

# MONITOR NATIONAL MARINE SANCTUARY



## STATE OF THE SANCTUARY REPORT



2008







NATIONAL MARINE  
SANCTUARIES

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MONITOR



## National Marine Sanctuary System

NOAA's Office of National Marine Sanctuaries serves as the trustee for a system of 14 marine protected areas encompassing more than 150,000 square miles of America's ocean and Great Lakes waters. Within the National Marine Sanctuary System's protected waters, majestic humpback whales breed and calve their young, coral reefs flourish, and shipwrecks tell stories of our maritime history. The mission of NOAA's National Marine Sanctuaries is to conserve, protect, and enhance the biodiversity, ecological integrity, and cultural legacy of these special underwater places. The system is able to do this with one of the strongest pieces of ocean protection federal legislation, the National Marine Sanctuaries Act.

The Office of National Marine Sanctuaries fosters public awareness of marine resources and maritime heritage through scientific research, monitoring, exploration, education, and outreach; and works cooperatively with its many partners and the public to protect and manage sanctuaries. The sanctuary system is a world leader in effective marine management, protecting living marine creatures, environmental quality, and maritime heritage resources, while maintaining recreational and commercial activities that are sustainable and compatible with long-term preservation.



## National Oceanic and Atmospheric Administration

U.S. Secretary of Commerce  
Carlos M. Gutierrez

Under Secretary of Commerce for  
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Conrad C. Lautenbacher, Jr.  
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## Office of National Marine Sanctuaries

Director  
Daniel J. Basta

## Monitor National Marine Sanctuary

Superintendent  
David Alberg

## ***Monitor* National Marine Sanctuary**

On a stormy New Year's Eve in 1862, the USS *Monitor*, en route to Beaufort, North Carolina, sank off the coast of North Carolina's Cape Hatteras. In 1973, nearly 111 years later, scientists aboard the Duke University vessel *Eastward* located the remains of the *Monitor*, lying upside down within the waters of the Graveyard of the Atlantic.

In an effort to protect our nation's most famous ironclad, the *Monitor* was designated America's first national marine sanctuary on Jan. 30, 1975. Early dives in the 1970s and 1980s indicated the *Monitor's* iron hull, having been inundated with saltwater for over 100 years, was deteriorating at a faster rate than expected. Congress requested that NOAA develop a plan to preserve and protect the historic shipwreck. From research conducted by NOAA and others, a plan was created to stabilize the hull and recover many of the historic and inherently unique components of the ship.

Efforts to date include recovering the propeller, engine, rotating gun turret, Dahlgren guns, and hundreds of small artifacts. Through a detailed conservation process and educational programs, the history of the *Monitor* lives on.



## About the State of the Sanctuary Report

This State of the Sanctuary Report provides an overview of the current status of the *Monitor* National Marine Sanctuary and discusses the management activities and accomplishments since the sanctuary's designation in Jan. 1975. This report is an important step in a comprehensive review of the *Monitor* sanctuary's management plan. All national marine sanctuaries have management plans, which describe regulations, boundaries, resources, resource protection, research, and education programs. Each management plan is tailored for individual sanctuaries through a rigorous public process that connects the mandates of federal law with the unique combination of resources, missions, communities, and constituencies found at each sanctuary. The information in this document will help you assess how the sanctuary has served you and your community, and it will help you contribute to charting the sanctuary's future course.

## America's First National Marine Sanctuary

On Jan. 30, 1975, NOAA designated the *Monitor* as the nation's first national marine sanctuary, setting the course for a system that now protects more than 150,000 square miles of ocean and Great Lakes waters. By fostering an understanding that our past connections to history and oceans are critical to our future, the sanctuary works to ensure that future generations will continue to experience and value the *Monitor* as a national treasure.



### *For More Information:*

Address: *Monitor* National Marine Sanctuary  
100 Museum Drive  
Newport News, VA 23606

Telephone: (757) 599-3122

Fax: (757) 591-7353

E-mail: [monitor@noaa.gov](mailto:monitor@noaa.gov)

Web Site: <http://monitor.noaa.gov>

The *Monitor* sanctuary is committed to protecting and preserving the historic Civil War ironclad USS *Monitor*. This is accomplished by telling the story of the *Monitor* and her tragic loss at sea in the Graveyard of the Atlantic; documenting the wreck site through numerous expeditions that have taken place since the 1970s; conserving and exhibiting recovered artifacts at The Mariners' Museum in Newport News, Va.; and educating the next generation of decision-makers on the importance of maritime heritage protection. The *Monitor* truly is a national treasure, not only as a premiere shipwreck in the Graveyard of the Atlantic, but as a representation of the evolution of naval warship design in the United States.



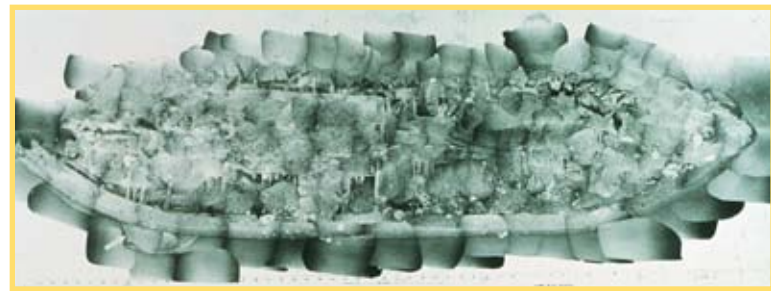


## What is a Management Plan?

Management plans are sanctuary-specific planning and management documents used by all national marine sanctuaries. They identify immediate, mid-range and long-term challenges and opportunities, and develop a dedicated course for the future. A management plan describes regulations, boundaries, resource protection, research, and education programs that guide sanctuary operations. It specifies how a sanctuary should go about conserving, protecting, and enhancing its resources. The management plan is a blueprint for protecting a sanctuary's resources. The plan is created by managers, scientists, educators, the sanctuary advisory council, sanctuary user groups, and members of the public.

New challenges and opportunities emerge with time. For this reason, federal law requires periodic updating of sanctuary management plans. The current *Monitor* National Marine Sanctuary management plan was written in 1983. Since then, long-range plans and expedition operations manuals have been completed, but no other comprehensive management documents exist. As this document outlines, the sanctuary has achieved many significant milestones since its designation, and a new management strategy is needed to guide the site's future direction.

The *Monitor* National Marine Sanctuary management plan review will take place through a well-proven community-based process that guarantees regular opportunities for the public and government agencies to share their knowledge, voice their opinions, and directly participate as active stewards of America's marine sanctuaries.



