



REPUBLIC OF THE MARSHALL ISLANDS
MINISTRY OF INTERNAL AFFAIRS
HISTORIC PRESERVATION OFFICE

*Archaeological Survey and Inventory of
Submerged Cultural Resources in the Lagoon
of Majuro Atoll*

Matthew B. Holly

HPO Report 2000/01

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Majuro Atoll, 2000

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ARCHAEOLOGICAL SURVEY AND INVENTORY OF
SUBMERGED CULTURAL RESOURCES IN THE
LAGOON OF MAJURO ATOLL

PREPARED FOR THE HISTORIC PRESERVATION OFFICE,
REPUBLIC OF THE MARSHALL ISLANDS
P.O. Box 1454 Majuro
Marshall Islands MH 96960

PREPARED BY
MATTHEW B. HOLLY
MARSHALL ISLANDS AQUATICS
P.O.Box 319 Majuro
Marshall Islands MH 96960
E-Mail <aquamar@ntamar.com>

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Majuro Atoll, 2000

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The Majuro portion of the survey was accomplished with the assistance of 20 years of SCUBA divers, diving students, employees, tourists, and research, impossible to list here. They are exemplified by my friend and SCUBA diver Kimbar Peter, whose information lead me to the Majuro Avenger site, and who passed away too soon in 1996.

The Majuro portion was also aided by Dr. Dirk Spennemann, another diving student of mine, whose archival research was used to prepare the report on the Majuro B-24 crash site, and was instrumental in the first survey of the Majuro "Parking Lot" site, and its' development and protection for tourism.

The oral information provided is credited in the bibliography, as is information acquired from any other source referred to in this report. All photographs were taken by me or in my library and given reference and credit. All equipment used underwater and for the building of this survey and report is listed in the appendix.

This report is as accurate as possible on this date, yet it seems every day I learn something new or find another artifact or clue. Any comment to correct or update this report would be appreciated and added to any future version.

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Matthew B. Holly
Majuro, Marshall Islands
September 1999

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INTRODUCTION

The following report is the result of survey work conducted between January 1, 1999 and June 5, 1999 in the lagoons of Majuro and Kwajalein Atolls, Republic of the Marshall Islands. The survey was done for the Historic Preservation Office, Ministry of Internal Affairs, Republic of the Marshall Islands. The U.S. National Park Service provided funding to the Historic Preservation Office through the Historic Preservation Fund grant. The survey, called the "Archaeological Survey and Inventory of Submerged Resources in the Lagoons of Majuro and Kwajalein Atoll," was a Phase II archaeological reconnaissance survey. Only known sites were recorded. No artifacts were collected. This report covers only the sites surveyed in Kwajalein Lagoon. See *Archaeological Survey and Inventory of Submerged Cultural Resources in the Lagoon of Kwajalein Atoll* (Holly 2000) for information concerning the other half of the project. The information collected is to be used by the Historic Preservation Office to develop and/or protect the sites, primarily, and obviously, for SCUBA diving and tourism. Additional archival research was done to supplement the author's own research into many of these and other sites. All field documents, including completed site survey forms, field notes, maps, photographs, and video tapes are housed at the Historic Preservation Office, Majuro Atoll, Republic of the Marshall Islands. As the survey was reconnaissance in nature no artifacts were collected.

My background in this field is detailed and overlapping. I have been a SCUBA Instructor since 1977, and have operated a SCUBA diving tourist business in the Marshall Islands since 1979. I found that a tourist visitor provided with complete information on any site was a much happier, and free spending visitor, so I began my research. I now have an extensive marine and military library, and a database of US losses in the Marshall Islands in World War Two, which helped locate the remains of Lt. John W. Starmann in Mili Atoll in 1994.

As my business developed, the demand for underwater photographic work grew, both in still photography and videotape. The demand for commercial underwater services and repairs required even more equipment, and soon salvage was added to my resume. Aquaculture then demanded many of these skills, and I had a foray into the collection of marine aquarium fish, the growing of oysters and clams, and conducting professional surveys around the Marshall Islands for many different marine items. A professional videotape produced on the underwater trash problem in Majuro expanded my film and computer abilities, and this survey has required the collection of all my skills and equipment into the building of a single report.

The underwater sites chosen for Majuro and Kwajalein atolls were picked considering many factors. The sites had to be over 50 years old, and had to have some form of cultural or archeological value. Cultural value now also includes

the tourism value of the site, as tourism impacts positively with income dollars to the country and negatively with the degradation of the site by the stripping of artifacts. This means a simple 50-year-old engine or cola bottle may not qualify, but a debris field of 50-year-old bottles or discarded military vehicles used as a popular tourism and photographic site does.

Obvious sites included World War II shipwrecks and aircraft, and these were the bulk of the survey items. The Marshall Islands was the site of many bases and battles, with items lost from both sides, before, during, and after World War II. The sites most endangered by the environment, time, and/or modern development were given highest priority. Sites were also for case studies, to compare the impact of years of diving, and for some of the more inaccessible sites, to compare the lack of impact by divers. Any significant or molested artifacts were listed for each site.

The survey work consisted of multiple SCUBA dives on the sites at both Majuro and Kwajalein Atolls. Most of the sites I have been visited before, especially those at Majuro. The Majuro sites could therefore be studied with more detail, their parameters defined better, with better planning for photo and video work. Some of the Kwajalein sites I visited for the first time, and I was fortunate on most of these to have both wonderful dives as far as details and visibility.

Most of the sites were boat dives, primarily for ease of equipment use, but some were accessed by beach dives. Survey techniques on each site usually began with identifying its' exact location by GPS or reference points, and defining the sites parameters on the bottom. Video footage was taken on virtually every dive, with separate still photography on most of the sites. Some dives were exploratory in nature, to find an exact location, item or artifact. The more difficult sites, such as the Majuro Grumman "Duck" or the Kwajalein "Zero" took multiple search dives without camera gear. Large sites such as the Majuro "Parking Lot" and the Kwajalein "Prinz Eugen" would take months to properly identify and categorize, and required many more dives than listed in this report.

Some sites originally planned for the Kwajalein survey were omitted and replaced with other sites, as some sites could not be located or were difficult or dangerous to dive. They were replaced with other significant sites with similar features or goals to study. A site a Kwajalein was never found, the Deep Ebeye Zero, but was listed with expected site history. Two sites were added to the Majuro list, as during the survey the Majuro US Dock at Rita developed into its' own unique site both underwater and by research, and the Val Dive Bomber was added so its' unique history, if ever located again, would be recorded and not lost to time.

The Majuro work was done piecemeal over the survey period, and the Kwajalein survey required 2 separate SCUBA diving trips to Kwajalein Atoll to conduct

underwater surveys of the sites. Additional archival research was conducted to support these site histories. Information on these sites was also complemented by my own SCUBA diving in Kwajalein in the past, and research information acquired during my own studies of the Military History of World War Two in the Republic. My extensive diving on and research into the "Prinz Eugen" wreck as both a tour group operator and researcher may add some new information to this bit of history. And lastly, my experience in the commercial field of SCUBA diving and maritime work may add some details to some of the vessels that have gone unreported to the un-trained eye.

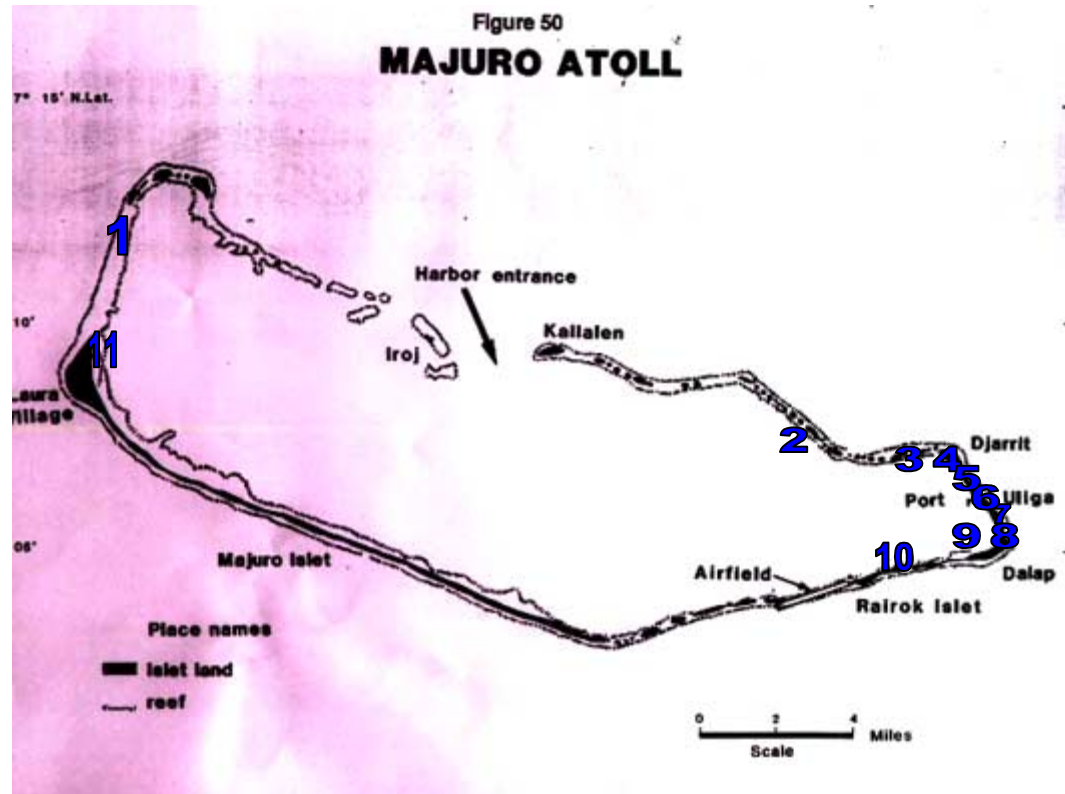
The RMI Historic Preservation Office was also involved in the survey process, providing a certified SCUBA diver on dives both in Majuro and Kwajalein. The office provided additional GPS equipment and software, besides reviewing this report before final draft.

Details of aircraft and ship design, specifications, and military performance not needed for identification and available from common sources has been omitted from this report to avoid excess repetitive information. Sources for this information are available in the bibliography or my personal book list in the appendix.

Lastly, a number of appendices follow in this report. Appendices include a complete bibliography, a videotape summary of the raw video footage, and a list of equipment used for this survey. The final appendix is a listing of all the known substantial Majuro historical and tourist dive sites, attached to avoid future confusion if a site has been discovered or re-discovered, and if it is over 50 years old or not.

MAP OF MAJURO WITH SITE POSITION SUMMARY

SITES 1 THROUGH 11



Map of Majuro scanned from: (Karolle, Bruce G., "ATLAS OF MICRONESIA", 1993).

MAJURO SITE 1 REPORT

NAME: LAURA B-24 CRASH SITE
RMIHPO Site No. MI-MJ-LA-001

GENERAL DESCRIPTION AND LOCATION

The Laura B-24 Crash site is the remains of an American B-24 Heavy Bomber that made an emergency landing on the shallow reef at Majuro Atoll between the end of Majuro Island, known as Laura, and the Rong Rong chain of islets to the north. The wreckage is in 6 to 12 feet of water on a sandy bottom approximately 1/2 mile south of Ajola Island. The remains are visible from the air, can be seen easily by snorkeling, but require a boat to reach the site, it being nearly 2 miles from the end of the Laura. The shallow site has abundant reef life and excellent visibility, but is best visited at low tide to avoid heavy tidal current. A map of the site, Map MS1, follows the photo section of this report.
GPS Position: N 07.04.000 x E 171.19.800

DETAILS

The Majuro Site 1 is the remains of a B-24J Heavy Bomber, listed as from the 11th Bomber Group, 431st Squadron. The bomber was part of a raid on Maloelap atoll on December 28, 1943, and was damaged, losing 2 engines and forcing it to make an emergency landing at Majuro Atoll (Spennemann, 1995, 1-6). Spennemann also lists the plane as serial number 42-73013.

Another source lists the plane number 42-73013 as being part of the 11th Bomb Group, 98th Squadron, and the aircraft was named "**Baby Sandy II**" (Foreman, 1999:82). There was no photo of the plane or nose art.

The plane and crew survived the crash in one piece. The crew, unfortunately, did not survive the war, and their final fate is unclear. It seems they hid out for over 10 days on one of the uninhabited small islands east of Rong Rong until surrendering. They were eventually taken to Maleolap, and possible to Kwajalein, but they were never positively seen again or their remains ever recovered. A Marshallese English speaking missionary, Alexander Milne, was also involved with their capture, and was also taken by the Japanese with the crew to Maloelap allegedly as a spy, and he also was never seen again. The aircraft was stripped by the Japanese and bombed by the Americans and still sits where it crashed over 50 years ago.

The aircraft today is identifiable from its remaining wings, engines, and parts from the fuselage and weaponry. A B-24, being a high wing aircraft, does not survive well after crashes, as the weight of the wings and engines, and possible

fuel, crushes fuselage section to destruction. In this case, the destruction was furthered by the aircraft resting broadside in a heavy tidal flow area on the reef, plus the action of wind, waves, storms, and time.

The aircraft port wing is embedded in the bottom and overgrown on its wingtip with coral (Photo MS1-1). The aircraft engines are partially embedded in the sandy bottom (Photo MS1-2), with the propellers sticking out of the water at lower tides. The engines are separated from their mounting points (Photo MS1-3), but are all upright. The number 1 engine is missing its upper blade, which is used as a channel marker near a small boat harbor at Laura Beach. The fuselage has only part of the bottom remaining, and ends near the belly ball turret position (Photo MS1-4). The ball turret in the belly position is still visible, with only 1 gun present (MS1-5). The wings show undetermined damage, from flak, or in this case, possibly from a visiting speedboat propeller (Photo MS1-6). Marine growth is everywhere, and on the number 2 engine even includes a clam shell (Photo MS1-6). The entire tail section is missing.

This story is additionally tragic as Majuro atoll was basically unprotected at the time of the crash, and the Americans could have walked to town and captured Majuro. Just 4 weeks later the Americans did land and capture Majuro without opposition. It seems the crew fired signal flares a few days after their crash to attract a rescue attempt, but it was never responded to. The crew list is as follows: 1st Lt. Ivan M. Osborne, Pilot; 1st Lt. Raymond D. Cloyer, Co-Pilot; 2nd Lt. Virgil A. Tramelli, Navigator; 1st Lt. Maxie G. Deer, Jr., Bombardier; T Sgt Edward J. Bislew, Engineer; T Sgt Joseph J. Perry, Radio Operator; S Sgt John J. Dell, Asst Radio Operator; S Sgt Warren C. Hill, Gunner; S Sgt Hulbert J. Swaim, Gunner; Pvt Williston F. Rumsey, Asst Engineer (Spennemann, 1995:2). The crew was memorialized by their being listed on the "Tablets of the Missing", Honolulu Memorial Cemetery, Oahu, Hawaii.

Dr Dirk Spennemann has researched the story extensively and is writing a book on the event, primarily focusing on why the crew was never rescued.

COMMENTS AND CONCLUSIONS

The B-24 wreckage is an easy and interesting dive, and even though it is shallow, has shown little damage from visitors. The propeller blades sticking out of the water give it a memorial type of setting by themselves. The only artifact remaining on the site that is visible is the ball turret machine gun, although there may be other items buried in the sand or covered with coral growth in the area. I would recommend any tour guides to the area restrict any visitors from walking on the wings, and possibly placing a mooring nearby so visiting boats don't tie off to the propeller blades. These visiting boats may have caused the damage to the leading edge of the wing with their own propellers (Photo MS-7).

A drawing of the aircraft is attached as Drawing MS1-8.

PHOTO SECTION OF THE MAJURO SITE 1 REPORT

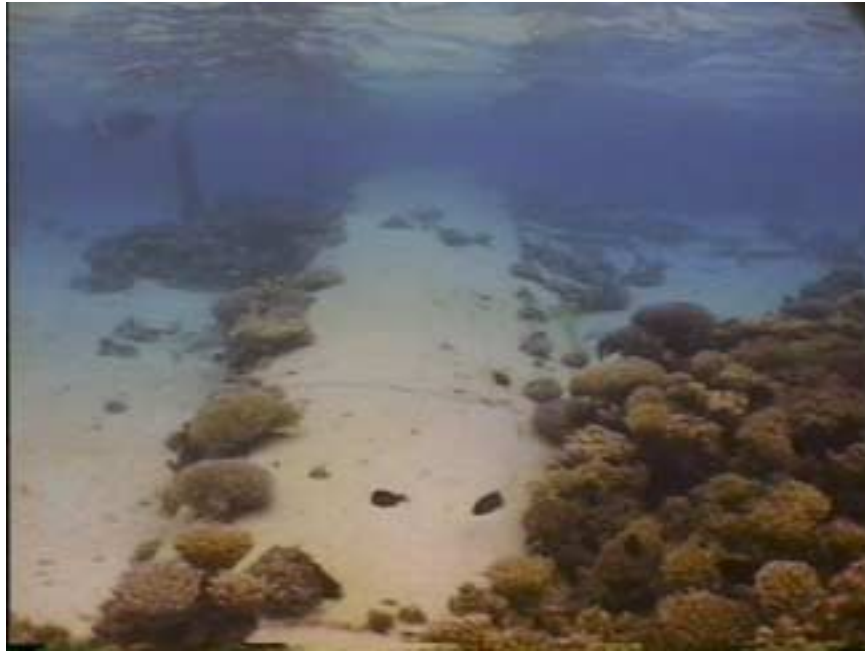


Photo MS1-1 Port side wing of B-24 Heavy Bomber covered in coral growth.



Photo MS1-2 The number 3 and 4 engines of the B-24 Heavy Bomber are embedded in the shallow sandy bottom.



Photo MS1-3 B-24 Engines 3 and 4, slightly separated from original mountings



Photo MS1-4 Remains of fuselage behind wings of B-24 Heavy Bomber.



