From the Pilot House

This issue of Cheesbox marks a very important milestone in NOAA's stewardship role at the Monitor National Marine Sanctuary. With the issuance of the draft comprehensive preservation plan, "Charting a New Course for the Monitor," NOAA has taken a bold stance on the need to act decisively to ensure that the Monitor, or at least significant portions of its hull and contents, will be preserved for future generations. As this issue reports, the draft preservation plan was submitted to Congress in November, and comments and suggestions are now being sought from all segments of the professional and lay communities.

The first big step has been taken toward preventing the collapse and disintegration of the Monitor; however, the difficult work is yet to come. Advanced planning and on-site research must be carried out simultaneously in order to accomplish the stated goals. NOAA will be counting heavily upon the assistance of The Mariners’ Museum and other governmental and non-governmental partners in finding the means to carry out this ambitious plan. As we examine the tasks before us, we are excited, yet apprehensive. The Monitor needs and deserves our help, and the actions recommended in the draft preservation plan appear to answer those needs; on the other hand, the plan calls for expensive and difficult engineering operations for which complete success cannot be guaranteed. One thing is certain, however: if no action is taken to preserve the Monitor, the Sanctuary will soon contain only an unrecognizable mound of debris. As we pass the 150th anniversary of her sinking, I hope we can offer the Monitor a more optimistic future.

Monitor
...continued from page 6

level of priority assigned to large-scale stabilization and recovery operations at the Monitor National Marine Sanctuary should be in proportion to both the documented and perceived significance of this historic ship. Its value to the public, and the long-range goals of the National Marine Sanctuary Program. The praise received by the USS Monitor over more than a century and the sustained high level of public interest and excitement over the week since its discovery in 1973 suggest that the site has significance to the American public that transcends federal guidelines and National Register criteria.

Comments are encouraged on the plan through Feb. 2. Copies of the full draft preservation plan can be obtained by contacting: Dina B. Hill, Education Coordinator Monitor National Marine Sanctuary The Mariners’ Museum 100 Museum Drive Newport News, VA 23606 Telephone: 757-599-3122 Fax: 757-591-7253 email: dbhill@marin.nos.noaa.gov The plan is also available on the Web at http://www.nos.noaa.gov/npmp/monitor/

The Next Steps
Planning efforts are continuing into Fiscal Year 1998 with several key objectives. First, once NOAA has reviewed all comments on the draft preservation plan, Sanctuary staff will begin revising and updating the draft plan; simultaneously, a scope of work will be prepared for development of detailed plans for stabilization/ recovery and conservation; in addition, during the summer of 1998 NOAA expects to conduct a large-scale research diving expedition to the Sanctuary to initiate early survey and mapping activities that must precede sharing work. Recovery of loose materials will also be carried out. By late 1998 or early 1999 a comprehensive final preservation plan should be nearing completion and efforts to generate the necessary funds will be underway.


Monitor National Marine Sanctuary
The Mariners’ Museum
100 Museum Drive
Newport News, Virginia 23606-3759

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Charting a New Course for the Monitor

As we reported in the last issue, NOAA has determined that the Monitor's hull has begun to deteriorate at an alarming rate. In 1996 Congress mandated the Secretary of Commerce to produce a "long-range, comprehensive plan for the management, stabilization, preservation, and recovery of artifacts and materials" from the Monitor. NOAA, on behalf of the Secretary, developed the plan Charting a New Course for the Monitor, key portions of which appear in this issue. Because of the Monitor's exceptional historical significance and the severity of the current threat to its hull and contents, NOAA elected to release this preservation plan in draft form in order to allow experts, interested parties, and the public at large to review and comment on the plan. Copies of the plan are available from the Monitor Sanctuary office. The plan has also been published on the Internet.

