



Manager's Corner

As you can see from this issue, there has been quite a bit of activity around here. Our office has finally been consolidated, so that Dina and I now share office space on the grounds of The Mariners' Museum, only a few miles from Hampton Roads where the *Monitor* and *Virginia* fought their famous battle. This year's field project, MARRS'95 (reported on page 1), was a joint effort by NOAA and the U.S. Navy to recover the *Monitor's* propeller. Unfortunately there was never a sufficient lull in the seas and bottom currents to permit the recovery, but the Navy has expressed a strong commitment to resume the recovery effort as soon as possible.

More successful were our efforts in education and outreach, especially several new education products and access to the Internet. I am convinced that the Internet's World Wide Web will continue to grow, becoming one of our most effective means of communication and

dissemination of information. In fact our entire division, the Office of Ocean and Coastal Resource Management, is updating and expanding its Internet information. With all this in mind, we are currently developing our own sanctuary "web site" that should be on line in early summer.

During 1996 we are expanding our research and planning activities. Rather than conducting field work, we will use our limited research funds to investigate new advances in marine technology that might open new options for stabilization and recovery of the *Monitor* or its major components. We hope you will continue to follow our activities and share your opinions and ideas with us as we strive to save as much of the *Monitor* as possible.

—John Broadwater

Monitor Forum: What Do You Think?

We would like your thoughts about preservation of the *Monitor*. As reported in recent issues, NOAA is concerned about increased deterioration of the *Monitor*. One option under consideration is eventual recovery of major hull components such as machinery and turret, and recovery of the propeller at the earliest opportunity.

Our question for this issue is:


What should be NOAA's policy on recovery of portions of the *Monitor*?

We would like to hear more from you about relevant issues and ideas. Please feel free to contact us about this or any topic or question by mail or Internet.

Three-Year Special Use Permit Awarded for Non-Research Dives on the *Monitor*

NOAA's Sanctuaries and Reserves Division has awarded a three-year special use permit for non-research dives on the *Monitor* to Captain Arthur Kirchner of Dover, NJ, and Hatteras, NC. In 1994 NOAA issued the first special use permit for non-research dives at the sanctuary (see CHEESEBOX VII.1, September 1995). The success of this pilot project led to NOAA's decision to continue the program. For more information, contact Captain Kirchner at 919-986-2835.

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1995 Propeller Recovery Efforts Hampered by Weather

As reported in the last issue (September 1995), NOAA has become increasingly alarmed by the rapid deterioration of the *Monitor's* hull observed in recent years. During 1995, in an effort to stabilize the hull, NOAA conducted the *Monitor* Archaeological Research, Recovery and Stabilization Mission (MARRS'95) at the *Monitor* National Marine Sanctuary (MNMS). The primary goal was to help stabilize the wreck by removing and recovering the *Monitor's* propeller. Participating with NOAA were the U.S. Navy, The Mariners' Museum, Key West Diver, Inc., and the National Undersea Research Center/University of North Carolina at Wilmington. Concurrent with the first week of Navy dives, NOAA conducted its own brief diving operation. The Navy salvage ship *USS Edenton* (ATS-1) served as the research platform for the mission.

MARRS'95 consisted of two segments: one, a NOAA diving reconnaissance operation, the other removal and recovery of the propeller in a major effort to stabilize the *Monitor's* stern. John Broadwater, sanctuary manager, served as NOAA mission director. The second most active storm season in recorded history hampered efforts at the sanctuary during three periods in August, September, and October, but the mission succeeded in accomplishing several important goals.