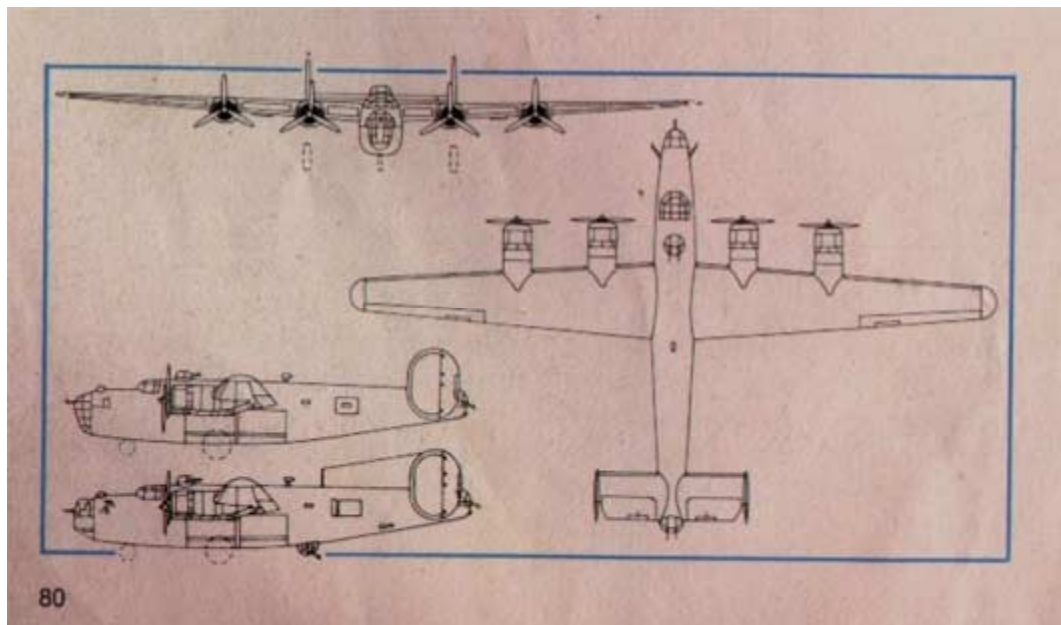
Photo MS1-5 Belly Ball Turret Machine Gun.



Photo MS1-6 Number 2 engine with marine growth including clam on base of propeller blade.



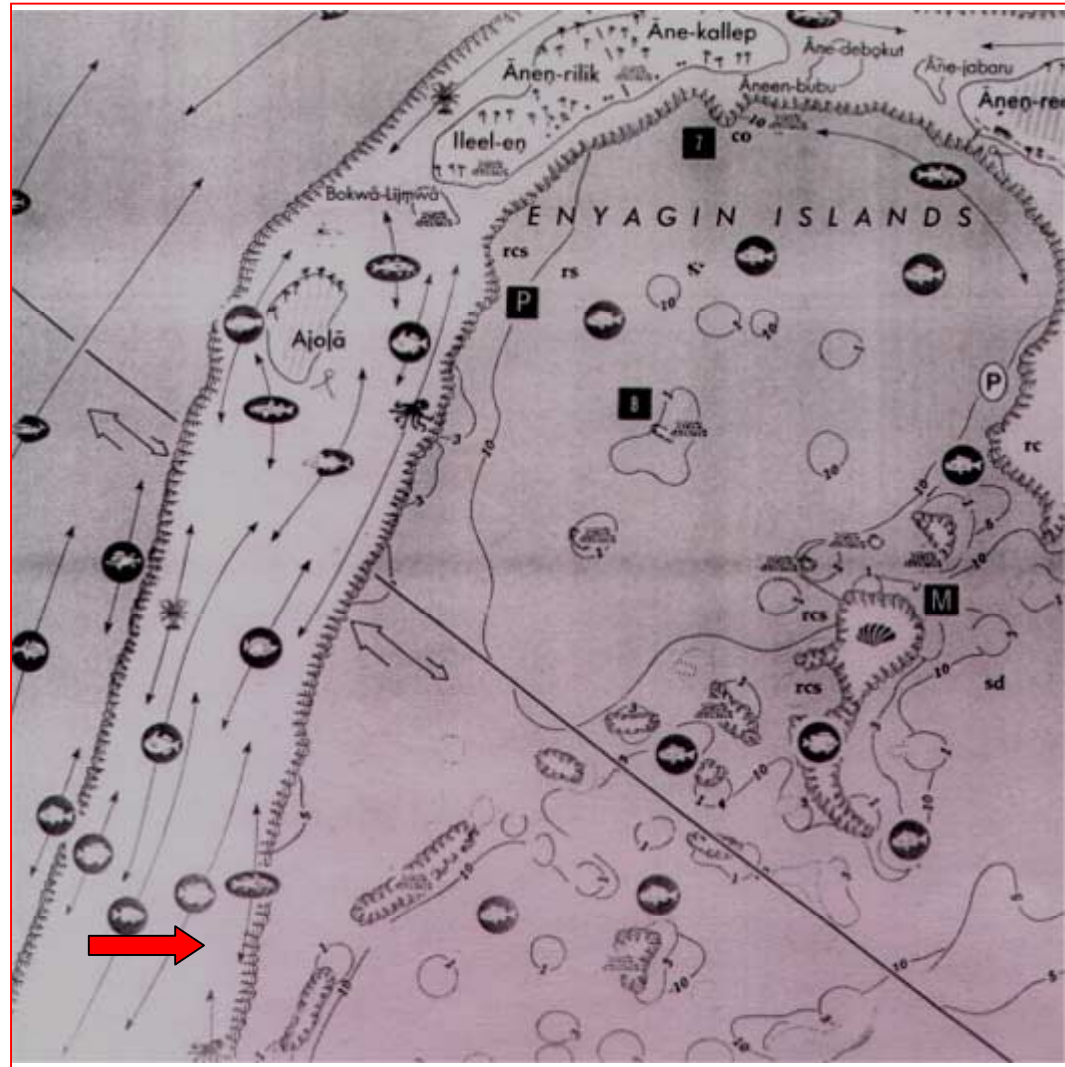
Photo MS1-7 Damage to leading edge of wingtip from unknown sources.



Drawing MS1-8 of B-24 Models D (upper bottom left) and J (lower bottom left). Notice addition of belly turret. (*Angelucci and Matricardi, 1977:80*)

MAP OF MAJURO SITE 1. (Site is located at the red arrow.)

Map scanned from (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE ATLAS", 1989:25).



MAJURO SITE 2 REPORT

NAME: US AVENGER AIRCRAFT SITE
RMIHPO SITE No. MI-MJ-LA-002

GENERAL DESCRIPTION AND LOCATION

The major portion of the US Avenger Aircraft is located on the lagoon side of the channel between Bokollap and Lijeboro islands. Lijeboro Island is the very small island used as a burial ground just west of Aneparoro Island. The fuselage is at the bottom of the drop-off in nearly 110 feet of water. Parts of the tail are on the underwater slope, and the engine block and other parts and pieces are located oceanside of Bokollop Island and in the rubble channel between the islands. The aircraft is easy to find, and the site has a concentration of photogenic marine life. The site has very good visibility after the tide has fallen to an extreme low. A map of the site, Map MS2, follows the Photo Section of this report.
GPS Position: N 07.08.400 x E 171.18.000

DETAILS

The only TBF/TBM Avenger loss I could locate for Majuro was a US Navy loss of a TBM-1 from VT-35 on June 4, 1944 from an engine failure. This unit was attached to the Escort Carrier Chenango, CVE-28. It was listed by the US Army computer printout of Marshall Island losses (*US ARMY, "LOSSES", Undated: 4*) as flying to or from Kwajalein on an unknown mission. It was also listed in the database of Wreck Finders International (*Darcy, Personal Communication 1999*).

Its' positive identity is further hampered since 2 TBMs were listed as lost on this date (June 5 1944 US time), and the Bureau serial number could either be 45509 or 24279. The aircraft model isn't positive, but it is a model 1. The TBF was a first version produced by Grumman, and an identical version, the TBM, was later produced by Eastern Aircraft, a subsidiary of General Motors. Later models, designated 1C and 3 had other features, and are different from the aircraft underwater. Drawings and Photos of the TBF model are attached as Photos MS3-1 and 2.

The aircraft I describe apparently made a safe forced landing on the oceanside reef upwind from Bokollap Island, as no loss of life is listed for this incident. The aircraft was stripped, broke up over time, and pieces washed to sites nearby. The engine and torpedo or bombs ended up near the tidal zone on the oceanside of Bokollap (Photos MS2-3 and 4). Miscellaneous debris, primarily from the engine, littered the channel between the islets pushed by the surf energy towards the lagoon side. Various aircraft aluminum shards were deposited along the

shallows lagoon side of Bokollap, and the tail section washed over the drop-off into nearly 60 feet of water (Photo MS2-5).

The main airframe, less engine, tail, and landing gear must have floated temporarily from the fuel tank buoyancy, and was driven down the same channel between the islands and then sunk at the base of the drop-off at just over 110 feet.

The aircraft silhouette was spotted by an experienced skin diver spear fishing, who reported it to a friend, Kimbar Peter, a SCUBA diving student of mine. From his information, and my knowledge of similar crashes and washing of aircraft to the lagoon side, (My find of a Japanese "Betty" bomber located in Maloelap Atoll in 1984.) I found the Avenger by skirting the base of the drop off at approximately 80 feet deep until I spotted the aircraft approximately 200 yards from the beach directly in line with the channel between the islets.

The aircraft fuselage was in very good condition, and easy to spot and identify as an Avenger Model 1, with the 30 caliber gun slot through the right side of the engine compartment (Photo MS2-6). The aircraft was also missing all guns and many smaller cockpit items, indicating it was stripped before washing over into the deep (Photo MS2-7). The rear facing gun position is open and without gun or assembly (Photo MS2-8). The inshore (right) wing was free of most rubble in 1996, but today is covered in under a foot of debris all the way to the fuselage (Photo MS2-9). The firewall is host to a maze of whip coral, growing up over 10 feet.

The fuselage is host to a defensive eel, and an array of assorted marine life. Recently another diver told me he may have seen a torpedo deeper and out to the west of the site, but I have not seen it. There are no items of collectable value but it is an excellent photographic and tourism site, as shown by this happy diver standing on the wing at 115 feet (Photo MS2-10).

COMMENTS AND CONCLUSIONS

The US Avenger Site has been protected by its' depth and luck for 50 years. It is an easy deep dive, and a wonderful site for photography. The only detrimental aspect is the slow covering of the site with rubble from the channel wash. This could be periodically removed from the right wing to preserve the site, or even move the plane to a safer area, but for the moment I feel the aircraft is probably best left alone and just periodically monitor the site

PHOTO SECTION OF MAJURO SITE 2 REPORT

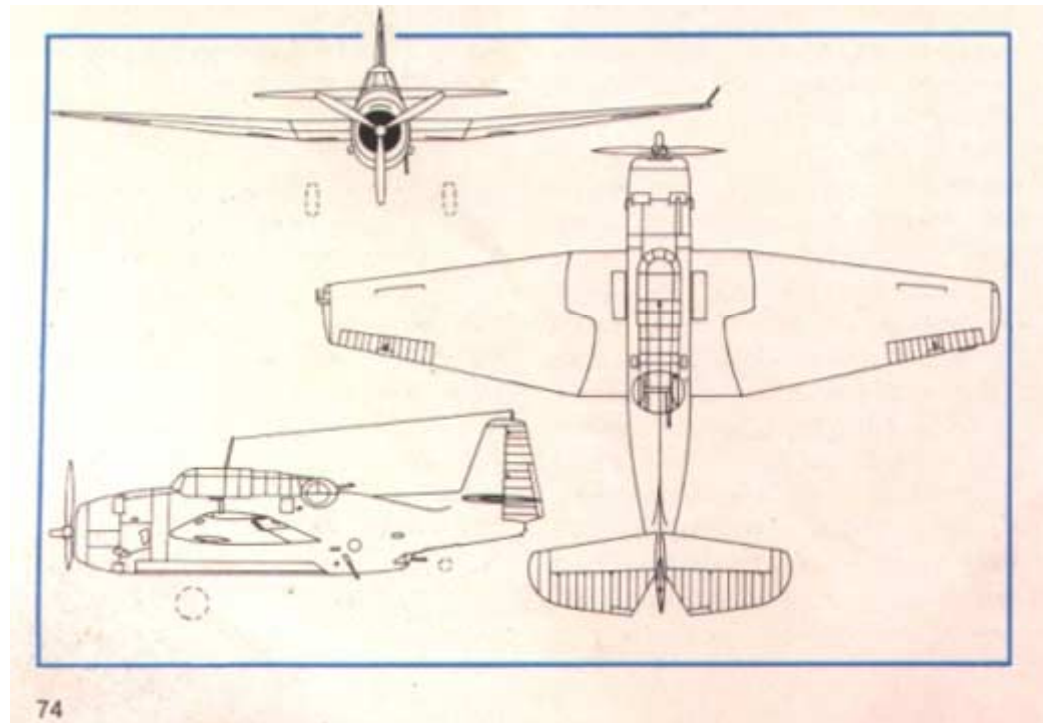


Photo MS2-1 Scanned Drawing of a Grumman TBF Model Avenger. Scanned from: (*Angelucci & Matricardi, 1977:74*).



Photo MS2-2 Scanned photo of a TBF-1 Avenger. From: (*Angelucci & Matricardi, 1977:75*).



Photo MS2-3 US TBM/TBF "Avenger" engine block assembly on oceanside of Bokollap island. Note hack-sawed off top propeller blade.



Photo MS2-4 Torpedo or Bomb fragments from the "Avenger" aircraft oceanside of Bokollap Island.



Photo MS2-5 Bulk of tail section on slope at 60 feet. Ammo feed box for lower machine gun is in dark shadow area.



Photo MS2-6 Front of aircraft without engine. Whip coral grows out of firewall area. Note debris on right wing, and left wing is basically clear.



Photo MS2-7 Close up of pilot area. Single machine gun slot on right side is visible, as is armor plate behind pilot's head.



Photo MS2-8 Location of rear facing machine gun, mounted on the ring.

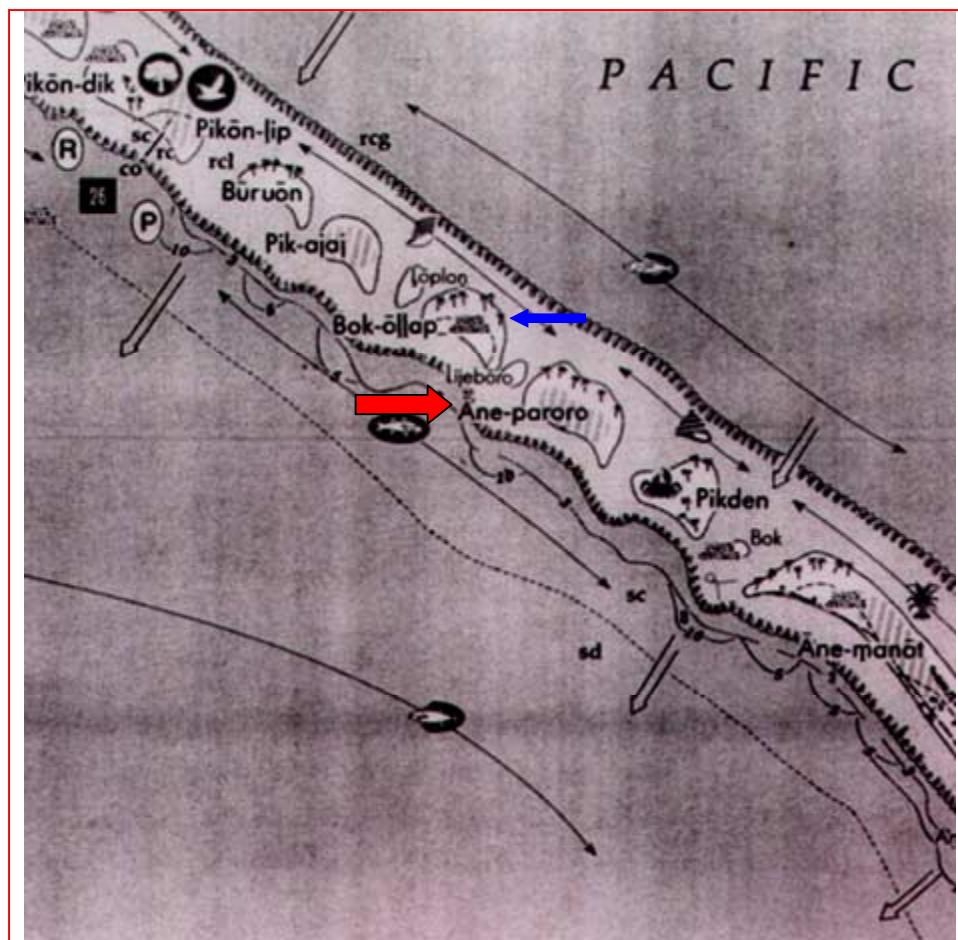


Photo MS2-9 Rubble is building up on right wing against fuselage from material washed down the slope from the channel above.



Photo MS2-10 Diver stands on wing at 115 feet with fuselage and slope behind him.

MAP OF MAJURO SITE NUMBER 2. (Red arrow indicates primary site location. Blue arrow indicates site of aircraft engine assembly). Scanned from (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE ATLAS", 1989:33).



MAJURO SITE 3 REPORT

NAME: THE PARKING LOT (Ejit Dump Site)
RMIHPO Site No. MI-MJ-LA-003

GENERAL DESCRIPTION AND LOCATION

The "Parking Lot" is a vast debris field underwater near Ejit Island, used as a dumping site for military vehicles and equipment after the end of World War 2. The site ranged from 30 feet to over 120 feet deep, and extended at least 1200 feet in length parallel to the shoreline and out over 800 feet from the beach. The limits of the site, into the deep to the south, and to the east end of the site, have not been defined, may extend for hundreds more feet, and include many other items. The site has a wide range of ecology and marine life. The inshore vehicles and area are covered with trash, debris and silt from Ejit, with limited marine life. The central area, from 60 to 80 feet deep, has the bulk of the vehicles, with minor trash and silt. The deep sites to the south and east have more marine life and more pristine vehicles, but allow divers less time to explore due to the diving time at depth limitations. So far we have searched to 120 feet, and presume more is located deeper.

GPS Position (At danger marker post on coral head): N 07.07.249 x E 171.21.016.

DETAILS

Newton Lajuan and Dirk Spennemann discovered the "Parking Lot" in 1991. Research has turned up little on who actually did the dumping, but it is presumed the US Navy was in charge, as most of the vehicles were used for aviation support at the Majuro Naval Air Base. Their few dives in the area presumed the site to be only a few hundred yards in width and length, and holding 20 or 30 vehicles.