Review of Options for Preserving the Monitor

This section describes and discusses a wide range of options for comprehensive preservation and management of the Monitor National Marine Sanctuary. In developing these options, NOAA reviewed all previous reports and proposals for on-site activities, including papers presented at a Monitor conference in 1978 in Raleigh, North Carolina, previous engineering and corrosion reports, and the Draft Review Management Plan for the Monitor National Marine Sanctuary, all of which addressed preliminary studies and recommendations. In addition, NOAA held informal discussions with numerous engineers, archaeologists, and other specialists in order to identify potential new technology that could be applied to the Monitor situation. This input presents all options for stabilizing and preserving the Monitor that were identified by NOAA as being viable. Time and budget constraints have prevented full development of the options; however, this plan contains sufficient information to permit the formulation of a comprehensive plan to approach the problem.

The following options are presented along with advantages, disadvantages, required action and estimated costs. Advantages and disadvantages address potential impacts to the Monitor and its contents. Then the options are discussed and compared, and recommendations are presented. A preliminary analysis of these options was developed for NOAA and the U.S. Navy by Oceanic Engineering, Inc. at no cost to the government. It should be noted that cost estimates presented herein are for evaluation purposes only. Final estimates are available and no funding sources have been identified.

Options

1. Non-intervention:

This option could be selected if it is determined that on-site stabilization and/or recovery operations are beyond the technological and budgetary capabilities of NOAA. NOAA would continue to manage the Monitor National Marine Sanctuary in accordance with current policy. NOAA and/or private researchers would continue to conduct periodic on-site inspections; the resulting data would be documented and continued on page 2.
dissertation. NOAA would continue to work cooperatively with private diving expeditions for the recovery of small artifacts that are exposed and in danger of damage or loss; NOAA would continue to maintain a strong education program. The cost to NOAA in this option would be within current budgetary limits.

Advantages:
- The option requires no additional NOAA commitments.
- The Monitor would remain an active site to be visited by researchers and recreational divers, although the location limits access to only a few.
- No supplementary funds would be required.

Disadvantages:
- The Monitor would continue to deteriorate at an accelerated rate, removing the Monitor from the historic location.
- The Monitor may also continue to be damaged by illegal human activities, such as mining and collection.
- This option would eventually result in the inevitable collapse of the hull and loss of most of the remaining cultural material and archaeological information.

Action required: None. NOAA would continue the current management program.

Estimated cost: None. This option requires no additional NOAA commitments or funding.

2. In Situ Preservation by Encapsulation

This option could decrease the rate of deterioration without removing the Monitor or parts of the Monitor from the wreck site.

- Would include some form of capping that would confine the Monitor in an acceptable manner (i.e., covering with sand, gravel, etc.).
- Would apply the simplest method would be to pour sand from the surrounding area under, around, and over the Monitor, then cover the site with crushed stone and/or some form of stabilizing material.

Advantages:
- The Monitor would no longer be exposed to damage from an oxygenated marine environment, strong currents, anchors, divers, or commercial fishing.
- Operating costs would be greatly reduced, since on-site research would be limited to a periodic site inspection.
- The method is relatively simple and could be accomplished with conventional equipment.
- The responsibility for research and recovery of artifacts would be deferred to future generations.

- Encapsulation would have to be preceded by screening, since the weight of the sand might otherwise collapse the hull.
- Even with hull shaving, damage to interior components could result from the weight of encasing material.
- Encapsulation could not eliminate the deterioration process, so the hull would inevitably collapse at some future time; in fact, the weight of sand in and over the hull could itself cause further collapse.

Advantages:
- Detailed engineering and conservation plans would have to be developed by consulting an experienced professional who would have to be appointed for procurement of the necessary planning and implementation phases; and a long-term monitoring program would have to be established.

Estimated cost: No accurate estimate available; the project would probably cost $4.5 million.

3. In Situ Preservation by Shoring

This option could decrease the rate of deterioration by installing a series of flat concrete slabs on the Monitor's location. Shoring would be accomplished through the use of approved materials and materials such as sandbags, bags, boxes, and/or sandbags, bags, boxes, which could have been placed on the hull as a protective layer.

Advantages:
- The Monitor would remain visible and accessible for future research.
- The closure of the hull would probably be delayed by at least 5 to 10 years.
- The cost for this option would be moderate, compared to the recovery options discussed below.

