of the Marshall Islands Historic Preservation Office Reports. Sites and topics by *Spennemann, 1989*, (erosion at Taroa), *Adams, 1990*, (Terrestrial WWII on Maloelap), *Christiansen, 1994* (Terrestrial WWII on Maloelap), *Spennemann, 1995*, (General History with a reference to the Terushima Maru) and *Weisler, 2001*, (Excavation at Kaven, Maloelap) primarily discussed sites and assets on shore. Only the *United States Strategic Bombing Survey (USSBS), 1947* (reference to the Site 9, "Toroshima" Maru) and Bartsch, 1986, in his article in *After the Battle, Volume 54* magazine lists a site (the Site 5 Zero aircraft) documented in this report.

Bits and pieces of nautical tales, military history works, and a few other anthropological publications exist, few of which discuss or are relevant to the submerged resources discovered during this survey. The major works in these areas are also listed in the Bibliography.

SURVEY EQUIPMENT

Primary SCUBA equipment was of Scubapro or Oceanic manufacture, with assorted manufactures of SCUBA tanks, accessories or safety equipment. A Garman 45 hand held GPS and military type compass were used for mapping. Underwater video was filmed with a Nikon VN-760 Hi8 camera in a Bentley marine housing. Still photography underwater was with a Sea and Sea Motor Marine MX10 system, and a Sony Mavica model FD-83 digital camera was used for photography above water. This report was built on a Compaq desktop computer using the Microsoft "Word" and Adobe PDF formats.

TEAM MEMBERS AND LOCAL INFORMANTS/GUIDES

Matthew B. Holly was the only member of this Maloelap survey, and all local informants or divers that were with me at various times are listed in the individual site reports or in the Reference section of this report.

CHAPTER TWO: BACKGROUND

CURRENT CONDITIONS AND ECOLOGY

The Marshall Islands is a sovereign Republic, a member of the United Nations, and is located in the central Pacific, approximately 2,500 miles from Hawaii, New Zealand, Australia, Guam and Japan. Arraigned in two parallel chains of atolls and islands, the eastern chain, called Ralik or "sunrise", and the western chain called Ratak, or "sunset", stretch over one million square miles of Pacific Ocean. They lie between 4 and 15 degrees north of the equator, and at 160 and 173 degrees east longitude, west of the International Date Line. Each day starts first in the Marshall Islands, being the previous day in Honolulu or Los Angeles. This fact sometimes affects modern historical records as an item occurring at the same moment on the 2nd, for example, in the Marshall Islands, may be listed as occurring on the 1st by the reporter in the United States.

Prior to 1979, the Marshall Islands was part of the Trust Territory of the Pacific Islands, administered by the United States Government since the end of World War II. They have an assembly, called a "Nitijela", containing 33 senators elected by the people of their representative islands or atolls. These senators in turn elect a president, who appoints his cabinet, and they all have terms of four years.

The Marshall Islands has also signed an economic and defense agreement with the United States, called "The Compact of Free Association", who also leases parts of Kwajalein Atoll for the testing of United States missile defense and tracking systems. The Marshall Islands is also the site of America's nuclear testing legacy, with over 60 nuclear bomb explosions at the atolls of Bikini and Eniwetok during the 1940s' and 50s'.

MALOELAP TODAY

Maloelap Atoll is one of the 29 atolls of the Republic of the Marshall Islands. The atoll was formed thousands of years ago as coral grew atop a dying and sinking volcano, leaving a distinct fringing coral reef with an inner lagoon. Maloelap has over 100 separate islets on this "fringe", with channels out to the ocean from the west, southwest and south-southwest. The lagoon averages 150 feet deep, but generally drops rapidly to thousands of feet on the oceanside. It has one of the larger lagoon areas within the Republic.

The wind typically comes from the east to northeast, the average daily temperature is 85 degrees Fahrenheit, and is very humid and rains often. Housing is typically island style, with few concrete buildings other than those built by the Japanese military 60 years ago. The current population is estimated at nearly 1,200, the majority of which live on the five islands of Kaven, Tjan, Ollet, Taroa and Airik.



Photo of Maloelap today.

Maloelap Atoll today is a lush green jungle of islands along the east side of the atoll overlooking a deep blue lagoon. Two airstrips are on the atoll; with one cut from the jungle at Kaven, and the airstrip at Taroa re-cut from the original World War II Japanese Runway "A". Kaven has the largest population center, but Taroa was the center of the Japanese military on Maloelap, and the focus of this report. The lagoon is typically calm along the eastern shore, protected by the reef, and generally has excellent underwater visibility. Most sites were easy to get to and survey with all necessary equipment.

HISTORICAL INTRODUCTION TO MALOELAP

There was limited prior historical research of Maloelap Atoll concerning the submerged sites for this report. Most historical information was terrestrial and was limited to studies of the Japanese military period on shore, with some added basic social, anthropological studies with a few archaeological reports. Information obtained from military aircraft mission reports even contains errors, written from fast glimpses of battle from memory hours after the event. Oral history of the atoll from local informants, young and old, was sparse, and in many cases conflicting. Generally, the only positive oral information useful for this survey came from fishermen or spear-fishermen, who had the experience of searching the waters of Maloelap with their own eyes.

ORIGINS OF THE MARSHALL ISLANDS AND THEIR PEOPLE

The people of the Marshall Islands were deemed to have originally come from Asia, but have no confirmed lineage or date of migration. They were thought to have arrived approximately 1,000 years ago, being wayfarers seeking their own uninhabited

islands for development. Early information about the Marshall Islands comes from oral history and accounts by explorers, traders and missionaries (*Hart, 1992*).

MALOELAP EXPLORERS AND COLONIAL HISTORY, 1700 -1914

Maloelap Atoll was estimated to have been visited by Spanish explorers as early as the 16th century, and it was one of the Marshall Islands atolls to be discovered and written in text by Captains Marshall and Gilbert in 1788. Maloelap atoll was called “Calvert’s Island” by Captain Gilbert. Maloelap was also recorded in text in 1821 by Russian Captain Otto von Kotzebue, who recorded a significant amount of early Marshallese culture and custom during his voyage, and called Maloelap “Arakschejef Island”.

Missionaries were the next most common visitors, with the Missionary packet Morning Star III visiting Maloelap often from 1878 until the German period.

The Germans administered the Marshall's from 1885 to 1914, but Maloelap was not considered an important atoll and not given much attention. There were no known underwater assets from this period in Maloelap Atoll, and only a few trading stations existed which required ship brought commerce. There is a rumor of an older vessel remains near Airik island on the Oceanside reef, and possibly another Oceanside of Kaven, but I have never visited these sites. I have found no mention of any losses of turn of the century vessels at Maloelap, but the rumored remains may prove another detective story and a search of the waters someday.

JAPANESE MANDATE PERIOD AND WORLD WAR II, 1914 -1945.

The Japanese ousted the Germans from the Marshall Islands shortly after WWI began, being allies of the British at that time. After WWI the islands were given to the Japanese as a "Class C Mandate" by the League of Nations. Maloelap was probably first used by the Japanese military in 1935 after her withdrawal from the League of Nations and with the establishment of weather and lookout station throughout the Marshall's.

Secretly the Maloelap base was being well developed, with a full service Naval Air Base being constructed. Two 5000 foot runways, hangars, service shops, barracks, bunkers and lots of guns of every description. Taroa was completed with a large pier with a crane, two smaller work docks, and channel and anchorage pillars constructed to aid shipping. A large power station and pier was built at nearby Pigete Island which supplied Taroa with power via an underwater submarine cable over three miles long. The Americans were very surprised on their first visit to Maloelap.

War came to Maloelap suddenly on the morning of February 1, 1942, with two raids by U.S. Naval aircraft from carrier USS Enterprise (CV-6). The first air raid totaled five Grumman F4F "Wildcat" aircraft with two 100-pound bombs each. The first plane of the Marshall's attack flew off the deck and into the water, and under the path of the carrier. They next arrived over Maloelap and started to bomb Tjan or Ollet by mistake.

The Taroa base was described as a small “Ford Island” (as in the Pearl Harbor base). The first aerial encounter resulted in the two opposing aircraft having a mid-air collision during the attacks upon each other. Both pilots lived. The first raid was followed by a Naval bombardment from offshore American ships. The attacks stirred up a hornet’s nest, and the ships were chased for the next 12 hours. The Enterprise raid caused minor damage and had losses on both sides, but gave the American public a large morale boost after the Pearl Harbor attack and their recent loss of Wake Island. (*Lundstrom, 1984:63-80*).

The Maloelap Base was expanded and eventually held over 3,000 personnel on the atoll. It was designed as a fighter base with bomber staging and reconnaissance patrols to defend the eastern flank of the Marshall Islands.

Unfortunately for the Maloelap defenders, the loss of Guadalcanal, secured by February 1943, and the allied pressure on Bougainville and Rabaul, forced the Japanese military planners to draw new defensive lines on their Pacific map. On September 30, 1943, Admiral Koga was given Imperial Headquarters Directive No. 280, which ordered him to shorten his defensive lines, with Maloelap, and the rest of the Marshall's, left on the outside. Ordered to fight and die to the last man, Maloelap was additionally re-enforced in late 1943 and early 1944 with more aircraft and supplies.

The next major air-raids occurred in October 1943, with the first attack and reconnaissance missions by B-24's of the 7th Air Forces 30th Bomber Group. These were the first raids in preparation for the invasions of the Gilbert and Marshall Islands. They did not find a sleepy base as in 1942, but ran into radar equipped, heavy anti-aircraft fire complete with copious fighter protection from the bases Mitsubishi A6M "Zero" fighters, primarily of the 252nd Air Group (*Hata, 1989:115-116*).

The American bombing raids continued and grew, especially after the capture of the Japanese bases in the Gilberts in November 1943, which provided closer airfields. The Maloelap garrison was attacked primarily by US Army medium (B-25) and heavy bombers (B-24). By the date of the invasion of Kwajalein and Majuro in February, 1944, all the Japanese aircraft in Maloelap, along with all the main transport vessels in the lagoon or surrounding atolls were destroyed. The remaining aviators, key to future defensive of Japan, were removed by flying boats or submarine, which also provided the last supplies for the 3,429-man garrison (*USSBS, 1947:136*). The Maloelap garrison was cut off and left to die.



Over the next 18 months the Maloelap Airbase and surrounding facilities were bombed with over eight million pounds of bombs and artillery rounds, as shown by craters in the area near the admirals headquarters in the photo above (*Matt Holly private collection, donated by USMC pilot Richard Carlton of VMSB-331*). Towards the end of the war, US forces evacuated all the Marshallese on Maloelap secretly, and the Japanese were left alone. By the time the Maloelap garrison surrendered onboard the Destroyer Escort “Wingfield” on September 6, 1945, the Commander of the atoll, Rear Admiral Tamada had lost 2,363 of his men, nearly 66% of the garrison.

At the end of the war, the US Government began the repatriation of Marshallese back to Maloelap. As there were no Marshallese on the atoll towards the end of the war, there are few eyewitness accounts for underwater sites potentially available. Little information was passed on and given to me by informants for use during this survey.

TRUST TERRITORY YEARS

The period after the war was dominated by the United States and its' policies. While international focus was on the nuclear testing program and the development of Kwajalein, more local attempts were made to improve the infrastructure in the Marshall Islands. The building of docks, roads, clearing of dangerous ordinance and re-planting of coconuts all included the removal of war relics in their path. The aircraft “Boneyard” on Taroa grew and parts of Taroa were replanted with coconuts. The collection of copper and brass for cash, cutting up airplanes for their aluminum panels, and pushing relics into bomb craters and filling them over was all done without any local concern. While destroying the past in an archaeological sense, this removal of war items erased from view many of the horrible memories the Marshallese people had suffered during the war. This mentality has been explained this very simply, and this lack of concern for sites of the past has eliminated many sites from this and prior periods.

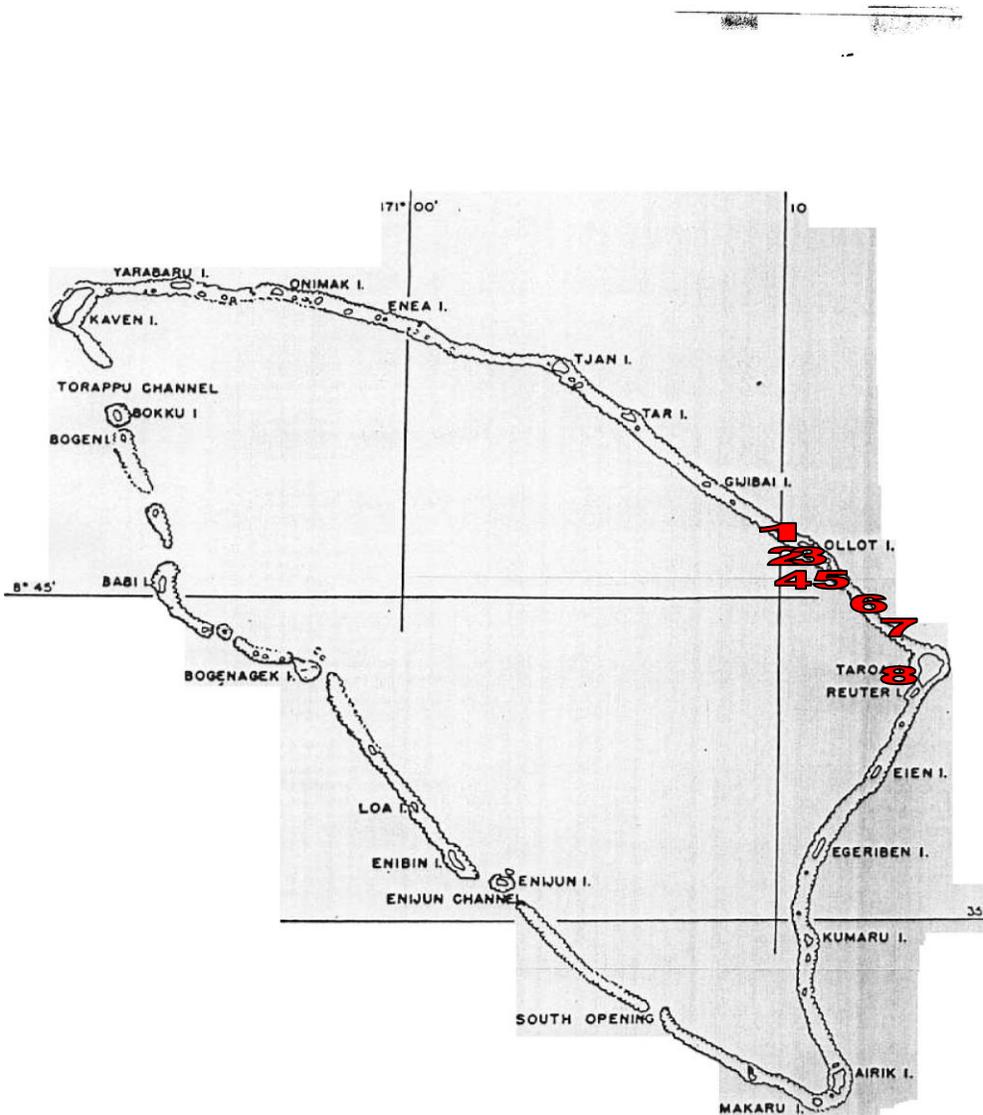
Inventory of Submerged Cultural and Historical Resources of Maloelap Atoll.

CHAPTER THREE: MALOELAP SITES

SUMMARY OF SITES MAP

MALOELAP SURVEY SITES ARE NUMBERED IN RED

The survey was done clockwise along the lagoonside shore, starting in the north, going to the south.



This map was copied from a map inside the USSBS, 1947:154.

MALOELAP SITE 1 REPORT

**NAME: JAPANESE MITSUBISHI A6M “ZERO” AIRCRAFT WRECKAGE AT
NORTHERN OLLET ISLAND**
RMIHPO Site Number MI-Mp-Lg-001

GENERAL DESCRIPTION AND LOCATION

The Wreckage of a Japanese Mitsubishi A6M “Zero” aircraft, probably a version of the model A6M2/3-22/32, was found in the lagoon off the northern portion of Ollet Island. It sits in sand and coral in four to 10 feet of water, depending on the tide. It is located approximately 200 yards from the shoreline at low tide, and is easily identifiable from the prominent propeller blade sticking out of the water.

A map of the site, Map of Maloelap Survey Site 1, follows the photo section of this report.

GPS Position (At the aircraft engine): N 08.46.096 x E 171.10.199.

Level of Site Significance: *LESS SIGNIFICANT*

SURVEY DETAILS

The aircraft, a Japanese single engine fighter, was reported to have forced landed in the lagoonside shallows of Ollet island due to fuel exhaustion as the sky above the Airbase at Taroa was controlled by US naval aircraft. Two other similar aircraft also landed in the shallow water lagoonside of Ollet on the same day, and they are Maloelap Sites Two and Three.

The aircraft and their pilots belonged to Air Group 252, which was dispersed to Taroa with 16 aircraft and crew in late November 1943, after the capture of the Gilbert Islands by Allied Forces. Over the next month most of these aircraft were lost attacking US Forces in the Gilberts or intercepting US bombing missions against Maloelap. All reserves of fighter aircraft for Air Group 252 were then sent to Taroa during December 1944, and were slowly lost to US attacks. The raids of January 29 and 30, 1944 destroyed all remaining flyable aircraft, in which this time frame author W. Bartsch, in his article in *After the Battle, Issue 54*, (Bartsch, 1986:39) claims these three aircraft force landed at Ollet sites. It is reported 120 aircrew and pilots were evacuated from Maloelap, Wotje and Eniwetok by eight flying boats and land attack aircraft on February 5, 1944, and Air Group 252 ceased to exist (Hata, 1989:115-116). The remaining personnel were incorporated into other services on the base.

A rendition drawing of an A6M2 was scanned into the report as Site 1, photo 1, and a technical drawing of an A6M3 Model 22/32 was scanned into the report as Site 1, photo 2.

The aircraft engine is the prominent artifact at the site (Site 1, photo 3). It sits on a sandy bottom with coral growth over remaining portions of the aircraft (Site 1, photo 4). No fuselage or empennage sections remain other than what is deeply buried in the sand or coral. A portion of the wing, notably the right wing, lies on the sandy bottom nearby (Site 1, photo 5). Small shards of aircraft aluminum or aeronautical debris are found throughout the immediate area, covering an approximate 150 square yard area centered from the aircraft engine point.

Unique items at this site are the surviving exhaust collection manifolds (Site 1, photo 6), and the remains of the folded up landing gear shown in site 1, photograph 7, which verifies the story of a forced, and probable safe landing. It is unknown if the 20mm cannon or other weapons remain buried in the sand and coral, but the safe landing presumes the weapons of war and their ammunition was undamaged and were removed from the aircraft.

The site is visible from shore at low tide (Site 1, photo 8), and offers close inspection (Site 1, photo 9). A bullet hole, probable from strafing American planes, shows clearly through the upright propeller (Site 1, photo 10).

No significant artifacts were found at the site.