My survey of the area now includes more than 20 dives, and probably another dozen with tourist visitors. Initial surveys were done running colored pvc survey tape from vehicle to vehicle along an approximate compass line, parallel to each previous dive with an approximately 100 foot distance measured in-between (Photo MS3-1). Right angle courses were also taken at regular intervals from shallow to deeper water, creating boxes of surveyed items. But the tape proved too weak for long distances, and a marked and measured 6mm dacron line was then used as the standard measuring tool. Over 5000 feet of line was installed on the bottom, marked at every 25 feet, complete with depth measurement at each interval, and a map of the bottom began to develop. Slates full of drawings and measurements were made on each dive. Floats were run to the surface at key points to verify underwater locations with GPS, and to provide shortcuts to points on the bottom. Very little video film was taken during this time, as hands were full of other tools. A second diver, and HPO divers, assisted, and it began clear

we were way beyond the scope of this survey. The site is vast, and our survey in this manner is still incomplete.

Many of these lines are still in place and became "roads" to efficiently visit the site. The first of 2 Navy Tugboats is easily found this way from swimming down the line east from the Ejit coral riser (which has a hazard sign on a steel post above the waterline for small craft) to approximately 65 feet deep (Photo MS3-2). A second Navy Tugboat was also found in 100 feet of water (Photo MS3-3), found by following Jackknife fish (I call wreck diving fish), back to the site (Photo MS3-4).

The most common items on the site are fuel trucks, scattered in all areas. Photo MS3-5 shows the most visited fuel truck, sitting in shallow water NNE of the coral riser off Ejit. Other fuel truck photos show their side (Photo MS3-6), the open top (Photo MS3-7, and the effects of the water pressure crushing a closed fuel tank dropped into the deep (Photo MS3-8).

The most expected item, military jeeps, were found around the site, with many in shallower water near Ejit (Photo MS3-9). Other vehicles lie around the site. Photo MS3-10 shows a vehicle body we believe was used to carry fire-fighters to a site, or possibly an open ambulance of sorts. Another photo shows a truck resting on top of a bomb lifting truck, with its "A" frame visible but the curved davit end broken off (Photo MS9-11. Photo MS3-12 shows a large upside down truck allowing the viewing of the running gear

The site has been invaded by trash and debris, with larger items such as a coconut palm tree base rolled onto a truck (Photo MS9-13. But even with the trash, the current from the channel allows nutrients to feed wonderful coral growing in and around many vehicles (Photo MS9-14). Whip coral is all over the site, especially in the deeper vehicles and wrecks.

COMMENTS AND CONCLUSIONS

The Majuro "Parking Lot" is a wonderful collection of dive sites, as it cannot be seen in only one dive, and a vast collection of history. The parameters of the site have not been defined on 2 sides, the south and the east, as they extend off into the deep. A complete survey of the entire area should be done, the site marked with buoys, and some form of protection be implemented to avoid anchor damage. Additional research should be done to find out who did the dumping, and maybe even more items would be found. The Complete Survey and mapping of the site would be a very large project.

PHOTO SECTION OF MAJURO SITE 3 REPORT



Photo MS3-1 Survey tape was initially used to help map the site.



Photo MS3-2 Shallow tugboat remains near the Ejit coral head (near the marker post).



Photo MS3-3 Second tugboat in the deep at 101 feet, approximately 600 feet east of the Ejit coral head.

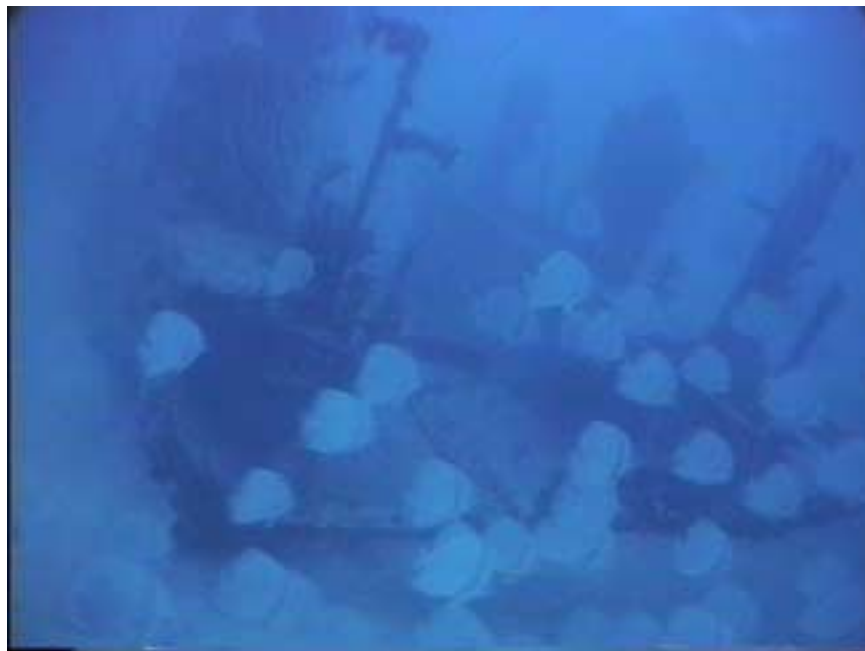


Photo MS3-4 A fleeting photo of Jackknife fish moving rapidly past the deeper US Navy tugboat.



Photo MS3-5 The shallow fuel truck is either the start or the finish of most SCUBA dives on the coral head (west) side of the Parking Lot site.



Photo MS3-6 Side of Fuel Truck showing pumping assembly.



Photo MS3-7 Open top of a fuel tank on a truck chassis.



Photo MS3-8 Photo shows fuel tank section crushed by water pressure when sunk with the hatch and valves closed.



Photo MS3-9 A classic Jeep parked in the deep.



Photo MS3-10 This is thought to be a fire-fighting personnel truck without chassis, or possibly an open bed ambulance.



Photo MS3-11 A large flatbed truck rests atop a bomb loading vehicle visible with its' hoisting frame (the end is missing) in the upper center section of the photo.



Photo MS3-12 A large 6 by truck lies upside down for inspection.

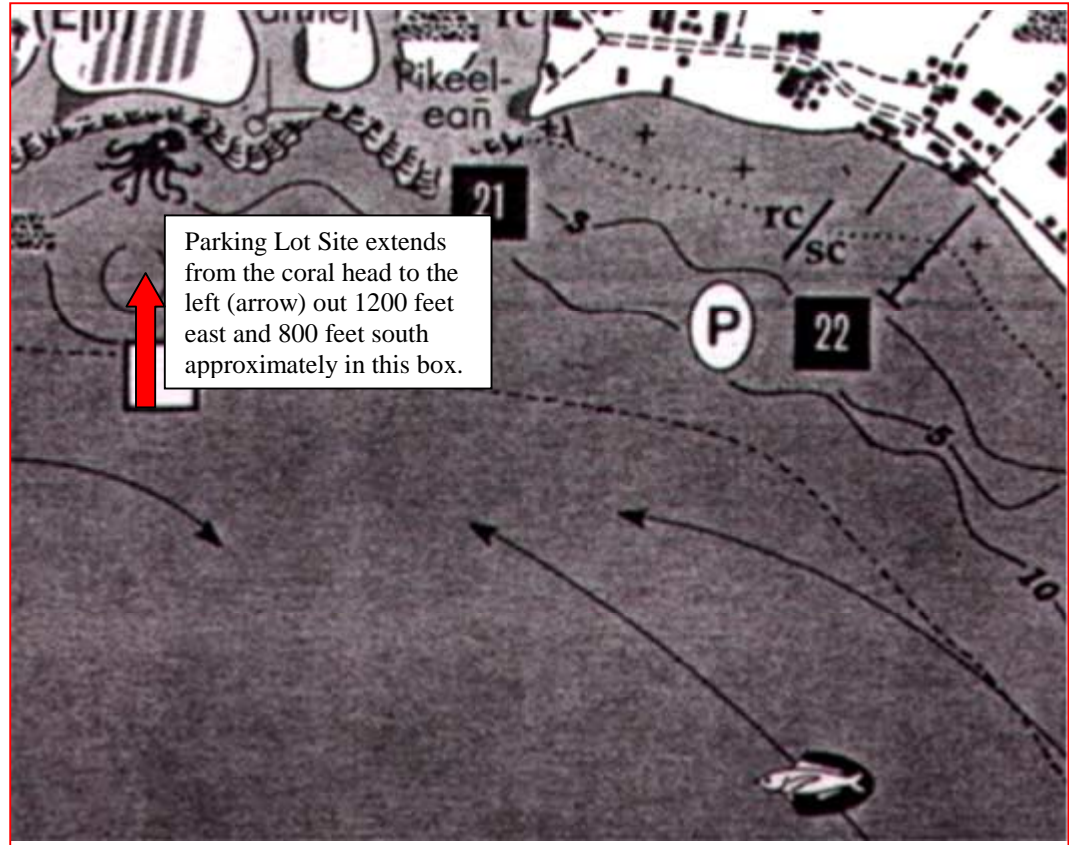


Photo MS3-13 Debris, such as this coconut tree base, has drifted in from nearby Ejit island.



Photo MS3-14. Coral growth within some of the vehicles is amazing.

MAP OF MAJURO SITE NUMBER 3. (Site is located at the red arrow).
Map was scanned from: (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL
COASTAL RESOURCE ATLAS", 1989:7).



MAJURO SITE 4 REPORT

NAME: JAPANESE WHARF AT RITA
RMIHPO SITE No. MI-MJ-LA-004

GENERAL DESCRIPTION AND LOCATION

The Japanese Wharf at Rita was constructed by the Japanese to support their development in Majuro. The wharf was located in line with the current road through Rita to the ocean-side. The wharf was slightly over 100 yards long, and ended in about 14 feet of water at high tide. The area has poor to good visibility and very little marine life. The site is filled with trash and debris of all descriptions. A Map of the site, Map MS4, follows the Photo Section of this report.

GPS Position: N 07.07.412 x E 171.21.571.

DETAILS

The Japanese wharf was probably built after hostilities started in 1941, but there are no records I could locate to verify the date. The wharf was constructed in 3 sections, the first, from the beach, was merely fill of sand and rubble armored with heavier stones to avoid it washing out. The second section was made of wooden piles driven into the sandy bottom, and tied together along the top with lumber and a concrete poured cap. The third section was a large poured concrete section on the end, called a "dead-man", which secured the structure and gave it a strong point.

The original Japanese Wharf is visible in the Photo MS4-1, scanned from an aerial photograph taken on the day Majuro was invaded in 1944. A second aerial photograph, Photo MS4-2, shows the Japanese development in Rita at the end of the wharf and onshore in line with the road. The wharf pilings are visible, and their remains can be seen decayed to the lagoon floor (Photos MS4-3 and 4).

The "Dead-man", the heavy concrete pour on the end of the wharf is shown in Photo MS4-5, rolled over into slightly deeper water. A telephone pole is visible on the end of the Wharf in the photo, and its' location can be identified by the round hole in the concrete "dead-man" (Photo MS4-6). Heavy concrete pours were scattered around the sight, originally being the capped roadway in the center section of the wharf (Photo MS4-7). A section of railroad track was located, presuming the Japanese had at least heavy carts to move supplies to the warehouses in Rita (Photo MS4-8). Cement bags were located where a presumed anti-aircraft site was located in the MS4-1 photo (Photo MS4-9). And the proof of American occupation of the Japanese Wharf was complete with the littering of war era cola bottles around the site (Photo MS4-10).

COMMENTS AND CONCLUSION

The Japanese Wharf is another site known only to a few, and disappearing from the history of Majuro. I have no suggestions for protecting the site, as it is losing its remaining identification to time and the environment, and not to collectors. The Cola bottles are the only artifacts on site.

PHOTO SECTION OF MAJURO SITE 4 REPORT

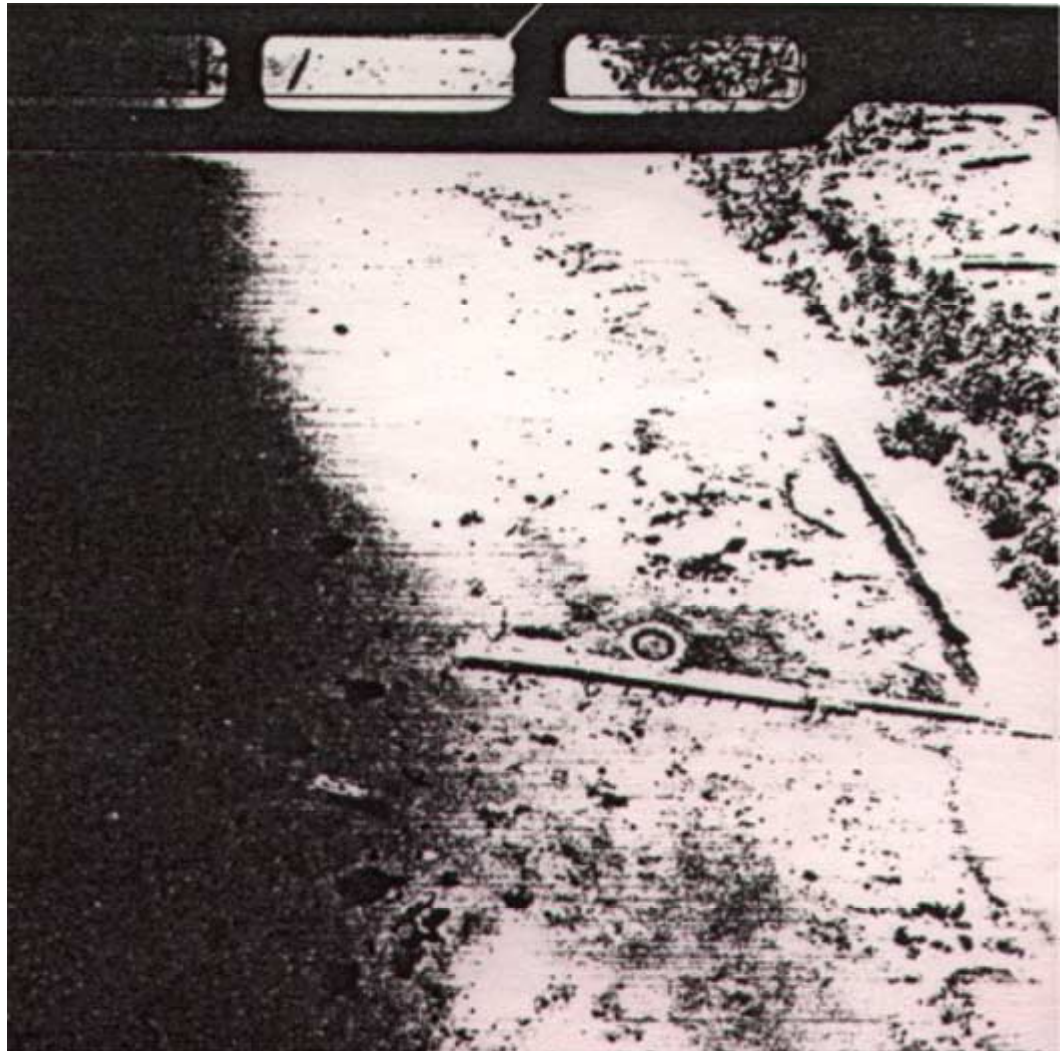


Photo MS4-1 Scanned aerial photo of "Japanese Wharf" (at Rita, Majuro), taken by aircraft of the Escort Carrier USS Nassau on 31 January 1944. This was the day Majuro was invaded and occupied. I presumed the circle north of the wharf was a bomb crater, but in fact may have been an anti-aircraft emplacement. (*Japanese Military Installations, JICPOA (Joint Intelligence Center, Pacific Ocean Areas) Bulletin No. 71, June 15, 1944: Negative number 218579*)

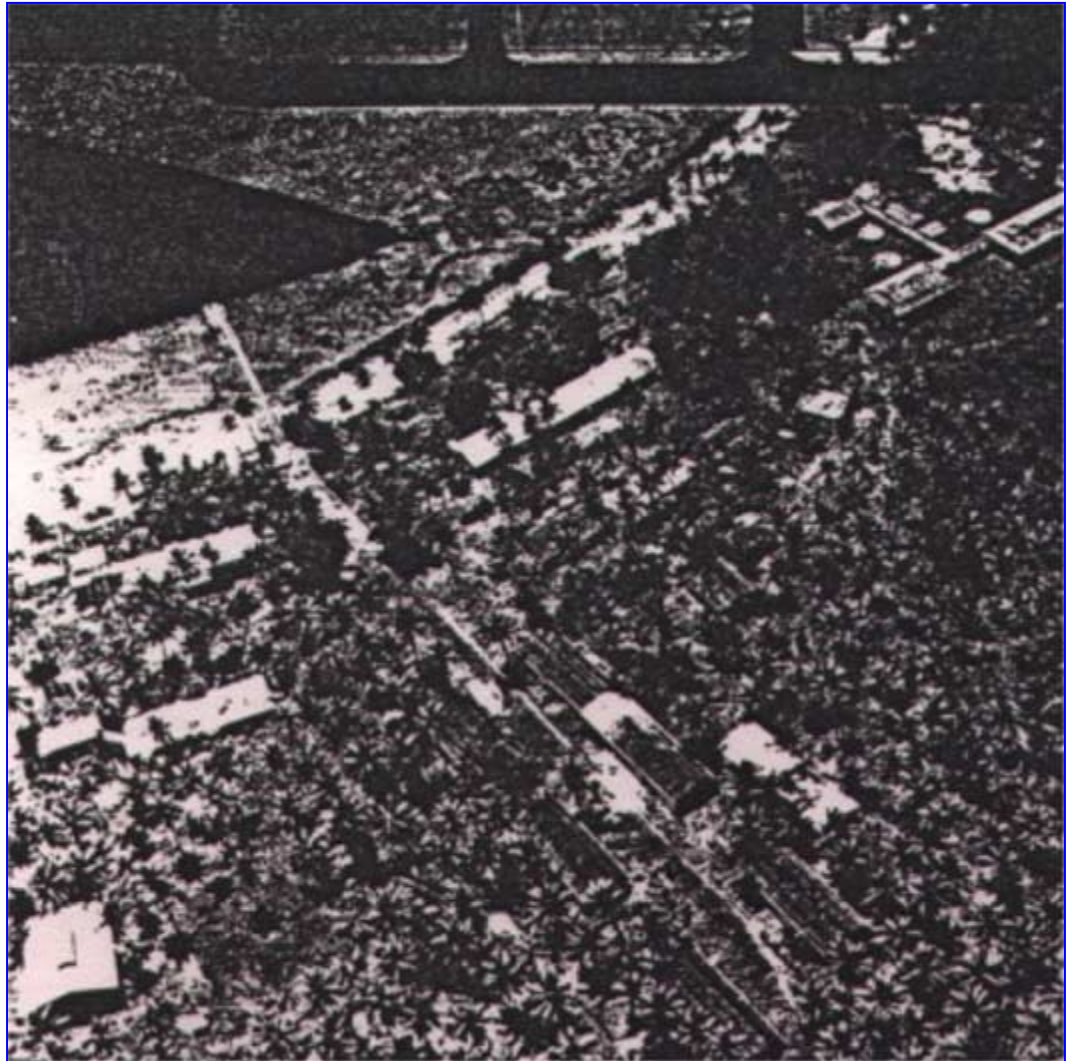


Photo MS4-2 Scanned aerial photo of Japanese Wharf at Rita (at top of photo), taken by aircraft of the Escort Carrier USS Nassau on 31 January 1944, the day Majuro was occupied. Notice the seawall along the north side of the beach, and the 3 water tanks at the top side of the photo, which still exist next to the Sailass Andrike Laundromat in Rita. (*Japanese Military Installations, JICPOA Bulletin No. 71-??, June 15, 1944: Negative number 218565*)



Photo MS4-3 Remains of a wood pier piling for the center section of the Japanese Wharf.



