Coastwatch
NORTH CAROLINA SEA GRANT • SPRING 2023 • ISSUE 1 • $6.95

THE MYSTERY SHIP OFF PAPPY LANE
Science, Sleuthing, and a 58-Year-Old Wreck

Duffyfield Reimagined • Alligators with Infections • What Not to Plant • The Hottest Ocean on Record
THE MYSTERY SHIP OFF PAPPY LANE

How Science and Sleuthing Uncovered the History of a 58-Year-Old Shipwreck

Weeks of diving and mapping revealed a ship that had found its way from the turbulence of the Pacific Ocean to its final resting place at the bottom of the shallow, murky Pamlico Sound.
In Rodanthe, they put their boats in and rode to the wreck a hundred yards offshore. Working in chest-high water, some students strapped on scuba gear to dredge the submerged hull, while some stacked with snorkel gear and drew features of the ship onto mylar sheets. Microbiologists sometimes joined them to study the microbial communities making their home on the ship, investigating how they ate away at the vessel.

It was a tricky ship to study. With the vessel half underwater, both archeologists and microbiologists developed multiple methods for research. Even for the outreach portion of the project, John McCord, CSI’s director of outreach and education, came to the site prepared to photograph in the water, on the surface, and in the air. Underwater photography and drone footage not only connected the public with the project but provided high-resolution aerial photographs and data for 3-D model that aided in Richard’s research.

The lack of oral history about the wreck made uncovering its identity even trickier. While there were a handful of accounts from island residents, they conflicted, some saying it belonged to the National Park Service, some saying it was a great Lakes steamer, some saying it was a Great Barrier Reef. Richards specializes in studying abandoned shipwrecks with little historical record, but the Pappy Lane mystery was surprisingly difficult to crack.

“This one was just particularly infuriating, because it’s a ship that was lost not that long ago,” says Richards. “There are plenty of people still alive that were around when this thing met its end in one way or another, and no one really knew. They just knew and remembered it always just being there.”

Steadily, Richards and his team gathered enough archeological evidence from the wreck to pin an identity to the discarded artifact, finally solving a mystery written in the shallow waves. What the weeks of diving, drawing, and mapping ultimately revealed was a surprise to all—a ship that had found its way from the turbulence of the Pacific Ocean to its final resting place at the bottom of the shallow, murky Pamlico Sound.

THE ART AND SCIENCE OF MARITIME ARCHEOLOGY

Hatteras Island—a spit of land only a few hundred yards at its thinnest—was not always where it is today. At one point, the island resided 50 miles further out to sea. Since its formation, the wind and waves slowly washed sand over the beach back into its marshes, pushing it slowly inland and keeping it above the 1-foot-per-century of sea level rise since the island’s formation over 3,500 years ago. While the journey of the boat that came to rest off Pappy Lane only took decades, the ship traveled a much longer distance than Hatteras Island’s migration. But with only a disintegrating mass of iron and little historical documentation of diving sites, retracing what happened required detective work. An Australian-born and educated maritime archeologist, Richards came to the Outer Banks as an expert in the kind of investigation needed to uncover the story of the Pappy Lane wreck. He specializes in identifying abandoned shipwrecks, which are particularly difficult to study.

“There’s no fanfare associated with their loss,” Richards says. “When ships are discarded, people aren’t pulling their hair out and yelling, ‘catch my baby!’ It’s not hundreds of thousands and millions of dollars at stake. People are throwing away whatever they think is trash.”

That meant there was no acknowledgement of the Pappy Lane wreck when it occurred, either in local newspapers or government documents. Because the wreck has even faded from the memories of Hatteras Island residents, with so few leads, Richards

Continued
had to get his hands in the Pamlico Sound’s mucky sand and do what he does best.

He led his team of ECU graduate students to create a finely-detailed map of the site, which was computer-generated from historical vessels, and also to excavate parts of the shipwreck. They spent a month out on the wreck, recording every facet of it, looking for the few tiny, missable details that would ultimately pin a history to the ship.

Every weekday, Richards and his students jumped into chest-high water with wetsuits, scuba masks, waterproof mylar sheets, pens, and diving slates. They drew the site on the mylar sheets while snorkeling and carefully climbing over the ship. Within three weeks, they had dozens of drawings.