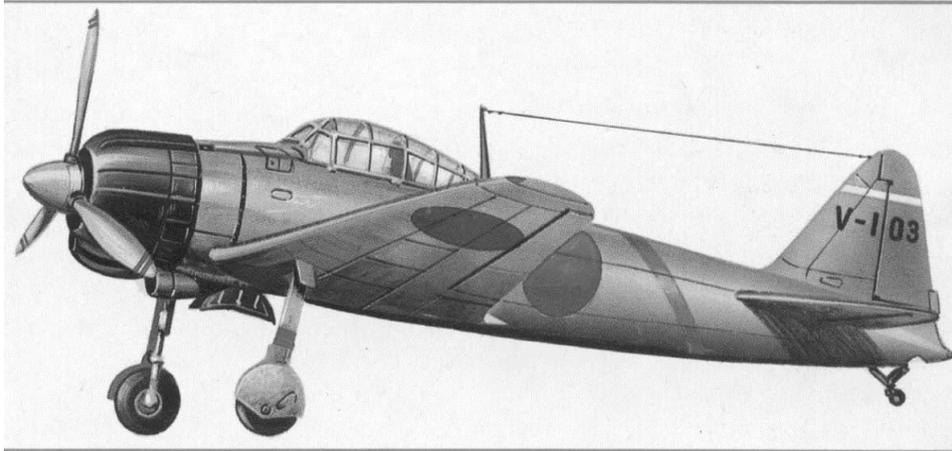
COMMENTS AND CONCLUSIONS

This site is remarkable well preserved considering the water flow from the higher tides sweep around the end of Ollet at this point and should have washed the site clean, slowly eating away the aircraft remains. Some objects may still remain buried in the sand and coral, but not enough I imagine to provide any more historical clues

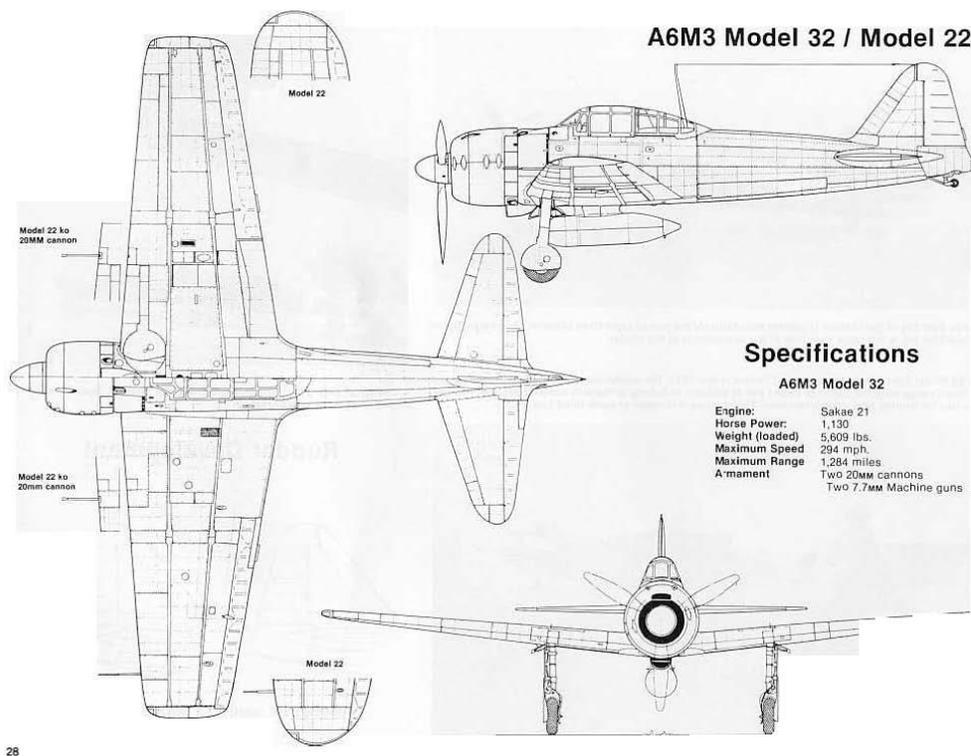
It is interesting to note that many historians and warbird collectors still believe the Marshall's' hold Mitsubishi "Zeros" that participated in the Pearl Harbor attack. It is historically known that the four carriers using "Zeros" and "Val's" in that attack did in fact latter donate their aircraft to the air units throughout western Micronesia, from the Marshall's' through Truk, but this aircraft was not one of them.

The RMI HPO office should continue to try to protect these less significant assets, as sooner or later, when they are all gone, even parts of sites will become significant.

PHOTO SECTION OF THE SITE 1 REPORT



Site 1 Photo 1. A scanned photo of a similar Mitsubishi A6M2 from “*World War II Airplanes, Volume 2*”, Angelucci, 1977:139.



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Site 1 Photo 2. Photo of A6M3 drawing scanned from “*A6M Zero in Action*” by Nohara, 1983:28. Note the model 22 has the round folding wingtips, and the long-barreled 20mm cannon.



Site 1 Photo 3. Close photo of right side of Sakae engine. No cowling survived, but the blades are still in place.



Site 1 Photo 4. Engine and propeller sit upright amongst the coral and sand.



Site 1 Photo 5. Section of wing from this aircraft was washed towards shore and rests upon a rubble bottom. The main site is approximately 60 yards away.



Site 1 Photo 6. A unique item at the site, the exhaust collectors, is a rare find, as most have been lost over time.



Site 1 Photo 7. Landing gear is retracted into wing, which may verify a forced landing.



Site 1 Photo 8. Photo of the engine exposed at the site during low tide.



Site 1 Photo 9. Low tide offers a close inspection of the site.



Site 1 Photo 10. A bullet hole in the upright propeller blade is probably from attacking American planes after the aircraft was in the water.

MALOELAP SITE 2 REPORT

NAME: JAPANESE MITSUBISHI A6M “ZERO” AIRCRAFT WRECKAGE AT CENTRAL OLLET ISLAND

RMIHPO Site Number MI-Mp-Lg-002

GENERAL DESCRIPTION AND LOCATION

The Wreckage of a Japanese Mitsubishi A6M “Zero” aircraft, probably a version of the model A6M2/3-22/32, was found in the lagoon off the central portion of Ollet Island. The engine was not located on this survey, and is probably buried in the coral offshore. The author saw the engine with protruding propeller in 1983, but not in recent years. A section of wing and assorted parts were located on the hard reef and buried in the beach sand. It is located approximately 150 yards from the shoreline at low tide, and is not easily located.

A map of the site, Map of Maloelap Survey Site 2, follows the photo section of this report.

GPS Position (On the shore wing section): N 08.45.970 x E 171.10.300.

Level of Site Significance: *INSIGNIFICANT*

SURVEY DETAILS

The aircraft, a Japanese single engine fighter, was reported to have forced landed in the lagoonside shallows of central Ollet island due to fuel exhaustion as the sky above the Airbase at Taroa was controlled by US naval aircraft. Two other similar aircraft also landed in the shallow water lagoonside of Ollet on the same day, and they are Maloelap Survey Sites One and Three.

The aircraft and their pilots belonged to Air Group 252, which was dispersed to Taroa with 16 aircraft and crew in late November 1943, after the capture of the Gilbert Islands by Allied Forces. Over the next month most of these aircraft were lost attacking US Forces in the Gilberts or intercepting US bombing missions against Maloelap. All reserves of fighter aircraft for Air Group 252 were then sent to Taroa during December 1944, and were slowly lost to US attacks. The raids of January 29 and 30, 1944 destroyed all remaining flyable aircraft, in which this time frame author W. Bartsch, in his article in *After the Battle, Issue 54*, (Bartsch, 1986:39) claims these three aircraft force landed at Ollet sites. It is reported 120 aircrew and pilots were evacuated from Maloelap, Wotje and Eniwetok by eight flying boats and land attack aircraft on February 5, 1944, and Air Group 252 ceased to exist (Hata, 1989:115-116). The remaining personnel were incorporated into other services on the base.

A rendition drawing of an A6M2 was scanned into the report as Site 2, photo 1, and a technical drawing of an A6M3 Model 22/32 was scanned into the report as Site 2, photo 2.

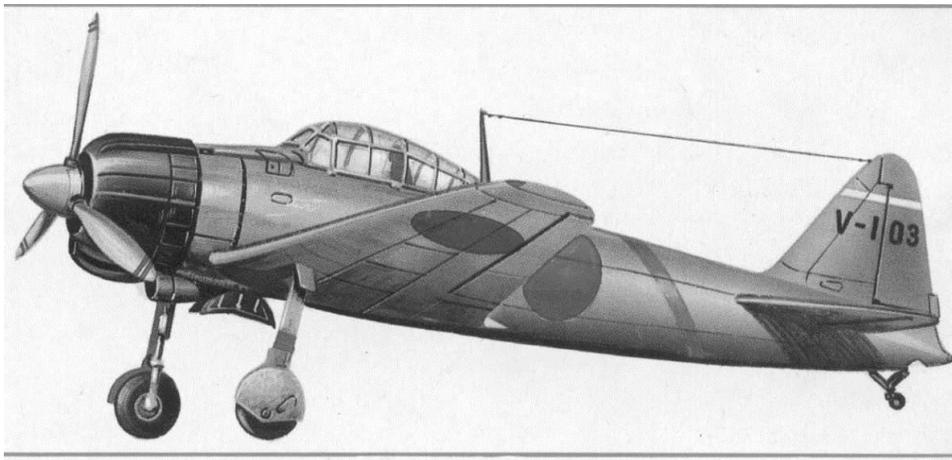
The aircraft left wing section is the prominent artifact at the site (Site 2, photo 3). It was found partially exposed in the sandy beach at low tide, and the covering sand was removed by the amateur archaeological club of Ollet Island (Site 2, photo 4). No fuselage or empennage sections were located, and only a few miscellaneous items were located nearby. A section of exhaust collector was found and shown in the Site 2, photograph 5. Other artifacts may remain deeply buried in the sand or coral. Small shards of aircraft aluminum or aeronautical debris are found throughout the immediate area, covering an approximate 200 square yard area centered out from the aircraft wing point.

There are no significant or unique items at this site but the safe landing presumes the aircraft was stripped of remaining valuables.

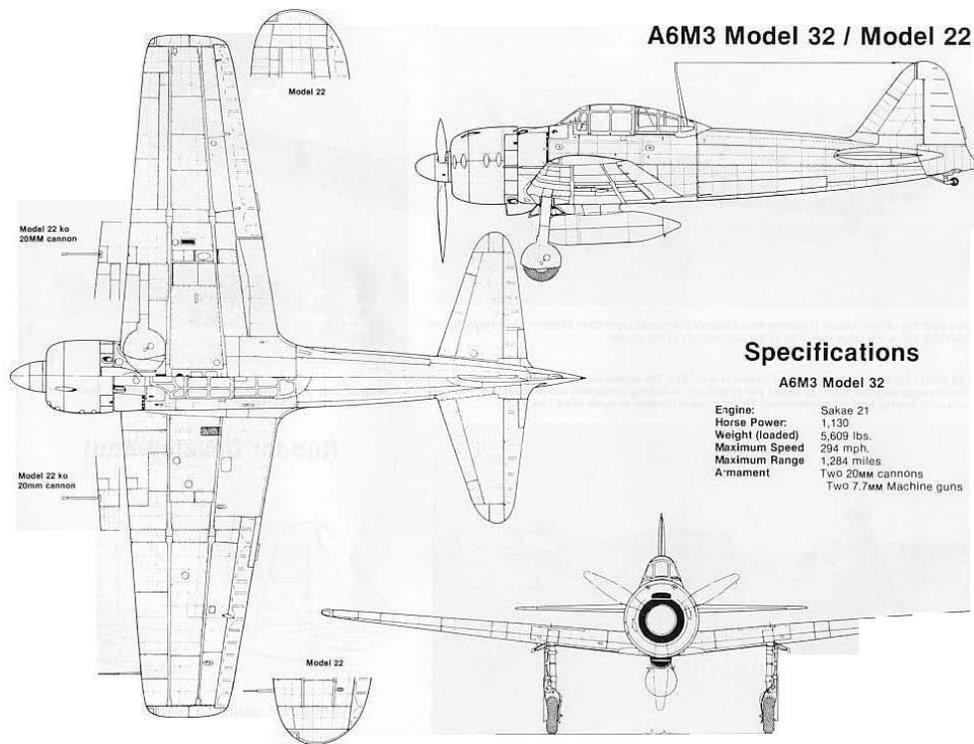
COMMENTS AND CONCLUSIONS

It is unusually that this site, more protected than Maloelap Sites One or Three, has been swept virtually clean by time and the environment. I presume the coral has overgrown most of the aeronautical items a bit deeper and farther offshore at the original crash site. I am sure some objects may still remain buried in the sand and coral, but not enough to provide any more historical clues

PHOTO SECTION OF THE SITE 1 REPORT



Site 2 Photo 1. A Scanned photo of a similar Mitsubishi A6M2 from “*World War II Airplanes, Volume 2*”, Angelucci, 1977:139.



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Site 2 Photo 2. Photo of A6M3 drawing scanned from “A6M Zero in Action” by Nohara, 1983:28. Note the model 22 has the round folding wingtips, and the long-barreled 20mm cannon.



Site 2 Photo 3. A section of the left wing of the Central Ollet A6M lies partially buried in the sand at low tide. It has torn off at the landing gear area.



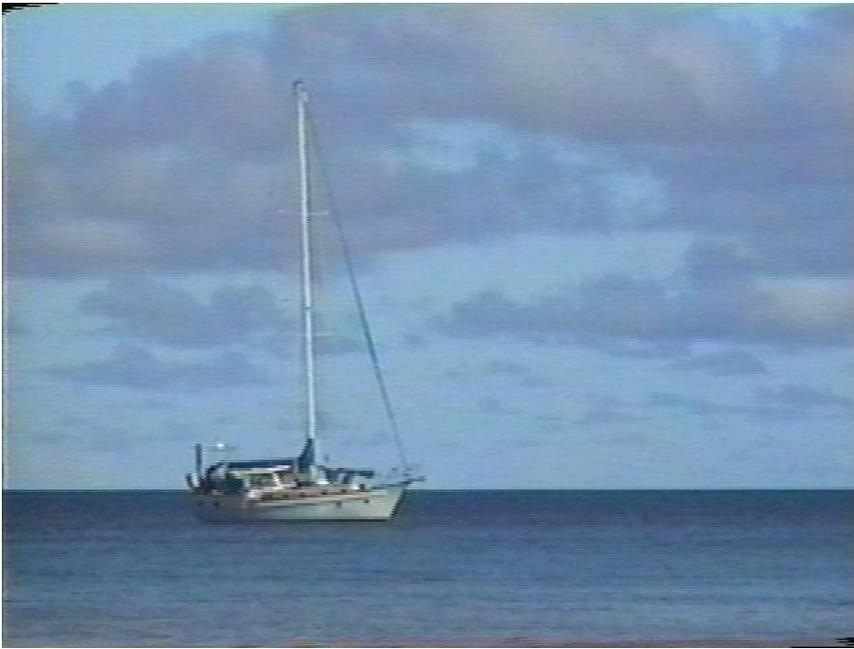
Site 2 Photo 4. The Ollet Island amateur archaeological sand excavation teams stands during a break in uncovering the artifacts at site 2.



Site 2 Photo 5. Section of wing from this aircraft was washed towards shore and rests within the sandy beach. An unknown fuselage section is in the upper right, and an exhaust collector segment is in the lower center. The main site is approximately 100 yards away.



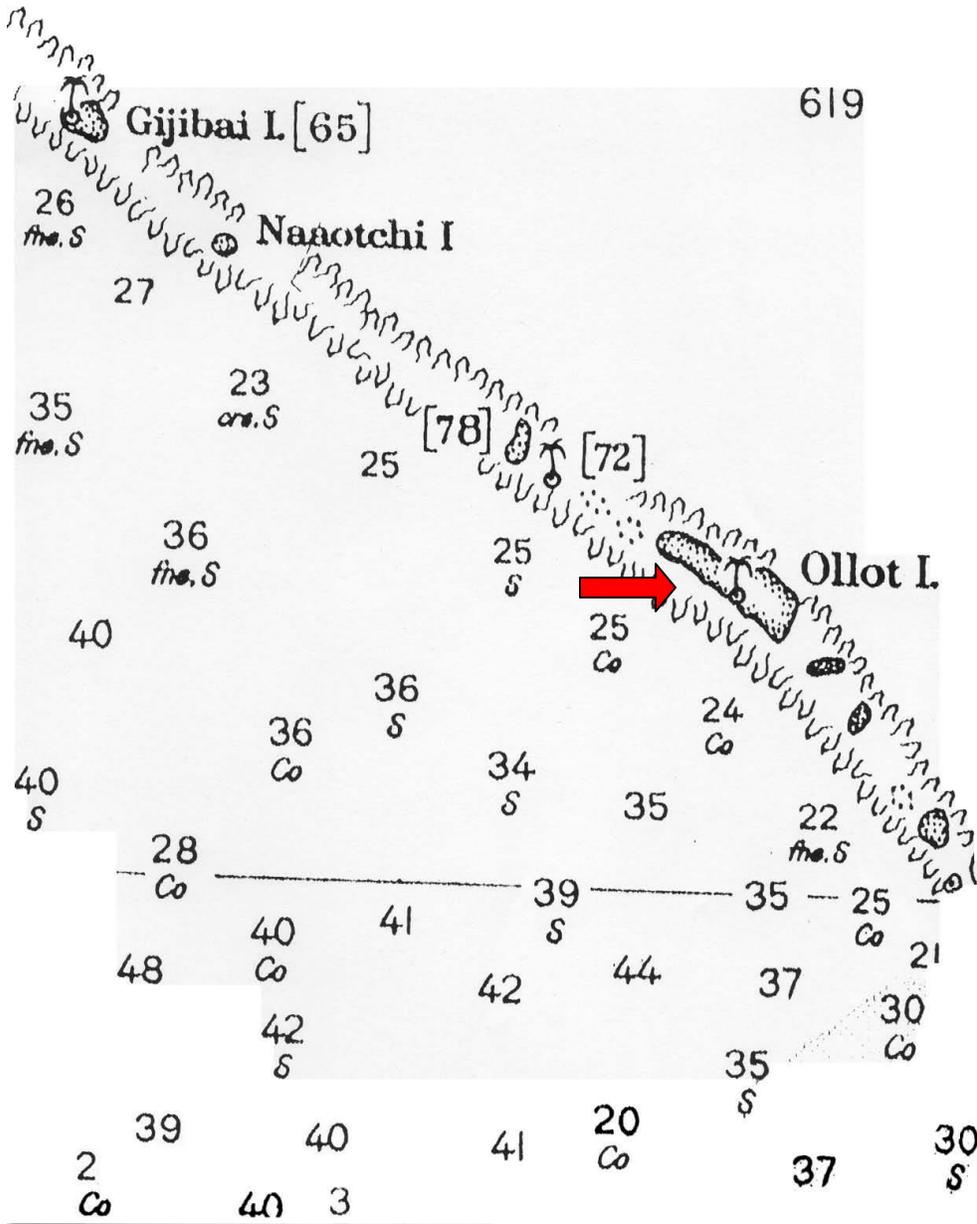
Site 2 Photo 6. The classic earlier model wingtip was exposed at the end of the wing. This allowed the identification of the wing as that of the left wing.



Site 2 Photo 7. My transportation and research station for my 2000 visit.

MAP OF MALOELAP SURVEY SITE 2

Red arrow identifies the location of the site.



Map of Site 2 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

MALOELAP SITE 3 REPORT

NAME: SUNKEN JAPANESE VESSEL SEISHO MARU.
RMIHPO Site Number MI-Mp-Lg-003

GENERAL DESCRIPTION AND LOCATION

The sunken wreckage of a Japanese fishing boat was located in the shallow water off Ollet Island. It is immediately off the marine railway area near the southern end of the island. Shallow parts of the wreck can almost be walked upon at low tide, and all the wreck is easily snorkeled, even from the beach. The water is generally very clear and calm at low tides, and has a nice collection of marine life in and around the vessel. A map of the site, Map of Maloelap Survey Site 3, follows the photo section of this report.

GPS Position (At the wheelhouse position): N 08.45.858 x E 171.10.423.

Secondary reference compass courses are not necessary, as the vessel is only a few hundred yards south-southwest from the end of the Taroa, Maloelap pier.

Level of Site Significance: *SIGNIFICANT*

PRE SURVEY RESEARCH

The research of all vessels known to frequent Maloelap atoll to determine the names of the known sunk and un-located vessels at Maloelap and other atolls has been a 15-year quest. It has been especially difficult near the time frame of the destruction of all shipping (January and February, 1944), as most atoll documents were destroyed and the US Navy did not ask these kind of questions after the war. Hints of and tidbits of information have lead to archival research from all sources. The best and prime stand-alone source for Maloelap is the English translations of IJN Admiral Kamada, commander of the Maloelap garrison at the end of the war. He was required to write a listing of the treatment and disposition of all American POW's from Maloelap, and this was titled "*Treatment of Captives*", by Admiral S. Kamada, IJN, dated September 30, 1945, and listed in the files of the Destroyer Escort USS Wingfield (DE-194), which handled the surrender of the Maloelap garrison. It was listed as exhibit No. 30 of the subsequent War Crimes investigations of Maloelap Atoll.

Within the document, four definite vessels are listed. The Kaikou Maru (given as 124 tons) and Seisho Maru (given as 127 tons) were listed as the atolls "Patrol Boats". Two other vessels, the Kotoshiro Maru (given as 94 tons) and the Dairokushinto Maru (no size), were listed as "Mail Boats". A "Konto Maru" unknown details, visited on December 23, 1943 on way to Kwajalein, and the Shinko Maru on or about the same time, also with no details. The other visitor, the Ogashima Maru, listed as a 1,400 GRT freighter, left the atoll on January 21, 1944 with eight American POW's. The vessel was

damaged and later sunk outside of Kwajalein. The POW's survived the sinking, but were probably executed on Kwajalein.

Comparing all lists, especially against known Wotje and Kwajalein vessels, the vessel sunk in the shallows of Ollet, Maloelap is very probably the Seisho Maru. It was a fishing boat converted into a Naval Auxiliary Patrol Boat, and it was armed with a sizable bow gun probably 20 to 40mm. None of the "Mail" boats were armed as such. Similar vessels were lost around the Marshall's, even at Wotje and Kwajalein, but most were of wood hull construction, the Seisho Maru was steel. The size, 127 ton, was correct for the length, beam and draft of the vessel surveyed. No other vessel found in the Marshall's, or described without a known loss site, fits all the evidence. A search of the site for builder's plaque or other information or details of any kind was unsuccessful. Internet searches for the name Seisho Maru list two others lost, but none could substitute for the Maloelap vessel.