Photo MS4-4 Close-up of a wood piling at the Japanese Wharf.



Photo MS4-5 Top of concrete "Dead-man" rolled over into deeper water.



Photo MS4-6 Hole through concrete "Dead-man" where telephone pole was originally placed in concrete.



Photo MS4-7 Concrete pour for top of wharf now lying on the bottom



Photo MS4-8 Railroad track was probably used to support small carts which hauled goods to the warehouses in Rita. Delap also had a railway system for the seaplanes.

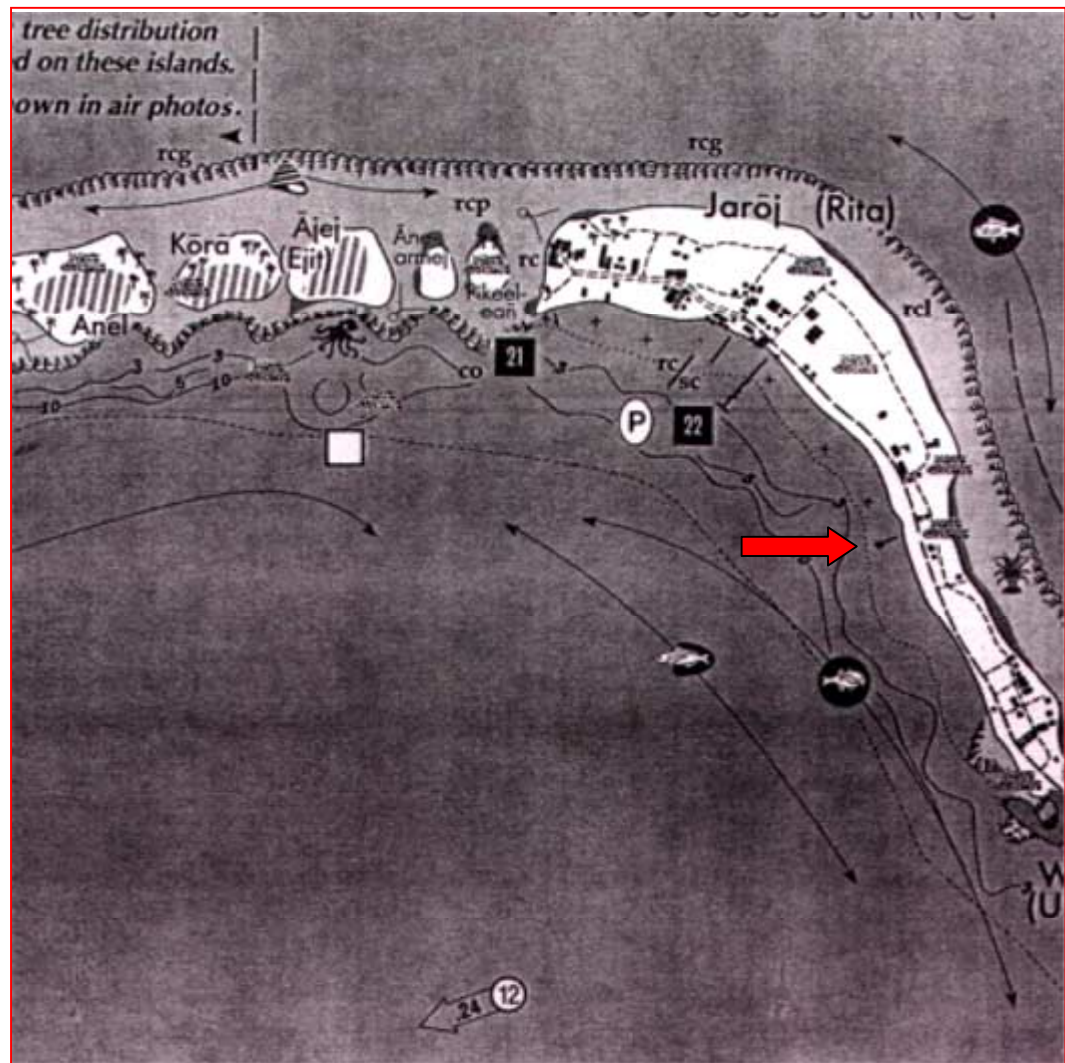


Photo MS4-9 Bags of cement located approximately where the possible anti-aircraft site was identified on the aerial photograph.



Photo MS4-10 Coca Cola bottles also litter the Japanese Wharf site.

MAP OF MAJURO SITE NUMBER 4. (Site is located at the red arrow).
Map scanned from: (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE ATLAS", 1989:7).



MAJURO SITE 5 REPORT

NAME: COCA COLA HEAVEN
RMIHPO SITE No. MI-MJ-LA-005

GENERAL DESCRIPTION AND LOCATION

The Coca Cola "Heaven" site is one of the larger dumping grounds of Coca-Cola bottles found underwater in Majuro Lagoon. It is located lagoon-side of the Rita, spaced between the end of the Japanese Wharf and U.S. Dock in Rita, and out in 30 feet of water. My guess is the mooring station nearby had numerous small vessels tying up to it, and the sailors made a practice of dumping their bottles nearby. The site has poor to good visibility, and little marine life except on the coral areas.

GPS Position is: N 07.07.300 x E 171.21.600

DETAILS

Generally the sites, including this larger site, were next to a pier, dock, or a ships mooring. Other sites could have been from the temporary mooring of a vessel or just the accidental dumping of a large number of empty bottles in one location.

Most of the sites are shallow, and some can be seen by walking or even snorkeling. Generally these shallow sites have the most bottles, but many are sand worn or broken from wave and storm action over the years. The deeper sites are usually downwind of ship moorings, and generally the bottles here are in much better shape.

Many of the Cola bottles are of clear glass; indicating they were foreign made (Photos MS5-1 and 2). This also included Hawaii at this time. Other types have been found; including the common green glass USA made type with city names on the bottom (Photo MS5-3). A rarer slightly blued bottle called "Blue Ice" by collectors, which was a test color from 1946 to 1948, has also been found, but usually at Laura Beach. The bottles are valued at \$2.00 to \$20.00, but there is not much demand for them by collectors, except for the some rare bottles, which haven't shown up in the Marshall Islands.

The sites have other same era bottles, such as Canada Dry, many beer types, and personal use or medicinal bottles. The sites are also useful to locate other military artifacts, such as discarded pieces of military equipment, ammunition, and in some cases lead on to larger military dump sites, including even vehicles,

aircraft, and ships. Some Cola bottles lie near a piece of discarded Marston matting of the US Dock at Rita (Photo MS5-4).

The most common sites are listed below with the following descriptions:

5A. Laura Beach. At the very end of Laura there used to be a Navy Dock of sorts, to go back and forth to the Rong-Rong area, and possibly to ships anchored lagoon-side. It was probably a common R&R area for the troops and many Cola bottles were discarded into the lagoon-side sand. Searches after storms at low tide have uncovered many bottles.

5B. Eastern Gateway Hotel. On the lagoon-side of the Eastern Gateway Hotel there used to be a Naval mooring made on the shallow area nearby where the Martin Mariner Seaplane was lost. Downwind from this site there is a number of Cola bottles and other discarded Naval junk, including cables, funnels, and metal debris. There is also bottles near an old Navy dock almost directly lagoon-side of MJCC Company, near the remains of a Navy work-boat and 2 or 3 wood pilings of that dock.

5C. Marshall Islands High School. On the lagoon-side of the high school there are many Coca-Cola bottle sites. The largest is approximately 100 yards south of the boat ramp in about 45 feet of water. Many shallower and deeper sites exist here, indicating the temporary mooring of vessels.

5D. US Dock at Rita and mooring area. This area is littered with Cola bottles, and is located from the shoreline out into 30 feet of water. The primary site is downwind of a 3 lumber pile driven mooring posts, and is near the ammunition dumped out from the US Rita Dock. Photos MS5-5 and 6 were taken with bottles and a nearby octopus house, and used for part of the videotape portion of this report.

5E. Rita Japanese Dock. Apparently the Japanese dock in Rita was not destroyed by bombing or rebuilt by USA forces, because at the end of the dock-site, it is littered with Coca-Cola bottles. This site was also used for additional sections of the videotape portion of this report.

5F Anemanet Island. This island, approximately 4 miles from the end of Rita, had an US Coast Guard station on the west end of the island, and all around that point of land on shore and underwater there are Coca-Cola bottles. It looks like many were burned in a dump, and some are in the roots of exposed trees next to the beach.

COMMENTS AND CONCLUSION

Coca Cola bottles are just another part of military history, soldiers being issued one a day in certain R and R areas. In Majuro, they are simply markers of the past US presence. They have become homes for small marine life, and indicators

of other relics nearby. Fortunately they don't have a big collector following or even these bits of history would be gone.

PHOTO SECTION OF MAJURO SITE 5



MS5-1 Cola bottles are abundant in the Coca-Cola Heaven site.



Photo MS5-2 All these Cola bottles are made of clear glass indicating they were foreign made.



Photo MS5-3 Green Cola bottle manufactured in the United States.



Photo MS5-4 Cola bottles lie next to a discarded piece of steel Marston matting.



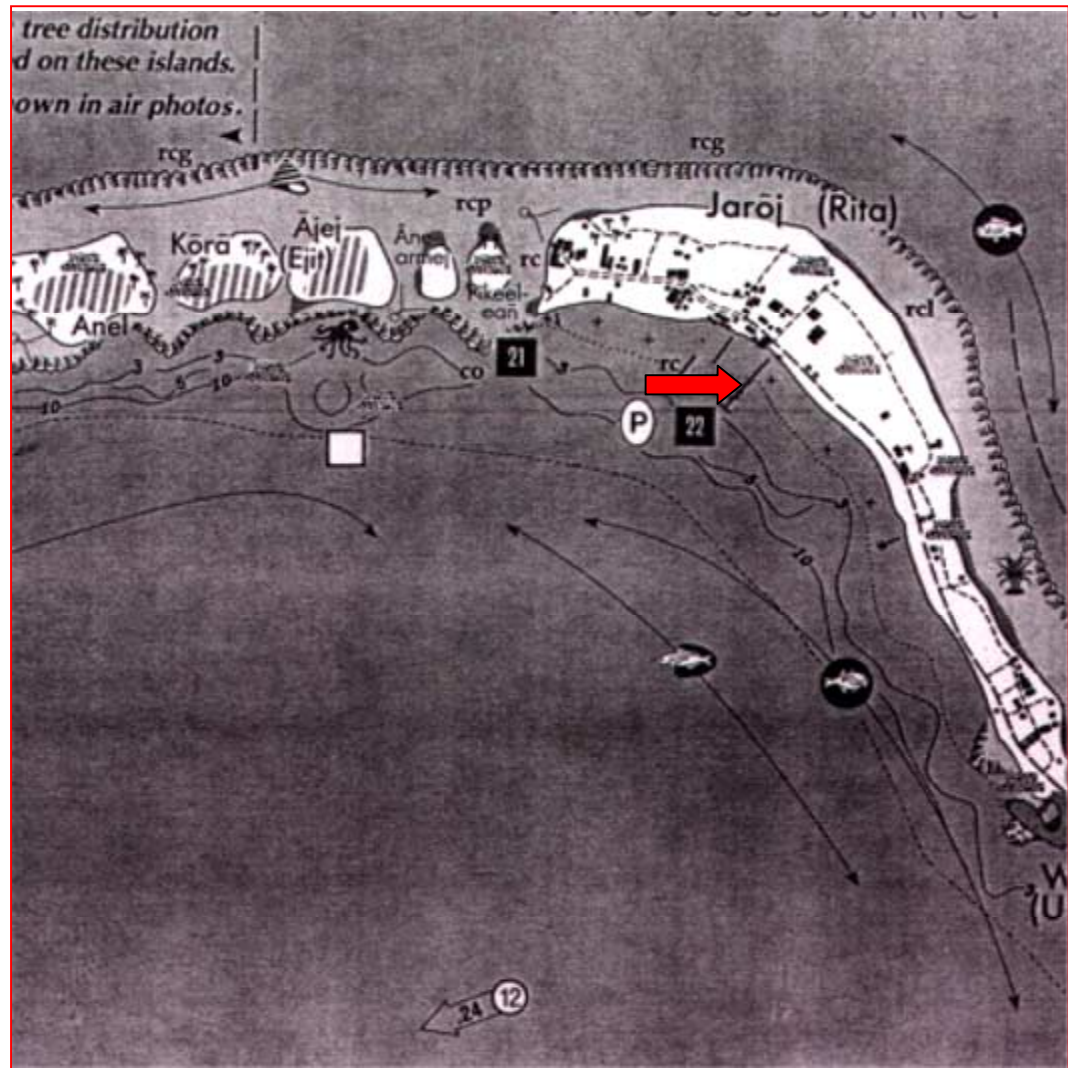
Photo MS5-5. An octopus uses Cola bottles as decoration for its' home.



Photo MS5-6 Coral has overgrow this Coca-Cola collection.

MAP OF MAJURO SITE 5. (Site is located at the red arrow).

Map scanned from: (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE ATLAS", 1989:7).



MAJURO SITE 6 REPORT

NAME: RITA US DOCK SITE

RMIHPO Site No. MI-MJ-LA-006

GENERAL DESCRIPTION AND LOCATION

The Majuro US Dock Site was added to the Majuro list as it has developed into its' own site. The Dock was built to compliment the existing Japanese wharf nearby, and was used to support Navy activities in Rita. It was built out of bolt together steel boxes measuring approximately 5 by 5 by 6 feet, used for many applications in the war. A floating section was attached to the end, and a mooring station was also nearby. The visibility is poor to good, and there is little marine life except on the coral or rubble area. A map of the site, Map MS6, is attached following the Photo Section of this report.

GPS Position: N 07.07.300 x E 171.21.590.

DETAILS

I knew the US Rita Dock from diving the area, but I always considered it a minor shore installation. Recently I was informed by a passing tourist who was in the Marine Corp (name not taken), that they used that floating barge and dock as their primary access to shore. They used this from 1944 through at least September 1945.

When I re-explored the site, I found the point the barge was attached with concrete to the reef (Photo MS6-1). The attached barge section had torn loose, presumably in a storm, and sunk approximately 100 yards downwind (Photo MS6-2). The floating barge section sunk approximately 200 yards farther downwind in 30 feet of water (Photo MS6-3). A wood piling in the lagoon floor used for a mooring station was also found nearby.

A small Navy tugboat section, similar to the Navy tugboats at the "Parking Lot" site and the Seaplane Ramp area is in Photo MS6-4. A heavy chain, with a 1000 pound concrete mooring block attached, is shown in Photo MS6-5.

Lots of ammunition and empty shell casings litter the site. Photo MS6-6 shows a wood crate of live US 50 caliber machine gun shells. Photo MS6-7 shows empty 4 inch and 40mm rounds, with a safety cap in-between, and a coffee cup. A tail fin from a 500 pound US bomb also lies nearby (Photo MS6-8). The coffee cup was dated 1944 (Photo MS6-9). Other small artifacts are probably buried in the sand, and miscellaneous other debris from the war, such as 55-gallon drums, cables, metal junk, and smaller vehicles litter the area.

There have been no larger items, such as at the "Parking Lot", found in this area, and 2 search dives downwind from this site and the Japanese Dock site for over 300 yards and into 100 feet plus of water found no other larger items.

COMMENTS AND CONCLUSION

The US Rita Dock is another site slowly disappearing from history. The remains area slowly rusting away, and the dumped debris and artifacts are all that remain. I am sure if this site was in Kwajalein, every brass item would be gone. The lack of serious collecting divers in Majuro, and the small collecting area, has limited its notice and destruction. Future protection will be determined by the monitoring of the operators who take divers to the site.

PHOTO SECTION OF MAJURO SITE 6



MS6-1 Shore-side attachment point on the US dock at Rita. A section of barge was set in concrete on the hard reef at the shoreline.



Photo MS6-2 A broken section of Rita US Dock lagoon-side of the shore-side anchoring point. The "Dead-man" on the end of the Japanese Wharf is visible farther behind it, and also the Majuro Site 3 "Parking Lot" directly in line with a compass point (260 degrees) to the post on the shallow coral area near



MS6-3 Floating barge section sunk offshore of the 2nd barge section in 30 feet of water.



MS6-4 Sunken US Navy tugboat near US Rita Dock. Tug is without engine.



MS6-5 Heavy mooring chain offshore of Rita US dock. Chain is in the middle of debris dumped in the area.



MS6-6 A wooden box of US 50 Caliber machine gun shells. Shells were dated 1943.



MS6-7 Various empty shells, cups, and bomb safety covers. Shells are 40 mm and 4 inch.



