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Professional 4,000 lbs. Lift Bag raising 5 ton marble column sections from a 200 BC Roman shipwreck off of Turkey.

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RETURNING FROM THE DEEP:

WW2 Aircraft Discovered off the Coasts of Palau

By: Hunter C. Brown, Mark A. Moline, Eric J. Terrill, and Megan A. Cimino

On 24 March 2014, the Bent Prop Project, along with staff and students from the Scripps Institute of Oceanography and the University of Delaware (UD), located a TBM Avenger which had been shot down off the coast of Palau during a bombing raid on an island in 1944. This particular aircraft had been sought for over a decade by the Bent Prop Project, who continually searches for MIA service members in and around the islands of Palau. The Avenger would prove to be the first of many new discoveries during the month-long mission.

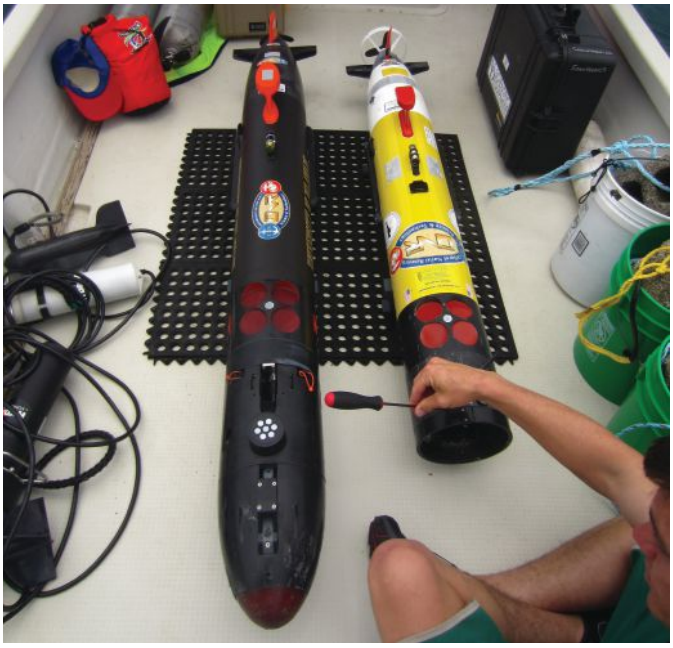
In 1944, American B-24s, F4U Corsairs, F6F Hellcats, and TBM Avengers conducted numerous aerial bombing raids on the Japanese fortifications around the islands of Palau. Up to 11,000 Japanese troops were said to be encamped at one time on the island of Peleliu alone. While the island chain had little in the way of natural resources, the islands were a strategic prize for use as forward airfields for refueling and resupplying aircraft on their way to Japan. On bombing runs around the islands, fighter craft such as Hellcats would escort and protect the more cumbersome Avengers and B-24s along their routes. This particular Avenger, during one such bombing run, took several fatal shots and made the ultimate sacrifice to ensure a successful overall mission. Unfortunately, that sacrifice was neither to be the first nor the last on the islands around Palau. The battles on these islands produced some of the highest number of casualties in all battles of the Pacific Theater during the war. In addition to the casualties, a large number of missing-in-action (MIAs) and prisoners-of-war (POWs) have been reported in war-time logs kept by both Japanese troops and American forces near Palau.

The Bent Prop Project was founded in 1993 by Dr. Pat Scannon as an organization dedicated to locating and assisting with identifying American prisoners of war and missing in action from World War II within the islands of Palau. Included in this purpose is helping to repatriate every American service member who has not come home. Each year, special volunteers join in the search by climbing through the dense Palau jungles, scuba diving in murky channels, and conducting painstaking research in war archives around the world. While the reward for months-to-years of work may be finally bringing an American pilot home, too often the time in Palau ends and volunteers must leave empty-handed to wait another year to resume the search. Many in the Bent Prop group return year after year to continue their efforts. The motivation for a lot of the volunteers is the hope of finding relatives who were MIA during the war. Another common motivation is the honor and joy in helping others learn the fate of missing family members, ending years of mystery.

In 2005, a native of Palau led the Bent Prop team to a large piece of aircraft aluminum deep in a mangrove swamp near a lagoon. The debris proved to be the wing of an American TBM

Avenger aircraft. In the intervening years between its crash and discovery, mangrove roots had lifted the wing completely out of the water, but no other parts were found in the area. The Bent Prop group searched the mangroves and nearshore areas exhaustively using scuba and a donated vessel-towed Marine Sonic Technology side-scan sonar system but found no traces of any other aircraft remnants. Depending on the altitude and speed of the fighter at the instant the wing separated from the fuselage, the main wreckage could be miles from the wing.