SURVEY DETAILS

The vessel was sunk upright on a sandy bottom in 15 feet of water at the bow and nearly 30 feet of water at the stern. It measured approximately 100 feet long and 20 feet of beam, with probably a 9-foot draft at the stern. The most conspicuous point of trauma which probably sunk the vessel was the hole created in the forward area of the port side by a small to medium sized bomb, which opened the entire vessel forward of the engine room to the sea. There are also many smaller holes around the vessel, any one of which may have sunk or helped sink the vessel, or they may have opened up or rusted through over time. There is no sign of fire, but there is very little left of the pilothouse, or any other structure, as they were all made of wood upon the steel deck. The vessel is easy to inspect, and due to its shallow location, is an easy site to explore.

Unfortunately, there is not much left to see. I am sure due to the shallow depth; the wreck was picked clean by the desperate Japanese garrison on Maloelap. It looks like even small machinery was removed, and not removed by visiting divers, as the nearby deeper site of the Kaikou Maru is a treasure chest of nautical artifacts which remain untouched.

The ship was anchored in shallow water with an approximate 1,000-pound naval anchor, Nelson type (Site 3 Photos 1 and 2). Approximately 150 feet of chain was used, which ran up the port side anchor tube to a windlass on deck. The foredeck survived the bombing, but the welded gun mount holding the bow gun behind it did not. The only major trauma to the structure of the vessel happened at this point, as the perfect aim of bombing blew the gun and its mount out of the vessel (Site 3 Photo 3), dropping all of the gun assembly and part of the port side of the hull onto the sand, including the gun pedestal (Site 3 Photo 4). Good shot.

The bow gun was probably a 20 or 40mm unit, and if not damaged to severely, was probably recovered. So part of the gun remained in the sand, but I did not have time

to dig and inspect it. I found no ammunition of any kind at the site, as usually the stern would have a light machine gun and ammunition nearby.

The rest of the vessel is interesting to explore, especially below the main deck (Site 3 Photo 5), primarily since it is very open and bright. The sand is cleaner and not as dirty to film around as other sites. The area where the pilothouse was located is now entirely gone (Site 3 Photo 6), as is the area above the main engine (Site 3 Photo 7) where the kitchen used to be. No dishes were found. The main engine is exposed from above (Site 3 Photo 8), and the ships telegraph is still mounted as 60 years ago in Site 3, photograph 9. Radios were still mounted below, but there was not a tool or part remaining in the engine room.

The stern, old style rudder, and the original complete three-blade propeller were intact, less a few steel panels missing on the port side (Site 3 Photo 10). The vessel had no name on the stern we could determine, and we tried to ask for information from the locals (Site 3 Photo 11), with no luck.

COMMENTS AND CONCLUSIONS

The vessel was both well preserved and very empty. No artifacts of any kind were seen, even small personal items lost in the corners. The vessel was great for photography, and a very safe and easy wreck dive for beginning SCUBA divers.

PHOTO SECTION OF THE SITE 3 REPORT



Site 3 Photo 1. The bow of the vessel Seisho Maru. Note part of the bow spirit has fallen away. The chain comes out of the port side chain locker and out the port side tube to the anchor. There was no starboard side anchor or chain.



Site 3 Photo 2. The anchor of the Seisho Maru was approximately 1,000 pounds. It was set to the port, and had approximately 120 feet of chain on the bottom.



Site 3 Photo 4. The port side of the vessel at the gun mount position is blown out of the vessel. The mount, and possibly the gun, are in the sand to the left of the hull damage out of view.



Site 3 Photo 4. The gun pedestal lying in the sand. The welded mount is nearby.



Site 3 Photo 5. The main deck of the vessel, with fish holds set on steel frames, with a wood deck over the entire vessel. Taken from the starboard side.



Site 3 Photo 6. The Seisho Maru mid-ship. The main deck to the left, the engine room exposed where a pilothouse used to stand. Taken from the port side.



Site 3 Photo 7. Stern house area of the vessel with the kitchen and the rear of engine room exposed. Taken from Port side.



Site 3 Photo 8. Main engine exposed from missing stern house section.



Site 3 Photo 9. Engine room telegraph to set engine speed survives 60 years.



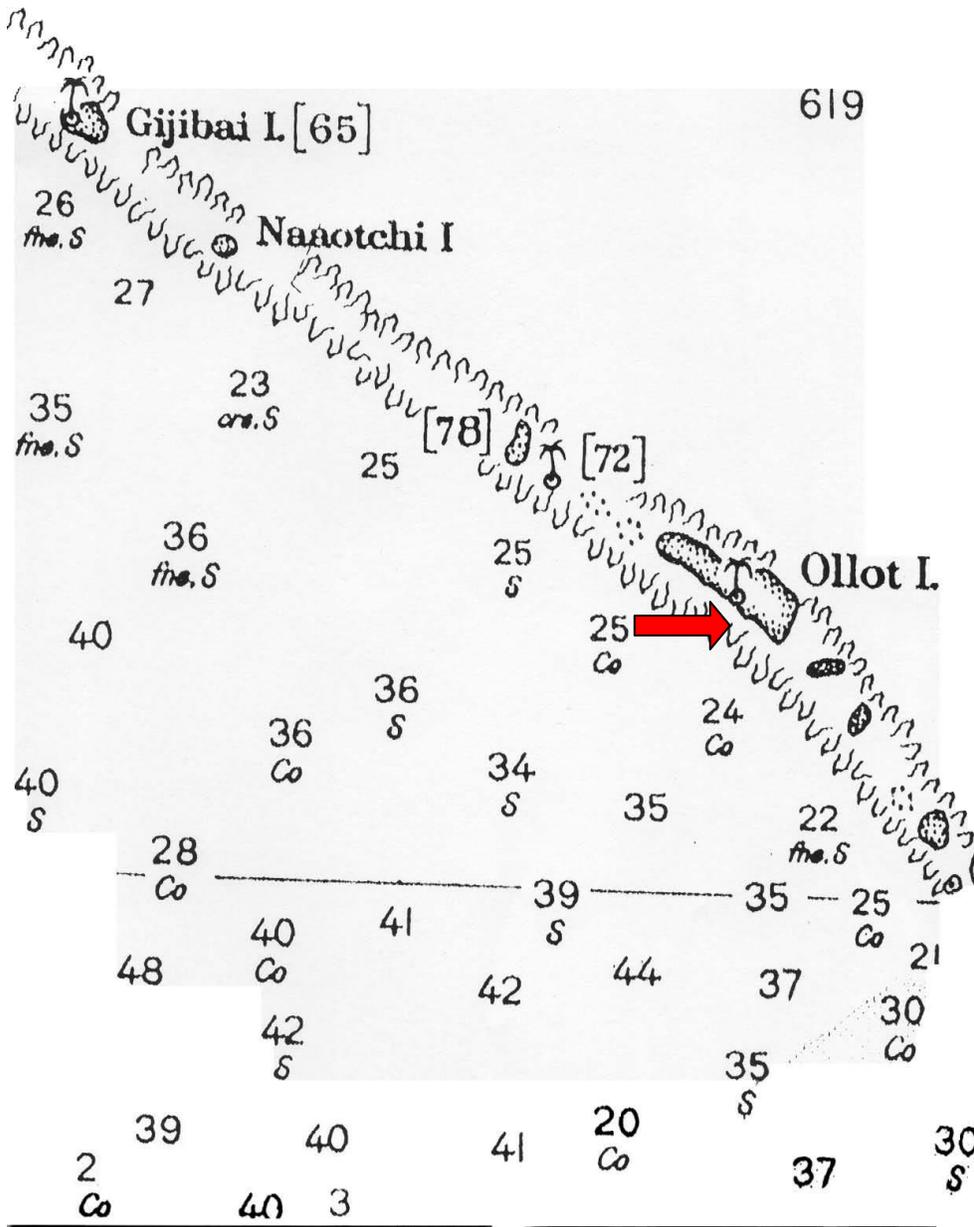
Site 3 Photo 10. Stern of the Seisho Maru, showing the large (old style unbalanced) rudder, 3-blade propeller complete, and parts of the hull plate missing in the foreground due to corrosion.



Site 3 Photo 11. A lone white-tip reef sharks passes under the stern area of the Seisho Maru for a look at the Maloelap visitor.

MAP OF MALOELAP SURVEY SITE 3

Red arrow identifies the location of the site.



Map of Site 3 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

MALOELAP SITE 4 REPORT

NAME: SUNKEN JAPANESE SHIP KAIKOU MARU
RMIHPO Site Number MI-Mp-Lg-004

GENERAL DESCRIPTION AND LOCATION

This site is sunken vessel Kaikou Maru, identified by the author during prior visits to the site. The vessel was sunk off Ollet Island, Maloelap, by bombing from US military forces during World War II. It was not at anchor, but tied to the stern of the vessel upwind of it, the Seisho Maru (Maloelap Site 3), which was approximately 120 feet forward of it on a compass course of 60 degrees (the typical wind angle), and anchored in shallow water. The Kaikou Maru sits upright on a 45 foot (bow) to 65 foot (stern) sandy bottom, with one small coral head to the starboard midship and another just forward of the bow.

The site is generally very clear at low tide, with the vessel sitting on a beautiful white sand bottom. A map of the site, Map of Maloelap Survey Site 4, follows the photo section of this report.

GPS Position (At the center of the vessel): N 08.45.860. x E 171.10.420

Level of Site Significance: *VERY SIGNIFICANT*

PRE-SURVEY RESEARCH

The vessel was identified by Japanese kanji figures translated by the author, and verified later by comments made by Admiral Kamada in his document *Treatment of Captives*, dated September 30, 1945, which was given to US Investigators into War Crimes after the surrender of Japan. Kamada listed the Kaikou Maru and Seisho Maru as the Maloelap Patrol vessels.

The vessel was notable for the rescue and transport of the now famous American Prisoner of War captive Louis Zamperini (and Phillips), of whom Zamperini was later featured in televisions “60-Minutes”, and who authored the book *Devil at My Heels*, 2003, which recalls his Pacific life raft and Prisoner of War ordeal. Admiral Kamada remembers Zamperini much better than Zamperini recalls the Admiral, but Zamporinni had just been recovered from a raft after 45 days in the Pacific.

The Kaikou Maru also transported eight captured American flyers that force landed their B-24 aircraft “Baby Sandy II” on a west Majuro reef (Majuro RMI HPO Site Survey, Site No. 1, 2000), also listed in the Admirals text. His comments places the American prisoners of war alive until their transport to Kwajalein, where their story, and probably their lives, ends.

The technical aspect of the research is also complementary to the vessel, as the vessel found matches the overall size and description of the Kaikou Maru. There is no other locatable vessel in the Marshall's campaign that has such a colorful history and thus meets the "Very Significant" level of recognition with its unique history, besides being well preserved and rich in cultural artifacts.

SURVEY DETAILS

The Kaikou Maru, which translates into "Happy Ocean Ship", was built in March 1932 with an approximate 110-foot length and 24 foot beam, drawing approximately 8 feet of water. It was rated at 124 tons according to Japanese documents (*Kamada, 1945:6*). Designed as a fishing boat, it was converted to a Naval Auxiliary and served as one of two Maloelap patrol boats for the atoll, and made regular trips between the main Japanese Naval base at Kwajalein and all the nearby atolls. Military records also show it visiting Majuro to pick up American aircrew POW's.

It was of riveted and welded steel construction, with a diesel engine for propulsion, driving a three blade bronze propeller. It had multiple cargo holds in the bow, a pilothouse over a radio room, engine room, and a stern house with kitchen over the stern. The few accommodation spaces were in the bow, pilothouse area and possibly in the stern.

The Kaikou Maru was sunk at anchor by a near hit of a medium sized bomb, while tied to the stern of the Seisho Maru. A hole was created in the hull on the port side from near deck to keel, adjacent to the engine room ladder (Site 4 Photo 1). There was no other significant damage to the ship, and only the bow current is holed, probably due to corrosion (Site 4 Photo 2).

The photographic and survey tour of the vessel will start at the bow. The most prominent site of the vessel is the intact deck gun on the bow; seen in Site 4, photograph 3. Estimated to be a 40mm unit, the gun has not been molested or stripped of any item, although no ammunition for the gun was found aboard the vessel. The gun was not fired in defense, as it still had its' environmental plug in place (Site 4 Photo 4). The gun was trained to port (Site 4 Photo 5), and had all but one of its' sights still in place (Site 4 Photo 6). It is an unusual find, as I would have presumed the Japanese garrison would have recovered it for their own defense use on shore. They had moved much larger guns from sunken vessels for use as shore batteries in other Marshall Islands bases.

The hold below the main deck was next visited (Site 4 Photo 7). The forward deck has a socket for a wooden mast, long decayed away. Below the deck the bottom of the hold was filled with a thick muck (Site 4 Photo 8), which held a treasure of nautical artifacts.

Some of the artifacts included the ships trailing log, starboard side forward, (site 4 Photo 9) used to determine the vessels speed while underway, a fishing light, port side mid-hold, powered by the ships power and lowered into the water to attract fish (Site 4

Photo10), and stacks of bottles here and there around the hold, these on the port side aft in the hold (Site 4 Photo 11), and an unknown bit of something shiny (Site 4 Photo 12), found in the port side mid-hold. Other items not shown include a glass globe for a lamp, ballast stones, miscellaneous parts, cables, wires, and more bottles, many perfect. The hold is a SCUBA muckers paradise, and meets the HPO very significant requirement of “rich in artifacts”.

Even the deck frames above hold marine life and photographic opportunities. A black-lip oyster sits amongst a hanging basket of life in Site 4, photograph 13, and an anemone colony, one of two on the vessel, above the hold (Site 4 Photo 14).

The next site was one of my favorite finds, as the builders’ plaque (Site 4 Photo 15) was located on the fallen pilothouse front wall. It describes who built the vessel and its’ specifications. This one still remains on the vessel. Within the fallen pilothouse, I located the ships compass housing (Site 4 Photo 16), the ships horn, a prism to allow natural light into the room (Site 4 Photo 17), and the ships binnacle, another wreck diver’s prize (Site 4 Photo 18). Behind the binnacle, which was made of steel by the way, not brass, lay the steering wheel ring. This ring, made of bronze, showed the vessel had a large oversized wheel, and it was additionally marked with degree points for navigation. A rudder angle indicator, which I had first thought was an inclinometer, was also within the collapsed pilothouse (Site 4 Photo 19).

Towards the stern of the vessel on top of the stern deckhouse I found a handful of unused 7.62mm machine gun rounds (Site 4 Photo 20), supporting the local claim that SCUBA divers removed the gun years ago. It could have also been easily removed by the Japanese garrison forces.

The stern house also held a kitchen, access to the engine room internally, and probably accommodations. I did not film the engine room or stern internal areas, it was a very tight fit covered in easily disturbed silt. The stern held davits for a workboat hung out to starboard (Site 4 Photo 20), and the propeller and rudder were complete and buried in the sand (Site 4 Photo 21). The area had a wonderful setting for photography, moderate local marine life, and nothing else in the area.

COMMENTS AND CONCLUSIONS

The site is the BEST SCUBA diving site for an underwater photographer in Maloelap Atoll. Careful movement and close inspection in and around the Kaikou Maru will show many unique and rare nautical and period items. The vessel is both intact and esthetically pleasant, and shallow enough to afford moderate dive times on the site. Areas out of view in the dark of the ship conceal many personal and military items. Dangers present are the thick mud hiding shards of broken glass and which can easily reduce visibility to zero. Careful planning makes this a wonderful site to visit. The Maloelap Atoll Local Government, besides the RMI HPO, should offer much more protection to sites like these, because after wreck divers read this report, they will be on their way to Maloelap.

PHOTO SECTION OF THE SITE 4 REPORT



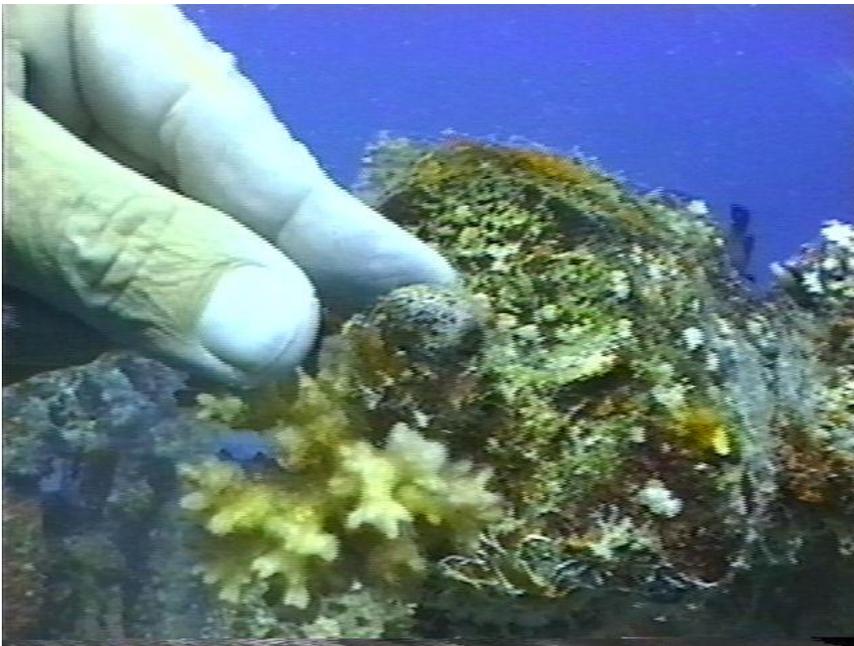
Site 4 Photo 1. The Kaikou Maru was sunk by this damaging near miss bomb blast that holed the engine room area to the sea.



Site 4 Photo 2. The holes in the bow were probably created by corrosion over time, and not by the effects of war. This was the “wind and water line” area of the vessel, which decays the fastest.



Site 4 Photo 3. The gun mounted on the bow is the prominent feature of the vessel. It probably fired a 40mm round, but no ammunition was found at the site. A ready ammunition locker generally sat nearby.



Site 4 Photo 4. The bow gun was not used for the defense of the ship during the attack, as deduced from the weatherproof plug still being in the barrel. The local stories stated an aircraft flew over the island, hit the ship, and down she went.



Site 4 Photo 5. The bow gun trained towards the port side, aft.



Site 4 Photo 6. The rear sight of the bow deck gun. The sight was calibrated and made of brass.



Site 4 Photo 7. The main deck forward had a wooden mast socket, and the larger hatch behind it was used for easy and clean entry into the hold.



Site 4 Photo 8. The hold bottom was covered with a thick muck which easily clouded photographic opportunities, but which hid many nautical and period artifacts.



Site 4 Photo 9. A pump-up blowtorch was found port side forward in the hold.



Site 4 Photo 10. A nautical trailing log (the torpedo looking object). This was trailed behind the vessel and attached to a calibrated device that then measured hull speed.



Site 4 Photo 11. The sealed lamp was a fishing tool. Supplied by electricity for light, it was lowered into the shallows to lure baitfish to a net, or lowered deep to attract tuna to a nearby baited hook.



Site 4 Photo 12. Many bottles litter the bottom. Most are labeled “Dai Nippon Brewery, Ltd.”. Some are broken and offer danger to un-gloved fingers.



Site 4 Photo 13. Some items were of completely unknown use to the author.



Site 4 Photo 14. The mass on hanging growth has a black-lip oyster in the upper right side.



Site 4 Photo 15. The anemone colony, one of two colonies on the vessel, comes complete with symbiotic Cinnamon Clownfish, now hiding from the camera.



Site 4 Photo 16. The forward deckhouse held a radio room, and the pilothouse above it had collapsed, revealing many other artifacts.



Site 4 Photo 17. The author takes credit for his vast nautical knowledge and a keen eye for detail. Smile. The shipbuilder plaque is visible on the fallen front pilothouse panel. This plaque details the builder and specifications of the vessel, and is the second most treasured item on a shipwreck. The red arrow points at the plaque.



Site 4 Photo 18. The magnetic compass housing was located on the starboard side of the pilothouse area. The compass is gone, removed or fallen out, but the side magnets remain.



Site 4 Photo 19. A broken glass prism found near the magnetic compass was probably mounted in the ceiling for additional natural light.



Site 4 Photo 20. The ships binnacle, the fourth most coveted item for a wreck diver, remains within the pilothouse debris. The third most coveted item, the ships wheel, was made of wood and decayed, but a close look and the brass ring holding the wheel together is in the background of the photo. A red arrow points out the bronze wheel ring.



Site 4 Photo 21. The rudder angle indicator fallen amongst the pilothouse debris.



Site 4 Photo 22. Japanese 7.62 machine gun rounds on the stern deck house roof verify the vessel had a light machine gun mounted here at one time. It was allegedly removed by SCUBA divers many years ago.