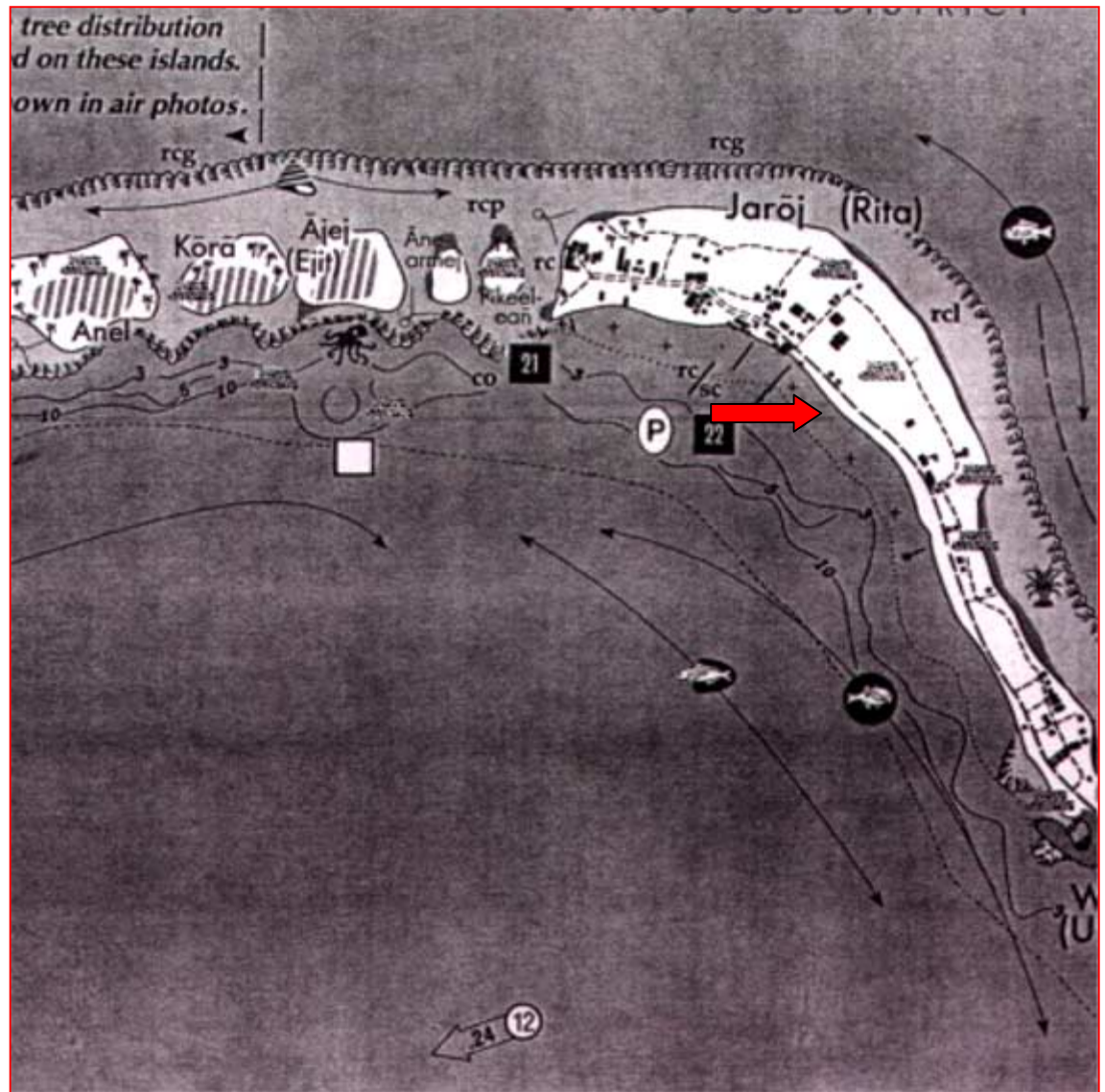
MS6-8 Tail fin section of US 500 pound bomb.



Photo MS6-9 Coffee cup dated 1944 near the offshore section of the US Dock at Rita.

MAP OF MAJURO SITE 6 (Site is located at the red arrow).

Map scanned from: (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE ATLAS", 1989:7).



MAJURO SITE 7 REPORT

NAME: MAJURO MARINE RAILWAY SITE

RMIHPO Site No. MI-MJ-LA-007

GENERAL DESCRIPTION AND LOCATION

The Majuro Marine Railway was located lagoon-side in Uliga south of the Uliga Pier. The railway started in about 12 feet of water and extended about 100 yards from the high water mark. The railway currently is in 2 sections, the shore-side in the back yard of a personal residence, the underwater portion directly offshore. The middle section in the tidal zone has been removed by rust, the environment, and time. The visibility on the underwater section is poor to good, and there is only minor marine life. A Map of the site, Map MS7, follows the photo section of this report.

GPS Position: N 07.06.282 x E171.22.541

DETAILS

The Majuro Marine Railway at site 7 is another Majuro site that has virtually disappeared from the history records. The entire shore-side area used to be lined with military quonset huts, and reportedly supported machine shops and repair facilities for the US Navy after the war and during the early Trust Territory (*Jorbon, Personal Communication 1999*)

The railway was built to haul out small vessels for dry-docking and repair. It was constructed by laying a steel sheet pile foundation (sheet pile is long heavy steel used to build docks by driving the inner-locking sections in side by side with heavy equipment) across the lagoon bottom parallel to shore as a foundation and then laying additional sheet pile on top for support. Railroad track was laid on top of the sheet pile, and the entire assembly was probably welded together. Rolling sections, called carriages or trolleys, were built with large railroad style wheels, and connected with heavy timbers. Two of these sections were placed underneath per vessel (one in the front, one in the back) while it floated in the water, usually at high tide. The entire assembly was then pulled out of the water by some shore-side cable and powered winch.

The railway was used by the Navy until the 1950s', when it was abandoned and the support equipment removed. I was not officially turned over to the Trust Territory government. The last date of service, probably in 1962 or 1963, was reportedly the hauling out of Kabua Kabua's 50 foot wooden boat. There are resources available, possibly under the old Navy Department of Yards and Docks, that may have had some records on the construction of the Marine Railway, but I could not locate any. The US Army Corp of Engineers also had a report issued

years ago on the possible development of this area into the primary Majuro dock area, but this report has also disappeared. Thus the oral history on the site was all the research available.

The shore-side end of the Marine Railway is shown on photo MS7-1, looking towards the lagoon. Sheet pile and railroad track are visible. Photo MS7-2 shows the foundation, sheet pile, railroad track and one of the sets of wheels for the trolley at the tidal zone. Photo MS7-3 shows the end of the Marine Railway at the south section, and photo MS7-4 shows coral growth on the railway and nearby trash and debris.

Photos MS7 5 and 6 show the remains of a small US Navy landing craft abandoned at the end of the railway, and photo MS7-7 shows a 10,000 pound anchor used by the Marine Railway as a "dead-man", simply a large weight to pull against with a pulley to pull the small craft back out into the water when repairs were complete.

COMMENTS AND CONCLUSIONS

The Majuro Marine Railway was one of the first bits of industrial infrastructure in Majuro Atoll. It was built before the first power station (1959), and incorporated into the Uliga "Public Works" area of the island. There has never been another Marine Railway, and vessels currently have to use various beaches for haul-out, or use the new Majuro Dry-dock built in 1993. This site is another that will slowly disappear, and has only limited tourist use. In the past the site has been only something to see for my SCUBA diving classes, it being in the proximity to my business.

PHOTO SECTION OF MAJURO SITE 7 REPORT



Photo MS7-1 Shore side end of Marine Railway, north track section. Note the sheet pile and heavy timber foundation.



Photo MS7-2 Northern section of Marine Railway at tidal zone during low tide. The wheels are for original carriage to support hauled-out small craft.

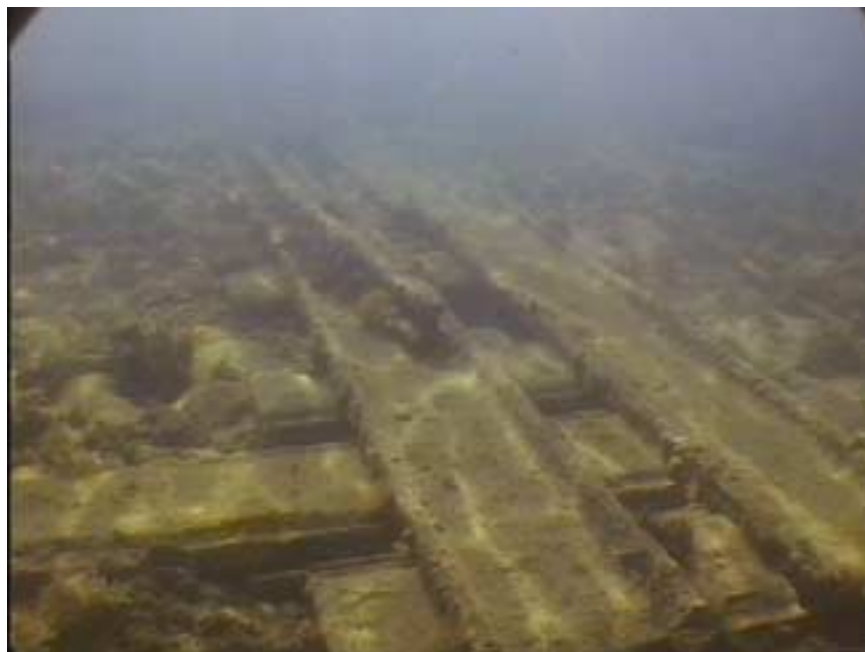


Photo MS7-3 The underwater section of Marine Railway, near end of southern segment.



Photo MS7-4 Coral growth on Marine Railway. Sheet pile foundation can be easily seen, along with trash and debris, including a 55-gallon drum at right edge of the photo on the southern section of the railway.



Photo MS7-5 Marine Railway section broken off in the tidal zone.



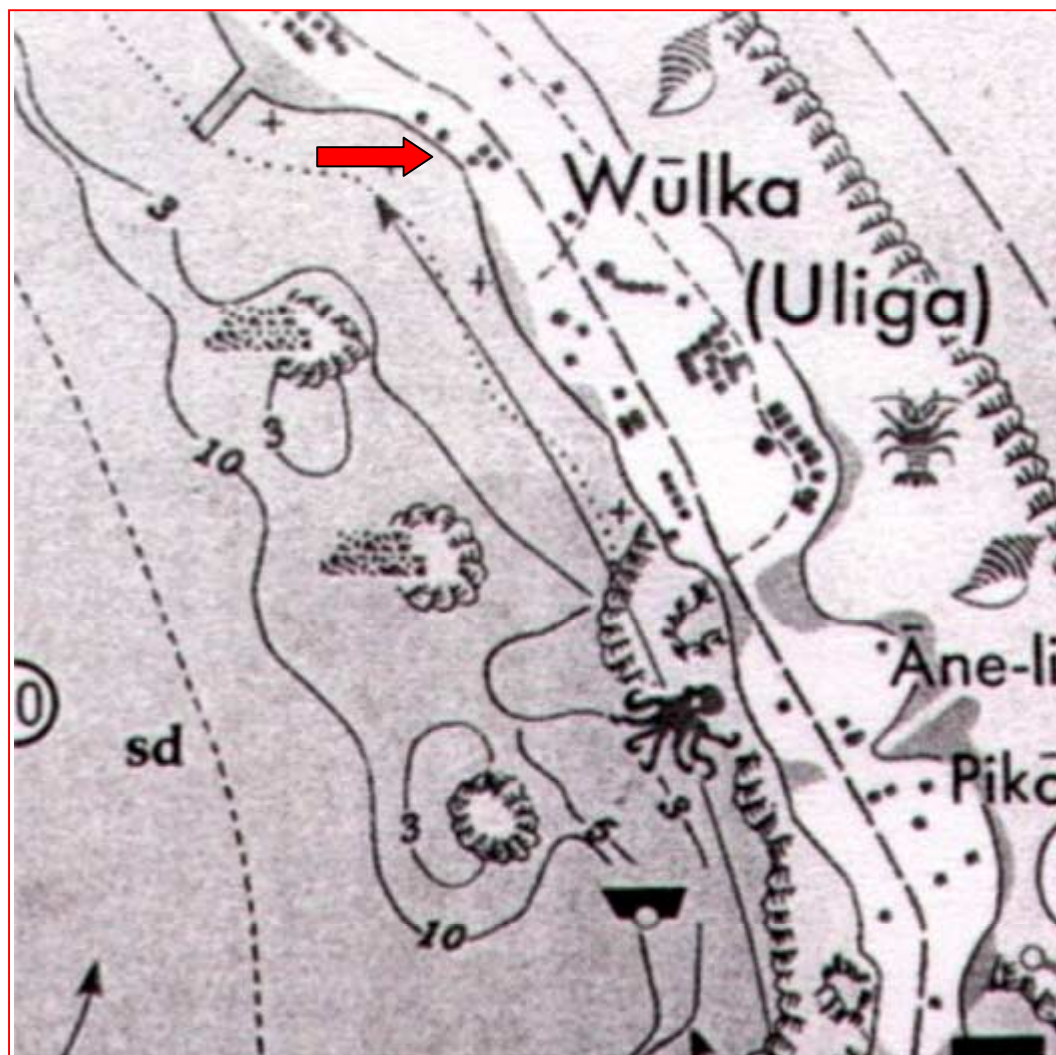
Photo MS7-6 A small landing craft abandoned at the Marine Railway site. Craft identified as a 56 foot LCM, stripped of engines, shafts and propellers.



Photo MS7-7 A 10,000 Pound anchor used as a winch point for the Majuro Marine Railway at Uliga. Anchor is on south side of LCM in Photo MS7-5.

MAP OF MAJURO SITE 7. (Site is located at the red arrow).

Map scanned from:(U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE ATLAS", 1989:9).



MAJURO SITE 8 REPORT

NAME: MAJURO SEAPLANE RAMP
RMIHPO SITE No. MI-MJ-LA-008

GENERAL DESCRIPTION AND LOCATION

The Majuro Seaplane Ramp is located just north and lagoon side of the current Calvary School campus property in Delap. It starts from the shoreline just over sea level and extends out into the lagoon nearly 100 yards. It is approximately 11 yards wide, and ends in approximately 12 feet of water (Photo MS8-1). The seaplane ramp points towards the west, and the surrounding lagoon floor on both sides of the ramp is cleared of stones and coral, leaving only sand. This is typical of other Japanese war era ramp and dock designs I have seen in other Marshall Islands locations. The area has limited marine life, and the visibility is typically poor, with human trash of all descriptions throughout the area. A Map of the site, Map MS8, follows the photo section of this report.

GPS Position: N 07.05.370 x E 171.22.800

DETAILS

The Majuro Seaplane Ramp was the only source of fast re-supply available to Japanese forces on Majuro atoll. I have found no records showing who was in charge of the development of the Japanese facilities on Majuro atoll, and it seems all the Japanese military and construction forces had left Majuro for other areas before the Americans landed in February 1944. Allegedly only 1 Japanese officer was on Majuro, in Laura, on that date. No data was found on who was in charge of the repair facilities, or if they had a squadron designated for Majuro. It seems from the construction of hangers, barracks, and storage buildings there was a larger plan for the future that never developed.

I presume the Japanese poured the cement side sections of the ramp and they created a ramp with a foundation of coral stones collected from the nearby seafloor. The US forces later added a top section of marston matting, (Photo MS7-2.) the material used to provide traction on taxiways and beach crossings in sandy or muddy areas. The marston matting used on the ramp was made of steel sections (An aluminum section from shore as an example is shown in Photo MS7-3), approximately 8 feet long by 15 inches wide, with drain holes. The sections are now home to coral heads and small marine life (Photos MS7-4 and 5), and are remarkable still intact except in the inshore tidal zone that has deteriorated from the wave action.

The Japanese had developed the Majuro Seaplane base well, even providing a locomotive engine on railroad tracks to pull the Seaplanes out of the water onto

shore for service. The Japanese Seaplane hanger was later converted to the US Navy Fleet Post Office. Photo MS8-6, scanned from a Naval Air Base Majuro aerial photo, shows the locomotive being inspected by US Army troops after the invasion and capture of Majuro. Photo MS8-7, scanned from an Army Air Force photo, shows Delap on December 28, 1943 (The day of the crash of the B-24 at Majuro Site 1 at Laura), with no runway development but possibly 2 Flying-Boats on the beach lagoon side in the seaplane ramp area.

The site also has a wrecked US Navy tugboat nearby (Photos MS8-8 and 9) which sunk by the old US Navy wood pile pier in shallow water. Farther offshore I found a wood piling for a tie up mooring (Photo MS8-10) with an aluminum aircraft engine cover buried in the sand nearby (Photo MS8-11). Another aerial photo taken on 29 May 1944 by Navy aircraft (Photo MS8-12) shows the 2 concrete edges of the seaplane ramp extending onto shore, and the vast development of the Majuro Naval Airbase at Majuro. This photo includes at least 6 American Navy PBY Seaplanes, and assorted other aircraft.

COMMENTS AND CONCLUSIONS

The Seaplane Ramp is now little more than 2 cement walls along the waters edge, with a steel bottom in between. The ramp area is being absorbed by development, and its' contribution to the development of Majuro has long been forgotten. The site is another bit of lost history, remembered by only a few. It is a curious site for tourist visitors, complimentary to the nearby Mariner Seaplane wreckage.

PHOTO SECTION OF MAJURO SITE 7 REPORT



Photo MS8-1 Majuro Seaplane Ramp today. Concrete side rails in sand.



Photo MS8-2 North side of Seaplane Ramp with remains of Marston Matting still embedded in the ground. A pigpen has been secured to the concrete section.



Photo MS8-3 Close up of Aluminum Marston matting



Photo MS7-4 Majuro Seaplane Ramp with Marston matting.

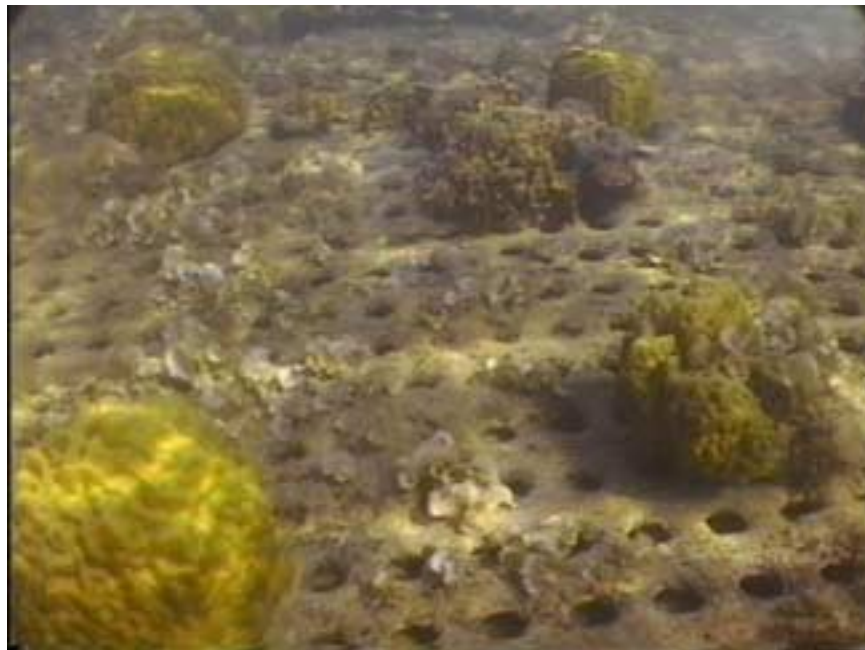


Photo MS7-5 Seaplane Ramp of Marston Matting with coral growth.

