Celebrating the Discovery of the USS Monitor

On August 24, 2003, NOAA and The Mariners’ Museum celebrated the 30th anniversary of the discovery of the wreck of the USS Monitor. This special day featured fun-filled activities for children and adults alike. The celebration included a talk by Dr. John Broadwater, Manager of the Monitor National Marine Sanctuary, on the history of the vessel and her discovery. NOAA historian Jeff Johnston gave a talk on the large-scale recovery operations that ended last year with the recovery of the Monitor’s world-famous gun turret.

The North Carolina Maritime Museum in Beaufort, NC, also celebrated the anniversary. Some of the original researchers who found the Monitor, including Robert Sheridan, Gordon Watts and William Still, were present at a reception celebrating the discovery of the Monitor and a two-day Underwater Archaeology Symposium sponsored by the Museum. John Broadwater and Jeff Johnston also gave talks on the Monitor’s discovery and recovery.

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From the Pilot House

I’m sure that some of you have been wondering if you’d been dropped from our mailing list! No, it’s just that so much has happened since the last Cheesebox, we haven’t had time to put another issue together. However, Michelle Fox not only developed this special Cheesebox edition, but gave it a new look as well. We hope you like it.

Our biggest news, reported herein, is the recovery last year of the Monitor’s famous gun turret. Since turret recovery was the culmination of a decade of research, preparation and expeditions, we’ve included a portfolio of color images from Monitor Expedition 2002. As always, the Navy came through with flying colors, recovering the turret intact, with over 400 artifacts still inside! Working since 1998 with the Naval Sea Systems Command, Mobile Diving and Salvage Unit Two, and Navy divers from over two dozen units around the world has been the highlight of my NOAA career.

With the major Monitor recovery expeditions successfully completed, the Monitor National Marine Sanctuary is beginning a new phase. In July and August of this year, a NOAA team conducted mapping and photography at the sanctuary site. In future years, we hope to have Navy participation as we continue to reveal more of the Monitor’s story through underwater archaeology. In the meantime, we’re working closely with The Mariners’ Museum, where Monitor artifacts are being conserved, stored and exhibited. The museum is developing plans for a USS Monitor Center, which we will tell you more about soon.

In the coming year, we will be telling you about even more exciting new programs and projects as well as an expanded Internet site.

So stay tuned: plenty of excitement is yet to come from the Monitor National Marine Sanctuary!

John Broadwater
John Broadwater, Manager
Monitor National Marine Sanctuary

NOAA establishes Maritime Heritage Program

In a historic step toward better preserving and managing our nation’s maritime heritage, NOAA has formally created a Maritime Heritage Program (MHP). As an initiative of NOAA’s National Marine Sanctuary Program (NMSP), the MHP will assist NOAA’s national marine sanctuaries throughout the United States in their efforts to manage and protect maritime heritage resources within their boundaries.

“Locating, protecting, managing, researching and educating the public about archaeological sites throughout the sanctuary system is an important part of our overall mission,” said Daniel J. Besta, director of the NMSP. “As with natural resources, numerous user and interest groups – from archaeologists to recreational divers to salvors – seek to interact with these resources in a variety of ways. The cultural resources within our sanctuaries, if properly studied and interpreted, will increase public enjoyment and appreciation of our special and diverse sanctuary resources.”

NOAA staff working for the MHP will be dedicated to assisting sanctuaries in their efforts to manage and protect their maritime and cultural artifacts. The MHP will also provide assistance and consultation to other federal and state agencies on issues concerning submerged maritime and cultural artifacts and seek to develop new methods, tools, and partnerships for achieving program objectives.

“I am very excited about the sanctuary program’s increased emphasis on maritime and cultural artifacts that will be embodied in this new program,” said MHP Director and Monitor National Marine Sanctuary Manager John Broadwater. “Americans are, and always have been, a maritime people, beginning with the native coastal tribes, expanding with the European exploration and settlement period, and culminating in the greatest naval power the world has ever seen. One of the program’s primary goals is to emphasize and interpret America’s maritime heritage, thus adding a new dimension to the already well-developed natural resources programs.”

