

Final Landing: The Remains of a Vintage Landing Craft in Salisbury, Maryland

By Dennis Knepper

In recent months, MAHS volunteers have been documenting the remains of a Navy landing craft, an LCVP (landing craft vehicle, personnel), more commonly known as a Higgins boat, that lies in the tidal flats along the Wicomico River in Salisbury, Maryland. Several wrecks have been recorded along this stretch of the river, lying just south of Salisbury's downtown business district. Steve Bilicki, maritime archaeological consultant with BRS, conducted a side-scan sonar survey of parts of the river late in 2006 with the help of Salisbury University student, Jennifer Gardner. Along with at least one sonar target, site 18WC185 (Upper Wicomico #1), other wrecks were noted along the shoreline at low tide. One of those wrecks was the LCVP. The wreck was designated site 18WC188.



Allied troops coming ashore from an LCVP during an amphibious assault. All historical photos from Andrew Jackson Higgins and the Boats That Won World War II, by Jerry E. Strahan 1994 Louisiana State University Press, Baton Rouge.

Designed and built by New Orleans boat builder Andrew Jackson Higgins, LCVPs were the workhorses of amphibious assault forces in World War II and the Korean War. They allowed the Allies to land men and equipment through the surf onto unoccupied beaches, avoiding fortified, established harbors and the cost in time and lives that would have been required to make such heavily contested landings. The boats were critical to the success of the Allied Invasion of Normandy on D-Day, as well as the many island invasions of the Pacific theatre, and the Korean Inchon Invasion.

A biographer has described Andrew Jackson Higgins as perhaps the most forgotten hero of the Allied victory. Higgins Industries produced more than twenty thousand boats during the war, including PT (patrol torpedo) boats, a 27-foot airborne lifeboat, and 12,000 LCVPs, the boats that eventually came to bear his name – Higgins boats. By September of 1943, it is estimated that more than 90 percent of the vessels comprising the

U.S. Navy and engaged in both Europe and the Pacific were designed by Higgins Industry Incorporated, and more than 60 percent were built in Higgins' New Orleans plant. At its peak, Higgins Industries consisted of eight New Orleans plants employing 20,000 workers and producing 700 boats a month.

Higgins was a larger-than-life figure. Born in small-town Nebraska in 1886, he developed an interest in the timber industry and boats following duty in the Nebraska militia. He built the precursors to the LCVPs in a series of flat-bottomed boats intended for use by trappers and oil men in the Louisiana swamps and marshes. The boats were needed to run in shallow water clogged with sandbars, vegetation and downed trees. They were designed to purposefully run aground without damage to the hull or propellers, and then back off or retract themselves to move onto another location. The first design, referred to fancifully as the Wonderboat, boasted a rounded and reinforced bow specially designed from a large piece of handcrafted pine referred to as a head-log. The propeller and shaft were located in a tunnel, which sheltered them but allowed bubbles to accumulate resulting in problems with cavitation that reduced power significantly. The successor to the Wonderboat, known just as fancifully as Eureka, solved the cavitation problem by using a semi-tunnel and adding a reverse curve to the v-shaped hull aft of midships. This innovative hull form tended to force objects and aerated water away from the after part of the hull, allowing the propeller to run in clean water with no bubbles. Heavy frames and keel, and a reinforced skeg to protect the propeller and shaft completed the rugged



Andrew Jackson Higgins, designer and builder of the Higgins Boat.



Moving assembly line with LCVPs in foreground upside-down: note the V-shaped bow and reversed curve of the stern.

construction. The vessel was highly maneuverable and drew only 10 inches of water when underway.