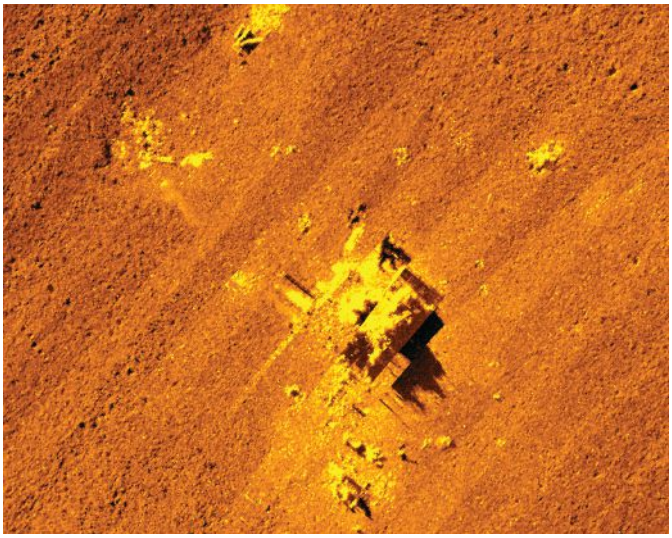
Nine years later, AUVs (autonomous underwater vehicles), from Scripps and UD, equipped with side-scan sonar, identified several "interesting" targets along the coast of Palau. Each day, the three Remus 100 vehicles were programmed with a particular mission plan in a pre-determined area. Bathymetric maps, LIDAR data, and aerial and remotely sensed photographs were consulted to help guide operators in creating mission plans. After the vehicles were programmed, the vehicles were ferried to the area of operation on a small boat and gently lifted over the side and into the sea. Up to six hours in length, each mission can cover more than 1 sq. km and generate hundreds of sidescan images, visual images, scientific data, and vehicle navigational and diagnostic messages that must be manually reviewed after each mission.



Upon returning to shore, operators download the mission data and begin the herculean task of manually sifting through the hundreds of sonar images, using SonarWiz by Chesapeake, in hopes of spotting something that doesn't belong underwater. After alerting Bent Prop team members about the daily finds, a short list of high-likelihood targets was created and divers assigned to investigate each potential target and learn whether the target was an aircraft, or simply an aircraft-shaped coral formation.

During the month-long mission, side-scan surveys located 12 shipwrecks previously unknown to the Palau government and the Bent Prop team. Some of the side-scan results were detailed enough to allow immediate vessel-type identifications. Others, however, were made more difficult by the ship orientation or encrustation by marine life. Dives on several of the shipwrecks indicated that in each case the wreck was of the correct vintage to have been sunk during the war. Diver video and still-frame photography was recorded, but positive identifications of the wrecks, however, was precluded by the time constraints of the project.

While the Remus vehicles can certainly locate shipwrecks and aircraft on the sea-floor, the side-scan imagery also can show where man-made objects are not. The near-shore regions surrounding many of the small ancient coral islands in southern Palau are often too treacherous for AUVs. Research conducted at the National Archives and through personal interviews pointed to an American aircraft sinking in a particular region, but side-scan missions had already ruled out much of the search area. While the AUVs were performing the large-scale offshore searches, members from the Bent Prop team dove in areas closer to the shore. The combination of wide-area searches with the AUVs and targeted searches with divers succeeded again. The team-work paid off in the form of locating a Grumman F6F Hellcat, missing since 1944. During another bombing run, this Hellcat engaged a squadron of Japanese A6M Zeros and successfully shot several out of the sky before receiving critical damage from enemy fire. The debris field was widely distributed and easily missed by cursory searches, but the sharp eyes of Bent Prop divers identified several empennage components covered with marine growth. These few parts led to the main debris field.



Almost 70 years since the aircraft went missing, human eyes rested again upon the Avenger and Hellcat and filled with hopes of locating and repatriating up to four missing aircrew, thus bringing closure to the family and friends of these dutiful service members. A final report summarizing the finds will now be submitted to the Joint POW/MIA Accounting Command (JPAC) for review. Upon a favorable review, JPAC would likely return to the sites for further exploration