One of the MHP’s first projects is the Maritime Archaeological Resources Inventory for National Evaluation and Research (MARINER), a database containing basic information about shipwrecks and other submerged cultural sites within U.S. waters. The database will be a valuable management, research, and educational tool. This multi-year project is a continuation of a 2002 pilot project conducted by the NMSP in cooperation with the Santa Barbara Maritime Museum.

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Monitor's Turret Returns to Hampton Roads, Va.

On August 9, 2002, the turret of the Civil War ironclad USS Monitor returned to Hampton Roads where it changed the face of naval warfare during its battle with the CSS Virginia on March 9, 1862. The turret, recovered by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Navy, was raised from the ocean floor off Cape Hatteras, NC, on August 5, 2002, after a 41-day mission.

Monitor Expedition 2002

Recovery of the Monitor's turret began on the morning of June 26, 2002. NOAA and U.S. Navy personnel departed Norfolk, Va. aboard the Derrick Barge Wostan, operated by Manson-Gulf Inc., and submersible divers were conducted by the Harbor Branch Oceanographic Institution at the Wostan's destination — NOAA's Monitor National Marine Sanctuary (MNMS).

The barge reached the sanctuary at 3:13 a.m. on June 26. Despite the hour and total darkness, the crew began deploying the 30,000-pound anchors that would hold the barge in position over the Monitor. At 7:05 a.m. all of the Wostan's anchors were set and, at 9:27 a.m., the first dive of the expedition took place. The divers reported nearly 100 feet of visibility and almost no current.

To gain access to the turret for excavation and recovery, a 30-ton section of the ship's stern hull structure was removed. Before it could be removed and lifted, Navy divers had to remove tons of debris and coal, and cut through thick layers of iron and wood hull structure.

After nine days on site, on July 5 at 7:57 p.m., the Monitor's 20-foot gun turret was completely uncovered for the first time since the Monitor sank on December 31, 1862.

Recovery preparations

With the turret exposed, divers began to install the 57,000-pound lifting frame, known as the "spider," and began excavating the interior of the silt-filled turret.

Once inside the turret, divers encountered a thick layer of iron fragments, iron concretions, coal and other hull debris. They were able to remove the most recently deposited layer (designated "Layer B") by July 8, and excavation proceeded into "Layer B"—a foot-thick stratum of compacted silt and dead coral.

By noon on July 9, most of the turret perimeter had been cleared of hull debris, and about half of the wooden layer was out of the turret. Unfortunately, the weather began to deteriorate. The wind and seas built out of the southwest throughout the night, reaching winds over 30 knots and sea swells of five to seven feet. These difficult conditions were exacerbated by periodic squalls and thunderstorms and by strong bottom currents. By 4 a.m. on the 10th, surface-supplied diving had to be suspended, but saturation diving continued.

By midnight on July 10, the troublesome "Layer B" was nearly cleared, and divers on the night shift began to excavate "Layer C"—a soft, gray clay that proved much easier to remove. The team made an important discovery the following day. Navy divers, working with archaeologists from NOAA, uncovered one of the 16,000-pound guns within the Monitor's turret. For years, many historians and Civil War enthusiasts have sought the gun. The Monitor had a total of 20 guns, 12 of which were mounted on the turret.

NOAA divers first on scene following turret recovery

Between July 21 and August 17, 2002, a team of research divers from the National Undersea Research Center at the University of North Carolina, East Carolina University and throughout the country documented the wreck of the Monitor.

Supervised by NOAA archaeologists, the NOAA dive team worked side-by-side with Navy divers to record turret excavation progress.

After the turret had been successfully lifted, the NOAA divers were the first to see the wreck without its most recognizable feature. The place where the turret sat for 140-years was now a 30-foot void.

Diving from the R/V Cape Fear, the team documented changes to the site using video, still photography and archaeological mapping techniques. They recovered two schnapps, three medicine bottles, a cannonball fuse and a porcelain door plate.