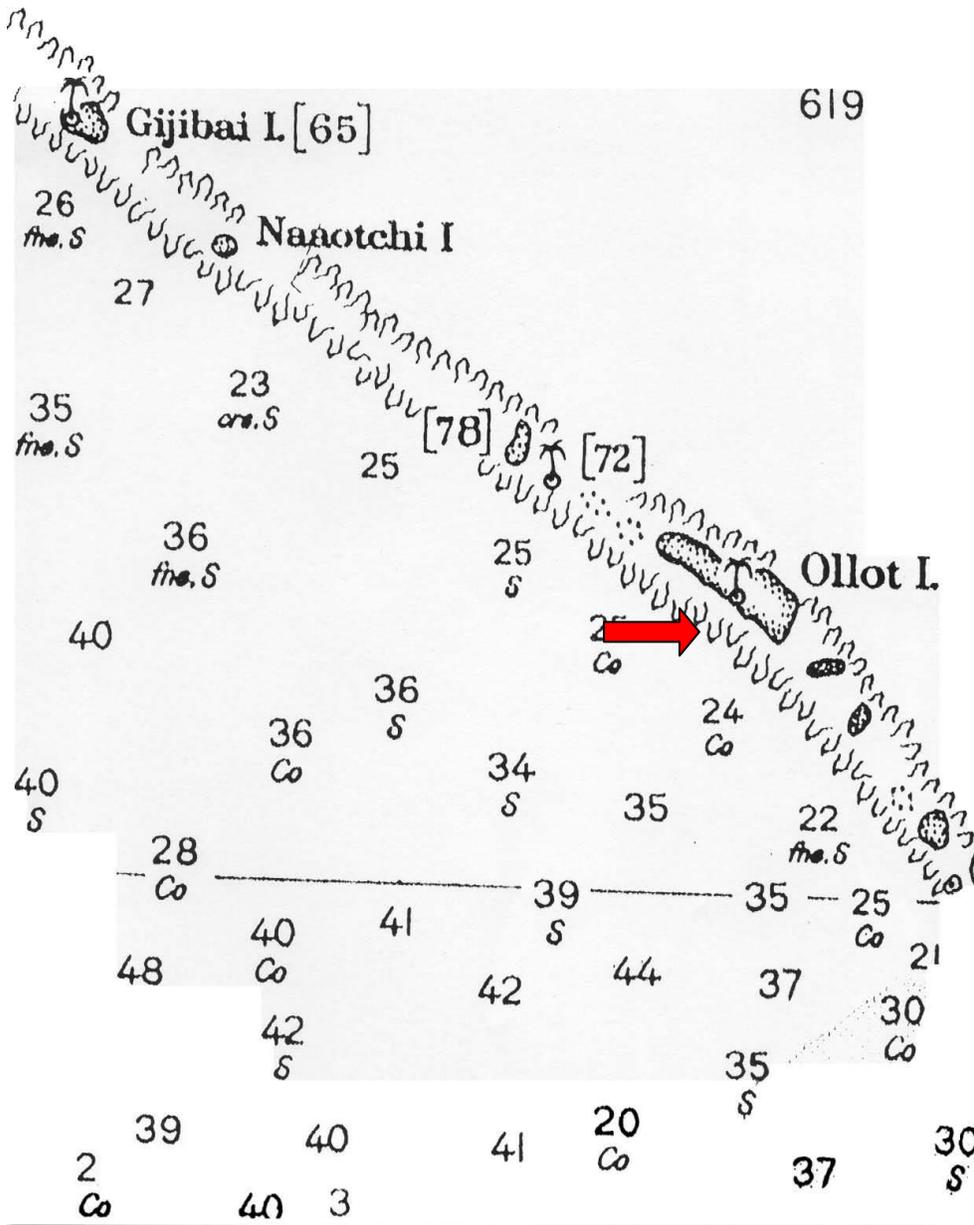
Site 4 Photo 23. Stern of the vessel Kaikou Maru.



Site 4 Photo 24. Rudder and propeller of the vessel are complete, and completely buried in the sand.

MAP OF MALOELAP SURVEY SITE 4

Red arrow identifies the location of the site.



Map of Site 4 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

MALOELAP SITE 5 REPORT

NAME: JAPANESE MITSUBISHI A6M “ZERO” AIRCRAFT WRECKAGE OFF SOUTHERN OLLET ISLAND
RMIHPO Site Number MI-Mp-Lg-005

GENERAL DESCRIPTION AND LOCATION

The wreckage of a Japanese Mitsubishi A6M “Zero” aircraft, probably a version of the model A6M2/3-22/32, was found partially buried in coral rubble off the southern end of Ollet Island. It sits in sand and coral and from inches to six feet of water, depending on the tides. It is located approximately 80 yards from the shoreline at low tide, and is easily identifiable from the prominent propeller blade sticking out of the water.

A map of the site, Map of Maloelap Survey Site 5, follows the photo section of this report.

GPS Position (At the aircraft engine): N 08.45.775 x E 171.10.790.

Level of Site Significance: *SIGNIFICANT*

SURVEY DETAILS

The aircraft, a Japanese single engine fighter, reportedly forced landed in the lagoonside shallows off the south end Ollet Island due to fuel exhaustion, as US naval aircraft controlled the sky above the Airbase at Taroa. Two other similar aircraft also reportedly force landed in the shallow water lagoonside of Ollet north of this site on the same day, and they are Maloelap Sites One and Two within this report.

The aircraft and their pilots belonged to Air Group 252, which was dispersed to Taroa with 16 aircraft and crew in late November 1943, after the capture of the Gilbert Islands by Allied Forces. Over the next month most of these aircraft were lost attacking US Forces in the Gilberts or intercepting US bombing missions against Maloelap. All reserves of fighter aircraft for Air Group 252 were then sent to Taroa during December 1944, and were slowly lost to US attacks. The raids of January 29 and 30, 1944, destroyed all the remaining flyable aircraft. Author W. Bartsch, in his article in *After the Battle, Issue 54*, (Bartsch, 1986:39) claims these three aircraft force landed at the Ollet sites. His photo of this aircraft for his 1986 story has been added as to this report as Maloelap Site 5, photograph three. It is the only site that had any serious prior research, and his photo adds an important reference within this report.

It was also reported the surviving Maloelap pilots and other aircrew from Wotje and Eniwetok were evacuated by eight flying boats and land attack aircraft on February

5, 1944, and Air Group 252 ceased to exist (*Hata, 1989:115-116*). The remaining personnel were incorporated into other services on the base.

A rendition drawing of an A6M2 was scanned into the report as the Site 5 photograph 1, and a technical drawing of an A6M3 Model 22/32 was scanned into the report as a the Site 5, photograph 2.

The aircraft engine standing within the wrecked fuselage is the prominent artifact at the site (Site 5, photo 4). The aircraft sits on a rubble bottom with coral shards amongst every orifice of the aircraft. Calcium has additionally formed on many steel parts due to the cathode processes created by the dissimilar metal reactions to the magnesium wing spar and attached magnesium parts. The rest of the metal aircraft skin is heavily damaged, full of coral rocks and rubble (Site 5, photo 5), with the remaining aircraft skin worn to a shiny pink hue.

No fuselage section past the pilot area or empennage sections remain or were located. Small shards of aircraft aluminum or aeronautical debris were found throughout the immediate area, covering an approximate 150 square yard area both up current and downwind from the aircraft site.

Items at this site include a well-polished Sakae engine (Site 5, photo 6) and the rare 20mm cannon in the right wing (Site 5, photo 7). The left wingtip, which is not a folding wingtip, confuses the possible verification of aircraft model as an A6M3-22a as noted in Bartsch, (Site 5, photo 8). Model A6M2 Model 11s had non-folding wingtips, but flush mounted 20mm cannons. It is unknown if other weapons or parts remain buried in the sand and coral, but it is safe to presume some lie nearby.

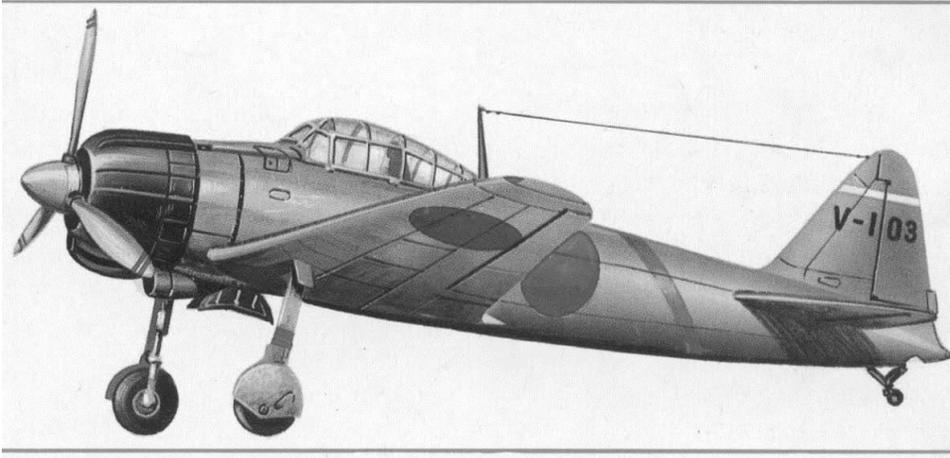
COMMENTS AND CONCLUSIONS

This site is remarkable well preserved considering the fast water flow from the ocean side at higher tides sweeps directly across this point and should have washed the site clean, slowly eating away the aircraft remains. Some objects may still remain buried in the sand and coral, but not enough I imagine to provide any more historical clues.

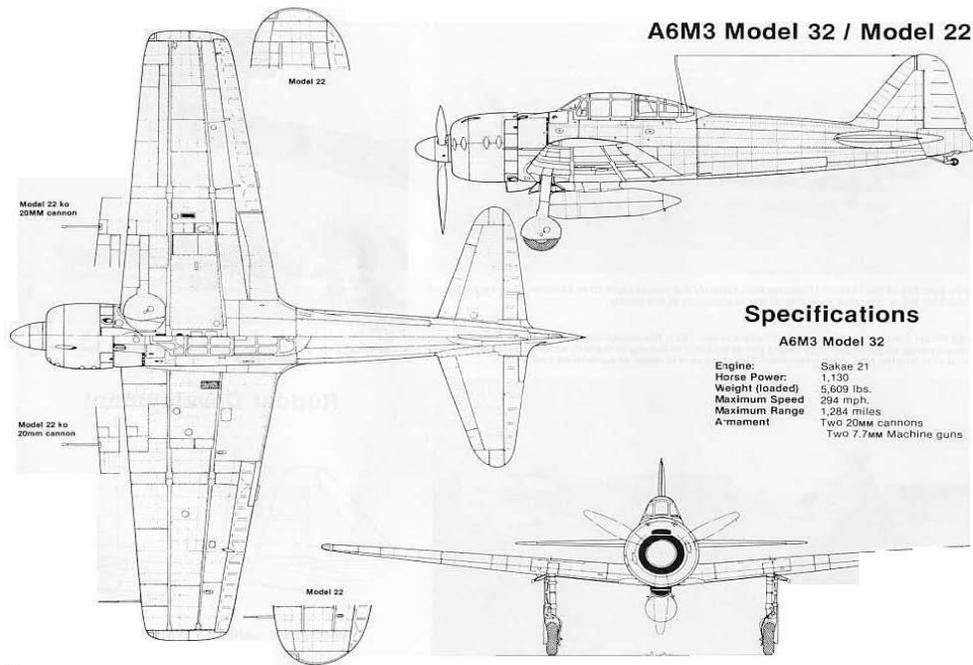
This remains a significant site due to the sense of history already given to it by the publication of the story in the "After the Battle Magazine" in 1986. Few other Marshall's underwater archaeological sites have photographic history from any time frame, so this site shall remain an important reference point in history.

The RMI HPO office should continue to try to protect these and all other assets, as sooner or later, when they are all gone, even parts of such sites will become valuable and irreplaceable assets.

PHOTO SECTION OF THE SITE 5 REPORT

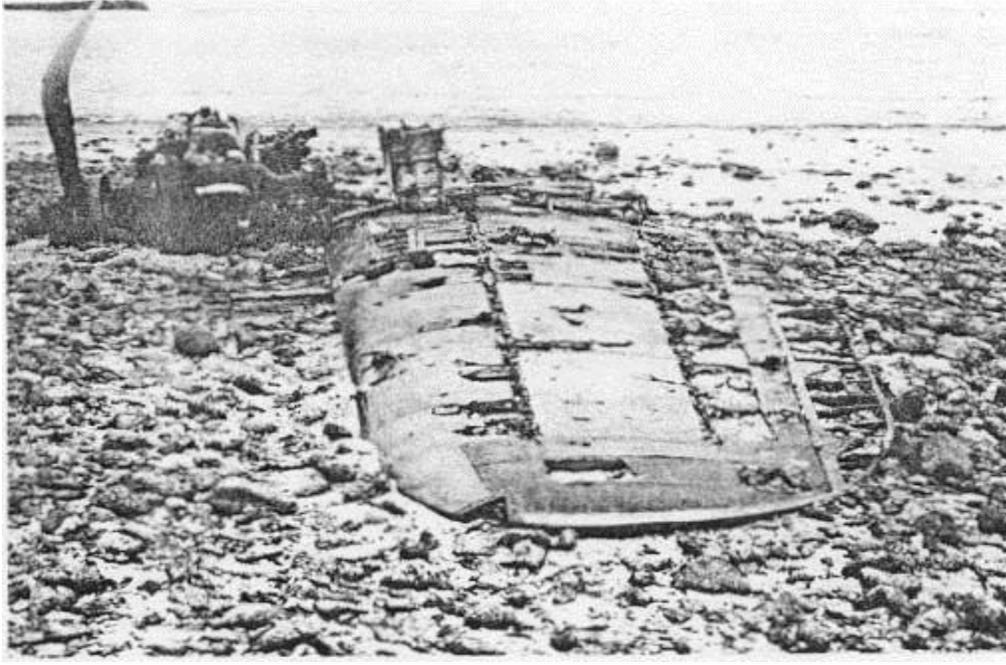


Site 5 Photo 1. A scanned photo of a similar Mitsubishi A6M2 from “*World War II Airplanes, Volume 2*”, Angelucci, 1977:139.



28

Site 5 Photo 2. Photo of A6M3 drawing scanned from “*A6M Zero in Action*” by Nohara, 1983:28. Note the model 22 has the round folding wingtips, and the long-barreled 20mm cannon.



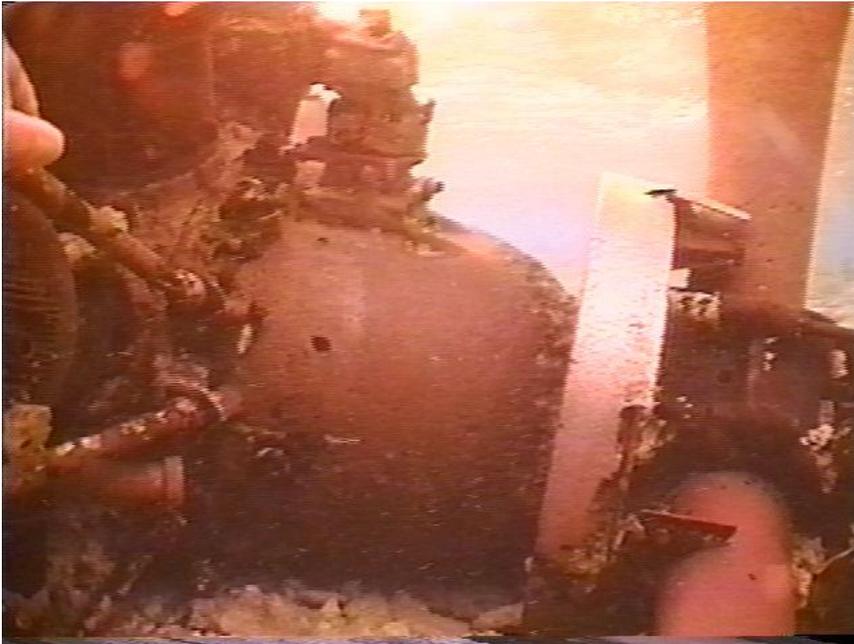
Site 5 Photo 3. Photograph taken by Bartsch in 1986 of the Southern Ollet A6M “Zero”. The forward panel with ejection chutes for the fuselage machine guns was still in place.



Site 5 Photo 4. Photograph taken in 2000 shows the same aircraft with notably more holes in the wing, sections of the fuselage and the 20mm cannon missing.



Site 5 Photo 5. Coral rubble packs every orifice of the aircraft.



Site 5 Photo 6. The close up photograph of the engine with propeller hub helps identify the aircraft model.



Site 5 Photo 7. Photo of the 20mm cannon ammunition drum partially torn open with 20mm shells removed during one of the islands scrap drives for brass and copper.



Site 5 Photo 8. Cavity in left wing where 20mm cannon used to reside.



Site 5 Photo 9. The long barreled 20mm Cannon in the right wing. Note the calcium growth on the barrel tip, protecting the steel from corrosion.



Site 5 Photo 10. Photo of the left wingtip. This is not a folding wingtip; so earlier identification made it an A6M2 Model 11, which was a lighter production model for Imperial Japanese Navy (IJN) shore based units. As many variants were produced, and field modifications made, it would take a true aircraft expert to determine the exact model.



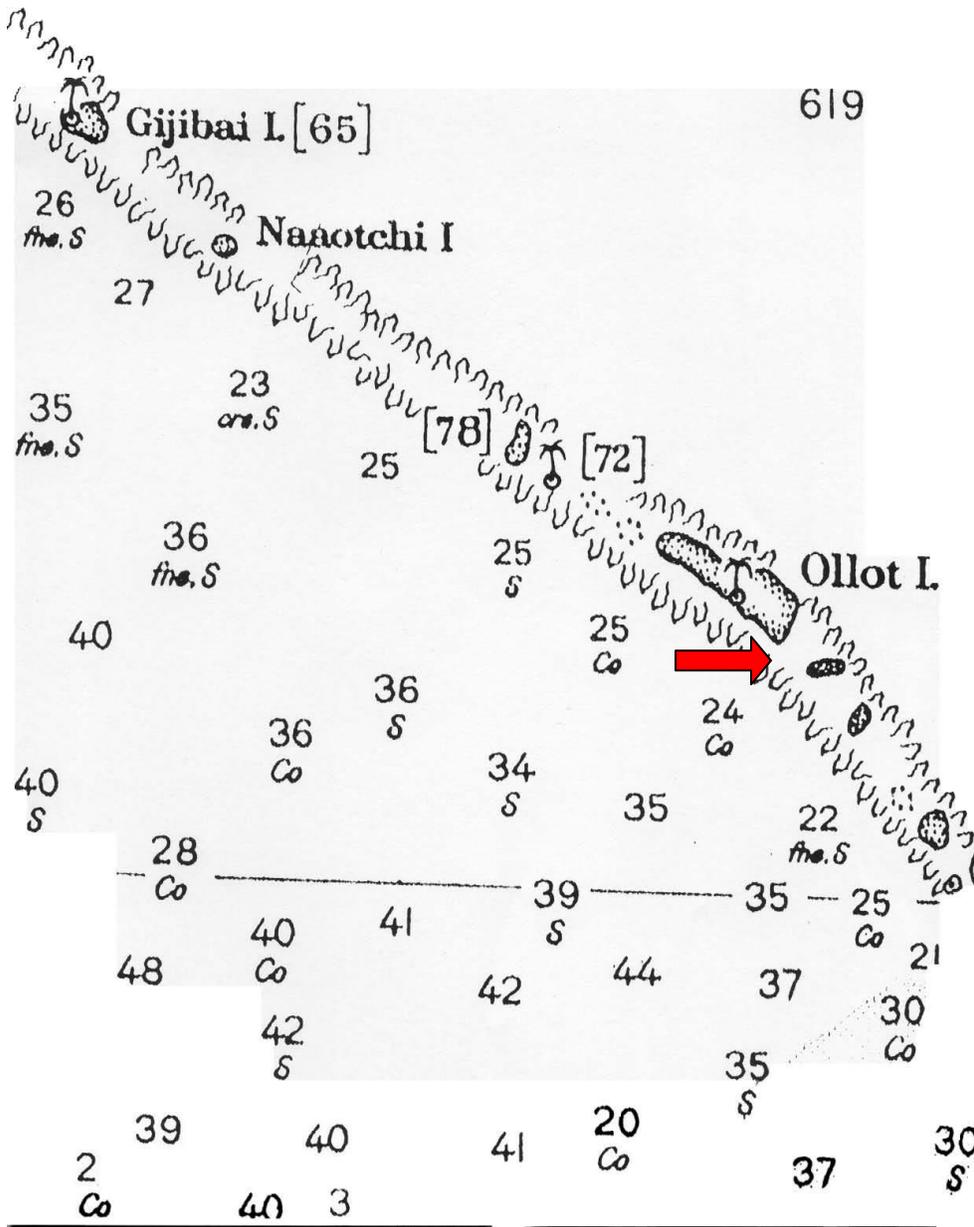
Site 5 Photo 11. Higher tides cover all but the propeller tip. Fast and surging water makes photography difficult.