Deployment of Mooring

This objective was accomplished early in the expedition. As soon as the *USS Edenton* was secured in a four-point mooring over the *Monitor* and the precise location of the *Edenton* relative to the *Monitor* was established, a new NOAA mooring was deployed. The mooring consists of a 3,000-pound steel anchor, a 30-foot length of heavy chain, and a braided nylon line attached to a steel spherical buoy. Because of commercial ship traffic in the area, the buoy was placed at a depth of approximately 40 feet. At that depth, it will not interfere with shipping, but can be easily located for diving operations. The anchor lies approximately 50 feet from the *Monitor*, aft of midships on the



Navy diver examines the *Monitor's* propeller (NOAA photo by LCDR Craig McLean).

down-current (north side) and will serve as a diver down-line for future NOAA and private diving operations in the sanctuary.

NOAA Reconnaissance Dives

MARRS'95 was scheduled to begin on August 12 with the NOAA team arriving at Hatteras, conducting training dives, and then beginning joint site op-

erations with the Navy on August 15. However, the mission was interrupted by Hurricane Felix. The *USS Edenton* was ordered to join a fleet sortie from Norfolk to the sheltered waters of the Chesapeake Bay and on August 15, the NOAA research team and shore support personnel were required by local emergency authorities to evacuate Hatteras. The NOAA research team and shore support personnel returned to Hatteras on August 19. The research team conducted a series of training dives, then rendezvoused at the sanctuary with the *Edenton*.

On August 24-25, the team conducted the first NOAA self-contained dives on the *Monitor* (see sidebar page 2). The NOAA dives were made from the *Elusive*, a research vessel from the National Undersea Research Center/University of North Carolina at Wilmington. Navy dives were conducted simultaneously from the *Edenton*. On the second dive, the NOAA and Navy dive teams actually met at the *Monitor's* stern.

Propeller Recovery

NOAA made three dives and the Navy made seventeen dives before

continued on page 2

WE'VE MOVED!

The *Monitor* National Marine Sanctuary office has now been consolidated at The Mariners' Museum. You can now reach both John Broadwater and Dina Hill at:

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The Mariners' Museum
100 Museum Drive
Newport News, VA 23606-3759
Phone: 804-599-3122
e-mail: monitornms@ocean.nos.noaa.gov



NOAA Successfully Tests Experimental Dive Procedures

As reported in our lead article, NOAA successfully conducted a series of experimental dives during MARRS'95. In recent years, private-sector divers have pioneered "technical diving" techniques that allow divers to reach deeper sites using self-contained diving equipment similar to that used by sport divers. Since 1990 private dive groups have been making technical dives on the *Monitor* through NOAA research permits. The equipment employs special mixes of gas, blended for a particular depth, and redundant gas supplies for safety. Although technical diving is not currently approved by NOAA or the U.S. Navy, authorization was obtained for a series of experimental NOAA self-contained dives on the *Monitor* during this year's research.

The research team acquired special training, developed provisional procedures, then conducted a series of training dives before attempting dives at the sanctuary with the *Edenton*. Then, during August 24-25, the team conducted the first NOAA self-contained dives on the *Monitor*. The highlight of the dives occurred on August 25 when Navy divers, walking on the seabed wearing helmets and breathing surface-supplied gas, met the NOAA dive team, swimming overhead in a self-contained mode, at the *Monitor's* stern. The event was recorded on video and in still photos.

Although only three NOAA dives were made, they verified that the special procedures developed by NOAA and Key West Diver, Inc. were adequate to ensure safe, effective dives to the *Monitor*. The results of the dives will be reviewed and the procedures revised. A proposal for additional NOAA self-contained dives at the site is being developed.

operations were halted by the threat of additional hurricanes and tropical storms. A Kevlar strap was secured around the propeller and shaft and the propeller blades were freed from the encrustation and marine growth that attached them to the hull. Navy divers began cutting the solid nine-inch wrought iron shaft with a high-temperature torch. On September 2, before the cut could be completed, the *Edenton* was forced by storms to leave the sanctuary and return to Little Creek Amphibious Base, near Norfolk, VA.