Disadvantages:
- The Monitor would still be exposed, it would continue to deteriorate due to natural and human causes.
- The appearance of the wreck would be unnatural, degrading its historic and aesthetic value.
- The shoring systems required frequent inspection and repair maintenance to be carried out at the Sanctuary.
- The inevitable collapse of the hull and loss of most of the enclosed cultural material and archaeological information would be delayed but not eliminated.
- Because of the instability of the hull and the difficulties of installing, shoring, the option for stabilizing the hull could actually result in further deterioration of the Monitor.

Action required: Detailed engineering and consolidation plans would have to be developed by consulting experts who would have to be appointed to undergo section 106 review process; funds would have to be obtained for procurement of the necessary planning and implementation phases; and a scheduled maintenance program would have to be developed and implemented.

Estimated cost: Approximately $10 million for recovery plus an additional $10 million for conservation and stabilization. This estimate does not include costs for annual maintenance and improvement of the site.

4. Full Recovery

In this option, the entire hull, turret, cannon, and all artifacts would be recovered, conserved, and, ultimately, displayed. This could propose recovery of the entire hull as a full unit or, alternatively, recovery in a series of smaller recovering projects.

Advantages:
- The full recovery, all equipment and stores, and all military and personal effects would be preserved and would be accessible for all.
- The Monitor would be longer engaged to expand funding to maintain the Sanctuary or to conduct extensive offshore research and monitoring.

Disadvantages:
- Because of the depth and adverse environmental conditions, large-scale, on-site recovery operations would be extremely expensive.
- Because of the instability of the hull and the difficulties of conducting operations at the Sanctuary, recovery attempts could result in severe damage to the hull and contents.

Because of a proposed accelerated rate of deterioration, conservation would be expensive and time-consuming.

- Based on the advance-state of deterioration, the reconstructed hull remnants of the Monitor might be a visual disappointment to viewers.

Action required: Detailed engineering, recovery, and consolidation plans would have to be developed by consultants; a review would have to be conducted under section 106 review process; a detailed curation and exhibition plans would have to be developed by consultants; and funds would have to be obtained for procurement of the necessary planning and implementation phases.

Estimated cost: No accurate estimate available, but based on the preliminary estimate for selective recovery, full recovery and conservation costs could exceed $85 million.

Combined Options

7. Selective Recovery Followed by Encapsulation

This option combines selective recovery (option 5 above) with site preservation by encapsulation (option 2 above).

Advantages: None. NOAA would continue to maintain a strong education program. The cost to NOAA in this option would be within current budgetary limits.

Editor's Corner

December 31, 1997, marks the 135th anniversary of the sinking of the USS Monitor. January 30, 1998, marks the 23rd anniversary of the designation of the Monitor National Marine Sanctuary. Some of us who have been working on the preservation plan have now been associated with the Monitor in one way or another for more (far more) than twenty years. It remains a fascinating project; the more we do, the more there is to do.

You will notice some new features in this issue, including "Myths and Mysteries," which will appear occasionally, and "From these poor men great dragons drew their breath," which will be a regular feature. "Myths" will explore the many myths or mysteries surrounding the Monitor and "From these poor men" will feature an officer or crewman. We have begun research for an expanded study of the Monitor crew that will include the officers and crew of the Monitor and the six on the commanding officers—and add new material on the other officers, along with material on various crewmen that has come to our attention since the original crew study was published. If we feature one of your letters in our next column, please let us hear from you.

Our next issue of Chesapeake will be published during the summer of 1998. By then we should have the final preservation plan well underway and will report on the progress.

Chris Barrett is the new Director of Education for The Mariners’ Museum and curator of Cherokees. Chris holds a master's degree in American History with an emphasis in the nineteenth-century American South. Prior to coming to The Mariners, he worked at the Museum of the Confederacy in Richmond, Virginia, where he acted as the Coordinator of Community Programs. He has also worked in the Petersburg Museum in Petersburg, Virginia. While in Petersburg he was site supervisor at Blufford Church, an eighteenth-century Anglican church dedicated to the memory of the 30,000 Confederate soldiers buried there. He currently makes his home in James City County, Virginia.

We welcome Chris and look forward to working with him during this exciting time for the Monitor.