Site 5 Photo 12. A photo of the site as the tide ebbs.

MAP OF MALOELAP SURVEY SITE 5

Red arrow identifies the location of the site.



Map of Site 5 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

MALOELAP SITE 6 REPORT

NAME: JAPANESE PIER AT PIGETE, MALOELAP
RMIHPO Site Number MI-Mp-Lg-006

GENERAL DESCRIPTION AND LOCATION

The Japanese pier at Pigete, Maloelap is another infrastructure item built by the Japanese military to fortify the Marshall Islands before the hostilities of World War 2. It is similar to many Japanese piers built throughout the Marshall Islands.

The site is in a very beautiful setting, with only surface and archaic photos attached to this report. A map of the site, Map of Maloelap Survey Site 6, follows the photo section of this report.

GPS Position (At the shore side base of the dock): N 08.44.387 x E 171.10.422

Level of Site Significance: *LESS SIGNIFICANT*

SURVEY DETAILS

The Japanese Dock was constructed in a manner similar to the piers and seaplane ramps at other Marshall Island atolls, yet unique for a number of internal construction features. The area around the pier site was similarly scoured of coral and large stones, which were used to construct an underwater sub-foundation. Next, a section of interlocking concrete blocks were placed on the bottom on the edge of the outside dimensions of the pier, and fill material placed between the walls. This created a platform to work from, and at lower tides they then either placed or poured larger interlocking concrete blocks that sat on the lower blocks and fill material and extended upward above the high water mark. The internal area was then similarly filled with sand, and poured concrete formed to make the pipe trenches, cap the edges, and finish the top slabs. The design depth of the pier face allowed for its' use by four (4) meter draft vessels or less.

The unique features were the covered internal troughs set in concrete that allowed for installation of water and fuel pipes. They supported both the fuel farm for the power station on the island, and in turn, allowed vessels to be given water from the water collection system built on the island. Much of this water and fuel system is still intact, although the pipes are destroyed within the damaged sections at the deeper end of the pier. An aerial photograph taken by a US military aircraft shows the pier and island power station under attack (Site 6, photo1). A red arrow marks the pier, a yellow arrows mark bomb hits.

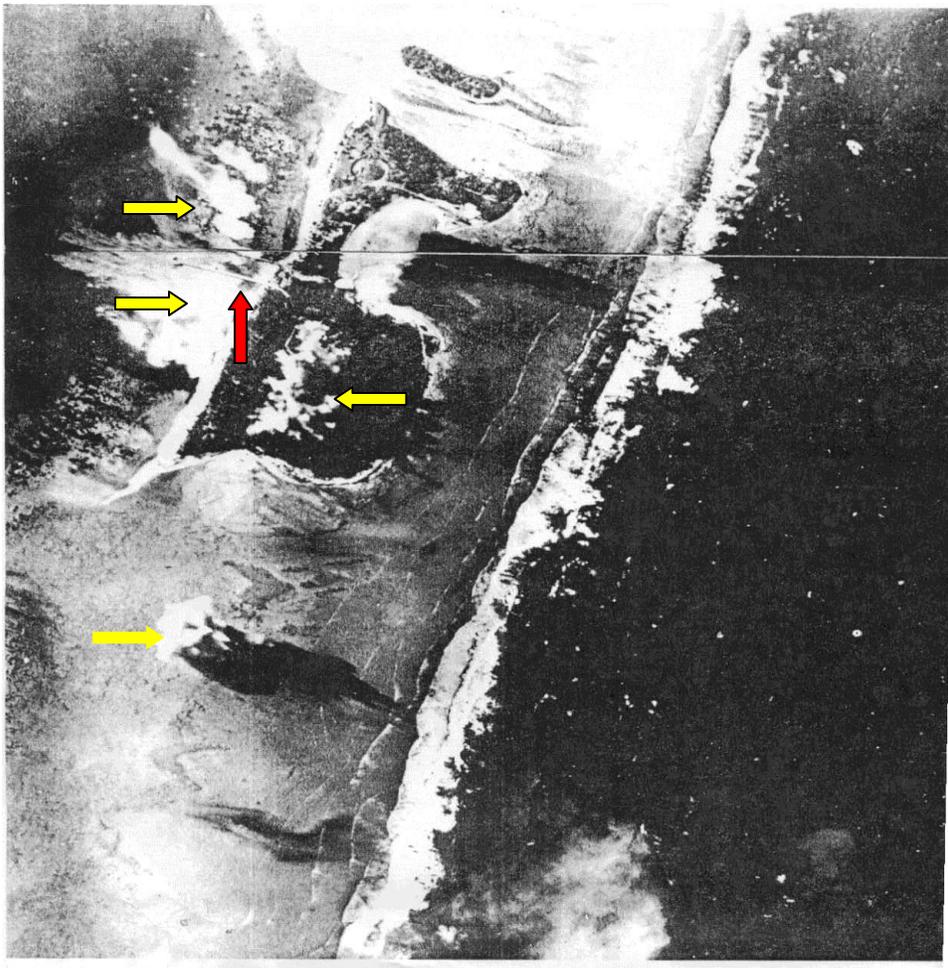
The pier was heavily bombed during the war, and time and weather has torn apart part of the area that was weakened by this bombing. Otherwise, the pier, seen from

surface photos towards the lagoon and from the south shore (Site 6, photo 2 and photo 3) show the pier in remarkable shape, 60 years after its' construction.

COMMENTS AND CONCLUSIONS

The Japanese Piers and Docks around the Marshall Islands have always been an interesting study, as most have been built for decades of use. Archival research has failed to find the contractors who built the piers and docks, nor any architectural plans. Most of these structures have become the pyramids of the Marshall Islands, and will survive longer than the author.

PHOTO SECTION OF THE SITE 6 REPORT



Site 6 Photo1. Scanned from *War in the Pacific* by John Winton, 1979, page 102-103. Caption off page reads “A bombing raid in progress on Maloelap Atoll in the Marshall Islands”. Authored identified the photo as that of Pigete, with the pier identified by the red arrow, yellow arrows mark bomb hits. Photo Acknowledgement is given to the Keystone Press Agency in the Winton book.



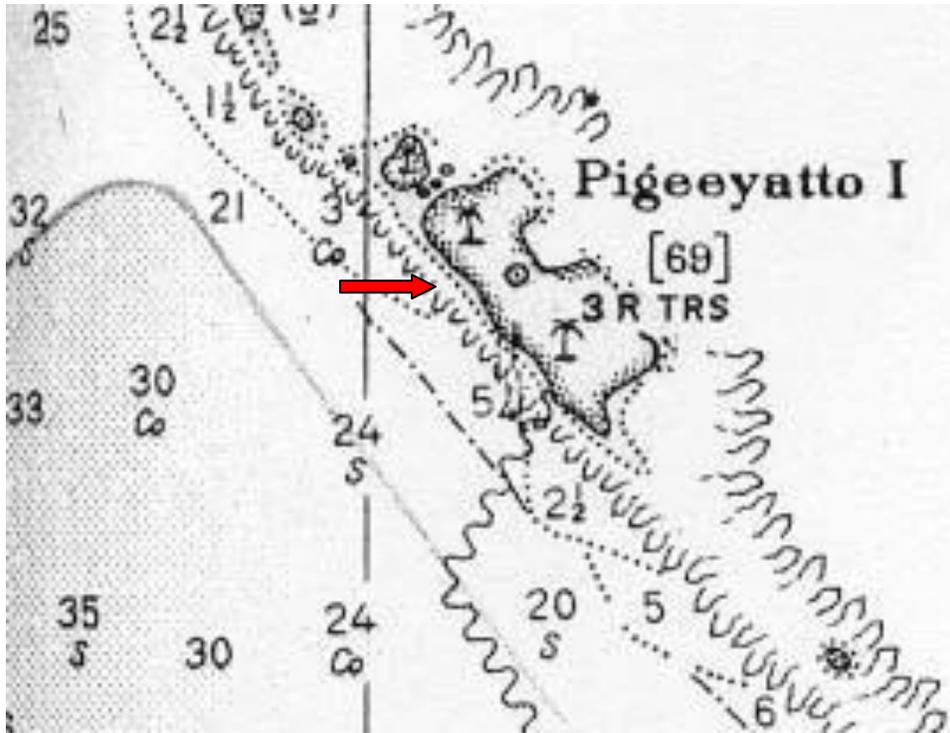
Site 6 Photo 2. The Japanese Pier at Pigete stretches nearly 100 yards from the natural shoreline. The pipe trench, blown open farther down on the right side, held both water and fuel lines. An anti-aircraft position was set up on the right side end.



Site 6 Photo 3. The Japanese pier at Pigete Island from the south. Note the damaged section near the end, struck by American bombs during the war.

MAP OF MALOELAP SURVEY SITE 6

The Red arrow indicates the site of the Japanese Pier.



Map of Site 6 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

MALOELAP SITE 7 REPORT

NAME: WRECKAGE OF AMERICAN B-25 AIRCRAFT
RMIHPO Site Number MI-Mp-Lg-007

GENERAL DESCRIPTION AND LOCATION

The wreckage of an aircraft, which I have identified as from a North American B-25 “Mitchell”, was located on the reef and in the lagoon off the southern end of Chierumarokku (Japanese spelled) island. Two aircraft engines, the prominent items of the site, expose at lower tides, and both are on the south side of the island. A large debris field of small to medium sized aircraft debris was found mixed within the beach rubble of the island, on the adjacent reef south, and spilled into the lagoon both lying and buried in the sand to a distance 300 yards southwest of the island. It is possible larger buoyant sections could have floated with the natural flow of the current into the lagoon and sank nearby, but none were located. The shallow parts of the site were walked and photographed at low tide, with the lagoon area snorkeled and SCUBA dives made. The water was very clear and calm at low tide, but choppy and rough at higher tides. A map of the site, Map of Maloelap survey Site 7, follows the photo section of this report.

GPS Position (At the engine close to shore): N 08.43.054 x E 171.12.948
(At the underwater wing segment): N 08.43.021 x E 171.12.953

Secondary reference compass courses were not necessary as Chierumarokku Island and the engine blocks are prominent and visual landmarks.

Level of Site Significance: *VERY SIGNIFICANT*

SURVEY DETAILS

The aircraft wreckage, the debris field of a U.S. Army B-25 medium bomber, was located and identified by the author in 1981 on an exploratory diving trip to the island with friends. The site is historically important as it marks the final resting place of six American aircrew listed in military records as Killed-in-Action from this aircraft. The aircrew remains have not been located, even with many inquires to local Marshallese elders. The study of the archival records including the diary of the Japanese commander of Maloelap atoll during World War II also gave no clues.

The aircraft, a model B-25G Medium Bomber, was made by North American Aviation, Inc., and had a wingspan of 67 feet with a length of 51 feet. Site 7 photograph 1 is a military photo of a “D” model taxiing on the ground. Site 7 photograph 2 is the cross section of an early “G” model. Site 7 photograph 3 is technical drawings of a “C” model, similar except its nose. It typically carried up to 3000 pounds of bombs in different assortments and configurations during the war. It normally carried six aircrew on Pacific over-water missions.

This aircraft, serial number 42-64924, (a model B-25G-5) was based in Tarawa, Gilbert Islands as part of the 7th Air Forces 41st Bomb Group, 47th squadron. The mission on which the aircraft was lost, on January 28, 1944, was listed in the *7th Air Force, Mission Report No. 85*. This aircraft with six other B-25s' were tasked with attacking any shipping and assorted targets on the Taroa, Maloelap Base. This aircraft was struck by anti-aircraft fire on its' approach to bomb the Maloelap airbase, approximately one mile out from the target. This days approach was from a westerly direction (courses ranging from 85 to 100 degrees) flying in a line abreast formation over the lagoon at an altitude of 100 feet or less. After being struck by anti-aircraft fire from Taroa at over a mile from the target, the aircraft immediately caught fire and burst into flames. Although the mission report seems to state the aircraft was lost over the target, I believe it veered left and went straight into the water just south of Chierumarokku Island. The approach course given and crash point are at right angles if the aircraft actually drop its' bomb load on target. The bomb load was of mixed types and was all armed at this point, thus the aircraft probably blew up on impact with the water or shallow reef, approximately five feet deep at high tide. All the aircrew were probably killed on impact and the remains were all un-recoverable.

The mission report also says the aircraft was lost inside of the reef, $\frac{3}{4}$ of a mile "east" of Taroa island. This is probably an error, as Chierumarokku Island is approximately $\frac{3}{4}$ of a mile "west" of the airbase, and there is no other wreckage on or near the reef to the southeast. A course $\frac{3}{4}$ of a mile east is out into the ocean, and very deep water, probably over 500 feet deep $\frac{3}{4}$ of a mile from shore. There are also no typical comments in the mission report about any attempted forced landing, life rafts, or any sign that the aircrew may have survived the crash. There are no other B-25 losses un-accounted for in the Bomber Group records. I presume this technical error was to honor their lost companions in their last attempt to hold their course to the target.

Forty-one aircrew and eight aircraft were lost from the 41st Bomber group as a result of raids upon Maloelap Atoll. Two other B-25 aircraft lost in Taroa raids are listed in the Other Sites section of this report.

The site was located again in 2000 and photographed. The two engines, Wright Cyclone model 14 GR-2600-13's, were easily identifiable from their design and twin row 14-cylinder configuration. Site 7 photographs four and five shows the north engine near the island, and a close up of the backside. A photo of the southern engine is Site 7 Photo 6, with the Site 7 Photo 7 of one of the many small parts found around the site. Both engines had been rolled on the reef for years by the wave action and were worn down to the cylinder heads and exhaust collector rings. No propellers or any other identifiable exterior portions of the engines were located.

Many many small aluminum parts and metal shards with assorted rusting fasteners were located on the reef and mixed within the beach rubble of Chierumarokku island (Site 7 Photo 8) shows debris in the sand on the southern face of the island. Site 7 Photo 9 shows the remains of a landing gear within the coral rocks. Site 7 Photo 10 shows parts literally removed from the jungle near the high water mark.

Mixed among the debris were numerous small caliber rifle rounds, as the Japanese used the island and/or this B-25 wreckage for target practice. Site 7 Photo 11 shows a handful of assorted parts collected from pockets in the hard reef.

A part of the wing was discovered and photographed underwater in Site 7, photograph 12, and a section of probable fuselage framing was photographed in Site 7, photograph 13. Both were closer to the lagoonside drop off.

It is possible more aircraft parts are buried in the sand and may be discovered later or as the sands shift. Marine life nearby consists yards of clean white sand with pockets of beautiful coral growth and local reef fish. The Japanese anchorage marker built before the war still stands on the lagoonside reef for reference (Site 7 Photo 14).

Site 7 Photo 15 shows Chierumarokku Island. The island is very small, measuring little over 100 yards in diameter. There are no temporary or permanent houses or shelters on the island, which was a local bird hunting sanctuary island in 1981. It is a sad comment there are no birds on the island today. You may walk to the site from Taroa at low tide, but it is a long walk over rough terrain near the engines, usually under a very in a hot sun. Plan for two hours round trip, and take water!

The crew lost in this crash are listed with their rank and serial number below.

CREW LIST: From *Missing Air Crew Report Number 2054.*

1 st Lt. Robert L. Cecil,	Pilot	Service No. 0-733727 (Arizona)
2 nd Lt. John H. Cambell,	Co-Pilot	Service No. 0-742281 (California)
2 nd Lt. Melvin E. Miller,	Nav/Bombardier	Service No. 0-741804 (Ohio)
T/Sgt. Clayton H. Fisher	Radio/Gunner	Service No. 17011932 (Nebraska)
S/Sgt. Wilbur A. Homeyer	Waist Gunner	Service No. 38032423 (Texas)
S/Sgt. David Levin	Tail Gunner	Service No. 20308638 (Penn.)

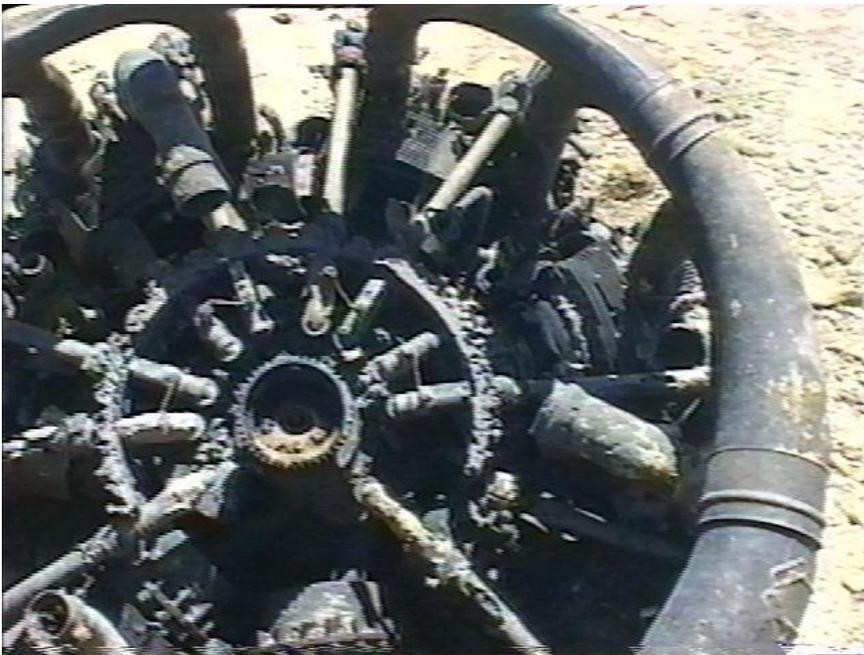
Their remains are presumed to be lost at sea, buried on Chierumarokku Island, or washed into the lagoon. If buried on the island, there are no markers or local stories to support this theory.

COMMENTS AND CONCLUSIONS

The aircraft wreckage and aircrew story are both unique and significant assets of Maloelap Atoll. The assets, the prominent Wright Cyclone engines, have become an impromptu memorial site for this aircraft and the lost aircrew. It is additionally possible, although unlikely, their remains are buried somewhere on Chierumarokku island. The site should be provided with protection from unsupervised visitors, and the local Maloelap government should do its' part to protect this part of their history. It has been suggested a memorial marker be erected on the island identifying this loss.



Site 7 Photo 4. The author walks past the north B-25 engine near the shore of Chierumarokku Island at low tide.



Site 7 Photo 5. The close up view of the northern B-25 engine, with many parts, including the exhaust collector ring manifolds, still attached.



Site 7 Photo 6. The southern engine of the B-25. All exhaust collector rings are present and attached, with only minor damage. The blower unit for the engine is exposed in the center of the engine.



Site 7 Photo 7. One of many small engine and aircraft parts found around the site. This is part of the carburetor.



Site 7 Photo 8. Photo of aluminum beach debris near the high water mark on the south side of the island.



Site 7 Photo 9. Part of the landing gear assembly sits amongst the coral rocks on the southeast side of the island



Site 7 Photo 10. Aluminum debris was literally lying at the edge of the jungle on Chierumarokku Island.



Site 7 Photo 11. Beach objects collected near the north engine from pockets in the reef. Items include, from left to right, a hydraulic/pneumatic fitting, a brass rod, a stainless rod, a bronze engine injector part, and six brass bullets, either 5.62mm or 7.65mm Japanese rifle rounds, and one .50 caliber US machine gun round on the far right.



Site 7 Photo12. Underwater photo of a probable wing aileron section lying on the sand in shallow water south of the main debris site.



Site 7 Photo 13. Aircraft frame sections underwater southwest of the island in the sand in shallow water.



Site 7 Photo 14. Harbor anchorage marker listed on the map as a pillar near Chierumarokku Island still exists.



Site 7 Photo 15. Chierumarokku Island during an ebbing tide. Note the northern B-25 engine exposed in the distance, the darker object to the right of the inflatable boat.

MAP OF MALOELAP SURVEY SITE 7

The Red arrow indicates the site of the American B-25 Wreckage. Note the listing of the “Pillar (10ft)”, southwest of the island. It was the northern anchorage marker for Taroa. The pillar still exists lagoonside of Chierumarokku Island today.



Map of Site 7 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

MALOELAP SITE 8 REPORT

NAME: SUNKEN JAPANESE VESSEL TERUSHIMA MARU.
RMIHPO Site Number MI-Mp-Lg-008

GENERAL DESCRIPTION AND LOCATION

The sunken wreckage of a Japanese freighter known correctly as the **Terushima Maru** is Maloelap Survey Site number eight. It is easily spotted from both the air and from shore, as two prominent masts of the large vessel still extend above the water at even high tides. The entire vessel can be easily snorkeled, and easily reached from the beach. The water is generally very clear and calm at low tides, and has a nice collection of marine life in and around the vessel. A map of the site, Map of Maloelap Survey Site 8, follows the photo section of this report.