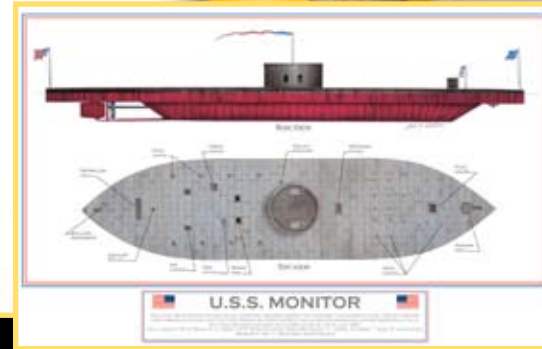
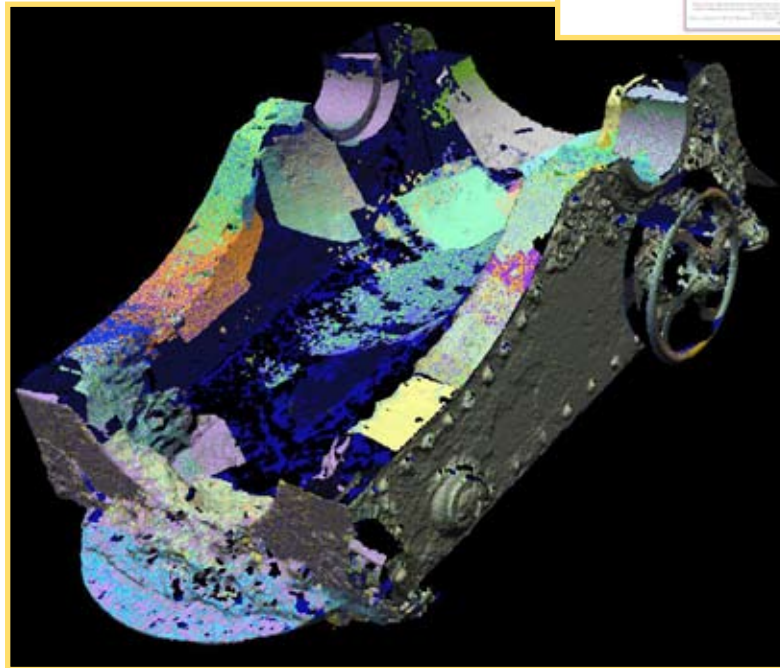


## How Do I Get Involved in the Review Process?

Public participation is vital to the management plan review process. The review begins with a scoping period, in which important issues and opportunities facing the sanctuary are identified. These issues and opportunities provide the framework for reviewing the existing management. During the scoping period, the sanctuary will accept comments at a series of public meetings. Written comments are also encouraged via mail, fax, or e-mail. At the conclusion of the public comment period, the *Monitor* sanctuary and the advisory council, with assistance from the community and other experts, will prepare a draft management plan. The draft plan will then be circulated to the public and a draft management plan hearing will be held to gather further public comments and suggestions. Public meetings will be advertised through various media outlets, including Virginia and North Carolina local newspapers, and the sanctuary Web site. After considering public comments, the sanctuary will complete the final management plan, and that plan will be approved by NOAA.

### ***Public Input Opportunities***

- Public scoping meetings
- Sanctuary advisory council meetings
- Public workshops
- Written comments via mail, fax, or e-mail
- Draft management plan hearings
- For updates on the *Monitor* sanctuary management plan review process call (757) 591-7328 or visit <http://monitor.noaa.gov>



## Sanctuary Operations

The *Monitor* sanctuary was established to preserve the historical context and shipwreck remains of our nation's most famous ironclad. Protecting a remote portion of the ocean environment requires appropriate facilities, trained personnel, a wide range of partnerships, and an extensive array of specialized equipment. Since its designation in 1975, the sanctuary has successfully forged partnerships with museums and government agencies to document, conserve, and recover the site.

In 2005, staff moved into permanent office space at NOAA's Maritime Archaeology Center, located in Newport News, Va. They also assisted with the design and construction of the USS *Monitor* Center exhibition at The Mariners' Museum, as well as a state-of-the-art conservation facility, which currently houses large *Monitor* artifacts including the gun turret, cannons, and steam engine.

The greatest strength of the sanctuary, however, is the staff. With six full-time employees, the *Monitor* staff brings together a vast array of experiences and expertise in the management of submerged cultural resources. Staff includes a maritime archaeologist, a historian, an Emmy® award-winning educator, a research coordinator, and support staff, including information technology and administration.

The sanctuary benefits immensely from partnerships within NOAA and with a variety of North Carolina and Virginia state agencies, federal agencies, universities, community groups, and private citizens. With their collaborative focus on supporting the sanctuary's mission, these groups and individuals bring their expertise, enthusiasm, and dedication to the sanctuary and its operations. Collaborative projects and resource sharing play a vital role in developing the sanctuary's infrastructure.



## Visiting the *Monitor*—USS *Monitor* Center

The *Monitor* National Marine Sanctuary is located in 240 feet of water 16 miles south-southeast of the Cape Hatteras Lighthouse in North Carolina. Although the *Monitor* is open to divers through a permitting process, the easiest way for most people to visit the *Monitor* sanctuary is through museums, such as The Mariners' Museum in Newport News, Va.

In March 2007, exactly 145 years after the historic clash between the *Monitor* and the CSS *Virginia*, the USS *Monitor* Center opened at The Mariners' Museum. The \$30 million, 63,500-square-foot facility serves as the primary visitor center for the *Monitor* sanctuary. In partnership, the museum and NOAA brought the story of this unique ironclad to the public through this dramatic center where visitors come face-to-face with history. Visitors learn the story of the USS *Monitor* and her worthy opponent the CSS *Virginia* through a rich array of original artifacts, archival materials, immersive multimedia experiences and recreated ship interiors that transport the visitor back to 1862. The center is also home to thousands of artifacts, a major interactive exhibition on the two ironclad vessels, and ongoing efforts to conserve more than 1,200 artifacts from the sanctuary. Visitors can walk on a full-scale replica of the *Monitor*, experience the drama of the Battle of Hampton Roads in a high-definition theater, watch the recovery of the turret, and observe hands-on conservation taking place in the state-of-the art conservation



# Resource Protection



## Resource Protection

The protection of sanctuary resources is our first priority. NOAA addresses resource protection through a variety of means such as permitting, site monitoring, enforcement, conservation efforts, education and outreach programs, ongoing research, and through the selective recovery, conservation and analysis of historic artifacts for public display.

Natural and human impacts can threaten the long-term stability of the *Monitor*. Strong currents, high temperatures, high-salinity water, and even hurricanes in the *Monitor* National Marine Sanctuary have a major impact on the sanctuary's living and non-living resources. Since its discovery, the wreck has suffered significant deterioration in almost every portion of its hull, with the most extensive damage occurring in the stern. As a result of this deterioration, the wreck site has become increasingly fragile and is even more vulnerable to the impacts of human activities.