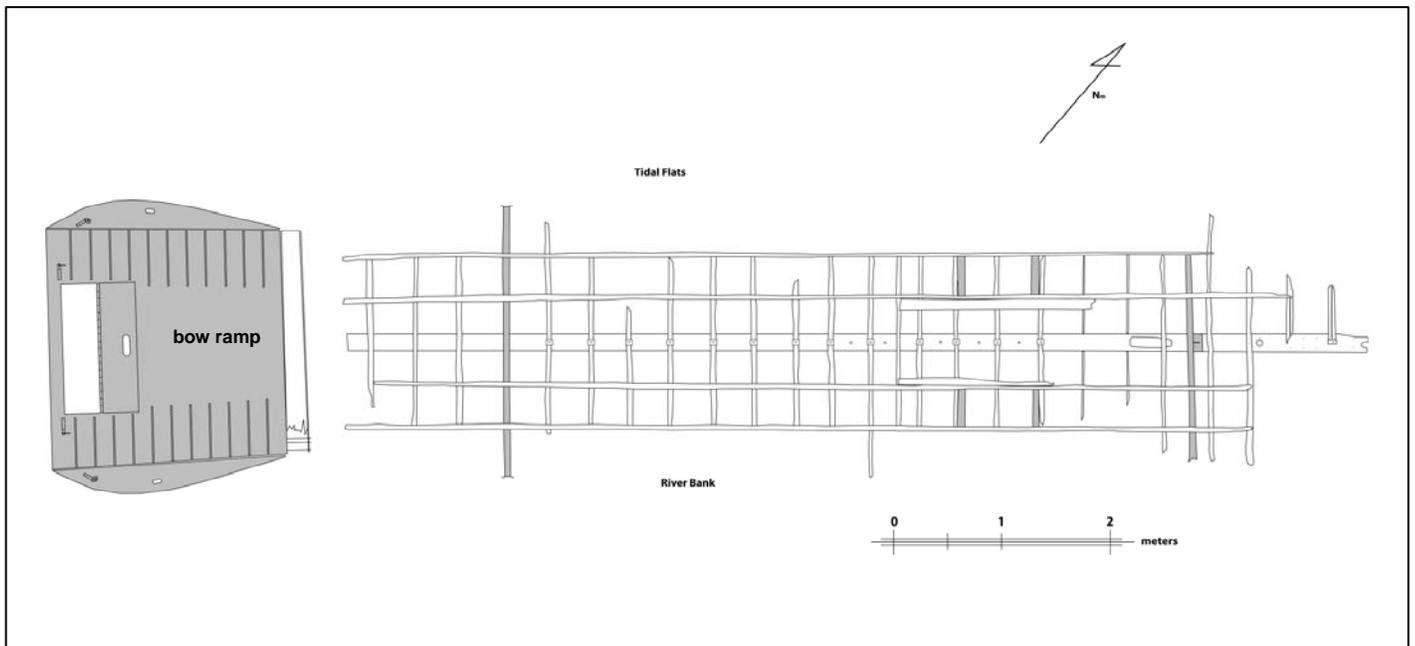
Some reports suggest that Higgins sold these speedy boats to both rum smugglers racing whiskey past the Coast Guard during Prohibition and to the Coast Guard who chased the smugglers. Along with the Coast Guard, Higgins sold Eureka boats to the Army Corps of Engineers and the Biological Survey Agency, and in 1940, to the British, now at war with Germany, as assault craft. But the U.S. Navy did not express an interest in the craft, in part because they viewed Higgins as an outsider, in direct competition with established shipyards on the East Coast. Higgins eventually was able to deal directly with the Marines, for whom the craft

were designed and who saw the practical benefits of the vessel over existing designs.

In 1941, Higgins began modifying the Eureka boats with bow ramps, creating the craft we now know as the Higgins boat. At first the ramped boat was not a fully realized design – Higgins merely constructed the Eureka, then cut off the bow and attached the ramp. At the time he had a contract to produce 335 Eureka's, and the last 87, now referred to as LCVPs were ramped. The Marines, understanding that assault troops were useless without mechanized support – i.e., howitzers and tanks – also asked for a design of a 45-foot tank lighter. Higgins modified an existing tug boat as a prototype in just over two days and secured a contract for 50 of the new vessels.

At the main Higgins assembly plant at City Park in Central New Orleans, the 36-foot LCVPs were constructed on a 600-foot-long assembly line. Four production lines operated side-by-side. The vessels were started upside-down, with frames laid and plywood and planking added. The boats were then righted and finished while in constant motion along the line.

To be effective, the LVCP required a different handling technique than conventional craft. The boat was designed to run over obstacles and onto the beach at full speed, with the throttle kept wide open as the troops disembarked. The engines were then swiftly reversed to retract the vessel, turn it and head out it into the surf.



Plan view drawing of the Salisbury LCVP (white elements are wood, gray elements are steel). Map by J.Smailes, J.Gardner, T.Berkey, D.Knepper.



Salisbury LCVP, view aft with engine mounts right and left of centerline. Photo by T.Berkey.

Recognizing that most boat operators were trained to slow down for obstacles, Higgins developed a special training program, the Higgins Boat Operators and Marine Engine Maintenance School, to teach military personnel how to properly operate the LCVP. From July 1941 through the end of the war, 30,000 men were trained in the handling and maintenance of the landing craft.

MAHS first visited the Salisbury LCVP (18WC188) in February 2007, while documenting the Upper Wicomico #1 wreck, 18WC185. At that time, overview photographs of the LCVP were taken. MAHS returned to the site in late November of 2007 at the invitation of Dr. Susan Langley, Underwater Archaeologist for the State of Maryland, and again in April of 2008.

The remains lie at the base of the river bank, which rises 10-12 feet above the bottom sediments in this location. The bow of the vessel points downstream, and the wreck lists at an angle of almost 45 degrees, the port

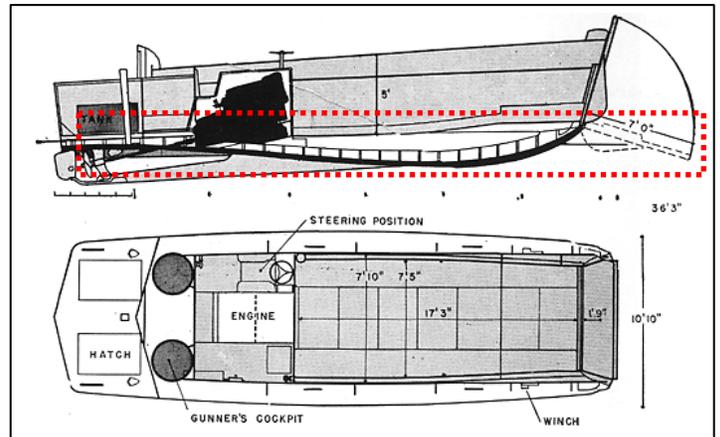


Salisbury LCVP, view forward with steering position on the port side. Photo by D.Knepper.

side resting on brush, small trees, and trash that has collected in the exposed tree roots. The starboard side is buried in the sediments.