WARNING:

THIS VESSEL HAS LIVE DEPTH CHARGES !!!
DO NOT SCUBA DIVE BELOW DECKS AND TOUCH ANYTHING !!!.

GPS Position (At the wheelhouse position): N 08.42.260 x E 171.13.680.

Secondary reference compass courses are not necessary, as the vessel is only a few hundred yards south-southwest from the end of the Taroa, Maloelap pier.

Level of Site Significance: *SIGNIFICANT*

PRE SURVEY RESEARCH

Many errors surround the history of this vessel. The misspelling of the name of the vessel in three or four different versions has added to research difficulties. The vessel has also been listed as sunk by both the US Navy and US Army Air Force at many different dates and at two different locations. World War Two historians, who tried to place names to two seemingly different incidents and close the file on these encounters, compounded these errors. More recently modern writers and researchers have compounded all the errors by writing many of them into “official” reports and books. It is easy to write history, but it is hard to correct it. Please let me try.

First, let's work on the correct spelling to identify the vessel. The USSBS (United States Strategic Bombing Survey), which was created after the war, was composed of a few hundred civilian and military personnel of all services and talents and given the task to determine the effectiveness of weapons and tactics used in WWII. They issued assorted reports, and one turned into the USSBS Publication of *“The Campaign Against Wotje, Maloelap, Mille (Mili) and Jaluit*, published in 1947. The actual survey was done between October and November of 1945. The original book is very hard to find, I have

only seen one, years ago. Within this report, the vessel at Taroa anchorage was identified as the “**Toroshima Maru**”.

This information was either taken from or then given to the JANAC group (Joint Army-Navy Assessment Committee), who reviewed all Japanese vessel loss claims (vessels claimed sunk over 500 tons) to military action during WWII, and after the war published their own report, the “*Japanese Merchant Vessels Lost in World War Two*”. It has been reproduced in many formats. The vessels spelled as the “**Torishima Maru**”, “**Toreshima Maru**”, or “**Toroshima Maru**” were not within this report, or if they were spelled as above, they did not match any Marshall Islands sites or the dates of these losses. There are many other errors in this report.

The vessel “**Terushima Maru**” was on the list and listed as lost on May 18, 1943. They gave the vessel specifications of XPG (converted to an IJN Naval Auxiliary Gunboat).

When I first visited the atoll in 1980, I was told by local informants the vessel was the “**Toroshima Maru**”. A check of this name in all modern lists does not match the Maloelap vessel either.

RMI HPO Staff archaeologist Christiansen published his work, “*The Archaeology of World War II in the Marshall Islands*” in 1994, and on page 52 he lists the name of the vessel as the “**Torishima Maru**”, and attaches two USSBS photos, cropped to fit, numbers 5-84 and 5-85, which shown the vessel sunk at anchor but high in the water in 1945.

Archaeologist, author and prior staff RMI HPO archaeologist Dirk H. R. Spennemann lists the name “**Toreshima Maru**” on a 1995 research paper submitted to the web site <http://life.csu.edu.au/~dspennem/MILARCH/Proceedings/Taroa/Taroa.html>. I do not know where this spelling came from, as this vessel spelling does not exist anywhere except his reports.

Internet travel guides now quote the vessel as the “**Toroshima Maru**”.

I found no sources or data for the spelling Teroshima Maru, thank you, so I won’t highlight it.

Official US Navy writing has compounded the problem. Prestigious US Navy writer Robert Cressman, author of “*The Official Chronology of the US Navy in World War Two*”, published in 2000 lists the vessel “**Terushima Maru**” sunk by the Submarine Pollick SW of Maloelap. (on page 160).

The U.S. Army Air Force claimed to sink the unknown named Taroa, Maloelap anchored vessel many times. The Navy also says they sunk it, and the Marines did shoot it up too. Many more pieces of paper.

Now about that time I was in Maloelap and did a video survey of the vessel. In filming down the hull I found a section of port side hull plate bent from top rail to nearly the bottom, that's about 16 feet of hull plate, straight up and down. The pattern of bending was odd and unique, with the steel crushed into a rippled look, with more and deeper ripples at top of the vessel, and smaller ones towards the bottom. It didn't register until I found a similar pattern on the exact opposite side of the vessel. It was as if the vessel had been grabbed by the nose and the tail, (bow and stern) and crushed together, with a slight push upwards. This is exactly what happens to a vessel that has a torpedo explode under its' hull. The explosion makes a temporary air pocket that the vessel "fails" into, breaking the back of the ship. This torpedo ran too deep; and the explosion bent the ship, but did not break it. It limped into the nearest port, the Taroa anchorage.

More research disclosed a vessel with a similar name listed as sunk by a US Submarine. The USS Pollick, SS-180, on its seventh war patrol (in the Wotje general area) listed the sinking of the "**Terushima Maru**", and listed it as sunk SW of Maloelap on May 18, 1943. I do not have the log of the submarine to determine if they saw or just presumed this vessel was sunk, but I do know it was listed as sunk at night. A few more hints of confusion and error are within the general loss information, as the vessel was listed as sunk at 08N by 171E. These are very general coordinates, as the same submarine sunk the "Bangkok Maru" off Jaluit two days later at the specific coordinates, 06-47 N by 169-42 E, and I know it was attacked for hours and never came up to take a sighting in the immediate area. Why did the Terushima Maru get a general location, if it was definitely sunk?

In my opinion, after the war, the military wanted to match all high probability successful attacks with a known loss, so this vessel was probably chosen, and recorded into history. {Read "Shadow Divers" by Robert Kurson and you will see the similarity of military reasoning.}. Apparently a torpedo detonated, so they presumed an explosion meant a hit, and thus a sinking. The vessel may have even taken water and could have been seen low in the water, but I do not think it was sunk. I feel the submarine observations and presumptions of this loss were wrong.

All the names are similar in spelling and pronunciation, so an error is easy to imagine. Next, the Terushima Maru, listed as 3110 GRT, meets the general size of the Taroa vessel, which I estimated at just over 300 feet in length and 3000 GRT. I have my surveyed vessels Nankai Maru in Mili anchorage, the Toyotsu Maru beached at Wotje and a number of surveyed Kwajalein vessels for comparative examples. The size is right.

The loss date is realistic, as a ship heavily damaged to a submarine in the Marshall's in May of 1943 may not have been worth a tugboat and armed escort for a trip to a dry-dock, realistically only going to Japan. Rabaal was too dangerous and Truk did not have adequate facilities. So in Maloelap the vessel stayed.

MORE PRE-SURVEY RESEARCH

About the time you think you can explain it easily, the little piece of history slips in and makes it even more complicated (for some). You would think between all these people working on this after WWII, somebody would get it right. Well one almost did. It seems when Christiansen cropped the USSBS photo for his report; he cropped off the original caption. Everyone in the Marshall Islands has been working off the same page for 15 years. I found an original USSBS copied page. The caption to the left of photograph 66, on page 191 of the original report reads “Toroshima Maru damaged by submarine May, **1942**, sunk by aerial attack December 1943”.

So I am happy I guessed the torpedo attack, but why didn't they correct the information? Well, back to my now well-repeated phrase, it is easy to write history, but hard to correct it. The USSBS guy may have just typo'ed in the date wrong. Maybe the spelling too... He may have never known of a Terushima Maru. But somebody had to tell somebody that a torpedo damaged the ship, and input it into the report. Who figured that out?

So it is now my place in history is to now tell everybody I know the vessel sunk in Taroa, Maloelap is the **Terushima Maru**. The US submarine Pollock damaged it on May 18, 1943, and it limped into Maloelap. It was anchored close in to shore to protect it from sinking in deep water if attacked. It was attacked and it did sink, and the survey details follow.

SURVEY DETAILS

The Terushima Maru was probably built in the late 1920's or early 1930's, and was listed as 3110 GRT by an unknown someone, with an estimated length of 300 feet and a beam of 30 feet. It probably had 15 feet of draft at the stern. I have no information on the builder, the owner or the operator. Believe me, I have looked. The vessel now sits in 20 to 35 feet of water, with the two main service masts above water (Site 8 Photo 1).

The vessel was configured with two holds forward and two holds in the stern each separated and serviced by one of the tall masts, with the pilothouse that also held accommodations, in the middle. A small hold was behind the pilothouse, generally used for the ship, probably supplies and fuel. There was a stern house that probably housed the crew, and the vessel sported an anti-aircraft gun or two, as it was reported on many attacks to be shooting at attacking American planes.

The gun position was probably forward, more high and dry, which accounts for the mangled metal forward. Site 8 photograph 2 shows a large pile of chain that was near its locker and now is crushing the remaining hull. But not all this damage is from the war. The Trust Territory demolition man, Mr. Steve Achen, deceased, blew the top off the vessel in the 70's. It is fortunate he did not set off the depth charges aboard. So it is very hard to determine what damage was caused from what. The 1945 photo in the USSBS report shows the vessel fairly intact.

In any case, there is not much exciting to document in the bow. The next nice maritime view starts on the deck and in front of the pilothouse (Site 4 Photos 3 and 4). The boiler can be seen through the missing pilothouse area in Site 4, photograph 5. The small hold is visible in Site 4 photograph 6.

The torpedo analysis can be seen in comparing Site 4 photographs 7 and 8. The hull is very clean in the first photograph, taken a few feet in front of the second photograph location, which shows the heavy bending of the hull plate.

Demons also reside in the wreck. Local story claims the sharks come when the vessel talks. Actually, the vessel does make noise with the change of the tides, as a large section of the hull plate starboard side is loose, and grinds away when the current is strong in the area (Site 4 Photo 9). The squeaking metal may also signal high tide is coming, and the fish come out to feed. A white-tip reef shark visited the vessel and was captured on film (Site 4 Photo 10).

There are many fish around this vessel as Site 4 photograph self explains, and more inside too (Site 4 Photo 12). Depth charges too, (Site 4 Photo 13), as the author poses with the live ordinance. Depth charges are one of the few dangerous items remaining from World War Two. Moving them is dangerous; blowing them in place would destroy the ship and this site. No good answers.

The depth charges were run down a track (Site 4 Photo 14) and then off the back of the vessel (Site 4 Photo 15). They had a safety diaphragm that was covered with a fork like safety device. This fork was pulled off by a mechanical “finger or hook” at the end of the tracks, arming the depth charge. The safety forks were made of wood and metal, and have long since corroded away.

The stern also offered more torpedo related information. The vessel was not at anchor, it was well inshore of the anchorage, and additionally had used a long length of it heavy hoisting cable to make a stern mooring so the vessel wouldn't shift its position. I think this also verifies the vessel was “parked”. No active vessel would anchor so close and shallow, or waste heavy hoisting cable for a mooring. They planned to stay for a while (Site 4 Photo 16).

A view of the massive propeller is the final photograph (Site 8 Photo 17) in the Site 8 survey. There were no significant artifacts anywhere in or around the vessel, hardly a broken bottle. The site is great for marine life photography, and fun for the SCUBA visitor, but again, be careful.

COMMENTS AND CONCLUSIONS

The vessel, the Terushima Maru, is a wonderful wreck dive, shallow and in clear water. Unfortunately, few artifacts are present outside a broken bottle or two. The beautiful marine replaces the loss. The unique story gives it a sense of history. Hopefully, the danger of the depth charges will someday be removed.

PHOTO SECTION OF MALOELAP SURVEY REPORT 8.



Site 8 Photo 1. The two main service masts still stand after 60 years in the water.



Site 8 Photo 2. A large pile of chain near the chain locker is helping to crush the remaining bow sections into the sand.



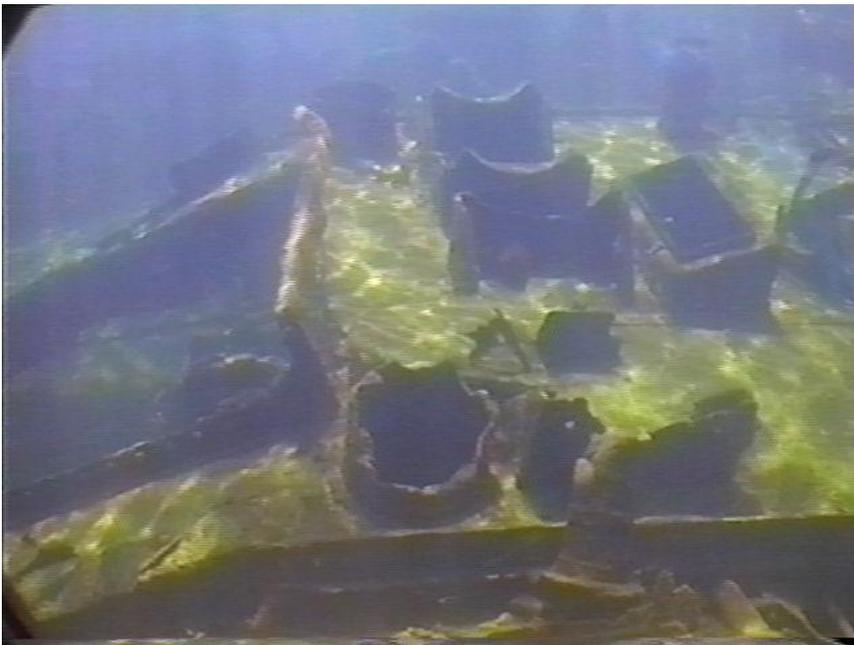
Site 8 Photo 3. The wreckage forward of the house is scrambled at best. No artifacts of any note were found in the vessel.



Site 8 Photo 4. The area in front of the pilothouse starts to resemble a ship. The stairs have no place to go.



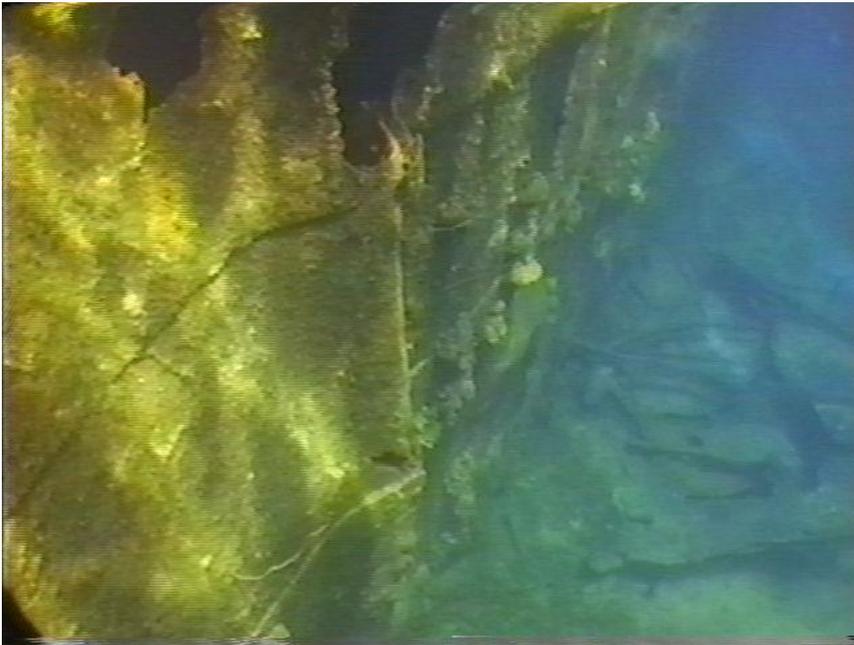
Site 8 Photo 5. The area behind the pilothouse is open and exposes a large steam boiler.



Site 8 Photo 6. The area behind the boiler has the small working hold generally used for the vessel to carry fuel for the boiler.



Site 8 Photo 7. Clean hull forward of port side torpedo damage.



Site 8 Photo 8. Torpedo damaged port side. Metal plate was deformed more at the top than bottom. A similar pattern was seen on the starboard side.



Site 8 Photo 9. The *Demon* plate. The loose plate moves and creaks with tidal currents and attracts fish, and sharks. Plate has been loose since author visited the site in 1981.



Site 8 Photo 10. The ad said beach safe, you must have gone in the water. A very fat and happy and harmless white-tip reef shark cruises the Terushima Maru. The author saw the largest green turtle in his life sitting on the vessel in 1983.



Site 8 Photo 11. Terushima Maru computer screensaver. The vessel is loaded with marine life as this photo shows near the stern.

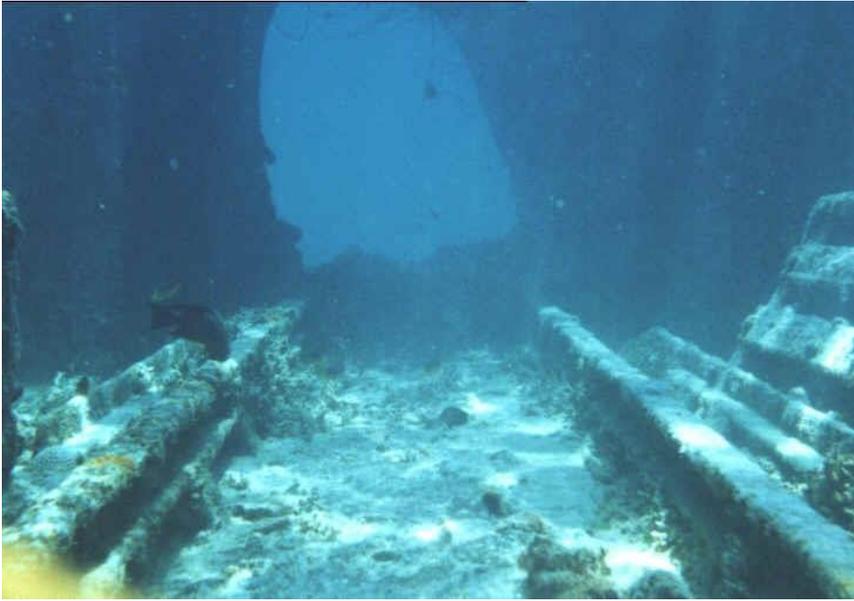


Site 8 Photo 12. There is marine life inside too! Inside the hold near the demon crack area, starboard side.



Site 8 Photo 13. The author poses with six live depth charges. A seventh was seen in the bottom of the hold in 1981, and cannot be seen today. Be careful !!! Japanese depth charges had two pressure diaphragms, one for depth of detonation, one as a safety. The safety cover forks are all gone...

Many Japanese warships, when sunk, carried their live depth charges with them. If pre-set to 33 feet, as was a custom, and the safety forks fell off, they detonated. Many men were killed in the water in this manner. The depth of the hold is about 35 feet deep. The depth charges sit on a mid-deck, at about 20 feet down. If they were to roll off, or the deck deteriorates and fails, well, don't mess with the depth charges...



Site 8 Photo 14. The depth charges were rolled down these railroad style tracks and off the stern into the deep to foil attacks by submarines. This track ran down the port side next to the last hold.



Site 8 Photo 15. The depth charge track on the starboard side where it exits the stern.



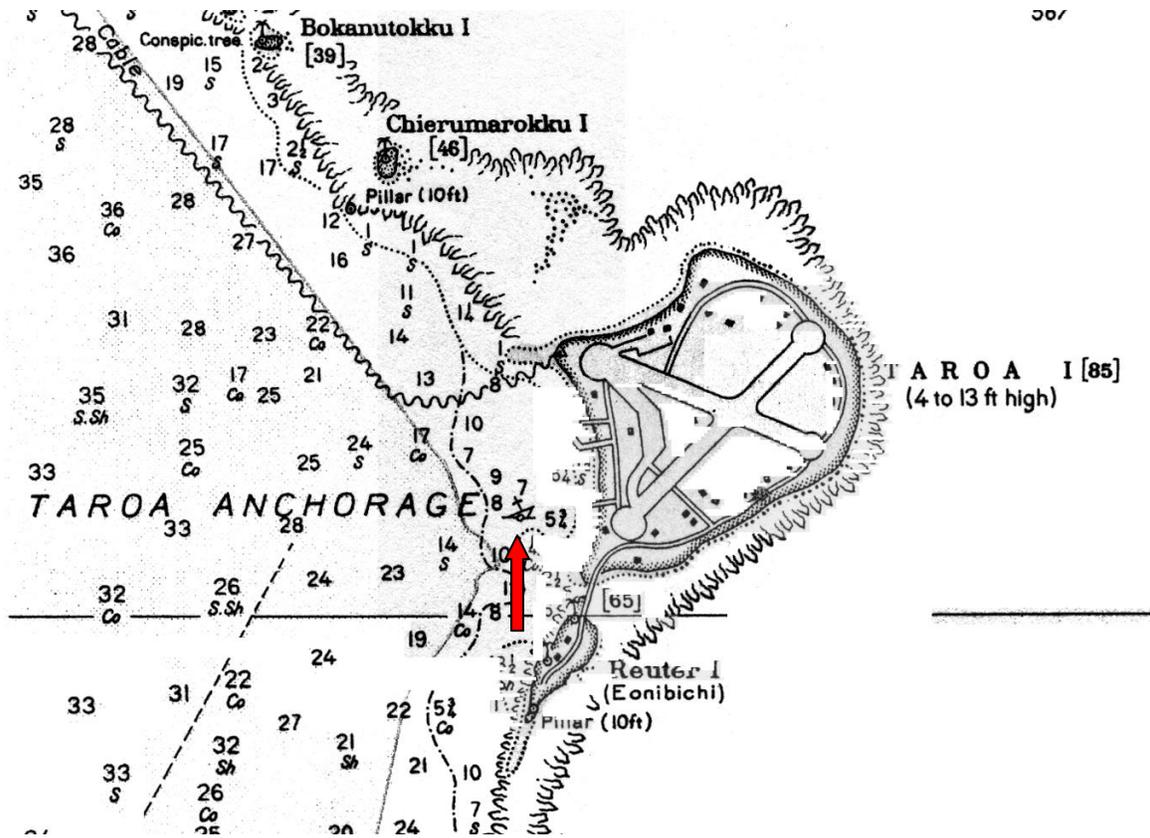
Site 8 Photo 16. The stern was tied off by hand with heavy cable. This was not a typical way to secure a boat at anchor. This was a way to secure a boat to a certain point, with no immediate plans for departure. It was a mooring, and sealed the fate of the vessel.