There has also been evidence of marine debris and anchoring impacts to the site. The first evidence of anchoring was documented in the 1990s and incidents have continued. In 1991, a private fishing vessel, illegally anchored in the sanctuary, likely caused the skag dislocation from the lower hull, thus exposing the aft end of the engine room.

Within the past few years, debris has been observed on the wreck. Most debris, like cans and food, is the result of vessels passing through the site. There have also been observations of commercial fishing gear, monofilament, trawling nets and long lines tangled on the site that could have drifted from outside the sanctuary. By creating an understanding of the value and beauty of the sanctuary, we hope to encourage voluntary compliance with sanctuary regulations.



## Enforcement and Permits

The wreck of the *Monitor* is protected under the National Marine Sanctuaries Act and other Federal laws. The U.S. Coast Guard and NOAA patrol the sanctuary and enforce regulations.

Access to the *Monitor* sanctuary is generally limited to scientific research conducted under a permit issued by NOAA. Special-use permits are issued for non-research activities. Contact the sanctuary office for a complete listing of the rules and regulations and additional program information.

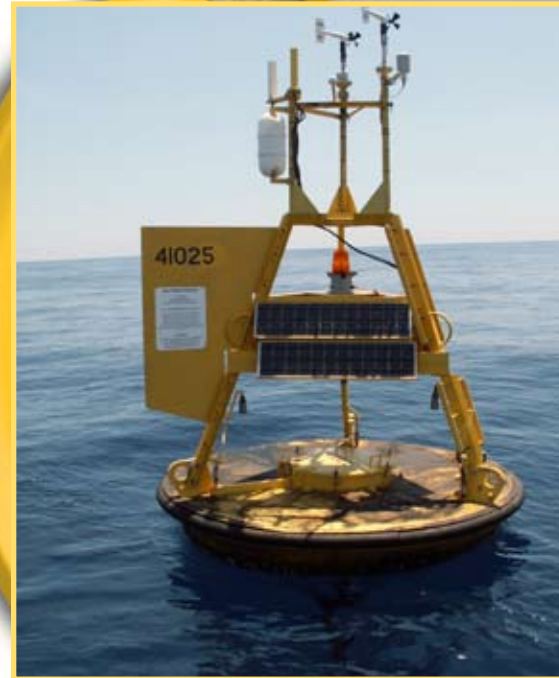
Unless a permit has been issued by the *Monitor* sanctuary, the following activities are prohibited within the sanctuary: anchoring; stopping or drifting without power at any time; conducting salvage or recovery; diving; using dredging or wrecking devices; underwater detonation; drilling in the seabed; laying cable; and trawling.

For a complete list of authorized and prohibited activities, visit the Web site at: <http://monitor.noaa.gov/visit/permits.html>.

## Diamond Shoals Data Buoy (41025)

It is now possible to view real-time data on water and air temperature, wind direction, wave height and other environmental conditions at *Monitor* National Marine Sanctuary from a NOAA data buoy installed at the site in 2006. The Diamond Shoals data buoy aids seafarers in determining sea conditions off the coast of Cape Hatteras and assists staff in monitoring conditions at the sanctuary.

Data from the buoy can be accessed online 24 hours a day at <http://www.ndbc.noaa.gov> or 888-701-8992 (station #41025).



# Expeditions



## NOAA Sponsored Expeditions to the *Monitor*

**1975** - Sanctuary designation.

**1977** - The very first artifact recovered from the *Monitor* site by NOAA was the red brass signal lantern. It was raised from the ocean floor during the first submersible dives in 1977.

**1979 – 83** - Expeditions in 1979 and 1983 conducted site assessments and recovered numerous small artifacts and the *Monitor's* unique four-fluked anchor.

**1980 – 1990s** - During the 1980s and through the mid-1990s, many research and reconnaissance expeditions were carried out to recover exposed artifacts and to further document the wreck and assess the condition of the site. During these expeditions, the researchers began to notice extensive deterioration of the wreck. The dramatic change in the condition of the *Monitor* motivated Congress to call for NOAA to prepare a preservation plan for the *Monitor*.

**1987** - On March 9, 1987, The Mariners' Museum in Newport News, Va. was designated the principle museum for *Monitor* National Marine Sanctuary. The museum is the primary conservation facility for large and small artifacts recovered from the site.



**1998** - NOAA finalized and submitted to Congress a six-step plan for stabilizing a portion of the hull and recovering the vessel's steam engine and turret. With the help of the U.S. Navy, the *Monitor's* propeller and 11 feet of the propeller shaft were recovered.

**1999 – 2000** - NOAA and the U.S. Navy began planning large-scale recovery expeditions and implementing the stabilization plan.

**2001** - More than 250 artifacts, including the *Monitor's* vibrating lever steam engine, were successfully recovered. During the same year, the Batten Conservation Laboratory Complex at The Mariners' Museum opened. This facility houses thousands of small and large *Monitor* artifacts where scientists work to preserve components of the shipwreck. The conservation facility can be viewed by the public during regular Mariners' Museum hours.

**2002** - Major recovery expeditions to the *Monitor* took place in 2002 and resulted in the raising of the gun turret and two 11-inch Dahlgren smoothbore guns. The engine, guns, and gun turret are undergoing conservation at the Batten Conservation Laboratory Complex at The Mariners' Museum.

**2006** - A team of researchers conducted a major mapping expedition to the *Monitor* to collect high-resolution digital still and video imagery that will be used to generate a high-quality photographic mosaic of the site.



# Expeditions

# Conservation

## Conservation

Because the *Monitor* was submerged in salt water for nearly 140 years, all artifacts recovered must go through a complex conservation process. Today, conserving the recovered iron artifacts is a race against time. Each item presents a different challenge to conservators as they seek to reverse the damage done by nearly 140 years of immersion in salt water. In order to prevent further deterioration and to return an object as closely as possible to its original form, each artifact is carefully treated according to its composition and condition. To date, the Federal Government has spent nearly 14 million dollars to aide the conservation efforts of *Monitor* artifacts.



### Batten Conservation Laboratory at The Mariners' Museum

Salt, mud, and time have taken their toll on the iron artifacts of the USS *Monitor*. In 2006, the Batten Conservation Laboratory Complex at The Mariners' Museum opened. This state-of-the-art facility houses thousands of small and large *Monitor* artifacts where scientists study the corrosion process and preserve components of the shipwreck. Working with companies like CC Technologies, Fujifilm, and Optira, NOAA and The Mariners' Museum are making great strides in preserving the historic shipwreck for future generations.

In the conservation complex, museum visitors can stand just feet from the two 11-inch Dahlgren guns and their carriages, which were extracted in 2004 from the *Monitor's* revolutionary turret. The *Monitor's* turret and steam engine can also be viewed.