In the end, they stitched together and transposed 177 drawings onto a site map with a scale of 1 foot of the ship to every 1 inch on the map. But the site map alone wasn’t enough to unmake the wreck’s identity, calling for a rare solution — dredging, a method Richards hadn’t used in a decade.

1 OF 5000 SHIPWRECKS

Nathan Henry, assistant state archaeologist and conservator, had monitored thousands of North Carolina’s shipwrecks while working at the N.C. Department of Natural and Cultural Resources’ Underwater Archaeology Branch Preservation Lab.

“We track the wrecks that are under the state’s ownership and protect them as best we can,” says Henry. Protecting the wrecks means issuing permits to construction sites, treasure hunters, and research teams to document, as well as to excavate, with as little disturbance to sites as possible.

The preservation lab in Kure Beach, tucked in among the live oaks, has an ocean view, saltwater tanks full of Civil War relics, and tables covered in muskets and cannon balls. With a little chemistry, Henry dived in and preserved wooden and iron artifacts before sending them off to museums and universities. But it’s generally best to leave the state’s shipwrecks and their cargo — which range from Native American dugout canoes to World War II tankers — where they settled.

Even if the majority of these wrecks remain forever submerged, he says, the details we collect and record from them add critical pieces to North Carolina’s identity. “There’s a lot to discover out there every time you find one more shipwreck. I think it’s important to document that as best you can and collect as much information as you can.”

Henry’s Underwater Archaeology Branch issued one of the permits for the Pappy Lane project, mandating dredging of the stern and three cross-sections of the ship. By limiting dredging to targeted areas of the shipwreck, based on historical records and an understanding of ship construction, most of the area would simultaneously remain undisturbed and allow for the potential discovery of new information.

EXPOSED

The process of dredging requires physical removal of some parts of the wreck, exposing more of it to oxygen and other environmental forces that can lead to corrosion and degradation. Even if researchers recover newly exposed materials, it can take time for oxygen-starved conditions to resettle and stop the iron from rusting.

Because dredging causes damage, it is only undertaken to answer a specific research question — in this case, about the ship’s identity — and only when meticulous records of activities before and after excavation are made, allowing for later reconstruction.

After researchers properly anchored their boat, which also served as the dredging platform, the team rolled out the hoses, went in with scuba gear, and turned on the pump. They fanned sediment to the dredge head and slowly moved down through layers of sediment and oyster shell, which periodically stuck in the hose, until the hull was exposed.

“There was a moment in the field when we were about to excavate the stern when we realized what the stern was,” says Richards. “This sort of flat-bottom tunnel stern. At that point it became clear that I had a variable that was really important. That’s what led us to the Landing Craft Support, Landing Craft Infantry identification.”

Finally, the team had a lead on the ship’s purpose. It belonged to a class of World War II gunboat.

THE MICROBIOLOGISTS — AND A CRUCIAL CLUE

Shallow, brackish water feeds the salt marshes on the sound side of Hatteras Island. The banks of black needle rush and green cordgrass hold in place dark, compact sediment rich in organic matter, the kind that flip-flops disappear into, the kind that makes the air smell like rotten eggs at low tide.

The teams of archeologists and microbiologists working at the Pappy Lane wreck were familiar with that smell. But sometimes, they would smell something different — something that helped unlock the wreck’s identity.

But Erin Field, a microbiologist at East Carolina University, wasn’t there to discover the ship’s identity. She and graduate students Cody Garrison and Keri Price were drilling out pieces of the ship below the sound side to study how microbes interacted with the ship and contributed to its deterioration — a process called biodegradation.

It was a unique research opportunity. Plenty of light penetrated the shallow water submerging the vessel, so Field knew there would be an abundance of life to study compared to deep-water wrecks. Most unique, though, was a permit to drill of samples of the ship.

“The most of the time with shipwrecks, you don’t necessarily want to take pieces of the historical wreck away,” says Field. “So it was a really great opportunity to take samples and use them at the lab.”

Continued
At the lab, they scraped off the surface of the metal, where the microbes lived. Past studies have suggested that iron-oxidizing microbes can colonize and encourage bioerosion. “We know they’re in sediments, we know they’re in the water, but we’ve never shown that they’re on shipwrecks,” says Field.