Site 8 Photo 17. A massive propeller drove the ship. The propeller is complete, but with no identifying marks.

MAP OF MALOELAP SURVEY SITE 8.

A red arrow shows the location of the site.



Map of Site 8 was scanned from the United States Department of Defense, Defense Mapping Agency Chart of Maloelap and Aur, No. 81771, which was improved upon from the United States Navy Hydrographic Office chart No. 6014, of which both charts claim were taken from Japanese charts and surveys of the atoll between 1928 and 1941. These surveys were incorporated into the Japanese chart No. 435.

OTHER SITES IN MALOELAP ATOLL

UNRECORDED KNOWN SITES

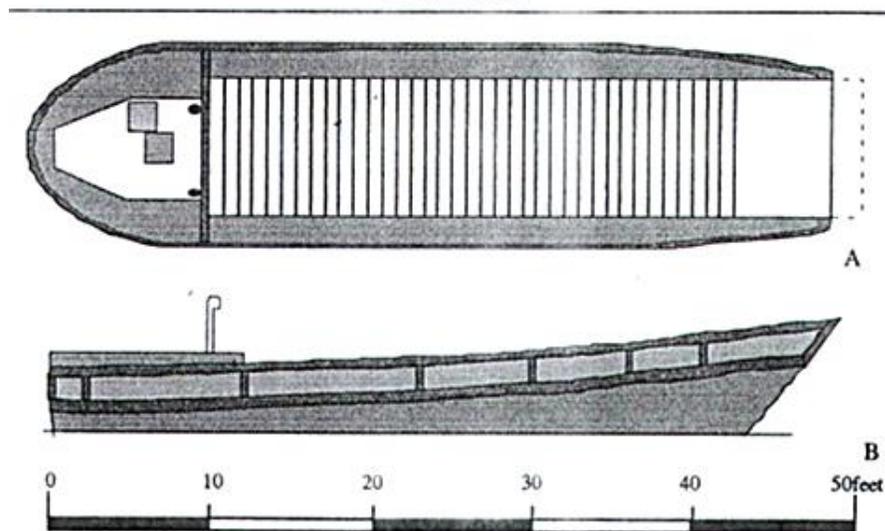
1. Taroa, Maloelap Pier.

The Pier at Taroa is another excellent survey site. It is similar to both the docks at Wotje and Roi, Kwajalein. I had time to do a land survey with notes, but no in water work was recorded. GPS reference at the end of the pier was .N 08.42.236 x E 171.13.501

2. Small Landing Craft at Maloelap Pier.

A small Japanese landing craft is buried in the sand along side the north side of the Maloelap Pier. The bow structure sticks out of the sand and is currently used as a mooring point for a local boat tied up behind the pier for protection. There is a surrender photo somewhere I cannot locate which possibly shows this vessel in a bombed out condition awash in this general area. The site was not filmed, but is similar to the Daihatsu Type "A" landing craft I located buried on Melka Island, Site MI-Mi-Lg-005, Mili Atoll, by the Japanese to protect it from the American bombings.

Figure 26. Daihatsu Type "A" Medium-sized Landing Craft. Navy version. A - Deck view
B - Side view.



Other Sites Photo 1. Japanese Daihatsu "A" Type Medium Landing Craft (*Spennemann, 1991/7:41*).

LOSS OF PREVIOUSLY KNOWN UNDERWATER SITES.

The debris of a Japanese Mitsubishi GM4 "Betty" bomber was discovered upon informants information lagoonside of Nawaj island in 1983 (at approximately. 08.445.832N x 171.10.407E). Nawaj, or Naaotchi Island on the Japanese charts, is approximately three miles west of Ollet Island. The bomber had apparently made a forced landing upon the Oceanside reef, probably due to fuel exhaustion, and had been destroyed by time and the energy of the higher tides, washing much of the aircraft into the lagoon. Larger pieces of the aircraft washed down the sandy reverse slope, and the tail section stopped in about 70 feet of water. The tail was easily identifiable as that from a "Betty" bomber from it's shape. No photos were taken on this 1983 trip.

The informant, an elderly man in 1982, was no longer alive during my trip to the atoll in 2001 when I tried to relocate the aircraft debris field and film it. Two dives by three divers found absolutely nothing where the prior debris was located. Not one piece of aluminum or anything else aeronautical was located from the shallows to over 100 feet of water, just pretty white sand. An additional skin diving survey was done on the shallow reef, looking for the aircraft engines or other heavy items, also with no success.

The site, heavily flooded at high tides, was a natural mechanism for sand movement from the oceanside to the lagoonside, and had completely covered the limited wreckage I had discovered in 1983 with sand. Eighteen years of water movement had eliminated all traces of the site. This bit of history, other than my record of the aircraft type and its' loss, is gone.

LOSS OF KNOWN PARTIAL TERESTRIAL AND UNDERWATER SITES

The Japanese military had developed a marine railway on Ollet Island, with a track system running from shore into the water. Portions of the shore side rail track, rail engine and assorted support items were still in the jungle. The lagoonside railway and support items were gone and nothing remains but shards of small rusty steel debris in the sand and coral. The two vessels sunk lagoonside of Ollet island MI-Mp-Lg-004 and 005 were located directly off this marine railway site.

KNOWN LOSSES AT UNKNOWN SITES RECORDED IN UNITED STATES MILITARY DOCUMENTS.

1. The loss of a North American “Mitchell” B-25G medium bomber on January 22, 1944 was discovered in archival research documents, including the Mission Report (MR) of the squadron, number 47, and the USAF Missing Aircrew Report (MACR) number 1845. The bomber, bureau number 42-64948 was part of the 41st BG (M), 47th squadron. While flying a strike mission against Taroa, another B-25G aircraft just ahead and abreast of this aircraft jettisoned their bombs to lighten their aircraft to escape attacking fighters. The bombs exploded with fragments striking this following aircraft, causing engine fires. The aircraft was immediately attacked by four “Zero” fighters, and was last seen engulfed in black smoke and crashed into the lagoon approximately 10 miles SSW of the Japanese base at Taroa in the southern portion of the atoll. The crew of six, Lt. Heun, pilot, Lt. Klotz, Lt. Mc Laughlin, S/Sgt. LeFors, S/Sgt. Fenno, and S/Sgt. Smith were all listed as KIA. No local informants have provided any other information. The first aircraft, bureau number 42-64949 which was also damaged, flew south outside of the atoll and crashed approximately 10 miles south of the atoll in the ocean, also killing all six aircrew aboard. A third aircraft from the squadron was also lost that day, shot up and out of fuel, force landed approximately 45 miles NW of Makin, their home base. All of these crew were rescued.
2. The US Navy lost two Douglas TBF-1 “Avengers” in a mid-air collision during a raid on the atoll on January 29, 1944. The crew was part of VT-5, a torpedo squadron based from the US carrier CV-5 “Yorktown”, and three were immediately listed as KIA, the other three as MIA. I have not discovered any report to identify a specific site, or even a general area, of the loss within the atoll. No local informants have provided in other information. The six aircrew were lost from aircraft bureau numbers 6175 (KIA) and 6213 (MIA). Additionally, three other aircrew were lost from the same type aircraft and squadron that day, and listed as MIA and presumed lost at sea, but confusingly, they are not listed on the ABMC (American Battlefield Memorial Commission) list of the “Tablet of the Missing”, where the prior six aircrew are. It should be noted there are still many mistakes in the history of US losses of personnel in WWII, and there are many more US and Japanese aircraft and aircrew losses reported in and around Maloelap atoll during the conflict.

KNOWN LOSSES AT UNKNOWN SITES RECORDED IN UNITED STATES AND JAPANESE MILITARY DOCUMENTS.

1. The loss of the 39 ton vessel “Wa” Maru”, as listed in a Japanese document of unknown source. The vessel was listed as sunk on September 15, 1944, but this is probably an error, as every major vessel over 10-20 tons was sunk much earlier in the conflict. “Wa” in Marshallese means vessel or ship. The location of this smaller, possibly locally built boat, is unknown.

CHAPTER FOUR: SIGNIFICANCE OF MALOELAP UNDERWATER ASSETS

SITE ANALYSIS

Each site was judged according to its' significance level, based upon the criteria listed in the RMI Historic Preservation Legislation of 1992.

Judgments on each of the sites level of significance were based upon the surveyed assets and my underwater and historical experiences. All background information to make these judgments is included in each individual Site Report. Any comments and opinions are mine alone, and may not represent the exact opinion of other researchers or authors, the Republic of the Marshall Islands Historic Preservation Office, The Maloelap Atoll Local Government, or the United States Department of the Interior through the National Park Service, although I would hope it does.

CRITERIA FOR RECOGNITION AS CULTURAL OR HISTORIC PROPERTY.

A Site or Asset shall be recognized as having cultural or historic value if it appears to meet one or more of the following criteria:

1. Possession of cultural value.
2. Possession of social value.
3. Possession of interpretive or educational value.
4. Possession of research question and answer archaeological value.
5. Possession of archival or information of archaeological value.
6. Possession of archaeological or builders excellence.
7. Possession of archaeological representation.
8. Possession of historical ambience or "sense of the past".
9. Possession of aesthetic value with "sense of the past pleasing to the eye".
10. Possession of social historical value.
11. Possession of particularistic historical value.

DEFINITIONS OF THE LEVELS OF SIGNIFICANCE

1. Very Significant. One of a kind, preserved, rich in artifacts, or unique history.
2. Significant. One of a kind, well preserved, not disturbed by construction or the assets of a prehistoric site not yet surveyed.
3. Less Significant. Similar to other assets, disturbed by construction or the environment, common history.
4. Insignificant. Abundant in other areas, located in disturbed or destroyed areas, no significant history.
5. Undetermined Significance. No detailed survey of site.

TABLE OF MALOELAP SITES AND THEIR SIGNIFICANCE

Site 1. Northern Ollet Japanese Mitsubishi A6M “Zero” wreckage.

Level of Significance: *LESS SIGNIFICANT*

Possesses historical value and a sense of the past, but is common and only the aircraft engine stands in place. Poses significant, but nearly impossible, research questions. Other similar models are in other locations in better condition.

Site 2. Central Ollet Japanese Mitsubishi A6M “Zero” wreckage.

Level of Significance: *INSIGNIFICANT*

Possesses historical value and a sense of the past, but is common and only bits and pieces of the aircraft, some buried in the sand, remain for the site. Poses significant, but nearly impossible, research questions. Other similar models are in other locations in better condition.

Site 3 Wreckage of the vessel Seisho Maru, off Ollet Island.

Level of Significance: *SIGNIFICANT*

Possess historical or archaeological value, one of a kind, with unusually features, and an unidentified history with future research questions. Although severely damaged, the steel hull is visually intact, and has as aesthetic value of pleasing to the eye. Has both a "sense of the past", and can more easily studied, due to its' shallow depth, verses other similar vessels.

Site 4. Sunken Vessel Kaikou Maru, off Ollet Islands

Level of Significance: *VERY SIGNIFICANT*

The vessel is well preserved, rich in artifacts and has a unique history. The site has social historical value, is pleasing to the eye, and carries with it a wonderful sense of the past. It can be easily studied, and would make a wonderful research platform for future archaeological work. The site should be protected from scavengers.

Site 5. Southern Ollet Japanese Mitsubishi A6M “Zero” wreckage.

Level of Significance: *SIGNIFICANT*

Possess historical or archaeological value, as it is one of a kind within Maloelap Atoll. It has unusual features and an unidentified history with future research questions. Possesses historical value, a sense of the past, and an aesthetic value, but is a common aircraft. Photo record from past research adds value for future reference to this and other sites. Other similar models are in other locations in better condition, but this site is easily visited and analyzed.

Site 6. Japanese Pier at Pigete Island, Maloelap.

Level of Significance: *LESS SIGNIFICANT*

Although damaged by bombing and the environment, these Japanese built piers are overlooked as some of the few water built assets over 60 years old that exist within the Marshall Islands. They possess substantial research questions and archaeological value. Even though they are common in construction, they exemplify the builders' excellence in their work.

Site 7. North American B-25 Aircraft Wreckage.

Level of Significance: *VERY SIGNIFICANT*

Site is disturbed and virtually destroyed, but the aircraft has a unique one-of-a-kind history. Although many better sites exist, this site should be identified and developed as a memorial to the men lost in the aircraft, as it represents a true "sense of the past". The patterns of debris distribution also pose unique archaeological questions that could aid in other project research questions.

Site 8. The wreckage of the Japanese vessel Terushima Maru.

Level of Significance: *SIGNIFICANT*

The site is partially destroyed, but is a unique asset for the atoll. This wreckage is the only large WW2 Japanese asset underwater in the atoll. The site has few assets, other than live dangerous ordnance, but it does have a myriad of historical errors that are great examples for modern researchers. The site is shallow and easy to survey, and is an asset to SCUBA diving visitors.

CHAPTER FIVE: CONCLUSIONS

The Maloelap Survey was done over a few years of time, with assorted goals of survey, photography and exploration on each trip. This made the survey work efficient within certain sites, such as the Ollet vessel wrecks, but distracted from other sites than needed more inspection, like the piers of Maloelap. All of the known or archival researched underwater sites at that time were discovered (Ops, I never did find the Pigete to Taroa submarine power cable). A few new unknown researched topics, such as the A5M “Claude”, the first aircraft shot down by the US Navy in Japanese territory, the two “Avengers” which had a mid-air collision and were lost, and the southern B-25 crash, will have to be searched for at a later time.

It was sad that some sites I visited 20 years ago simply do not exist today. The vast collection of archaeological artifacts at Maloelap Atoll are on-shore, and the nautical history of Maloelap, compared to other outer islands with prior Japanese WW2 bases or German history, is sparse. There were few traders or trading posts, fewer ships, and a better harbor to protect those who came inside the lagoon. What was shown was that time, wind, water, and waves have done more destruction than artifact collecting visitors or divers. But maybe that is because there are few visiting divers.

There has been little touched underwater. The only known artifact removal underwater was the loss of the small machine gun on the stern house of the Kaikou Maru years ago. Maloelap has a small collection of underwater artifacts, but nevertheless, these should be protected. The local government council should approach the RMI HPO office for assistance. These sites are important to the sense of history of the Maloelap atoll and all of the Marshall Islands. One good weekend of serious collectors, and the prime Maloelap sites could be easily stripped.

My main recommendation would be to teach the local person nearest the sites to watch and protect them. Charge a few dollars to visit the site, and then have him maintain it too. This is a hard sell. This attitude has not gone over well in Maloelap in the past, as many have been promised tourism development that has never arrived. So they have sold 2 ½ aircraft, stripped the island of copper and brass, killed all the nearby birds, and watch out fish.

All the other worthy comments have been said before; it is again up to the leaders of the Republic to decide the future of their own past history.

Inventory of Submerged Cultural and Historical Resources of Maloelap Atoll.

REFERENCES CITED

- Angelucci, Enzo & Paolo Matricardi,
1979 *World War II Airplanes, Volume 2*. Rand Mc Nally & Company,
Chicago IL.
- Avery, Norm L.,
1994 *B-25 Mitchell The Magnificent Medium*. Phalanx Publishing Co,
St. Paul MN.
- Bailey, Dan E.
1992 *WW II Wrecks of the Kwajalein and Truk Lagoons*
North Valley Publications Redding, CA
- Bartsch, W.
1986 *After the Battle magazine, Volume 54*.
- Christiansen, Henrik,
1994 *The Archaeology of World War II in the Marshall Islands.*
Volume One: Taroa Maloelap. Historic Preservation Office, Republic of
the Marshall Islands
- Hart, Kevin,
1992 *Song for Anidreb: A Brief History of the Marshall Islands*.
Marshall Islands Publishing. Majuro, Republic of the Marshall Islands
- Hata, Ikuhiko and Yasuho Izawa,
1989 *Japanese Naval Aces and fighter Units in World War II*
Naval Institute Press, Annapolis Maryland.
- Kamada, Shoichi,
September 30, 1945 *Treatment of Captives*
Records of the USS DE-194 Wingfield.
- Lundstrom, John B.,
1994 *The First Team Pacific Naval Air Combat from Pearl Harbor to*
Midway Naval Institute Press, Annapolis Maryland.
- McDowell, Ernest R.,
1978 *B-25 Mitchell in Action*
Squadron/Signal Publications, Inc. Carrolltown TX

Spennemann, Dirk H.R.,

Maloelap Atoll, Marshall Islands.

Document created: December 1, 1995 Document URL:

<http://life.csu.edu.au/~dspennem/MILARCH/Proceedings/Taroa/Taroa.html>

United States Defense Mapping Agency,

1944 *The Chart of Maloelap and Aur Atolls.*

United States Army,

Seventh Air Force, Mission and Missing Air Crew Reports:

MR 85, January 28, 1944 (Attack on Taroa, Loss of B-25)

Missing Air Crew Report 1844, January 22, 1944 (Loss of B-25 S of Maloelap).

Missing Air Crew Report 1845, January 22, 1944. (Loss of B-25 in Southern Maloelap Lagoon).

Missing Air Crew Report 2054, January 28, 1944 (Loss of B-25 near Chierumarokku Island near Taroa)

National Archives and Records Administration, College Park, Maryland

Winton, John,

1978. *War in the Pacific, Pearl Harbor to Tokyo Bay*

Mayflower Publishing, New York NY

BIBLIOGRAPHY

- Angelucci, Enzo & Paolo Matricardi,
1979 *World War II Airplanes, Volume 2*. Rand Mc Nally & Company,
Chicago IL.
- Avery, Norm L.,
1994 *B-25 Mitchell The Magnificent Medium*. Phalanx Publishing Co,
St. Paul MN.
- Bailey, Dan E.,
1992 *WW II Wrecks of the Kwajalein and Truk Lagoon*. North Valley
Publications, Redding CA.
- Carey, Alan C.,
1999 *The Reluctant Raiders*. Schiffer Publishing Company Ltd. Atglen
PA.
- Carey, Alan C.,
2000 *We Flew Alone, United States Navy B-24 Bombing Squadrons*
Schiffer Publishing Company Ltd. Atglen PA.
- Christiansen, Henrik,
1994 *The Archaeology of World War II in the Marshall Islands.*
Volume One: Taroa Maloelap. Historic Preservation Office, Republic of
the Marshall Islands
- Christiansen, Henrik,
1994 *The Archaeology of World War II in the Marshall Islands.*
Volume Two: Wotje. Historic Preservation Office, Republic of the
Marshall Islands
- Christiansen, Henrik,
1994 *The Archaeology of World War II in the Marshall Islands.*
Volume Three: Jaluit. Historic Preservation Office, Republic of the
Marshall Islands
- Christiansen, Henrik,
1994 *The Archaeology of World War II in the Marshall Islands.*
Volume Four: Mili. Historic Preservation Office, Republic of the
Marshall Islands

- Christiansen, Henrik,
1994 *The Archaeology of World War II in the Marshall Islands. Volume Five: Tourism.* Historic Preservation Office, Republic of the Marshall Islands
- Controvich, James T.,
1990 *The Central Pacific Campaign, 1943-1944.* A Bibliography. Meckler Corporation Westport, CT.
- Cressman, Robert,
1999 *The Official Chronology of the U. S. Navy in World War II.* Naval Institute Press
- Crowl, Philip A., & Edmund G Love,
1955 *Seizure of the Gilberts and Marshall's, The War in the Pacific United States Army in World War II.* Office of the Chief of Military History, United States Army Washington DC.
- Dorr, Robert F
1999 *B-24 Liberator Units of the Pacific War.* Osprey Publishing Ltd., Oxford UK.
- Ewing, Steve,
1982 *USS Enterprise (CV-6) The Most Decorated Ship of World War II* Pictorial Publishing Company Missoula MT.
- Forman, Wallace R.,
1996 *B-24 Nose Art Directory* Specialty Press Publishers and Wholesalers North Branch MN.
- Francillon, Rene J.,
1995 *Japanese Aircraft of the Pacific War* Naval Institute Press, Annapolis Maryland.
- Francillon, Rene J.,
1969 *Imperial Japanese Navy Bombers of World War Two.* Hylton Lacy Publishers Ltd., Berkshire England
- Hammel, Eric,
1995 *Aces Against Japan* Presido Press, Novato CA.
- Hart, Kevin,
1992 *Sung for Anidreb: A Brief History of the Marshall Islands.* Marshall Islands Publishing Majuro, Marshall Islands.