## Artifacts

Expeditions to the *Monitor* since the late 1970s have yielded an amazing variety of artifacts that include huge iron components, delicate glass bottles, lumps of coal, wood paneling, a leather book cover, and even walnut halves. In 2001 alone, more than 250 artifacts arrived at The Mariners' Museum to be conserved and prepared for exhibition at the USS *Monitor* Center.

The recovery of artifacts from the *Monitor* has always been done through a scientific approach with oversight by trained professional archaeologists and in accordance with prescribed archaeological standards. Additionally, all recovery of artifacts has been closely coordinated with federal and state authorities, so that all major recovery efforts at the site are conducted only after extensive vetting through the archaeological preservation community and members of the public.

Conservation is a painstakingly detailed process that can take years to complete. The Mariners' Museum conservators are currently working to conserve large iron components recovered from the site including the turret, engine, Dahlgren guns, and gun carriages. They are also working on hundreds of small items including a leather boot found during turret excavation, numerous pieces of silverware, the engine room clock, and even buttons from sailors' uniforms.

A visit to The Mariners' Museum reveals many artifacts that have completed the conservation process and are currently on exhibit in the *Monitor* Center. One of the most remarkable artifacts is the red signal lantern, possibly the last thing seen before the USS *Monitor* sank in 1862 and the first object recovered from the site in 1977. Other artifacts on display include the engine-reversing wheel and register, a ceramic pitcher, the unique four-fluked anchor, the propeller, and a U.S. Navy comb. Many of these artifacts will be loaned for public display to other museums, such as the Graveyard of the Atlantic Museum in Hatteras, N.C.





## Exhibits

New exhibits highlighting the National Marine Sanctuary System take center stage at the USS *Monitor* Center. The sanctuary also continues to support the development and installation of *Monitor* exhibits at various partnering museums and aquariums across the mid-Atlantic region. The *Monitor* staff is working with the state of North Carolina through the Graveyard of the Atlantic Museum in Cape Hatteras, N.C. to create a unique *Monitor* exhibit to house various artifacts from the collection. Exhibit planning will commence in summer 2009. These displays will make it possible for the public to visit the sanctuary without getting their feet wet.

In addition, the sanctuary has also installed signage displays at NOAA's Maritime Archaeology Center. While the Maritime Archaeology Center is primarily an office for *Monitor* sanctuary and Maritime Heritage Program staff, it has its fair share of visitors each year from local, state and federal partners, and educators participating in workshops offered by the site. The sanctuary is also designing interpretive signage for the North Carolina Aquarium in Manteo and the Graveyard of the Atlantic Museum in Hatteras, N.C.

*Secrets of the Deep*, located at Nauticus in Norfolk, Va., opened in spring 2007. The interactive exhibit is a replica of a deep diving submersible that visited the wreck site of the *Monitor* on numerous occasions. In addition to the exhibit, teachers can pick up free educational materials on the *Monitor* and other NOAA programs at the NOAA Education Resource Center, located on the 3<sup>rd</sup> floor of Nauticus.



## Education and Outreach

The *Monitor* sanctuary is committed to providing educational programs and materials that teach about the history, discovery, recovery, conservation and wreck site of the *Monitor*. The sanctuary helps to inspire a new audience to protect our rich maritime heritage resources and act as wise ocean stewards. By inspiring the next generation, education is embraced as the most powerful tool for resource preservation. Education and outreach efforts come in many forms. Formal programs for teachers and students, hands-on exhibits, community festivals and events, telepresence, expeditions, remotely-operated vehicle competitions, lectures, and curricula are some of the many efforts underway at the sanctuary.

The sanctuary and its partners believe that valuing the historical importance of the shipwreck and protecting it as a national treasure are best accomplished through an interdisciplinary approach to learning. Programs are themed with interwoven messages that teach science, technology, engineering, math, history, reading, and environmental literacy. From history enthusiasts to marine science buffs, education programs provide a variety of mechanisms for people to personally connect to the sanctuary and help inspire ocean awareness and conservation.

## Reaching Out to Students and Teachers

Providing educational opportunities for students and educators from the mid-Atlantic region is a high priority for the sanctuary. To reach as many students as possible, the sanctuary provides curriculum and professional training opportunities for regional educators. The sanctuary partners with school districts in both North Carolina and Virginia to train teachers and provide programs for students both in the classroom and through field trips to partner museums and aquariums. During the 2006-2008 school years, sanctuary staff reached more than 3,000 students and 250 teachers through schools, workshops, field trips, and open houses held throughout the region providing them information about the *Monitor* and the National Marine Sanctuary System.

### DID YOU KNOW...

Sanctuary staff have presented on the *Monitor* NMS to local, state, national and international audiences to help promote the *Monitor* and the national marine sanctuary program. In 2007 alone, staff gave over 60 presentations around the community and state, reaching out to nearly 230,000 people.





## Mid-Atlantic MATE ROV Building Competition

Exploration inspires educational achievement. This is a key component of the Marine Advanced Technology Education (MATE) Center's International Remotely Operated Vehicle (ROV) Building Competition, which motivates middle and high school students to pursue careers in marine technology, science, and archaeology.

Since 2005, the sanctuary has provided teacher workshops to help teachers learn how to mentor student teams to design and build ROVs for the competition. In 2006, through its involvement with MATE, the sanctuary initiated the first mid-Atlantic regional ROV building competition, which it co-sponsored with Nauticus. The regional competition more than tripled in size in 2007, with over 150 students, teachers, mentors, volunteers, and spectators in attendance at the event. Volunteers from Nauticus, NASA, NOAA, Old Dominion University, Northrop Grumman Newport News, Hampton Roads Naval Museum, the University of North Carolina Coastal Studies Institute, and many other organizations judged water missions, conducted engineering reviews, reviewed poster displays, and assisted with many other facets of the competition.

## Telepresence

The Office of National Marine Sanctuaries has established an innovative education and technological framework to bring the excitement of the nation's oceans and Great Lakes to the public by linking oceanographic monitoring programs with interactive telepresence technology. Developed in conjunction with the JASON Project, Mystic Aquarium and the Institute for Exploration, telepresence technology allows individuals to experience the wonders of special marine areas without getting wet. With underwater cameras and ROVs, telepresence supports distance learning programs, exhibits in aquariums and visitor centers, and Web-based learning tools.

Since 2002, telepresence has enabled audiences to remotely control an underwater vehicle tethered in 50 feet of water in Monterey Bay National Marine Sanctuary. This technology has also allowed audiences and students to interact with archaeologists exploring shipwrecks in Stellwagen Bank National Marine Sanctuary and scuba divers documenting coral reef ecosystems in Hawaii and the cold-water shipwrecks of Thunder Bay National Marine Sanctuary.