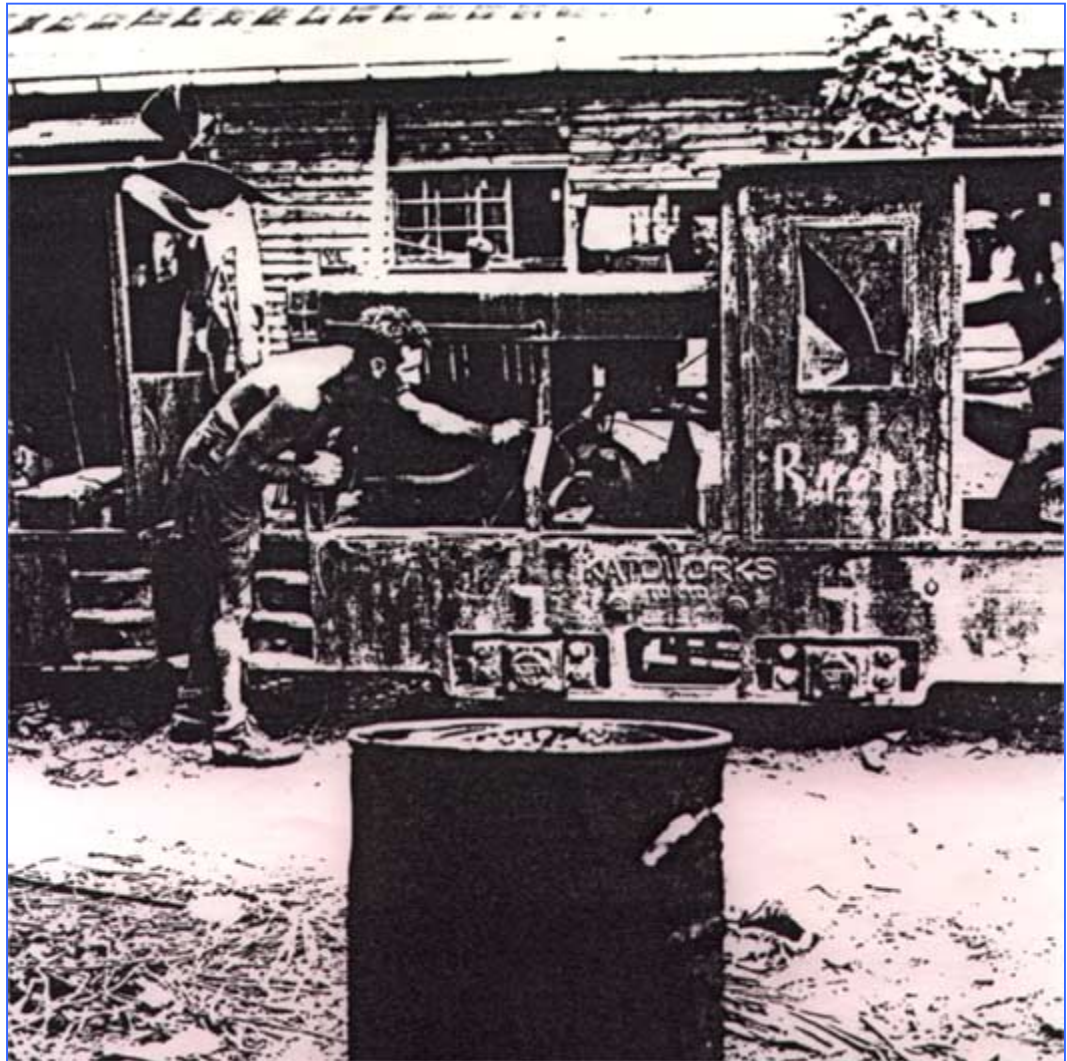


Photo MS8-6 Scanned photo of a Japanese locomotive at Majuro used to pull seaplanes up out of the water onto shore for maintenance and repair. Original photo was taken by the Marine Corps on March 24, 1944, with the caption "PFC James C. Barrett, left and Corp Thomas A Saerer, members of the 106th Army Infantry, examine a Japanese gas driven locomotive on Majuro in the Marshall Is. The locomotive was used by the Japs (Japanese) to pull seaplanes from shore to the hangers. The inscription on the side shows that it was made in Tokyo and the nameplate on the engine identifies it as a Model A Ford". Photo was from: *(JICPOA (Joint Intelligence Center, Pacific Ocean Areas) Bulletin No. unknown, Negative No. 220645.)*

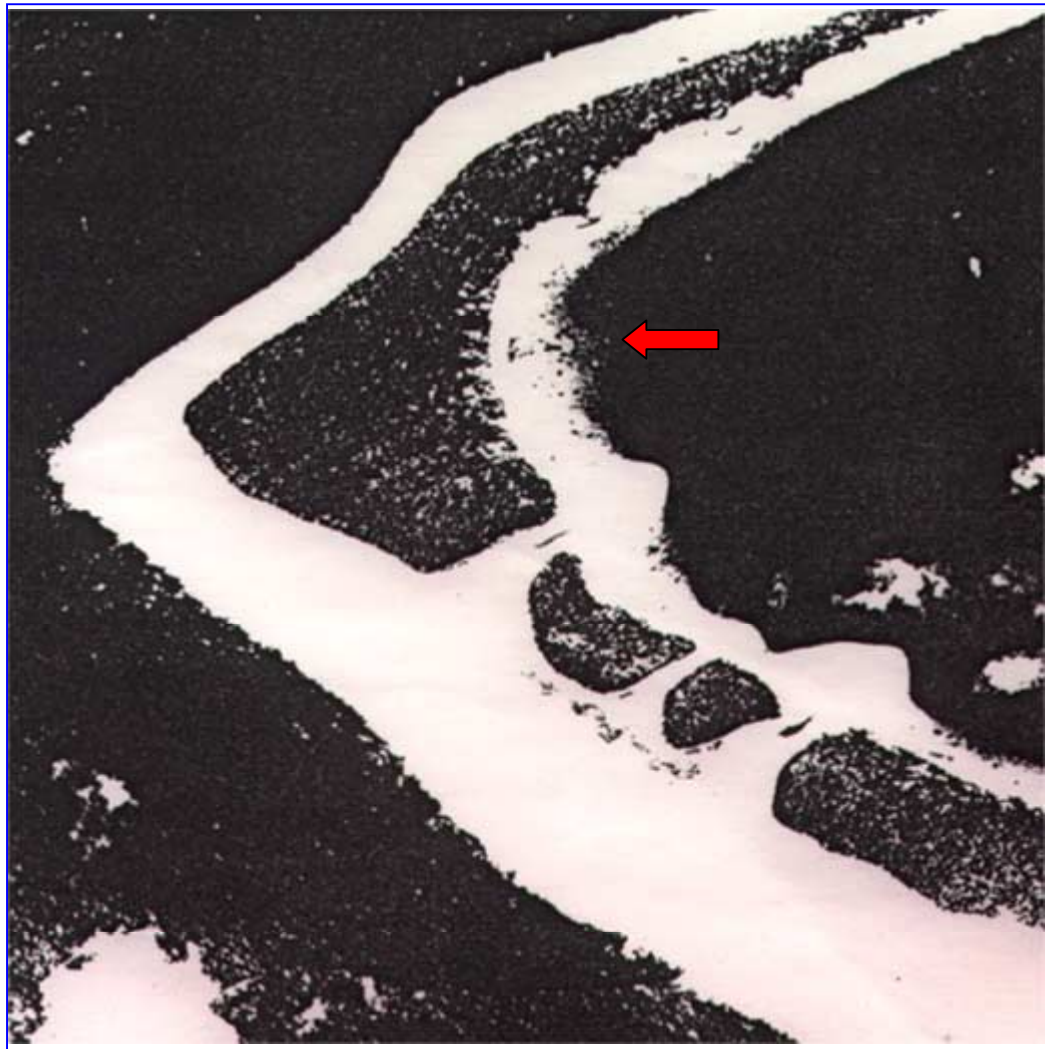


Photo MS8-7 Scanned in Aerial photo of Delap area taken on December 28, 1943 by Army Air Force pilots. Photo at red arrow shows possibly 2 Japanese Seaplanes off of the Seaplane Ramp area. Original caption reads "Aerial of the narrow islands which make up the Majuro group in the Marshalls. Picture was made 28 Dec. 1943" Notice no airfield development. Photo was from: *(JICPOA (Joint Intelligence Center, Pacific Ocean Areas) Bulletin No. unknown., Negative No. 21???? (Was unreadable).)*



MS8-8 Stern of a small US Navy tugboat with tow ring near the Majuro Seaplane Ramp.



MS8-9 Main engine of the US Navy tugboat near the Majuro Seaplane Ramp. Experts think this was an "Atlas " or "White" 2-cylinder gas engine, made in the late 1930's. (*Eachus, Personal Communication 1999*).



MS8-10 Section of wood piling used as a mooring station off shore from the Majuro Seaplane Ramp.



Photo MS8-11 Photo of a section of aircraft engine cover, with other pieces nearby, off shore from the Majuro Seaplane Ramp.

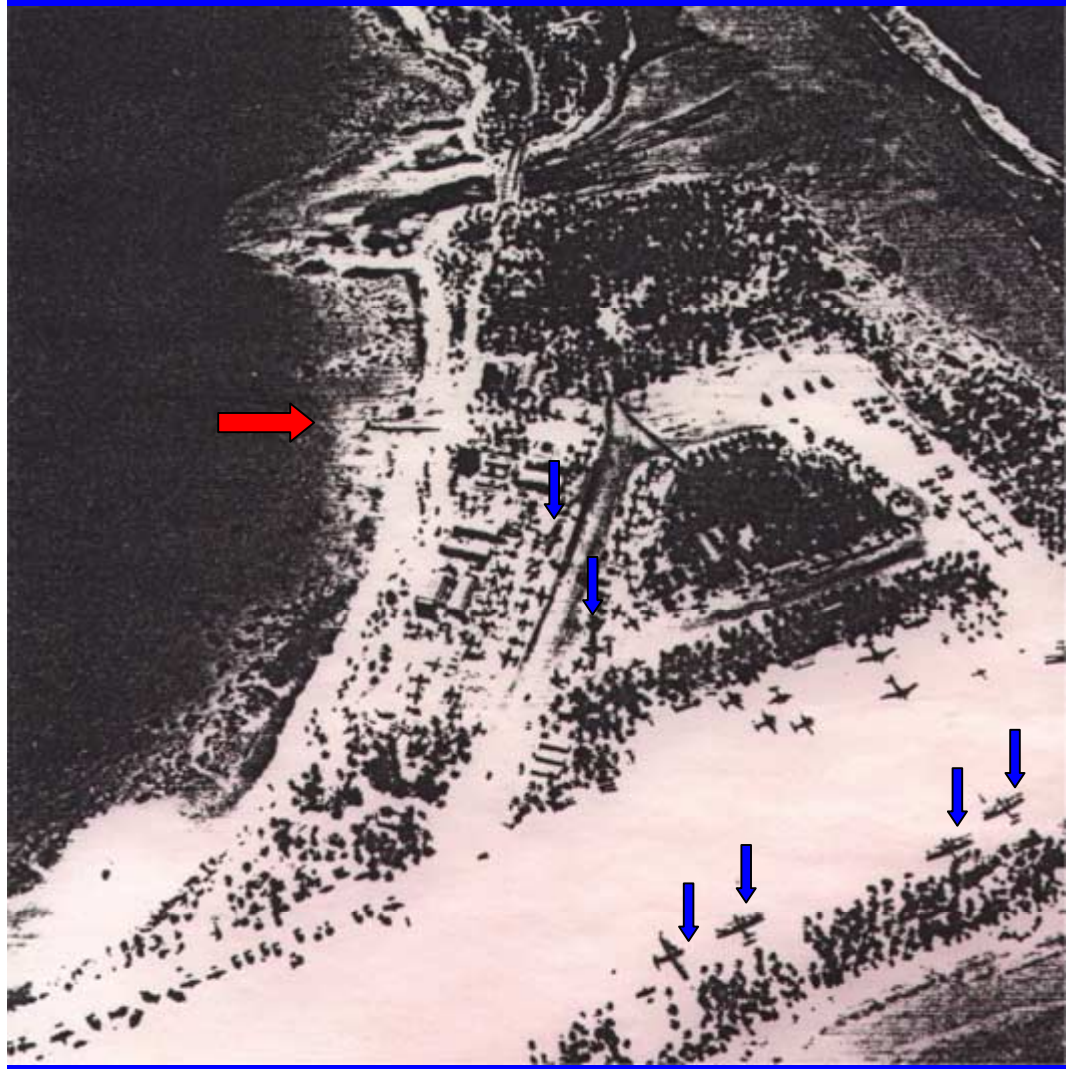
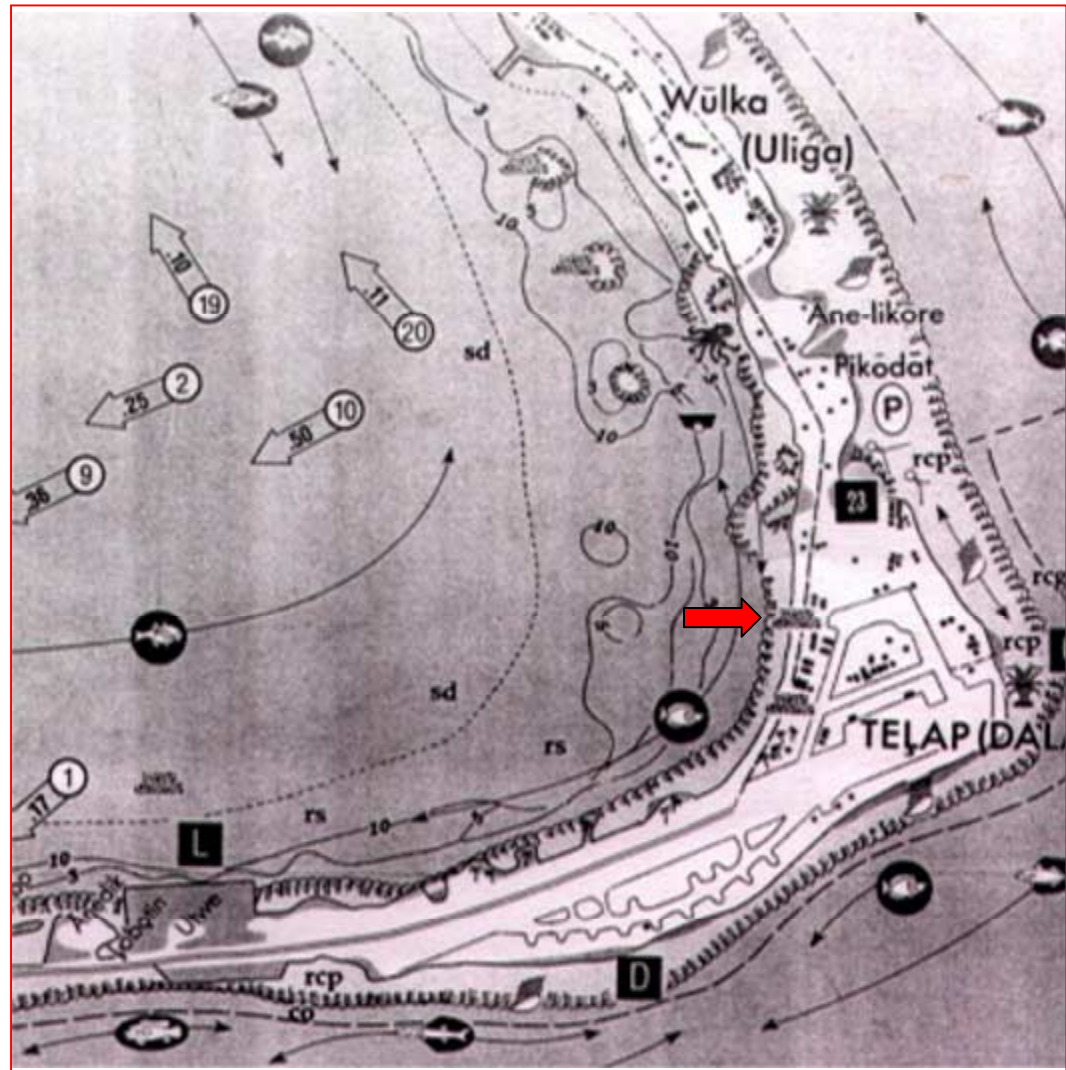


Photo MS8-12 Delap area from an aerial photo taken by aircraft from the Majuro Naval Air Base. Red arrow shows site of Majuro Site 8 Seaplane Ramp. Blue arrows indicate US Navy PBY Seaplane type aircraft. Photo from: *(JICPOA (Joint Intelligence Center, Pacific Ocean Areas) Bulletin No. unknown, Negative number 270245.)*

MAP OF MAJURO SITE NUMBER 8 (Site is located at the red arrow).
Map scanned from: (US ARMY CORP OF ENGINEERS, "MAJURO ATOLL
COASTAL RESOURCE ATLAS", 1989:9)



MAJURO SITE 9 REPORT

NAME: MARTIN MARINER WRECKAGE
RMIHPO SITE No. MI-MJ-LA-009

GENERAL DESCRIPTION AND LOCATION

The Majuro Site 9 is the remains of a Martin PBM-3(C) model Seaplane, also called a "Mariner." The aircraft remains are approximately 500 yards west of the Eastern Gateway Hotel in Delap, in 65 to 72 feet of water. The site is on a sandy bottom, spread over an approximately 200 by 200 foot debris field. A coral area rises to the south of the site, which was the site of a US Navy mooring, and additionally there are the remains of a sailing yacht nearby to the southeast. The visibility is poor to very good, and the site has moderate typical marine life. A map of the location, Map MS10, follows the photo section of this report.
GPS Position: N 07.05.362 X E 171.22.822

DETAILS

The author found the Martin Mariner in June 1981, while teaching a SCUBA diving class. Small pieces of aircraft aluminum were found in the surrounding debris field, leading to the main pieces of the wreckage. The aircraft was listed as from VP-202, (A Navy patrol squadron) based in Kwajalein, and was accidental sunk by a LST (Landing Ship Tank) on the night of February 6, 1944 (*Darcy, Personal Communication 1999*). The (unknown number) LST ran over the moored aircraft in the dark, the atoll being blacked out as it was only 4 days after the invasion of the Marshall Islands, and there was a risk of enemy counter attacks from Eniwetak. The aircraft had a Military Bureau number of 48175. Three other PBM aircraft were lost from VP-202, Bureau numbers 48172, 48182, 48184, 1 of them in Kwajalein lagoon in February or March of 1944 (*Darcy, Personal Communication 1999*).