- Hata, Ikuhiko and Yasuho Izawa,
1989 *Japanese Naval Aces and fighter Units in World War II*
Naval Institute Press, Annapolis Maryland.
- Hezel, Francis X.,
1979 *Foreign Ships in Micronesia*. Saipan, Mariana Islands, F.J. Hezel &
Trust Territory Historic Preservation Office
- Holly, Matthew,
2000 *The Submerged Cultural Resources of Majuro and Kwajalein Lagoons* Republic of the Marshall Islands Historic Preservation Office
Majuro, Marshall Islands.
- Holly, Matthew,
2001 *The Submerged Cultural Resources of Wotje Lagoon*
Republic of the Marshall Islands Historic Preservation Office
Majuro, Marshall Islands.
- Holly, Matthew,
2002 *Submerged Cultural Resources Inventory Mili Atoll*
Republic of the Marshall Islands Historic Preservation Office
Majuro, Marshall Islands.
- Howard, Clive & Joe Whitley,
1946 *One Damned Island after Another*
The University of North Carolina Press NY.
- Lambert, John W.,
1990 *The Pineapple Air Force Pearl Harbor to Tokyo*
Phalanx Publishing Co., Ltd. St. Paul MN
- Lambert, John W.,
1997 *Low Level Attack: The Pacific*
Specialty Press Publishers and Wholesalers North Branch MN
- Lundstrom, John B.,
1994 *The First Team Pacific Naval Air Combat from Pearl Harbor to Midway* Naval Institute Press, Annapolis Maryland.
- McDowell, Ernest R.,
1979 *B-25 Mitchell in Action*
Squadron/Signal Publications, Inc. Carrolltown TX
- Miller, Mark S.,
1991 *In the Arms of the Sea A historical guide to the shipwrecks of Kwajalein Atoll* Enigma Books Gig Harbor WA

- Morrison, Samuel,
1962 History of United States Naval Operations in World War II
Little, Brown and Company, Boston
- National Aeronautics Council,
1944 Recognition Guide to Operational War Planes
National Aeronautics Council, Inc. New York, NY
- Naval Analysis Division,
1947 The United States Strategic Bombing Survey,
The American Campaign Against Wotje, Maloelap, Mille, and Jaluit
Naval Analysis Division
- Peattie, Mark R.,
1988 Nanyo The Rise and Fall of the Japanese in Micronesia, 1885-1945
University Of Hawaii Press Honolulu, Hawaii
- Rust, Kenn C.,
1979 Seventh Air Force Story in World War II.
Sun Shine House Terre Haute IN.
- Sakaida, Henry,
1997 Japanese Army Air Force Aces 1937-1945,
Osprey Publishing London UK
- Sakaida, Henry,
1998 Imperial Japanese Navy Aces 1937-45
Osprey Publishing London UK
- Scutts, Jerry,
1993 Marine Mitchells In World War Two,
Phalanx Publishing Co., Ltd. St. Paul MN
- Sherrod, Robert
1952 History of Marine Corps Aviation in World War II.
Combat Forces Press Washington
- Spennemann, Dirk H.R.,
Maloelap Atoll, Marshall Islands.
Document created: December 1, 1995 Document URL:
<http://life.csu.edu.au/~dspennem/MILARCH/Proceedings/Taroa/Taroa.html>

United States Army,

Seventh Air Force, Mission and Missing Air Crew Reports:

MR 85, January 28, 1944 (Attack on Taroa, Loss of B-25)

Missing Air Crew Report 1844, January 22, 1944 (Loss of B-25 S of Maloelap).

Missing Air Crew Report 1845, January 22, 1944. (Loss of B-25 in Southern Maloelap Lagoon).

Missing Air Crew Report 2054, January 28, 1944 (Loss of B-25 near Chierumarokku Island near Taroa)

National Archives and Records Administration, College Park, Maryland

United States Marine Corps,

1991 *The Marshalls: Increasing the Tempo.*

The Battery Press Nashville TN

Winton, John,

1979. *War in the Pacific, Pearl Harbor to Tokyo Bay*

Mayflower Publishing, New York NY

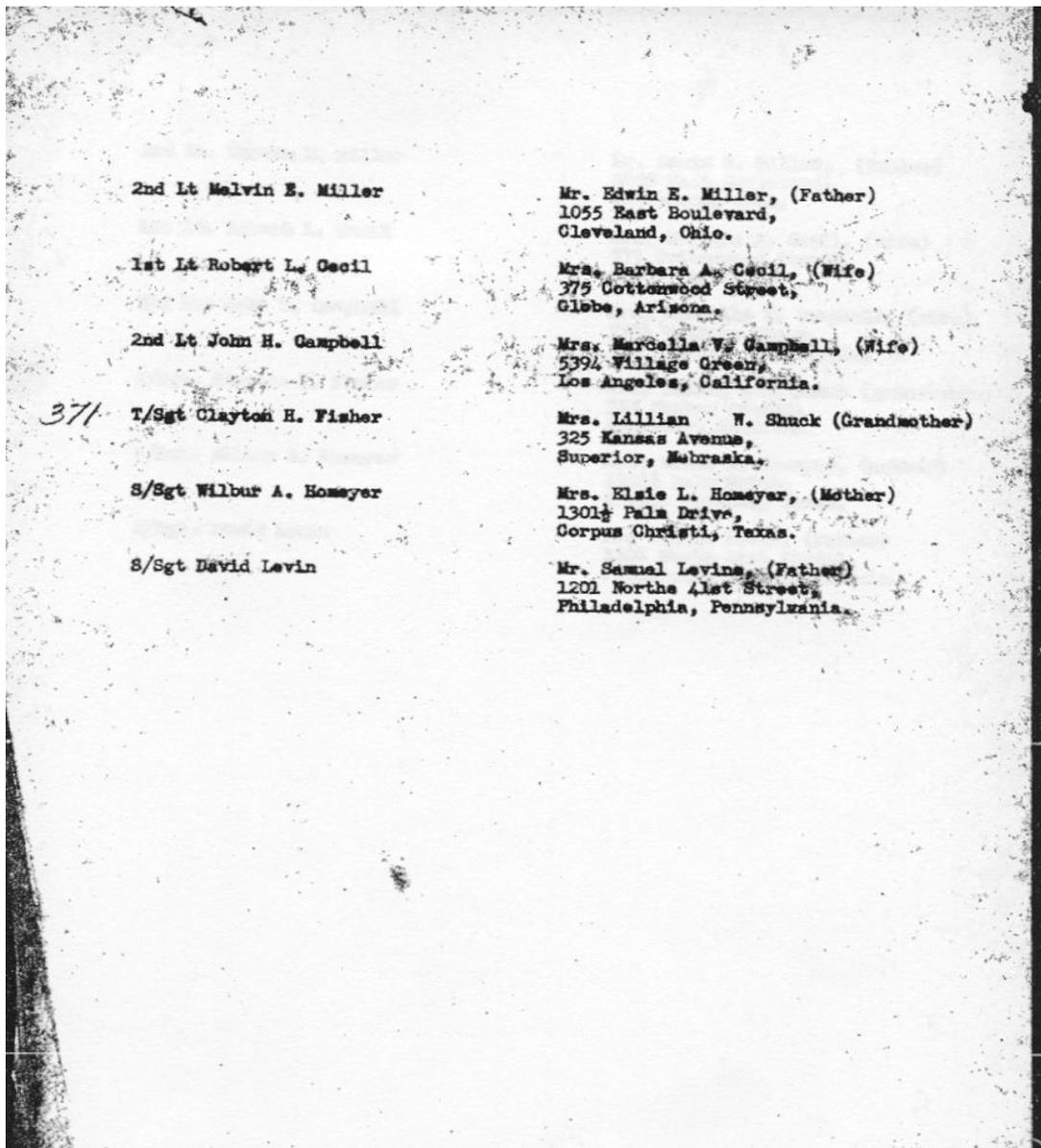
Inventory of Submerged Cultural and Historical Resources of Maloelap Atoll.

APPENDICIES

APPENDIX 1

MILITARY DOCUMENTS RELATED TO MALOELAP ATOLL

US Army Air Force Missing Aircrew Report (MACR) No. 2054, January 28, 1944.
B-25 Crash at Chierumarokku Island. 7thAF/41stBG (M)/47thBS.



MACR 2054 Family Contact page.

MISSING AIR CREW REPORT
APC 7242

IMPORTANT: This report will be compiled in triplicate by such Army Air Forces Organization within 48 hours of the time an aircraft is officially reported missing.

1. ORGANIZATION: Location Apemama Island; Command or Air Force 7th B C
Group 41st; Squadron 27th; Detachment -
2. SPECIFY: Point of Departure O'Hare Field; Course 950
Intended Destination: Apemama Island; Type of Mission: Bombing
3. WEATHER CONDITIONS AND VENTURE OF CRASH OR WHY LAST REPORT ED CAVU
4. GIVE: (a) Date 28 Jan 44 Time 1615; and Location 3/4 mi. E of Is. Tereva
(b) Specify whether () last sighted; () last contacted by Radio
() Force of Impact; () seen to crash; or () information not available
5. AIRCRAFT WAS LAST OR IS BELIEVED TO HAVE BEEN LOST, AS A RESULT OF:
(Check only one) () Enemy Aircraft; (X) Enemy Anti-Aircraft; () Other Circumstances as follows: _____
6. AIRCRAFT: Type, Model and Serial B-25-C; A.A.F. Serial Number 42-54924
7. ENGINES: Type, Model and Serial _____; A.A.F. Serial Number (a) E-41-28264
Type Radial Model 14 Cyl. Model BR600-13 Make Wright Serial Number R-41-30310
8. INSTALLED WEAPONS (Furnish below Make, Type and Serial Number)
(a) 9 50 Cal Machine Gun; (b) 75 MM Cannon; (c) _____; (d) _____
(e) _____; (f) _____; (g) _____; (h) _____
9. THE PERSONS LISTED BELOW WERE REPORTED AS: (a) Battle Casualty X
or (b) Non-Battle Casualty _____
10. NUMBER OF PERSONS ABOARD AIRCRAFT: Crew 6; Passengers 0; Total 6
(Starting with pilot, furnish the following particulars: If more than 10 persons were aboard aircraft, list similar particulars on separate sheet and attach original to this form.)

	Crew Position	Name in Full (Last Name First)	Rank	Serial Number
DEF 1	Pilot	Cecil, Robert L	1st Lt	0757727
DEF 2	Co-pilot	Campbell, John H	2nd Lt	0742291
DEF 3	Bombardier-Navigator	Miller, Melvin E	2nd Lt	0741084
DEF 4	Radio-Op-Gunner	Fisher, Clayton H	S/Sgt	17011932
DEF 5	Eng-Gunner	Homer, Wilbur A	S/Sgt	59032423
DEF 6	Armorer-Gunner	Lavin, David (nm)	S/Sgt	20308638
7.				
8.				
9.				
10.				

11. IDENTIFY BELOW THOSE PERSONS WHO ARE BELIEVED TO HAVE LAST KNOWLEDGE OF AIRCRAFT AND CHECK APPROPRIATE COLUMN TO INDICATE BASIS FOR SAME:

Name in Full (Last Name First)	Rank	Serial Number	Check Only One Column			
			Contacted By	Last Sighted	Saw Crash	Forced Landing
1. Grimsald, Earl J	S/Sgt	38032094			X	
2. Declin, Glen R	Cpl	17128766			X	
3. Kinney, George E	1st Lt	025778			X	

12. IF PERSONS ABOVE ARE BELIEVED TO HAVE SURVIVED, ANSWER YES TO ONE OF THE FOLLOWING STATEMENTS: (a) Parachutes were used _____; (b) Persons were seen walking away from scene of crash _____; or (c) Any other reason (Specify) Yes, escape hatch seen to open

13. ATTACH AERIAL PHOTOGRAPH, MAP, CHART, OR SKETCH, SHOWING APPROXIMATE LOCATION WHERE AIRCRAFT WAS LAST SEEN. Map attached
14. ATTACH WITNESS DESCRIPTION OF CRASH, FORCED LANDING, OR OTHER CIRCUMSTANCES PERTAINING TO MISSING AIRCRAFT. 2 accounts attached (named above)
15. ATTACH A DESCRIPTION OF THE EXTENT OF SEARCH, IF ANY, AND GIVE NAME, RANK AND SERIAL NUMBER OF OFFICER IN CHARGE HERE None

Date of Report 30 January 1944

Edward J. Frank
1st Lt. AC, Adjutant
(Signature of Preparing Officer)

1163

47TH BOMBARDMENT SQUADRON (M)
APO #242

~~SECRET~~

STATEMENT OF EARL J GRUNEWALD, S/Sgt., 38032084, Tail Gunner, AP 42-64914

"From my position as tail gunner in Airplane #42-64914 I first noted Airplane #42-64924 on my lower right side about 75 yards behind and about 100 feet below (looking back). Airplane #42-64924 when first noticed was afire in bomb-bay and navigator section as well as coming out of top of pilot's compartment. Airplane was then observed trying to crash land as in a glide, at a great rate of speed. When airplane hit the water nothing could be observed by fire and smoke on the water, which could be seen as far as 15 miles away. No definite explosion seemed to occur upon contact with the water, unless same was mistaken for a huge spray of water, followed immediately by flame and smoke pouring over entire area of crash location."

Earl J. Grunewald
EARL J GRUNEWALD, 38032084
S/Sgt., 47th Bomb Sq (M)

Sworn and subscribed to before me this 30th day of January 1944 at APO #242

Edward T. Frank
EDWARD T. FRANK,
1st Lt., Air Corps,
Adjutant, 47th Bomb Sq (M)

~~SECRET~~

1163

47TH BOMBARDMENT SQUADRON (M)
APO #242

STATEMENT OF Cpl Glen R Doolin, 17128766, Top Turret Gunner, AP #42-54914

*Dist
#2*

" From my position as top turret gunner in Airplane #42-64914 I first noted Airplane #4264924 on our right wing, afire in Navigator's compartment and in Bomb-Bay. This airplane then lost altitude gradually while going along at about 230 miles per hour. He made the same turn as our airplane did while afire and losing altitude. Airplane then leveled off and hit the water while in a glide, causing a terrific spray. Black smoke immediately enveloped the crash area and neither airplane nor debris was visible to me after same made contact with the water. "

Glen R Doolin
GLEN R DOOLIN, 17128766
Cpl., 47th Bomb Sq (M)

Sworn and subscribed to before me this 30th day of January 1944 at APO #242

Edward T Frank
EDWARD T FRANK,
1st Lt., Air Corps,
Adjutant

47TH BOMBARDMENT SQUADRON (M)
APO #242

STATEMENT OF 1 LT GEORGE R KINNEY, O25779, Pilot AP 42-64914

*Final
91*
"After leaving Taroa, Marshall Islands, on 28 Jan 1944, I observed from my position as pilot of B-25-G Airplane No. 42-64914, that B-25-G Airplane No. 42-64924 had been hit and there was fire in the bomb-bay. The airplane made a gentle turn to the left losing altitude very slowly. The airplane was apparently under control all the time until it hit the water. It struck the water flat and straight in very nearly a 3 point attitude."

George R. Kinney
GEORGE R KINNEY,
1st Lt., Air Corps.

Sworn to and subscribed before me this 5th day of February 1944 at APO #242

Edward R. Frank
EDWARD R FRANK,
1st Lt., Air Corps,
Adjutant.

~~SECRET~~
47TH BOMBARDMENT SQUADRON (M) AAF
APO #242

STATEMENT OF 2 LT RAYMOND P HAMILTON, 0743009, Co-Pilot AP #42-64916

11
After crossing Taroa, Marshall Islands, I saw, from my position as co-pilot in B-25-G Airplane #42-64916, B-25-G Airplane #42-64924 burning out of bomb-bay and at rear of cockpit. The airplane made a slow turn to the left coming directly under our airplane (42-64916). As he passed under us I saw his front escape hatch released, proving the airplane was still under control."

Raymond P. Hamilton
RAYMOND P HAMILTON,
2nd Lt., Air Corps.

Sworn to and subscribed before me this 5th day of February 1944 at APO #242

Edward J. Frank
EDWARD FRANK,
1st Lt., Air Corps,
Adjutant.

APPENDEX 2

UNDERWATER VIDEO RAW FOOTAGE OF ALL SITES WITH TITLES FOR IDENTIFICATION

TAPE NUMBER	SITE NUMBER	TIME
45	Start at Ollet Seisho Maru Site 3	0:00 to 20:29
45	Kaikou Maru Site 4	20:30 to 26:31
45	Ollet Southern Zero Site 5	26:32 to 38:19
45	Ollet Northern Zero Site 1	38:20 to 43:30
45	Ollet on shore	43:31 to 52:50
45	Ollet Central Zero	52:51 to 55:10
45	Ollet North Zero	55:11 to 59:15
45	Dead Film, Camera on	59:16 to 1:07:50
45	Kaikou Maru Site 4	1:07:51 to 1:54:50
45	Seisho Maru Site 3	1:55:00 to 1:59:50
45	Kaikou Maru	1:59:51 to END
New Tape		
46	Ollet on Shore	0:00 to 25:20
46	Taroa Anchorage Beach North to South	25:20 to 27:00
46	Taroa Boneyard	27:00 to 54:00
46	Taroa Underwater, fish	54:01 to 58:00
	Dead footage	58:01 to 1:00:00
46	Chasing the Manta	1:00:00 to 1:02:30
46	Site 7 B-25 Site 7 UW	1:02:31 to 1:22:00
46	Site 8 UW Terushima Maru	1:22:01 to 1:44:00
46	Site 8 UW	1:44:01 to 2:02:00

Total Time of Raw Video Footage of Maloelap Sites Surveyed: 4 Hours, 5:40 Minutes.

APPENDIX 3

CONTRACTOR'S CURRICULUM VITAE

The contractor for this report, Matthew B. Holly, became a N.A.U.I. (National Association of Underwater Instructors) SCUBA Instructor (No. 5074), in May 1978, in San Diego, California. He graduated in 1979 with a B.S. Degree in Accounting from San Diego State University.

While working for The Diving Locker, a prominent San Diego SCUBA business, he met and was hired by businessmen interested in developing a Yacht Charter and SCUBA Diving business in the Marshall Islands, and moved to Majuro, Marshall Islands, in June 1979. The business failed, he stayed, and started his own business, called Marshall Islands Aquatics.

During the next 21 years, he has made over 5000 SCUBA dives around the Marshall Islands, for SCUBA training, tourism, commercial work, and for fun.

His first charter was to attempt to locate the crash site of Amelia Earhart in Mili for author Vincent Loomis in 1979. Research into World War Two history began in 1983 after he found a Martin PBM-3 Mariner aircraft in Majuro lagoon. Since then he has found or re-discovered over 100 historic underwater sites, primarily WW2 ships and aircraft, and found the remains of a U.S. Army WW2 aviator and his aircraft lost in the jungle of Mili in 1994. He recently located an intact Douglas TBD-1 "Devastator" in Jaluit lagoon.

Matt also found that tourists provided with complete information on historical sites were much happier visitors. So he now has an extensive library of marine and WWII era books, and writes articles on military history for numerous publications. He has researched virtually every known Marshall's aviation and shipping loss during World War II, and currently has over 900 entries with stories, and databases of losses of U. S. and Japanese vessels, aircraft, and casualty information. He has visited the majority of the Marshall Islands, and Maloelap over 12 times since his first visit.

He currently is an underwater jack-of-all-trades. Matt has been involved in aquaculture projects, underwater bathometric surveys, private reports for marinas, and underwater construction and design. Commercial work has included salvage, ship repairs, re-floating a 1,200-ton vessel, and sinking a 400-ton vessel for an artificial reef. He has produced underwater videos on pollution and tourism, and has a collection of underwater videos of his work.

This report, like his prior reports on Kwajalein, Majuro, Wotje and Mili Atolls, continues his work in listing underwater assets in the Republic of the Marshall Islands.