Continue to follow the Monitor's story on the web at:

http://monitor.noaa.gov

NOAA divers returned to the site on July 22, 2003. More details on Monitor Expedition 2003 will be reported in the next edition of Cheesebox.
Monitor Expedition 2002

Jeff Johnston (left) and John Broadwater record one of the many artifacts recovered during the expedition. Photo: Monitor Collection, NOAA

This mosaic of video imagery shows the section of the armor belt and hull that divers had to remove before the turret could be lifted. Photo: Monitor Collection, NOAA

The Monitor's turret as it looked before NOAA and the US Navy removed a 30-ton section of hull and armor belt. Photo: Monitor Collection, NOAA

A large manta ray glides over the wreck of the Monitor, which many ocean species now call "home." Photo: Monitor Collection, NOAA

National Marine Sanctuary Program Director Dan Basta addresses a crowd gathered to welcome the turret to The Mariners' Museum on August 10, 2002. Photo: Monitor Collection, NOAA

Virginia Congresswoman Jo Ann Davis was one of several dignitaries to speak at the turret arrival ceremony held in Newport News on August 9, 2002. Photo: Monitor Collection, NOAA

The barge Wotan arrives safely in Newport News, Va., with the turret on board. A crowd of over 1,000 gathered for the homecoming ceremony. Photo: Monitor Collection, NOAA

Navy divers go "over the side" during a routine dive to the Monitor. Photo: Monitor Collection, NOAA

A Navy diver signals to the crew on the Wotan that the platform has been secured to the lifting mechanism shortly before it is lowered to the Monitor. Photo: Monitor Collection, NOAA
Turret Excavation Reveals Insight into Ship’s Sinking

A 16-week effort by NOAA and The Mariners’ Museum to excavate the turret began shortly after it arrived at the Museum.

When the turret arrived, the Museum was well-prepared with a large conservation tank and a computer-controlled chilled-water system to keep the turret submerged in cool water. The chilled water was important for the preservation of organic material in the turret.

When excavation began, the four gun slides, two vertical stanchions and two sets of horizontal braces were exposed, as were both roof hatches. The bases of both gun carriages were exposed along with the muzzle ends of both guns. Partially exposed artifacts included implements for working the guns, large and small cordage, cloth, and human remains.

During the first week, Eric Emery, an archaeologist from the U.S. Army’s Central Identification Laboratory (CILHI), who participated in the Expedition, came to assist in the removal of human remains. A gold ring was found inside the turret, still on the fourth finger of the right hand of one of the sailors.

Once the remains were removed from the turret, they were sent to CILHI where they currently are being analyzed for potential identification.

Other artifacts retrieved during the first week included a silver-plated serving spoon, a pocket comb stamped “U.S. Navy,” a handle to a pocket knife, a nearly-complete wool overcoat, numerous coat buttons, three shoes, and pulley blocks associated with the gun carriages.

A few weeks later, the excavation team began to discover several additional pieces of silverware. The presence of silverware led to some speculation about the sinking sequence of the Monitor.

When the Monitor was designed, a portion of the turret was positioned over the ship’s galley. Excavators began to speculate that the silverware could have fallen into the turret as the ship rolled over and sank. As excavations continued, more silverware was discovered, including several forks, some of which were monogrammed. The first fork, located on October 3, 2002, has an inscription “SAL” and “USN” (United States Navy). Archaeologists speculated that “SAL” could be the initials of Third Assistant Engineer Samuel Augee Lewis, who was lost when the Monitor sank. A second fork was inscribed with “G. Frederickson,” which undoubtedly belonged to George Frederickson, an

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NOAA, Navy safely lift turret from ocean floor (cont.)

...sieves speculated that as the Monitor rolled over and sank, its two 11-inch Dahlgren guns broke free of the turret, fell to the seabed, and were buried beneath sand or the Monitor’s hull. Others, including NOAA's MIMNS manager John Broadwater and sanctuary historian Jeff Johnston, were confident that both guns would be found inside the turret, still attached to their carriages.