She and her team found them on all of their samples from the ship.

“Two people had told me that they’d seen this before, but I’d never seen it before. I was so interested, I started to call everyone I knew who had been on the ship.”

The ship’s crew very quickly became her new friends as well as colleagues. They provided more samples and helped her set up a lab in a motel parking lot.

“I’m still on the trail of this.”

The LCS-123 helped battle kamikaze planes, put out fires on larger ships, provided damage control parties, and pulled hundreds of men off damaged ships and from the water. Because of their widespread activity in their relatively short career, these small, flat-bottomed LCSs earned the nickname “Mighty Midgets.”

After Hiroshima and Nagasaki, the LCSs were dispersed throughout the world. Beginning in 1948, 31 of the remaining vessels were stricken from the Navy Register and sold for scrap metal or to commercial fishing companies. The next year, many were transferred to foreign fleets in France, Vietnam, and Japan. They served less than two years for the United States during World War II, but some spent over two decades in the South Vietnamese Navy, serving as its first real warships.

The LCS-123 was one of the first of its class sold to a private owner: James L. Teague of Hampton, Virginia, in 1947. In Virginia, the ship became the Hunt Bros. No. 10, operating under W. P. Hunt Company, which bought it from Teague. A Hunt family friend, skilled mechanic, and jack of all trades, Teague oversaw the conversion of the warship into a tank barge, pulling off the deck and putting in new bulkheads in the late 1940s.

William Powhatan Hunt II, who talked with Richards, was about seven years old at the time his father purchased and began converting the vessel. Hunt recalled a discovery as workmen cut open the bulkhead: a room, welded shut, full of weapons. “Someone made a big error,” Hunt said. “They had to call every part of the military. The military came out to see the weapons that they didn’t even want in the first place.”

Richards compared the historical account from W.P. Hunt II with an archaeological evidence and says the “best guess — and a good one, I think — is that the wreck and the Hunt Bros. No. 10 are one and the same.”

The vessel operated during the decline of the maritime transportation industry and the rise of roads and oil pipelines. Hunt’s company underwent multiple evolutions in its last decade to stay afloat, finally becoming a seafood company.

In the midst of those changes, the Hunt Bros. No. 10 faded into obscurity. Its last definitive entry in the historical record, from 1963, reads “out of documentation.” The ship might have had one final life in service to Roanoke Island’s Daniels family, who might have it needed to salvage barges.

Without documentation, though, Richards is hesitant to say this was how the ship off Pappy Lane spent its final days — which remains a mystery.

The vessel was probably a LCS(L) (the 3), the type used by the United States during World War II. They served less than two years for the United States during World War II, but some spent over two decades in the South Vietnamese Navy, serving as its first real warships. The LCS-123 was one of the first of its class sold to a private owner: James L. Teague of Hampton, Virginia, in 1947. In Virginia, the ship became the Hunt Bros. No. 10, operating under W. P. Hunt Company, which bought it from Teague. A Hunt family friend, skilled mechanic, and jack of all trades, Teague oversaw the conversion of the warship into a tank barge, pulling off the deck and putting in new bulkheads in the late 1940s.

William Powhatan Hunt II, who talked with Richards, was about seven years old at the time his father purchased and began converting the vessel. Hunt recalled a discovery as workmen cut open the bulkhead: a room, welded shut, full of weapons. “Someone made a big error,” Hunt said. “They had to call every part of the military. The military came out to see the weapons that they didn’t even want in the first place.”

Richards compared the historical account from W.P. Hunt II with an archaeological evidence and says the “best guess — and a good one, I think — is that the wreck and the Hunt Bros. No. 10 are one and the same.”

The vessel operated during the decline of the maritime transportation industry and the rise of roads and oil pipelines. Hunt’s company underwent multiple evolutions in its last decade to stay afloat, finally becoming a seafood company.

In the midst of those changes, the Hunt Bros. No. 10 faded into obscurity. Its last definitive entry in the historical record, from 1963, reads “out of documentation.” The ship might have had one final life in service to Roanoke Island’s Daniels family, who might have it needed to salvage barges.

Without documentation, though, Richards is hesitant to say this was how the ship off Pappy Lane spent its final days — which remains a mystery.