And finally we would like to say a big "Thank You" to young Trey Kellogg of San Antonio, Texas, for his very innovative model of the Monitor, Trey used a shoe box, masking tape, and black spray paint to create his model. We have shared his idea with teachers of 4th through grade, some of whom have used Trey’s ideas in their classrooms. Thanks again, Trey.
The Monitor is almost completely exposed on the seabed, subjected to the ravages of currents, corrosion and commercial fishing activities. The portion of the Monitor hull under extraneous conditions is not in the configuration of the wreck. It could collapse at any time, an event that would result in severe damage or total destruction of the mechanical and hull components and a variety of significant artifacts. Therefore, some form of intervention is necessary to prevent catastrophic disintegration of the Monitor’s hull and contents.

Reviewing all intervention options, one major decision point is clear: all options involve either preservation by stabilization in situ or preservation by recovery; and stabilization options can be achieved with less technological difficulty and lower cost than can recovery options; however, stabilization will, at best, only delay the inevitable collapse of the Monitor’s hull. Eventually, NOAA will still have to decide if major hull components will be recovered for preservation and exhibition. Therefore, in the present analysis considerable attention was paid to considering the short-term advantages and disadvantages of stabilization with those of moving directly into large-scale recovery.

Recommendation: A stabilization option recommended in this draft plan is selective recovery combined with shallow.

This includes two principal phases: in situ preservation by shallow option 3) followed by selective recovery (option 5). The first phase would entail shallow up and shallow up and unavailable portions of the Monitor’s hull using sandbags, great bags, jacks, or a combination of these techniques. The second phase would be the recovery of selected major components, including the propeller engine, turret and canons. Stabilization by cathodic protection is not recommended because of the disadvantages listed previously.

This combination offers a number of disadvantages while, at the same time, minimizing the drawbacks:

- The stabilized portions of the Monitor would remain visible and accessible for future research and educational utilization;
- The collapse of the portions of the hull left at the site would probably be delayed, possibly by 25 years or more;
- Significant objects would be recovered, conserved and placed on exhibit where they could be viewed and appreciated by large numbers of people;
- The recovered objects would be preserved and made available to the public on exhibits and museum displays;
- Significant portions of the hull before commencement of recovery operations would minimize damage to the hull and contents;
- No preserved remains of the Monitor and its contents would still be exposed, they would be protected against environmental deterioration due to natural and human causes;
- The appearance of the wreck would be altered and the aesthetic and historic value might be diminished;
- Because the instability of the hull and the difficulty of carrying out effective interventions is to be intervened catastrophic disintegration of the Monitor’s hull and contents.

Considerations for Selecting the Recommended Option:

The following discussions provide additional context for how the stabilization and/or recovery options of the Sanction and the historical significance of the Monitor, review and comments by interested parties, and a final decision. The recommendation for recovery options must be made by a joint engineering and plan, and that plan must be based on the recommendation for recovery options.

Stabilization options, including cathodic protection, providing mechanical support and shallow, are not desired, although even if they are designed to help stabilize the Monitor’s hull, pose additional threats to the hull and its contents.

Technical Considerations:

The wreck shall not be restored to its condition to be in mind when planning research or recovery operations at the Monitor National Marine Sanctuary. The severe and unpredictable conditions of the environment. The most favorable weather and the best weather condition is likely to be the overwash in stormy weather and the hurricane weather. A review of NOAA and private projects to the Sanction since the year 1998 on average only it was possible to conduct dive operations on one day in three. That estimate includes expeditions staged from large research vessels and US Navy salvage vehicles to small boats and diving. Therefore, planning must include a generous allocation of time to account for adverse weather.

Archival and preservation efforts can be conducted in relatively heavy weather and strong currents, but conditions at the Sanction can change very rapidly, causing potential safety and operational problems.

Planning must also take into account that the Monitor’s a highly significant historical resource, a National Historic Landmark. The Monitor also contains the remains of some of the Monitor’s officers and crew, requiring that a plan be developed for the proper handling and disposition of remains consistent with the ship’s historical significance. All recovery operations must be conducted under the close scrutiny of a qualified archaeologist who is licensed by the Secretary of the Interior. The archaeologist must have the authority to halt operations if, in the opinion of the archaeologist, continued operations will cause damage to the Monitor beyond acceptable limits.