The Mariner was a very large aircraft, with a 118-foot wingspan and an 80-foot length, much larger than a B-17 or B-24 bomber. A scanned military photograph and drawing are attached as photos MS9-1 and 2. It was a common patrol and reconnaissance aircraft, and could also carry bombs or torpedoes. It was said the aircraft sunk with ordinance on-board, was stripped of military assets by US Navy divers and then blown up on site. The demolition ripped the fuselage open, leaving the wings upside down on the bottom, a big pile of aluminum debris in the center, and the tail section also upside down nearby.

Both wings are in line, upside down, with a partial pontoon still attached (Photo MS9-3), and a close-up of the pontoon mounting points in Photo MS9-4. There is a pile of debris with a hatch in it where the fuselage once was (Photo

MS9-5) and even has a radio with ID plate attached (Photo MS9-6). A parachute sits nearby in the sand (Photo MS9-7), as does the ball turret (Photo MS9-8). The tail section is nearby to the east and also upside down (Photos MS9-9 and 10). Artifacts, such as the mounting ring for the tail machine gun are still at the site. Other smaller artifacts, such as 50 caliber machine gun shells, spent and live, are in the wreckage (Photo MS9-11).

It was a true seaplane, not an amphibian, meaning it was not designed to motor or be pulled up onto the shore. The other popular US seaplane, the PBY, was smaller with less crew, longer ranged, easier to land in rougher seas, and being a true amphibian, became easier to maintain. The PBM was put into the back areas of the war.

The site has not been stripped, and many small artifacts can be found in the area. I found a case of live 50 caliber machine gun shells nearby in 1983. Other aircraft items have been found in the general area, and there are indications other aircraft from the Naval Air Base Majuro may have been dumped farther out from this site into deeper water.

COMMENTS AND CONCLUSIONS

The Martin Mariner site, even though the aircraft was demolished, is a great historical dive site and excellent for tourist visitors. It is close to the local hotels, but far enough from shore to afford it some protection from casual visitors. You have to know where to look to find it, but it is not even a difficult shore dive. The visibility is usually good, there is moderate marine life (Photo MS9-12), and there are other items, such as the remains of the sunken sailboat "Whistler", and the debris around the old US Navy mooring nearby to visit to compliment this dive.

I would additionally suggest the site be marked and buoyed to avoid accidental anchoring and damage to the site.

PHOTO SECTION OF THE MAJURO SITE 9 REPORT



Photo MS9-1 Scanned Photograph of a Martin PBM-3 model aircraft, from: (Angelucci & Matricardi, 1977:65).

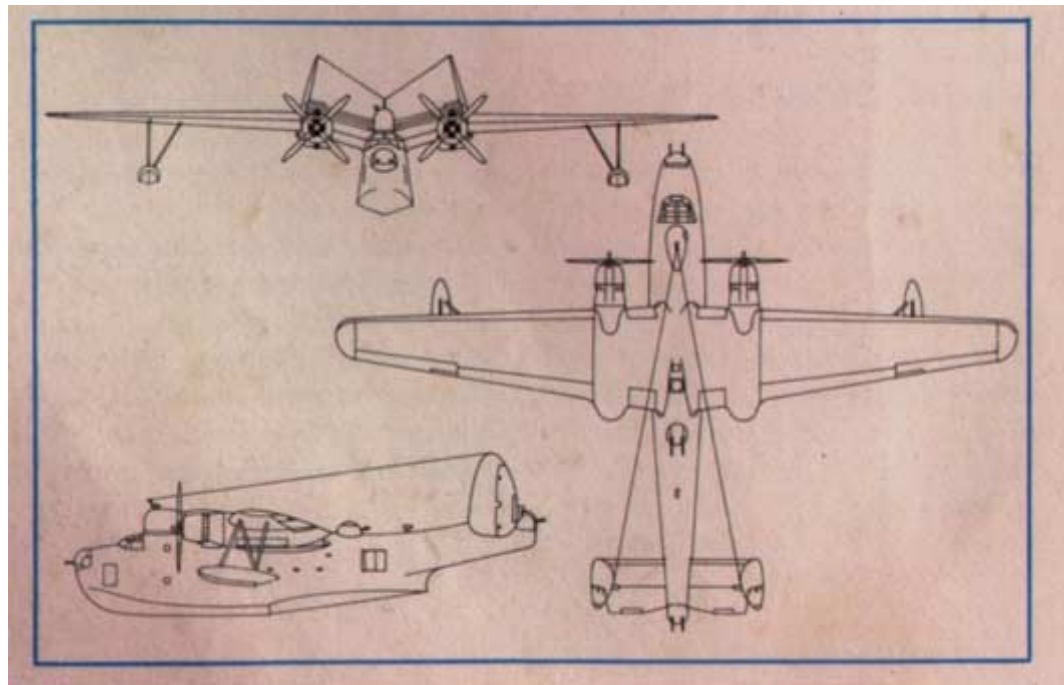


Photo MS9-2 Drawing of a Martin Mariner PBM model aircraft. Scanned from: (Angelucci & Matricardi, 1977:64).



Photo MS9-3 Broken pontoon on wing section of Martin Mariner.



Photo MS9-4 Close-up of Mariner pontoon mounting point.



Photo MS9-5 Aircraft hatch in the middle of fuselage debris.



Photo MS9-6 Radio with ID tag in fuselage debris of Martin Mariner.



Photo MS9-7 Parachute material in fuselage debris of Martin Mariner.



Photo MS9-8 Ball turret from nose of aircraft.



Photo MS9-9 Tail section with partial rudder sticking out of the sand.



Photo MS9-10 Torn off tail section of Martin Mariner aircraft.

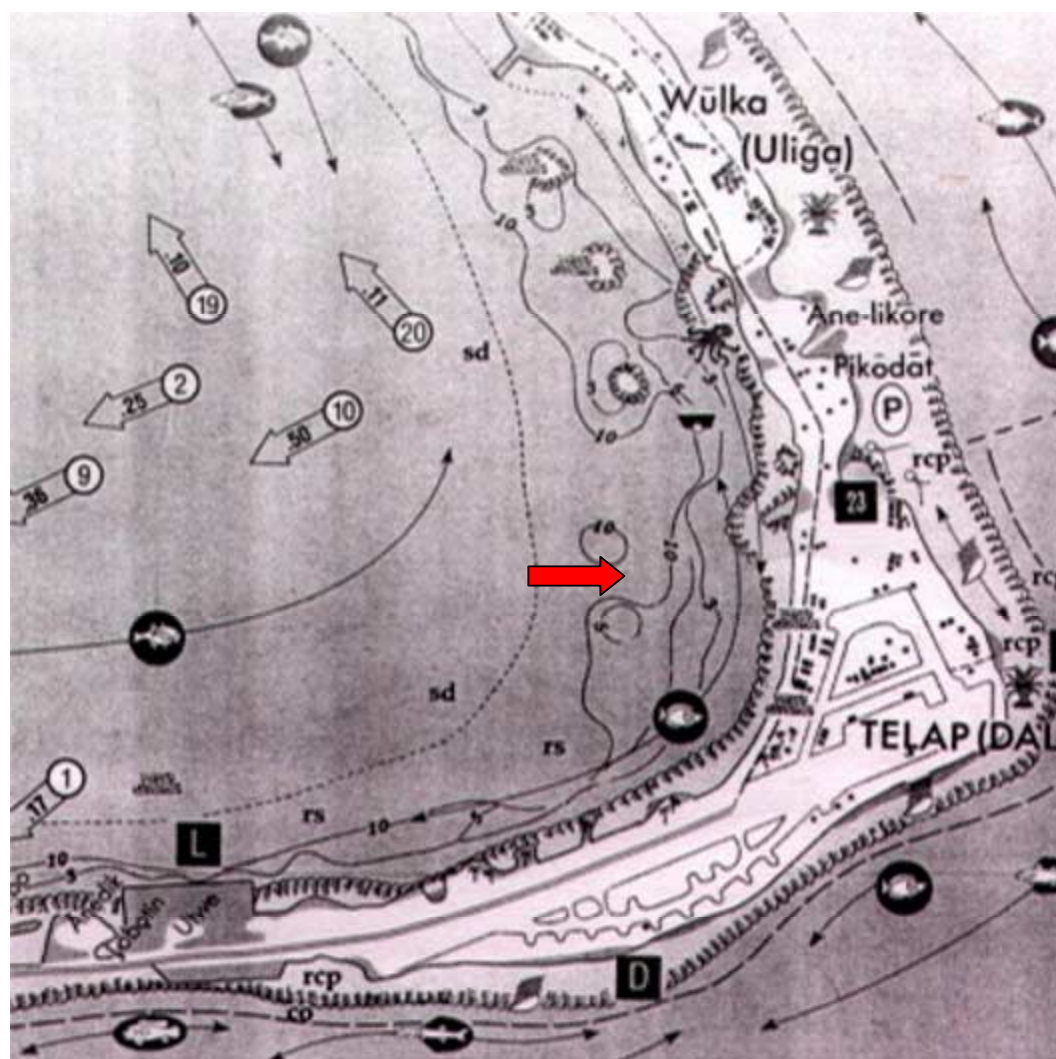


Photo MS9-11 50 Caliber machine gun shells, live and spent, litter the tail of the Martin Mariner seaplane.



Photo MS9-12 An anemone colony growing out of the wing of the aircraft.

MAP OF MAJURO SITE 9 REPORT (Site is located at red arrow).
Map scanned from: (U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL
COASTAL RESOURCE ATLAS", 1989:9).



MAJURO SITE 10 REPORT

NAME: GRUMMAN "DUCK" SITE
RMIHPO SITE No. MI-MJ-LA-010

GENERAL DESCRIPTION AND LOCATION

The Majuro Site 10 is the remains of a Grumman J2F model floatplane. It rests in 100 feet of water on top of a large (150 by 200 feet) rubble mound that sits approximately 20 feet above the surrounding sandy bottom. It is approximately 500 yards from the shoreline on a 340 degree magnetic course from the old Sun Hotel beach. It is best to swim towards the small island across the lagoon at 360 degrees magnetic for about 300 yards, and then drop underwater and continue forward, looking for the rubble mound off the sandy bottom. A map of the site, Map MS10, follows the photo section of this report. GPS Position is: N 07.04.810 x E 171.19.650

DETAILS

The Grumman "Duck" was a small utility amphibian (which meant it could land on water or land), used primarily as a liaison, cargo and/or transport aircraft between ships, carried on Battleships and Light and Heavy Cruisers of the era. It had a single center float, had bi-plane metal ribbed wings covered in fabric, and wing floats. It was being replaced early in the war by more multipurpose aircraft such as the O2SU "Kingfisher". This aircraft has a tail hook, so it could also be landed on aircraft carrier decks. The aircraft is a 5 or 6 model, but not determinable without the engine, as this was the major difference in models. A photo of a J2F5 Model was scanned into the report as Photo MS10-1.

I first dove on the aircraft in February 1986 after being informed by a tourist that he spotted what he thought was an aircraft during a dive off the old Sun Hotel in Long Island (Photo MS10-2, from: *M.I Journal, 1986*). This "Duck" is probably a model 5 or 6, and was stripped of its' engine, tail, wheels, and some instruments, and dumped in the lagoon. It is possible it was a Duck listed as lost in a landing accident in Majuro lagoon, with the Bureau number 36946, (*Darcy, Personal Communication 1999*), but the aircraft has no ID numbers to check.

The aircraft sank inverted, but is very visible with the main float sticking up off the bottom (Photo MS10-3). The engine is gone, leaving only the firewall in front (Photo MS10-4). The wings were made of aluminum, but covered with fabric, long since gone, leaving the metal skeleton (Photos MS10-5 and 6). The aluminum pontoon has decayed and almost fallen off (Photo MS10-7).

The site is deeper and farther from shore than most, but usually has good visibility at low tide. The plane has become the only "coral head" in the area has its' own host of marine life. A large school of jackknife fish surrounds the wreck, and the fuselage is used as a haven while being cleaned by small wrasses (Photo MS10-8). The bi-plane wing design also makes it very photogenic.

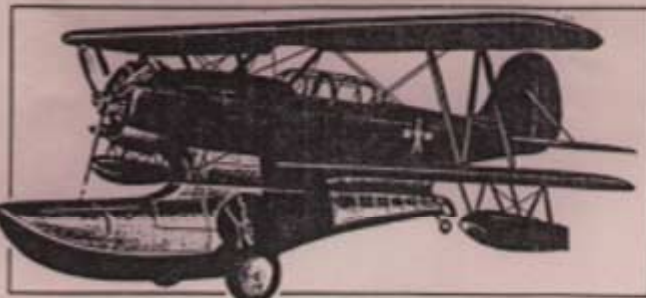
COMMENTS AND CONCLUSIONS

On a visit to the San Diego Air Museum in 1996, I viewed another Grumman "Duck" on display, which also stated it was only 1 of 5 know remaining "Ducks" in the world. There are no artifacts at the site except the aircraft itself. This is a rare aircraft, an excellent but advanced SCUBA dive, and should be marked and buoyed to avoid any accidental damage to the site.

PHOTO SECTION OF MAJURO SURVEY 10 REPORT



Photo MS10-1 Scanned photo of a Grumman J2F5 Duck. From: (www.aero-web.org/aircraft/j2f5.htm. 1999).



Grumman J2F-5 Duck



IN MAJURO LAGOON — In this underwater photo by diver Matt Holly a World War II vintage bi-plane can be seen. It is upside down, lying on the top part of the double wing and the single engine can be seen in the upper foreground. At top is a drawing of the original plane.

WW II ERA PLANE FOUND

Majuro Feb. 18 A World War II era plane has been re-discovered in Majuro lagoon by a scuba diving tourist, Yawn Maillet, off the Sun Hotel.

He reported it to local diving instructor Matt Holly who dove on it and identified it as a Grumman J2F "Duck" floatplane.

The plane is resting upside down in about 95 feet of water some 500 yards north of the Sun Hotel beach.

It appears to be in remarkably good condition, said Holly who speculates the plane was dumped as it is missing instruments, engine, tail section and wheels.

The plane is currently home to a variety of fish life, including angelfish, parrot fish and a solo pufferfish.

Holly recommends this dive to the more advanced divers due to its depth and the distance from shore.

GALE MARINE & AUTO SERVICES

Photo MS10-2 Newspaper clipping of the discovery of the Grumman Duck in 1986. (Marshall Islands Journal, 1986:10).



Photo MS10-3 Main float hull of Duck seaplane.



Photo MS10-4 Engine mounting area on Grumman Duck, engine has been removed.



Photo MS10-5 Wing and Fuselage, with access door.



Photo MS10-6 Wing structure with aluminum framework.

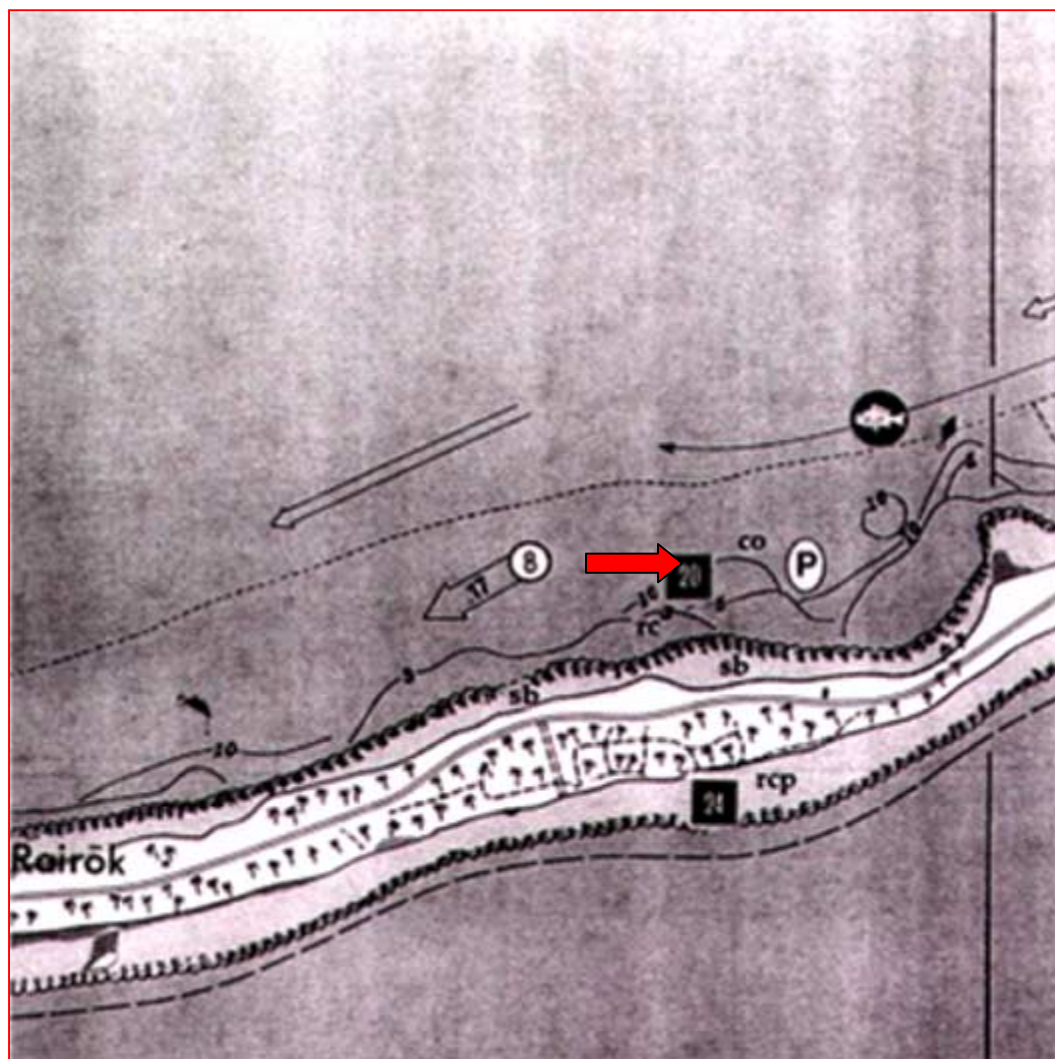


Photo MS10-7 Remains of the pontoon hang on the wing. Other side pontoon has fallen off.



Photo MS10-8 Jackknife fish is being cleaned by small wrasse inside the fuselage. Over 30 Jackknife fish live at the site.

MAP OF MAJURO SITE NUMBER 10 (Site is located at the red arrow).
(U.S. ARMY CORP OF ENGINEERS, "MAJURO ATOLL COASTAL RESOURCE
ATLAS", 1989:11).