Divers first uncovered a series of metal plates that Johnston immediately recognized as part of the recoil mechanism on the bottom of the port carriage. The guns were inside the turret and attached to their carriages! Soon, divers had uncovered the muzzle end of one gun barrel. After this discovery was made, NOAA and the Navy were able to complete plans for securing the cannons and carriages, allowing them to make the final lift.

Three weeks of diving behind them, NOAA and the Navy were ready to lower the “spider” over the turret on July 17. The “spider” was lifted from the deck of the barge, suspended over the side, then slowly lowered 250 feet to the sea bottom.

On July 22, Navy personnel working with Manson Gulf riggers on the Horation lowered the turret support platform to the seabed. The platform sat just aft of the turret, over which the “spider” had already been placed.

Following placement of the platform, Navy divers resumed the difficult task of installing the spider into final position over the turret. They encountered literally tons of coal, crusty lumps of sand and iron concretion, and heavy wrought iron rods that once supported the arm over the turret. The job required a variety of tools, including air lifts, water lifts, and a high-pressure water jet.

On July 26, at approximately 9:00 am, Navy saturation diver BMCS Wade Bingham, who was excavating in the Monitor’s turret near one of the cannons, encountered two bones that later proved to be human. Immediately, NOAA and U.S. Navy personnel implemented the procedures contained in their Expedition Operations Manual for such a contingency. Archaeologist Eric Emery was called to the communications van, where Johnston was already talking to the diver. Emery

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World famous gun turret reveals clues about sailors, sinking (cont.)

Acting Ensign who also perished.

Another exciting find was a lantern, complete with its glass globe. A lantern of this type would have been used on the Monitor to light the interior. It is uncommon to find an intact lantern that survived a sinking and 140 years on the ocean floor.

By the end of October, archaeologists had cleared the turret of 95 percent of the deep mud. They continued to find silver flatware between the roof rails. Several pieces, now on display at The Mariners' Museum, revealed additional initials.

A silver spoon has the initials "JN" which match Seaman Jacob Nicklis, and the initials "NKA" found on a teaspoon match the name of Ensign Norman Knox Atwater. By the time excavations came to a close in December, archaeologists had recovered 24 pieces of silver tableware.

From August to December, the excavation team was aided by over 100 volunteers from The Mariners' Museum.

This gold ring was found on the fourth finger of the right hand of one of the Monitor's sailors. Photo: Monitor Collection, NOAA

Turret delivered safely to The Mariners' Museum (cont.)

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was assigned to the Expedition by the U.S. Army's Central Identification Laboratory in Hawaii (CILHB) to consult with NOAA and the Navy in the event that human remains were located.

Emery worked with the dive team to determine the exact positions of the bones. The area was documented with digital still and video photography and the bones were covered for protection. At that point, work inside the turret was suspended as the saturation diver could assist the surface-supplied divers in the final placement of the "spider."

Ten days later, after 41 consecutive days at sea, NOAA and the U.S. Navy raised the turret of the USS Monitor. It broke the surface at 5:47 pm and landed safely on the deck of the Derrick Barge Wotow 12 minutes later.

The turret was then transported to Hampton Roads, VA, where it was greeted by hundreds of onlookers at an arrival ceremony on August 9 in downtown Newport News, VA.

The Monitor's turret makes its way up Museum Drive to a conservation tank at The Mariners' Museum. The turret will go through a lengthy conservation process that could take 12 to 15 years. The turret, and many other Monitor artifacts, will be displayed in the Museum's new USS Monitor Center, scheduled to open in 2007. Photo: Monitor Collection, NOAA

The muzzle of one of the Monitor's Dahlgren guns which The Mariners' Museum hopes to remove from the turret later this year. Photo: Monitor Collection, NOAA

Sanctuary Manager John Broadwater (right) and NOAA Historian Jeff Johnston excavate inside the turret. Photo: Monitor Collection, NOAA

Relieved the turret is safe on the deck of the Wotow, NOAA and The Mariners' Museum personnel proudly stand under the gun ports. From left to right: Bob Schwemmer, Wayne Lusardi, Jeff Johnston, Michelle Fox, and John Broadwater. Photo: Monitor Collection, NOAA