During the summer 2006 expedition to the *Monitor* sanctuary, telepresence was used to bring the excitement of the expedition to the world. Five broadcasts were shown on the *OceansLive.org* Web portal. The live coverage had more than 12,000 hits per day, with viewers asking questions to the scientists. The *Monitor* sanctuary plans to continue to dive into the world of live broadcasting from sea to bring the wonders of the sanctuary to people around the world.

## Community Festivals and Events

The *Monitor* sanctuary participates in community festivals and events in North Carolina, Virginia and across the mid-Atlantic region. These events help to enhance public awareness of the importance of the *Monitor* and the efforts of the National Marine Sanctuary System. Each year, the staff attends events across the region, including the Battle of Hampton Roads Weekend at The Mariners' Museum, Earth Day festivities in Virginia, Norfolk Harborfest, Hampton Bay Days, Urbanna Oyster Festival, Delaware Coast Day, and Hatteras Day at the Docks. In 2007 alone, staff reached approximately 230,000 people through these and other outreach efforts.





## Community Involvement and Partnerships

Community involvement is vital to successfully managing and protecting sanctuary resources. The sanctuary has become a resource for a wide range of user groups including divers, teachers, historians, archaeologists, and other researchers. The sanctuary is always looking to partner with creative and energetic organizations and welcomes new opportunities for collaboration.

### Sanctuary Advisory Council

*Monitor* National Marine Sanctuary established a sanctuary advisory council in fall 2005. The council is the mechanism for achieving involvement of community members and special interest groups and developing stewardship of the sanctuary. With 14 seats on the council, council members facilitate communication between the sanctuary staff and the diverse groups of people interested in how sanctuary resources are managed. Members represent a variety of regional and national interests and stakeholders, including recreational diving, heritage tourism, education, maritime museums, conservation, the U.S. Navy, the Virginia Department of Historic Resources, the North Carolina Department of Cultural Resources, the National Park Service, and the public at large. The council meets annually four times each year, typically alternating between Newport News, Va. and Hatteras, N.C. It is the combined expertise and experience of these individuals that creates an advisory council that is a valuable and effective resource for the sanctuary superintendent.



## **Monitor National Marine Sanctuary Advisory Council \***

Mitch, Bowman, Heritage Tourism  
Scott Boyd, Citizen-At-Large, Secretary  
James Bunch, Recreational Diving  
Dave Conlin, National Park Service, Alternate  
Terri Kirby-Hathaway, Education  
Anna Holloway, The Mariners' Museum  
Roger Kirchen, Va. Dept. of Historic Resources, Alternate  
Dave Krop, The Mariners' Museum, Alternate  
Susan Langley, Archaeological Research  
Richard Lawrence, N.C. Dept. of Cultural Resources  
Larry Murphy, National Park Service  
Robert Neyland, U.S. Navy  
Joseph Schwarzer, N.C. Maritime Museums, Chair  
Wayne Smith, Conservation, Vice-Chair  
Mark Wilde-Ramsing, N.C. Dept. of Cultural Resources, Alternate  
Joann Wilson, Va. Dept. of Historic Resources  
Jay Kavanagh, Fishing Seat

To learn more about the advisory council and its members visit:  
<http://monitor.noaa.gov/advisory/welcome.html>

**\*2008 Council**

## **Hampton Roads and Hatteras Village**

To accomplish ever-expanding outreach efforts, the sanctuary works in two very different communities—Hampton Roads, Va. and Outer Banks, N.C. The central office for *Monitor* National Marine Sanctuary is co-located with the conservation laboratory and the USS *Monitor* Center at The Mariners' Museum in the Hampton Roads area of Virginia, which is about a three-hour drive from Hatteras, N.C. where the sanctuary lies just offshore.



A population of 1.8 million people makes Hampton Roads, Va. the 33rd-largest metropolitan area in the United States. The area is steeped in over 400 years of American history. Hundreds of historical sites and attractions, including the location of the *Monitor's* famous battle with the *Virginia*, draw visitors from around the world each year.

Due to its proximity to the *Monitor* sanctuary, Hatteras Village on the Outer Banks of North Carolina is used as the land base and launching point for the majority of the research and scientific expeditions to the sanctuary. With a year-round population of about 5,000, the village is a tight-knit community. The staff continues to work closely with local, state and federal government offices, the school system, and the local community to further develop Hatteras's potential as a heritage tourism destination.



## **Hatteras Village: A Preserve America Community**

Preserve America is a White House initiative that encourages and supports community efforts to preserve and enjoy our priceless cultural and natural heritage. Mrs. Laura Bush, first lady of the United States, is the honorary chair of Preserve America.

Hatteras Village, located at the southern tip of Hatteras Island on North Carolina's Outer Banks, was recently designated a Preserve America community. The village was first settled in the 1780s and has long prospered as a fishing and shipping hub. Beginning in the early 20th century, tourism began to increase. In the 1950s and 1960s, the opening of a bridge to Hatteras Island and the creation of Cape Hatteras National Seashore encouraged vacationers to come to the island, and seasonal tourism continues today as a growing industry.

Visitors to Hatteras Village are usually seeking sun and sand, but the village is working to promote appreciation of its historic assets, including *Monitor* National Marine Sanctuary, located 16 miles offshore.



## Sanctuary Partners

Partnerships are a mainstay of the Office of National Marine Sanctuaries. The *Monitor* sanctuary works together with local, state and federal agencies, educators, researchers, scientists, non-profit organizations, zoos, museums, aquariums, dive shops, visitor centers, and the general public to carry out its mission.

Some of the sanctuary's more visible partners include The Mariners' Museum, the U.S. Navy, the State of North Carolina, North Carolina Aquarium on Roanoke Island, Graveyard of the Atlantic Museum, Nauticus, Hampton Roads Naval Museum, and the North Carolina Maritime Museum, who all proudly display exhibits or information about the cultural and natural resources of the *Monitor* sanctuary. Researchers from a variety of universities, such as East Carolina University and University of North Carolina Coastal Studies Institute, and other institutions, including the National Undersea Research Center, regularly assist sanctuary staff in evaluating and exploring the reaches of the sanctuary.