The major features of the wreck were mapped using 90-degree offsets from a baseline extended along the approximate centerline of the site. Details of metal frames and wooden planking were recorded. General site photos were taken along with detailed photos of specific framing features.

The vessel is of composite construction, with wooden frames and stringers along with several steel frames and a large steel bow ramp. The wreckage measured approximately 12.3 meters (40.3 feet) in length from the open bow ramp to the truncated remains of the stern, and 2.5 meters (8.2 feet) in width, as measured between the ends of the complete metal frames (the bow ramp was slightly wider at its widest point, approximately 2.8 meters [9.2 feet]).



Cutaway and plan view of LCVP: dotted line highlights the surviving portion of the Salisbury vessel.

In the after part of the vessel was a motor mount comprised of an additional set of supporting timbers rabbeted with a slant down and aft. A beveled hole in the longitudinal keelson-like stringer allowed the propeller shaft to pass through the bottom of the hull. The frames were attached to the stringers with galvanized metal bolts with threads and nuts. The heavy, steel bow ramp lay in the sandy sediment at the bow end of the wreck. The ramp was hexagonal in shape and slightly asymmetrical along the axis perpendicular to the midline of the vessel. Features visible on the interior of the ramp included raised treads for foot and vehicle traffic, a rectangular view port, lifting rings that would have attached to winches in the bow of the boat, and a hinge mechanism located along a 10-cm-(4-in)-square timber that attached the ramp to the bow.

The portion of the craft remaining at the site consisted of parts of the outer hull, the frames, the keelson-like midline stringer, the wooden cradle for the motor, metal frames for the steering position, and the bow ramp. Most of the frames were complete to the



Salisbury LCVP, open ramp at bow end with view port down. Photo by J.Gardner.

hard chine on the port side, where they were somewhat protected by the bottom sediments. Only the steel frames were complete on the fully exposed starboard side. Other than the base of the steering position, none of the upper structure remained.

Measurements and drawings that have been obtained of the original LCVPs indicate that the vessel would have measured slightly under 35 feet at the base of the hull. The ramp, when in closed position, leaned outward somewhat, giving the boat a full length of 36 feet 3 inches. The ramp measured 7 feet in length, which would have given the vessel a total length of just over 42 feet with the ramp down. The entire Salisbury wreck measured approximately 40 feet in length. The bow end of the hull was complete: the longitudinal timbers or stringers could be seen fairing upward forming the line of the bow and cut to receive the hinged ramp. Based on its alignment with the remaining portion of the hull, the ramp appeared to be in place and attached when the vessel was abandoned in this location. Thus, the main features of the bow end of the vessel were intact, so that the missing length was at the stern end, where in fact the midline stringer and hull planking were truncated. The full width of the vessel would have been 10 feet 10 inches at the gunwales, 7 feet 5 inches at the base of the troop/cargo compartment. The 8-foot-2-inch width measured on the wreck reflects the width to the outboard ends of the frames, which were wider than the interior compartment.

Although it is in poor condition now, the LCVP was nearly complete when abandoned, according to Chuck Fithian, of the Delaware State Museum. Fithian was raised in Salisbury and reports that as a young boy in the early 1960s, he and his friends used to play on the LCVP. “We made lots of noise and stormed many

beaches – typical Vic Morrow scenarios.” By Fithian’s recollection, the bow ramp was down at that time, but the boat was missing only the engine and guns: “we were particularly disappointed that it didn’t still have its guns.”

The jury is out as to whether the Salisbury LCVP dates from World War II or the Korean War. Kim Nielsen, of the Navy Museum, in Washington, D.C., notes that there are several diagnostic features that can be used to date the boat, including the mounting brackets for the pulley that operated the bow ramp, or the pulley itself. Both features were located on the starboard side of the boat, which may have fallen outward and become buried in the tidal sediments. Further investigation at the site may thus reveal information about these features.

Writing in the early 1990s, A.J. Higgins’ biographer observed that despite his accomplishments, Higgins is less well-known than he might be because “to credit Higgins’ accomplishments, [U.S. Naval historians] would have to recognize the Bureaus of Ships’ failures...Higgins single-handedly fought the navy bureaucracy to assure that the amphibious forces were equipped with the safest, best-designed landing craft possible. The U.S. Marine Corps never lost sight of Higgins’ valiant efforts.”

And yet history is catching up with the Marines in its appreciation. Numerous web sites are dedicated to Higgins’ story and his accomplishments. The National D-Day Museum, which opened in 2000, is located in New Orleans largely because of Higgins and his connection with the city. The museum displays a reproduction of a Higgins LCVP in its Louisiana

continued on page 18



Troops’ view from inside the LCVP during a beach assault in the Normandy Invasion.