MAJURO SITE 11 REPORT

NAME: JAPANESE "VAL" DIVE BOMBER WRECKAGE
RMIHPO SITE No. MI-MJ-LA-011

GENERAL DESCRIPTION AND LOCATION

The Japanese "Val" Dive Bomber Wreckage is the remains of this crashed aircraft near the end of "Laura" (Majuro Island). The site is known but the wreckage has disappeared into the sand, leaving only a few shards of aircraft aluminum and rusty steel pieces as remains. The site is approximately 300 yards back south from the point at Laura along the lagoon side, and just below the high tide mark along the shore. The underwater portion of the site is sometimes awash at low tide, but generally under wind and waves. A map of the site, Map MS11, follows the photo section of this report
GPS Position: N 07.03.500 x E 171.00.000

DETAILS

The wreckage of this aircraft was identifiable as a "Val" when I first saw it in 1979, with the fuselage sitting in the sand, landing gear and misc. pieces off-shore underwater, and obviously a crash. The aircraft today is gone, the remaining wreckage buried in the moving sands of the long-shore current. Only a major excavation, or the acts of mother nature would again uncover the site. The site is easy for me to locate, but there is nothing left to explore but a mountain of sand

A "Val" is an Aichi model D3A1, also called a Navy Type 99 Carrier Bomber, sort of a copy of a German Stuka dive bomber (Drawing MS11-1). Many of these aircraft were based at Mili, and some were actual aircraft used in the December 7, 1941 raid against Pearl Harbor. After the raid, the aircraft from the Carriers Junyo, Hiyo, and Ryujo (sunk before returning) battled around the Pacific and eventually returned to the Mandate Islands in April of 1943 where many of these aircraft (and additionally A6M Zeros and B6N Kates) were given to the Marshalls and Truk as replacements while the carriers received newer models (*Francillon, 1969:58*).

The aircraft at this site was probably from Mili, lost while returning from a raid against Makin atoll in the Gilbert Islands. Most of the Japanese attacks that listed losses of Vals were at night, and were attacking the US Forces that had landed on Makin and Tarawa. The loss could easily be from a lone aircraft, pilot lost, who missed Mili atoll on his return home and spotted Majuro at night. His flight down the lagoon west towards the "airport" at the Mili, Mili end mistakenly brought him to Laura. He was probably out of fuel by this time, and realized the only intelligent option was to land on the reef at Majuro. The reef here looks

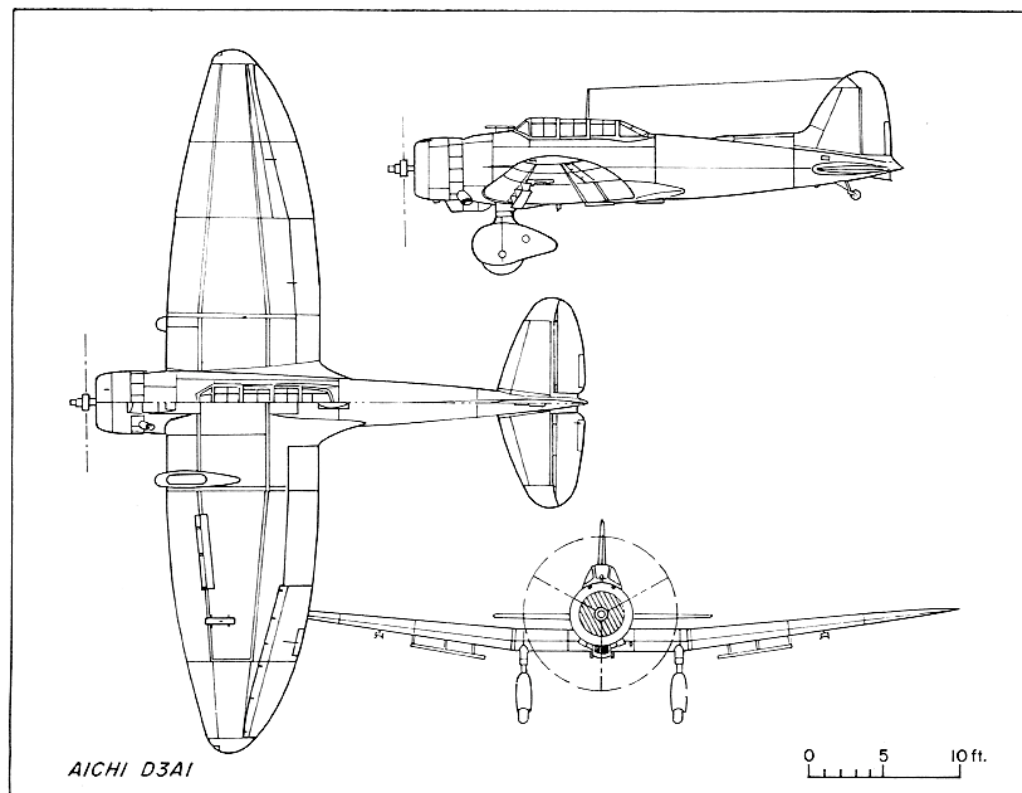
sandy and shallow from the air, and only laced with coral near shore. If this was his choice, his aircraft was additionally pushed by the wind and sea towards the beach, where it rested when the Americans arrived in February 1944 and found it.

I once saw an aerial photo of the aircraft, basically intact with its skin on it, but was only able to find photo MS11-2, for this report. This photo was taken by someone from the Light Carrier Belleau Wood (CVL-24) on March 1944, and shows a well stripped aircraft on the beach. The engine is off, the tail assembly is gone, as is most of the aluminum skin of the wings and interior of the aircraft. It was said much of the plane was cannibalized for its basic materials for the needs of the Marshallese and for souvenirs by the Americans, who were camped in the jungle at the edge of the photo.

COMMENTS AND CONCLUSION

The Majuro Val Wreckage is another site lost to time and the environment, when the aircraft and its' story may have been quite a piece of history.

PHOTO SECTION OF MAJURO SITE 11.

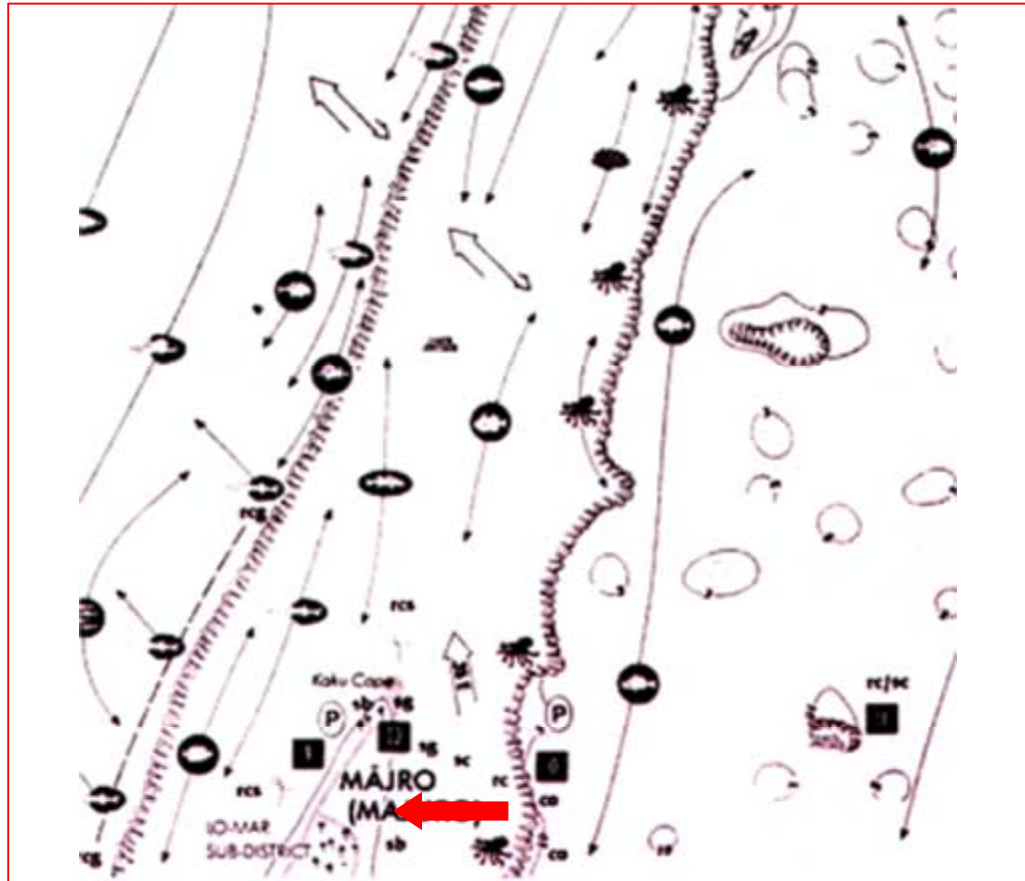


MS11-1 Drawing of Aichi D3A1 "Val". Note landing gear was fixed down.



Photo MS11-2 A scanned photo taken by someone from the Light Carrier Belleau Wood (CVL-24) in March 1944. Wreckage was identified previously as the "Val" wreckage at Laura beach. Original caption on the photo reads "Enlisted men from the USS Belleau Wood (CVL24) examine wrecked Japanese plane on Majuro Atoll in Marshalls". (JICPOA (*Joint Intelligence Center, Pacific Ocean Areas*), March 1944: Negative number 809231079.

MAP OF MAJURO SITE NUMBER 11. (Site is located at the red arrow).
Map scanned from: (U.S.ARMY CORP OF ENGINEERS, "MAJURO ATOLL
COASTAL RESOURCE ATLAS", 1989: 25).



CONCLUSION

The Majuro Survey has shown that even without a battlefield such as Kwajalein or the bases the Japanese had in the outer islands, that artifacts and measurable sites do exist in Majuro Lagoon. They are much smaller than the ships of Kwajalein Atoll, but nevertheless include aircraft and sites important to the history of the atoll.

Military History has shown Majuro became the center for supply for the Central Pacific Drive for much of 1944, and used virtually the entire lagoon for an anchorage. Many areas on shore were used to support the 2 major runways and Naval Air Base Majuro. Every item had to come ashore or fly in, and this created an infrastructure that later dissolved into our current archeological sites. Soldiers and Sailors were scattered around the atoll in R & R camps. Leftovers and surpluses became dump sites. Accidents and mistakes deposited aircraft and watercraft. Many other items are scattered across the lagoon floor un-found and ready for discovery.

Majuro has had the advantage of a smaller SCUBA diver base, and virtually none of which were artifact collectors. But modern development has destroyed sites, debris and trash has ruined historical viewing, and both will continue to do so as Majuro grows.

My main recommendation would be to mark and buoy various sites to avoid anchor damage from commercial vessels and tourist visitors alike, and to provide education to local areas that many grow into or affect additional historic areas. Further attempts to educate the community on the impact of trash and debris on the development tourism assets would also be wise. It seems the community only listens when money is involved, so if tourism develops and money flows, then possibly these sites will be protected in the future by these increase revenues.

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

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APPENDIX 1:
Video Tape Summary

Site Number	TIME	TOTAL
Site Number 1 B-24 Wreckage near Laura.	0:00 to 26:23	26:23
Site Number 2 Avenger wreckage near Bokollop.	26:27 to 42:49	16:22
Site Number 3 Parking Lot near Ejit.	42:58 to 1:49:15	1:06:17
Site Number 4 Japanese Wharf at Rita.	1:49:20 to 2:13:51	24:31
Site Number 5 Coca-Cola Heaven.	2:14:00 to 2:19:41	5:41
Site Number 6 US Dock at Rita.	2:19:51 to 2:54:08	34:17
Site Number 7 Marine Railway.	2:54:16 to 3:07:27	13:11
Site Number 8 Seaplane Ramp.	3:07:39 to 3:24:31	16:52
Site Number 9 Mariner Seaplane.	3:24:40 to 3:53:16	28:56
Site Number 10 Duck Floatplane.	3:53:26 to 4:10:03	16:37
Site Number 11 Val Dive Bomber (No footage)		
Total Time:		4:10:20

APPENDIX 2: Equipment List

This is a list of personal equipment used to dive on, film, edit, and create this survey report for the RMI Historical Preservation Office.

SCUBA EQUIPMENT

Aluminum 80 and steel 95 SCUBA tanks, normal breathing air. Scubapro MK5/MK10 -G250 regulator with standard gauges, or a Oceanic Delta/Omega Piston regulator with Oceanic Prodigy computer with standard gauges, with additional oceanic compass and extra Scubapro LS1 hand-held compass. Seatec Manta Buoyancy Compensator with standard power inflator or Scubapro Air 2 system. Back-up Sherwood Pony bottle and regulator as needed. Scubapro web pocket weight belt, with Scubapro mask, snorkel, fins, boots.

BOATS AND EQUIPMENT

20 foot open fiberglass boat with 40HP motor, Raytheon Color Depth Finder, Scubapro hand held personal dive sonar. Japanese style plastic floats and miles of 6mm tarred dacron line. Rolls of PVC 100 yard colored disposable survey tape.

CAMERA AND VIDEO EQUIPMENT

Nikon VN760 Hi8 Video Camera in a Bentley Marine Housing with monitor, Underwater Kinetics 1200 Video lights, Underwater Kinetics R800 Flashlight, Oceanic 101 Flashlight, Toshiba 132 Flashlight. Sea and Sea Motor Marine 35mm UW Camera with flash, close-up kit. HP Digital Camera. Sony MaviCap Digital Still Image Capture system. JVC Character Generator. Vidicraft Video enhancer/editor. JVC Color Monitor and JVC VHS video recorder. Panasonic S-VHS Video Cassette Recorder.

COMPUTER EQUIPMENT

Compaq Presario Pentium with 200mhz , 40MB Ram, 8MB Video Ram, 6.5 HD. HP CD Disc writer, Visioneer Paper Port Scanner, Umax Flat Scanner, Lexmark Z51 Printer. (Report printed B&W on HP Laser Printer) Microsoft Word, Picture It, Cakewalk Audio and OCR Software.

Appendix 3: Complete List of Sunken Vessels in Majuro Lagoon

Number	SITE	TYPE	MODEL	DESCRIPTION	REASON OF LOSS	DEPTH	LOSS DATE	LOSS OWNER	ACTUAL NAME
1	Reef Past Laura	Aircraft-WW2	B-24	Heavy Bomber	crash/42-73013	5' deep	1940s	US Army AC	"Liberator"
2	Laura	Ship	LCU	105' long	beached	0-25'	1950s	US Navy	
3	Laura	Aircraft-WW2	D5	Dive Bomber	crash	beach	1943	IJN	"Val"
4	Rong Rong	Ship	fishing boat	85' long	washed ashore	on reef	1992	Chinese	Yu Yuan Yue 202
5	Rong Rong	Ship	Tugboat	180' long	washed ashore	on reef	1992	RMI Govt	No Name
6	Main Channel	Ship	Unknown	?	Rumored WW2	150'	1940s	USA	
7	North Islet	Ship	fishing boat	100' long	run aground/debris	on reef	1980s	Japanese	?
8	Near Islet	Ship	fishing boat	100' long	sunk by PII	90-110'	1992	Insurance Co.	Sei Fuku Maru #1
9	Near Islet	Ship	reefer boat	140' long	sunk by storm	135'	1990	Private	"Cenpac"
10	Near Islet	Aircraft-WW2	TBF/TBM	Dive Bomber	crash	110' deep	1940s	US Navy	"Avenger"
11	Anemanet	Aircraft	C-47 (DC-3)	Transport	sunk by PII	25' deep	1998	J. Kramer	WestPac
12	Near Edjit	Vehicles	vehicles	Dump Site	dumped by USA	40-80'	1945	USA	No Name
13	Near Rita	Ship	freighter	80' long	sunk	0-45'	?	J. Kramer	?
14	Near Rita	Ship	LCI	105' long	sunk	10-60'	?	US Navy	
15	Rita area	Yacht	wood	40' ?	burned/sunk	?	1970	Private	Spanish Cannon?
16	Near town	Ship	fishing boat	90' long	sunk	110' deep	1980s	Private	?
17	Near town	Ship	fishing boat	80' long	sunk	130' deep	1980s	Matt Holly	Takinal #7
18	Uliga	Ship	freighter	60' long	sunk	0-15'	1980	TT Govt	"Truk Islander"
19	Pier 7	Ship	LCU	105' long	converted to dock	0-6'	1989	M. Holly	"LCU 1593"
20	Off Uliga	Ship	LCM-6	54' long	sunk	15' deep	1940s	US Navy	No Name
21	Near Matt Holly	Aircraft	Beech	Transport	sunk by Matt Holly	30' deep	1995	Matt Holly	"Queenair"
22	Near Matt Holly	Yacht	ferrocement	50' long	sunk by Matt Holly	40' deep	1997	Matt Holly	"SaiMoi"
23	Near Matt Holly	Ship	freighter	140' long	sunk by Matt Holly	70' deep	1988	Matt Holly	"Kabilok"
24	Off Lanai	Ship	freighter	90' long	sunk	60' deep	1980s	Private	"Evangaline 2"
25	Off Lanai	Ship	Freighter	140' long	sunk	70' deep	1970s	Private	"Ratik Ralik:
26	Off Gateway	Aircraft-WW2	PBM-3	Recon/Patrol	sunk	65' deep	1940s	US Navy	"Mariner"
27	Off Gateway	Yacht	wood	45' long	sunk	45' deep	1980	L. Muno	"Whistler"
28	Behind PII	Ship	LCU	105'	beached	0-5'	1980s	J. Kramer	"LCU1552
29	Near Drydock	Ship	freighter	70' long	sunk/landfill	debris	1996	J. Kramer	"Mienco Queen"
30	Off Main Dock	Ship	fishing boat	100' long	sunk	75-110'	1980s	Nine Group	"Nine Group"
31	Off Main Dock	Ship	fishing boat	80' long	sunk	130' deep	1980s	C. Fujiki	"Serina"
32	Near Bridge	Barge	US Army reefer	150' long	sunk	0-30'deep	1990s	TT Govt	?
33	Old Sun Hotel	Aircraft-WW2	Grumann J2F5	Obser/Liason	Dumped/US Navy	100' deep	1940s	US Navy	"Duck"
34	Long Island	Barge	steel	100' long	beached	0-30	1970s	AIC/IBC	No Name
35	Airport	Ship	fishing boat	100' long	run aground/debris	on reef	1972	Korean	?
36	Unlisted	Ship	3 masted	?	Rumored 1900s	?	1900s	?	?