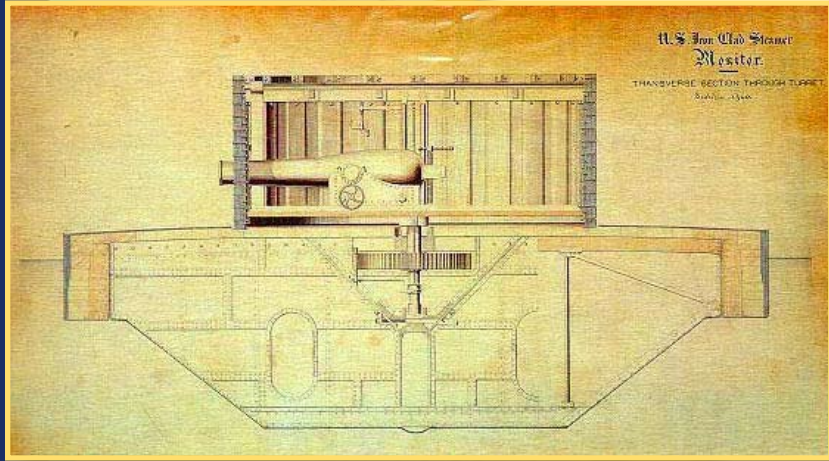
The National Marine Sanctuary Foundation financially supports the sanctuary by assisting with fundraising efforts, including the *Monitor* artifacts conservation campaign. Recovering artifacts from the sanctuary is only the beginning of a costly and time-consuming conservation process. The foundation has successfully funded the costs of exhibitry and conservation activities at The Mariners' Museum and continues to support the work of the sanctuary.

As indicated throughout this report, *Monitor* National Marine Sanctuary's many partnerships have been, and continue to be, critical to the success of the sanctuary.

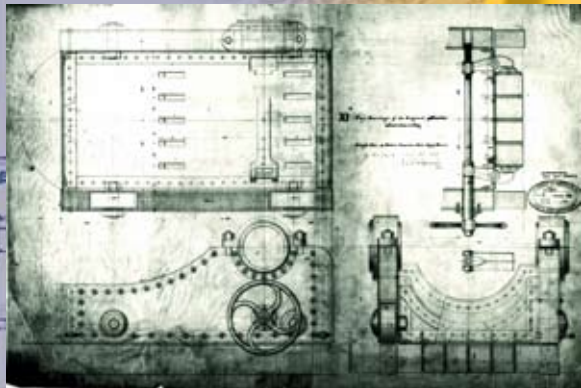


## History

Soon after the American Civil War began in 1861, both the North and the South realized how important the seas were to the war effort. The South needed lines of trade with other countries to compensate for their lack of industrial facilities. Knowing this, President Lincoln declared there would be a blockade of the southern states. This plan was known as the “Anaconda Plan” and was meant to choke the South into submission.



After the secession of Virginia, the Union withdrew their forces north after trying to destroy any materials or facilities that would benefit the Confederacy. Gosport, a naval shipyard that had a dry-dock, was such a facility. At the time of secession this port in Virginia had a large complement of ships awaiting repair. There was no time to evacuate all the ships, so the port and ships were burned. After the troops left, the townsfolk managed to salvage the shipyard, including the hull of a wooden warship known as the USS *Merrimack*.



With the blockade effectively cutting the Confederacy off from the outside world, the concept of converting the burned hull of the USS *Merrimack* into an ironclad came to life. Under the design of John Mercer Brooke, John Luke Porter, and William Price Williamson, the ship was salvaged and gradually converted into an ironclad ship renamed CSS *Virginia*.

As news of the *Virginia* made its way north, the Union knew they would be in trouble if they didn't have an ironclad of their own. The Union Navy developed the “Ironclad Board” and ran ads in the northern newspapers asking for inventors to submit their designs.

## John Ericsson, Designer

John Ericsson was born in Sweden on July 31, 1803 and showed an early interest in mechanics. He began his career as an inventor and engineer in Europe. He had several inventions including the first steam-powered fire engine, an improved steam-powered locomotive, the first steam-powered tugboat, and a warship that was driven by a screw propeller rather than a paddle wheel. While living in England in the 1830s, Ericsson also helped design and build iron vessels for operating on the Thames River. He was persuaded to emigrate to the United States and was awarded a contract to build a screw-propelled warship for the United States Navy. When it was launched in 1843, the USS *Princeton* was the first warship in naval history to be designed and built as a screw-powered ship. However, as a result of an explosion that killed two members of the President's cabinet and wounded several others while they were on the ship, Ericsson's reputation was badly damaged. Even though he was found not to be at fault, he was not paid for his work, and he vowed to never to work with the government again.

In 1861, the U.S. Navy called for ironclad ship designs. Ericsson was persuaded to submit a draft design for the *Monitor* that was at first rejected, but later accepted on condition that the ship would be constructed in 100 days and cost no more than \$275,000. Although his past reputation led to local papers calling him an "incapable schemer" and condemning him for "the sin of wasting the resources of the country," when the ship was finally launched in January 1862, it floated perfectly to within three inches of his designed water line. Even after the *Monitor* became famous for succeeding to help protect part of the Union's naval fleet, Ericsson remained upset with the government because they had given him 11-inch cannons as opposed to the 12-inch ones that he requested. He felt that his original design would have been able to sink the CSS *Virginia*, and tests undertaken after the battle proved Ericsson was probably right.



## Battle of Hampton Roads

The *Monitor* was ordered to Hampton Roads, Va. and arrived on the evening of March 8, 1862. The scene that greeted her was appalling. Earlier that day, the CSS *Virginia* had made her maiden voyage into Hampton Roads, proving the effectiveness of iron against wood. The *Virginia* rammed and sank the USS *Cumberland* in less than an hour. The USS *Congress* had run aground and was unable to effectively bring her guns to bear. The *Virginia* and her small consorts were destroying the wooden warship. The ship was surrendered to end the slaughter. The fires started during the fight soon had engulfed the ship in flames, which assured her complete destruction. The USS *Minnesota* was badly damaged and aground. So far, the *Virginia* had proven to be unstoppable.

On March 9, the *Virginia* steamed out to re-engage the stranded *Minnesota*. The *Monitor* had taken up a position between the grounded warship and the Confederate shore. As soon as she saw the Confederate ironclad approaching, the *Monitor* steamed out to engage the *Virginia* as far as possible from the *Minnesota*.

For almost four hours, the two armored warships hammered away at each other, each side looking for their opponent's weaknesses. At times the two vessels were touching, but the cannon shots bounced harmlessly off their iron armor. Almost four hours into the battle, a shot from the *Virginia* exploded against the forward side of the pilothouse, temporarily blinding the *Monitor's* captain, John Worden. The *Monitor* pulled out of action to assess the damage to the ship. Lieutenant Catesby Jones, the *Virginia's* commander, saw the *Monitor* leaving the battle. He assumed they had done serious damage to the Union ironclad and had forced her from the field. After two days of fighting, the Confederate ironclad had expended tons of coal and ammunition and the crew was exhausted. Jones gave the order for the *Virginia* to return to the navy yard to assess the damages.