On October 2, the *Edenton* returned to Hatteras to complete the propeller recovery. Since the moorings had been left in place, the ship was secured to the moorings before 9 AM on October 3 and diving began almost immediately. By the end of the day, divers had cut halfway through the propeller shaft. However, with only one or two more dives needed to remove the propeller, the *Edenton* was again forced to suspend operations due to yet another severe storm.

MARRS'95 resumed on October 17. The *Edenton* arrived at the sanctuary at 6 PM and began securing the vessel to the four-point mooring. Mooring operations were completed before 9 the next morning but strong subsurface currents prevented diving. With strong currents, one diver has to remain on the dive platform to tend the umbilicals, leaving the other diver alone at the work site. For safety, however, two divers are required when the cutting torch is being used. Currents remained strong throughout October 18, 19 and 20, with winds beginning to build on October 19.

By the morning of October 20, winds had reached 20 knots and seas were running 4-6 feet. A dive was made to test the currents and the divers reported that the current was too strong for a cutting dive. Before a second dive could be made, a weather report was received indicating that the Hatteras area was likely to suffer three to five additional days of severe weather.

At 10 AM, the commanding officer, after consulting with the Norfolk command, Combat Logistics Group Two, ordered that preparations be made to recover the mooring and return to port. This time, *Edenton's* return to Little Creek marked the conclusion of MARRS'95. The lateness of the season and the threat of additional storms forced the termination of operations for the year.

Conclusions

The MARRS'95 mission, though not successful in recovering the *Monitor's* propeller, did result in deployment of a new permanent subsurface NOAA mooring and demonstrated that self-contained NOAA dives could be safely conducted on the *Monitor*. Also, Navy

divers successfully rigged the propeller for lifting and cut approximately halfway through the propeller shaft.

We are currently developing plans to return to the site with the Navy to recover the propeller. Unfortunately, a new vessel will have to be assigned since the *Edenton*, whose officers and crew made such a determined effort last year, was decommissioned on March 29 as part of the Navy's downsizing program. Because of scheduling difficulties, no firm date has been established for the resumption of site activities. Press releases will announce the final plans, so watch your local newspapers and our Internet site for further information.

What Do We Do With It Once It's Recovered?

One of the most-often-asked questions concerns the "wheres" and "hows" of conserving the *Monitor's* propeller. Once recovered, the propeller will be transported by ship and then by truck to The Mariners' Museum in Newport News, Virginia. The Mariners' Museum, selected as the Principal Museum for the *Monitor* Sanctuary in 1987, provides curation for the *Monitor* Collection, which includes all artifacts recovered from the *Monitor*.

A tank in which the conservation will take place was constructed last year and awaits the arrival of the propeller. The basic treatment for the propeller will be electrolysis, which is the same treatment used on the *Monitor's* anchor recovered in 1983. In simple terms, electrolysis involves maintaining the propeller in a tank of water with anodes and an electrolyte. A low electrical current is constantly flowing through the propeller. This process will loosen the hard covering, or concretion, which has formed on the propeller during its years in sea water. Conservation of the propeller will take a minimum of three years. The propeller will be removed from the tank at regular intervals for cleaning and to change the solution in the tank. When the electrolysis has been completed, the propeller will be coated with protective wax and placed on exhibit at The Mariners' Museum.

We hope that viewings of the propeller can be arranged during periods when it is out of the tank for cleaning. Future issues of *Cheesebox* will contain details of the conservation plan, progress reports on the conservation process, and tentative dates when the propeller will be out of the tank.

Middle School Curriculum Package Available for Upcoming School Year

Of particular interest to teachers: Field testing of our curriculum on the USS *Monitor* and the *Monitor* National Marine Sanctuary will be completed this school year and the curriculum will be available for the 1996-7 school year. The curriculum was developed for seventh grade classes, but may be suitable for students from fifth through ninth grades. To accompany the curriculum, we have assembled an outreach kit con-

taining publications, brochures, posters, enlargements of photographs, and reproductions of artifacts recovered from the *Monitor* Sanctuary. There will be a 15-minute video on the *Monitor* and the *Monitor* Sanctuary. The outreach kit also contains posters, brochures, and other information on other National Marine Sanctuaries.