Conservation is based on a major consideration when planning large-scale recovery operations of the Monitor.

The site of the Monitor will remain in good condition if necessary, additional efforts will be planned. Recovery and the final phase of mapping is important, since the post-recovery site map will serve as a new baseline for long-term monitoring and assessment.

The detailed artifact plan, like the engineering plan, must specify the methodology, equipment and techniques for recording and reporting, mapping, documentation and recovery of cultural material. The plan must also provide a baseline for the recovery of human remains, should they be encountered.

Conservation Considerations:

Conservation must always be a major consideration when planning large-scale recovery operations. Recovery activities at the Monitor site will result in the recovery of cultural objects consisting of a wide variety of materials, including iron, brass, copper, iron, ceramic, and glass. Some of the objects will be made from more than one material. These "composite" artifacts are the most difficult to treat, since they often must be disassembled so that each type of material can be treated separately. Initially, however, on-site conservation work will be conducted in order to ensure that the reassembled objects are stabilized and protected from damage until they can be transferred to a laboratory for further treatment. The treatment plan is usually carried out by relatively unskilled personnel, as low as, at least one qualified conservator. On-site conservation would be a major effort and would require a sizable facility and staff.

Exhibitions/Curation Considerations:

Some of the objects that are removed from the Monitor may not be suitable for exhibition.

archaeological survey must be conducted. If necessary, additional expedited analysis will be triggered. The final phase of mapping is important, since the post-recovery site map will serve as a new baseline for long-term monitoring and assessment.

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“From these poor men great dragons drew their breath...”

The title for this feature is from a poem written by Norman G. C. Cubieburry during the 1974 Acila Seabreex expedition to the Monitor. This feature will highlight a heritage officer or curator or someone who may have served on board the Monitor but for whom no documentation can be found. Readers are invited to share any knowledge they have. A dearth of men who served or may have served on the Monitor during her brief career. We are particularly interested in receiving copies of service or pension records, discharge papers, correspondence, photographs, or other items related to men associated with the Monitor.

Theorman told us in this issue is Richard Anjer, a man of British birth who served as a quartermaster aboard the Monitor. The following information is from Cramers of the U.S.S. Monitor: A Biographical Directory by Irvin Revent.

Born in England about 1825, Richard Anjer enlisted in New York on January 26, 1862, for a 3-year term. He had hazel eyes, brown hair and dark complexion. He stood 5 feet, 1/2 inches and weighed 175 pounds. Born in England about 1825, Richard Anjer enlisted in New York on January 26, 1862, for a 3-year term. He had hazel eyes, brown hair and dark complexion. He stood 5 feet, 1/2 inches and weighed 175 pounds. On or about June 6, he was transferred from the North Carolina to the Monitor, on which he served as ship’s cook, with a commission to the Monitor until December 31, 1862. On December 31, 1862, Anjer and fellow Cook Peter Pokip were both shown the highest qualities of men and seamen, according to Captain Barnard’s report on the sinking of the Monitor. Barnard reported that Anjer “remained at his post at the wheel when the vessel was sinking,” and when told by one to get into the boat replied, “No sir, still you go.”

On January 12, 1863, Anjer was promoted to the rank of acting master’s mate, possibly due to his actions during the sinking, and assigned to the North Atlantic Blockading Squadron.

We still have back issues of most of the previous Chesapeake issues, as well as copies of the Monitor’s 1987 expedition report, the information book, and various articles. We do still have paper models, bookmarks, brochures, and posters.

All orders, some of this material is available in large quantities for classroom use. Also, we have a curriculum guide in conjunction with the Monitor on Civil War history and studies. To obtain copies of any of our material, or for information on additional material, please contact your local school for classroom use, contact Mr. Dunn at the Monitor’s Reader’s Center.

The option for subscription is now available as well as an illustrated and exciting experience for visiting visitors.

The option for subscription with selective coverage appears to offer results that conform with the Standardization and Reserves Division’s long range strategic objectives and that offer the best possible prospects for preservation of the Monitor. Thereby, this option is expensive, with costs estimated to be in the range of $20-22 million, including conservation. The

continued on page 18...