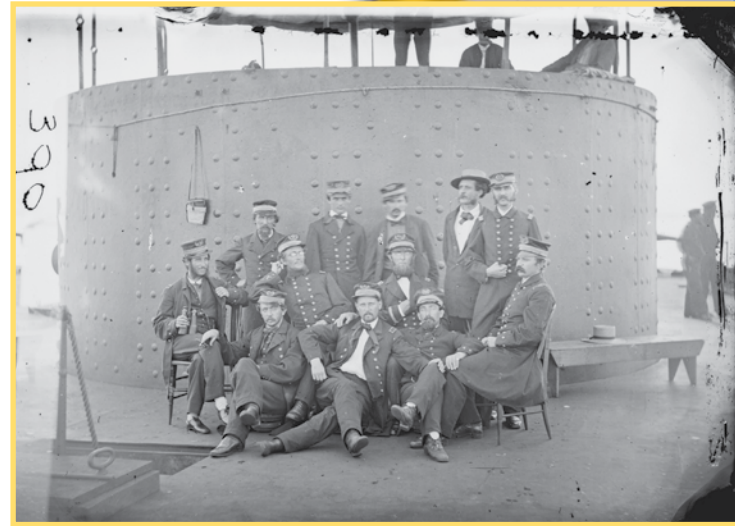


The *Monitor*, now under the command of Lt. Samuel D. Greene, left the shallow bay she had pulled into and steamed back into Hampton Roads. Greene saw the *Virginia* heading towards the Elizabeth River and Norfolk. Greene assumed that the *Monitor* must have done some serious damage to the Confederate ironclad and that she was retreating from the field. Greene's orders were to protect the *Minnesota*, so he returned to her side until the wooden warship was floated on the next tide.

The Battle of Hampton Roads was ultimately fought to a draw. The true significance of the engagement was that the era of the wooden warship was at an end and from that day forth, iron would rule the seas.

Neither of these precedent-setting warships would survive the year. The military situation in and around Hampton Roads was changing quickly. The Confederate government ordered the evacuation of the Norfolk area in early May. The *Virginia's* great draft prevented her from making her way up the James River towards Richmond. The reality of running past Fort Monroe and escaping into open water was a fallacy. The channel could be easily blocked and the *Virginia* would have had to fight the rest of the Union fleet sitting in the shadow of a fort armed with what were then the largest caliber cannons in the country. To prevent her capture and the loss of the crew, the *Virginia* was run aground at Craney Island on May 11, 1862, and set afire. The spectacle was witnessed by the watch on the *Monitor*, four miles away, and noted in the *Monitor's* log; "The fire towards Norfolk brightened and illuminated the entire Horizon."

The *Monitor* spent the remainder of the summer up the James River. In October 1862, the *Monitor* was sent to the Washington Navy Yard for repairs and alterations. Back in Hampton Roads in early November, the ship was ordered to proceed to Beaufort, N.C. on Christmas Eve. The *Monitor*, under tow by the side-wheel steamer USS *Rhode Island*, left Hampton Roads on Dec. 29.



## *Monitor's Loss in the Graveyard of the Atlantic*

On Dec. 30, 1862, the *Monitor*, on her way to Beaufort, N.C. under tow by the USS *Rhode Island*, encountered a storm off the coast of Cape Hatteras, N.C. Soon the two ships encountered storm-tossed seas, and the low-riding *Monitor* began to take on water. As night approached, the situation was thought to be under control. The *Monitor's* captain signaled to the *Rhode Island* that if they ran into trouble during the night, the ironclad would hoist a red lantern signaling distress.

As the night wore on, a leak at the bow became more intense. Water was coming in under the turret and around the coal chute hatches, forcing the crew to try to satisfy the incessant hunger of the *Monitor's* boiler fires with damp coal. With steam pressure for the pumps waning, the captain ordered the main engine shut down, so the remaining steam pressure could keep the pumps working.

One of the two tow lines between the ships had already snapped, and three volunteers made their way forward across wave swept decks to cut the other. The captain ordered the anchor dropped with all chain paid out. He gave the order to hoist the red signal lantern to let the *Rhode Island* know that the *Monitor* was sinking. Once the water level reached the furnaces, the captain realized that there was no hope of saving the vessel, and he gave the order to abandon ship.

Shortly after 1:00 a.m. on Dec. 31, the *Monitor* sank approximately 16 miles south-southeast of Cape Hatteras, N.C. in an area now known as the Graveyard of the Atlantic, taking with it four officers and 12 crewmen. Three more sailors on the *Rhode Island* also lost their lives that night. The *Monitor* was not to be seen again until 111 years later, when a team of scientists aboard the Duke University vessel *Eastward* would find the wreckage.



## Crew of the USS *Monitor*

### Captain John Worden

John Lorimer Worden was born on March 12, 1818 in New York. He became a Navy midshipman at the age of 15 and spent the next several years at sea in various squadrons and ashore at the Naval Observatory in Washington, D.C. After being promoted to lieutenant in 1846, Worden saw more extensive sea duty, largely within the Pacific Squadron. In 1861, he was captured by Confederate authorities while returning from delivering secret dispatches to warships in Pensacola. He was held prisoner for seven months and then exchanged.

During the battle with the CSS *Virginia* on March 9, 1862, Worden was looking through the viewing ports in the *Monitor's* pilot house when a shell hit nearby. The explosion severely wounded and temporarily blinded him forcing him to relinquish command of the *Monitor* for the rest of the battle. In October 1862, Worden recovered his sight and was placed in command of another ironclad warship. He retired from the Navy in 1886 as a rear admiral after 52 years of naval service. He died in 1897.

### Paymaster William Frederick Keeler

William Frederick Keeler was a successful merchant from Illinois who served as paymaster on the *Monitor*. It was his first assignment as a naval paymaster and he remained there throughout the ship's short life.

While on the *Monitor*, Keeler wrote regular letters to his wife, Anna, in which he detailed all aspects of his life aboard the *Monitor* and recorded his personal views and insights into daily life on the ship. He wrote in great detail both before and immediately after the historic battle of Hampton Roads. These letters helped give invaluable insights into what it was like being on ironclad ships during that period and are considered an excellent primary source of information on the *Monitor*.





## George S. Geer

The letters of *Monitor* crewman George S. Geer offer a remarkable glimpse aboard the ironclad and a rare perspective on a sailor's experience in the Civil War. Geer's letters were donated to The Mariners' Museum in 1997 by the Espy family of Savannah, Georgia. The 1862 series of letters were written to his wife, Martha, who resided in New York while her husband served on board the *Monitor*. In one letter, Geer talks about the extreme conditions of the ironclad: "We took the tempriture of several parts of the ship, or rather I did, as I have charge of the Thurmomitor, and found in my Store Room, which is farthest astern, it stood at 110; in the Engine Room 127; in the Galley, where they Cook and after the Fire was out 155; on the Berth Deck where we sleep, 85. I think the hottest day I ever saw in NY was up to 102 in the Shade, so you can see what a hell we have. I spend most of my time in pleasant weather under an Awning on Deck, and sleep there these hot nights."