For classes interested in expanding their knowledge of the Civil War, we

have assembled a "lending library" of reading material for students and teachers that we can make available for classroom or student projects. The curriculum and outreach kit were developed in conjunction with the Education Division of The Mariners' Museum. Teachers interested in reviewing the curriculum or obtaining a list of available material should contact Dina Hill (804) 599-3122 or Octavia Cubbins (804) 591-7740.

Update on Cataloging of Ernest W. Peterkin Papers

In the previous issue, we reported on the donation of the Ernest W. "Pete" Peterkin Papers to the *Monitor* Collection. Because of the historical value of this collection, funds from the Sanctuaries and Reserves Division were made available in October to hire catalogers.

As expected, the Peterkin Papers have yielded copious and widely varied information: copies of letters from eye-

witnesses to the *Monitor's* battle with the CSS *Virginia*; information on and photographs of various *Monitor* builders models; photographs of other monitors including *Catskill*, *Puritan*, *Canonicus*, *Sangamon*, *Saugus*, and *Lehigh*; and extensive material on the *Tecumseh*. There is also a large collection of photographs and other material from the Continental Iron Works, which built the *Monitor*.

But the most interesting and unique items are Pete's many sketches of *Monitor*. Using a variety of primary sources, Pete compiled several large notebooks of sketches, most of which are annotated with measurements and relationships to other parts of the ship. Pete signed and dated all of them, and noted the sources from which the information came.

FYI:

In this column we take the opportunity to let you know what's new, what's coming up, and what *Monitor*-related events are scheduled for your area.

You can take a tour of all the National Marine Sanctuaries and visit the *Monitor's* WWW home page at: <http://www.wave.nos.noaa.gov/ocrm/nmsp/nmsmonitor.html>

able. This provides very basic information about the USS *Monitor* and the *Monitor* Sanctuary. Good for the classroom.

Monitor Sails the Internet!

The *Monitor* National Marine Sanctuary can now be visited on the Internet's World Wide Web! We have been on "the Net" for several months and are now working on an all-new web site. We hope to use this exciting new technology to provide you with up-to-date information and interactive links.

You can also communicate with us by "e-mail" through the Internet at: monitornms@ocean.nos.noaa.gov

New Brochure

A brochure titled "Ten Most-Often-Asked Questions about the *Monitor* National Marine Sanctuary" is now avail-

Special Events

Our *Monitor* traveling exhibit, constructed by the North Carolina Maritime Museum, Beaufort, North Carolina, with funding from NOAA, is venturing farther from home this year. The exhibit will be at the San Diego Maritime Museum beginning in June.

Editor's Corner

The past year was a busy one for the *Monitor* Sanctuary staff. As you read in our lead article, a series of major storms provided much frustration during our field season. However, our education and cataloging programs fared much better. Several new education products were completed this past year and are available upon request. These include two brochures and a poster. Our paper model of the *Monitor* and the information booklet, published in late 1994, are also still available. Please contact me

for a list of publications and other material currently available from this office. One item may be of particular interest to teachers: field testing of our curriculum on the USS *Monitor* and the *Monitor* National Marine Sanctuary will be completed this school year and the curriculum will be available for the 1996-7 school year (see separate article).

As noted in the FYI section, the *Monitor* traveling exhibit will be at the San Diego Maritime Museum this summer. This exhibit spent the spring months at the Smithsonian's Museum of American History. The permanent

Monitor exhibit at The Mariners' Museum will be expanded within the next few years. We will have more about that in future issues of *Cheesebox*.

As noted elsewhere in this issue, substantial progress has been made toward completing the cataloging of the Ernest W. Peterkin Papers. Pete's genius continues to intrigue and astound us. We are deeply indebted to Betty B. Peterkin for her generous donation of Pete's extensive collection.

—Dina Hill