## Siah Carter

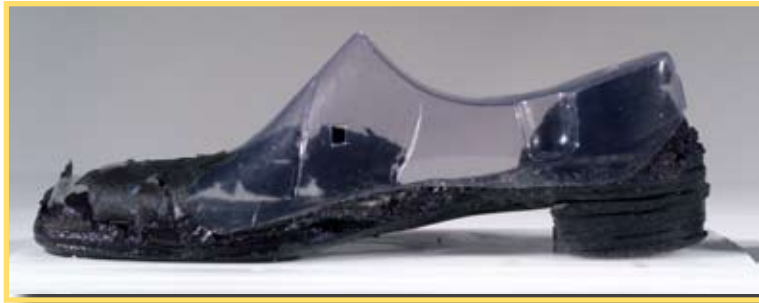
Siah Carter was an African-American slave who was born in Charles City, Va. Before running away and being enlisted aboard the *Monitor*, he was working on Shirley plantation in Virginia, which was owned by a Confederate Army colonel. Once he came aboard, he was given a job as a coal heaver and an assistant to the cook.

While working in the close quarters and intense heat, he stated that the work on the ship was often as difficult as when he was on the plantation and that the white crew around him did not treat him much better than his old master. However, Carter worked on other Union vessels after the sinking of the *Monitor* and has been recorded as speaking of the utter feeling of freedom and peace that he felt being away from his master and working for the Union.



## History Preserved by NOAA and The Mariners' Museum

In March 1987, The Mariners' Museum in Newport News, Va. was designated the principle museum for *Monitor* National Marine Sanctuary. The museum curates the *Monitor* Collection, which includes all artifacts recovered from the site, as well as a large collection of historical material and research data generated by expeditions to the site. The collection contains documents and other material donated by various agencies and individuals that have been associated with the *Monitor* sanctuary. Under procedures consistent with the National Archives, the *Monitor* Collection is available for research by students and the general public.



## State of the Sanctuary Report Photo Credits

### Front Cover

Collage images provided by *Monitor* Collection/NOAA and Courtesy of The Mariners' Museum

### Page 2

Divers working on the turret, *Monitor* Collection/NOAA

### Page 3

Map of *Monitor* National Marine Sanctuary, *Monitor* Collection/NOAA

### Page 4

Fish over wreck, *Monitor* Collection/NOAA  
*Monitor* shipwreck, *Monitor* Collection/NOAA  
Wreck drawing, *Monitor* Collection/NOAA

### Page 5

Crew of the USS *Monitor*, Courtesy of the Naval Historical Center  
2002 Turret recovery, *Monitor* Collection/NOAA  
1974 *Monitor* photomosaic, *Monitor* Collection/NOAA

### Page 6

Ericsson gun carriage starboard view, Courtesy of Maglev  
*Monitor* plan profile view, Courtesy of Joe Hines

### Page 7

Looking out toward the Graveyard of the Atlantic, *Monitor* Collection/NOAA

### Page 8

The *Monitor* Center, Courtesy of The Mariners' Museum  
*Monitor* replica, Courtesy of The Mariners' Museum  
Artifacts, The *Monitor* Center, Courtesy of the Mariners' Museum

### Page 9

Diver over wreck, *Monitor* Collection/NOAA  
Wreck site, *Monitor* Collection/NOAA  
Fish visiting the *Monitor* Sanctuary, *Monitor* Collection/NOAA

### Page 10

Data buoy in the *Monitor* Sanctuary, *Monitor* Collection/NOAA

### Page 11

Navy divers on spider, *Monitor* Collection/NOAA  
Navy divers on deck, *Monitor* Collection/NOAA  
Scientists deploying equipment, *Monitor* Collection/NOAA

### Page 12

Navy diver preparing to descend to work on the *Monitor*, *Monitor* Collection/NOAA  
Navy saturation divers on the 2002 *Monitor* expedition, *Monitor* Collection/NOAA

### Page 13

*Monitor's* turret undergoing conservation, *Monitor* Collection/NOAA  
Turret Excavation, *Monitor* Collection/NOAA

### Page 14

Red Lantern, *Monitor* Collection/NOAA  
Leather shoe conservation, Courtesy of The Mariners' Museum  
Propeller before and after conservation, Courtesy of The Mariners' Museum

### Page 15

Turret excavations, *Monitor* Collection/NOAA  
Conservation of the guns, Courtesy of The Mariners' Museum  
A spoon found in the turret, Courtesy of The Mariners' Museum  
Museum exhibits, Courtesy of the Mariners' Museum

### Page 16

Teacher and students conducting water quality sampling, *Monitor* Collection/NOAA  
Teachers participating in a workshop, *Monitor* Collection/NOAA

### Page 17

National Marine Sanctuaries exhibit at Nauticus, *Monitor* Collection/NOAA  
Delaware's Cape Henlopen High School team prepares for the ROV Competition, *Monitor* Collection/NOAA



### Page 18

Sanctuary staff participates in a telepresence program with Maryland and Michigan students, *Monitor* Collection/NOAA  
Staff exhibit at Hatteras Day at the Docks Celebration, *Monitor* Collection/NOAA

### Page 19

Ship masts, *Monitor* Collection/NOAA  
*Monitor* Sanctuary Advisory Council, *Monitor* Collection/NOAA

### Page 20

Hatteras at Sunset, *Monitor* Collection/NOAA

### Page 21

Hatteras Village, *Monitor* Collection/NOAA

### Page 23

Diagram of the transverse section of the turret, Courtesy of the Naval Historical Center  
*Monitor* plan view, Original in Naval Historical Center

### Page 24

John Ericsson, Courtesy of The Mariners' Museum

### Page 25

Battle of Hampton Roads by J.O. Davidson, Courtesy of The Mariners' Museum

### Page 26

*Monitor* Crew, National Archives

### Page 27

Loss of the *Monitor*, Harper's Weekly, January 1863

### Page 28

Captain John Worden, Courtesy of The Mariners' Museum  
Paymaster William Frederick Keeler, Courtesy of The Mariners' Museum

### Page 29

George Geer, Courtesy of The Mariners' Museum  
Siah Carter, Courtesy of The Mariners' Museum

### Page 30

Leather shoe, Courtesy of The Mariners' Museum  
Navy button, Courtesy of The Mariners' Museum  
Condiment bottle, Courtesy of The Mariners' Museum  
Silverware, Courtesy of The Mariners' Museum



