HEARING ON THE U.S.S. MONITOR NATIONAL MARINE SANCTUARY

HEARING

BEFORE THE

SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND OCEANS

OF THE

COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES

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HEARING ON THE U.S.S. MONITOR NATIONAL MARINE SANCTUARY

THURSDAY, NOVEMBER 6, 1997

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE AND OCEANS, COMMITTEE ON RESOURCES, *Washington, DC.*

The Subcommittee met, pursuant to notice, at 11:05 a.m., in room 1334, Longworth House Office Building, Hon. Jim Saxton (chairman of the Subcommittee) presiding.

STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. SAXTON. [presiding] Good morning. Today we're holding a hearing on the National Oceanic and Atmospheric Administration's report on the long-term conservation and management of the U.S.S. Monitor. Congress directed NOAA to undertake this report as part of last year's reauthorization of the National Marine Sanctuaries Act.

In the Civil War, the Monitor played a significant role in saving the Union from the C.S.S. Virginia and in maintaining the Union stranglehold on Southern ports. That battle was important not only in the North's war effort, but it was also a major turning point in maritime history.

After that battle, the fate of the wooden sailing ships in war and commerce was sealed forever. However, since I just purchased a new sailboat earlier this year, I am glad to say that the appeal of sailing ships for recreational uses remains unchanged.

[Laughter.]

Mr. SAXTON. The site of the Monitor wreck was located in 1973 and was designated as the first national marine sanctuary in the United States. Unfortunately funding limitations, the remoteness and depth of the site, and the unpredictable weather off Cape Hatteras have conspired to prevent significant protection and research efforts on the wreck. However, NOAA has documented significant deterioration of the vessel since 1990. I look forward to hearing today NOAA's long-term plan for stabilization, recovery and conservation of this important maritime treasure.

Finally, I believe that every effort should be made to ensure that all of the Monitor's historically significant artifacts are safely recovered and preserved.

Our panel today consists of Captain Evelyn Fields, acting Deputy Assistant Administrator of National Ocean Service, and she is accompanied by Miss Stephanie Thornton, Chief, Sanctuaries and Reserve Division, Office of Ocean and Coastal Resources Management

of the National Ocean Service, and Mr. John Broadwater, Manager of the U.S.S. Monitor National Marine Sanctuary.

[The prepared statement of Mr. Young follows:]

STATEMENT OF HON. DON YOUNG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ALASKA

Mr. Chairman, I am pleased that you are conducting this oversight hearing on NOAA's long-range comprehensive plan for the management of the U.S.S. MONITOR National Marine Sanctuary.

The U.S.S. MONITOR was a revolutionary weapon. It was 172 feet in length, and it was assured its place in history when it engaged the Confederate ship VIRGINIA in an historic battle of ironclad warships on March 9, 1862. While neither vessel was seriously damaged, regrettably at midnight on December 30, 1862, the MONITOR sank in a huge storm off the coast of North Carolina. For 111 years, the final resting place of the MONITOR remained a mystery.

This mystery was finally solved in 1973 when the MONITOR was discovered in 230 feet of water, 16 miles off the coast of Cape Hatteras. Two years later the site was designated as our Nation's first National Marine Sanctuary and a one-mile zone was established to protect the ship and its historical artifacts.

It is now more than 20 years later and the debate still continues on whether it is better to recover the entire vessel, remove certain innovative pieces like the turret, conserve and display historically significant items, or stabilize the vessel on the ocean floor.

While this lengthy debate has gone on without a solution, sadly the words of the MONITOR's paymaster, William Keeler, now ring true: "What the fire of the enemy failed to do, the elements have accomplished."

I look forward to hearing from Captain Evelyn Fields of the National Ocean Service, and I am hopeful that after today we will have a much better idea about how our government will honor the memo

Mr. SAXTON. Welcome, ladies and gentleman. And Captain Fields, the floor is yours.

STATEMENT OF CAPTAIN EVELYN FIELDS, ACTING DEPUTY ASSISTANT ADMINISTRATOR OF NATIONAL OCEAN SERVICE

Captain FIELDS. Thank you.

Mr. Chairman and members of the Subcommittee, I am Captain Evelyn Fields, Acting Deputy Assistant Administrator of the National Ocean Service of the National Oceanic and Atmospheric Administration.

It is an honor and a pleasure for me to appear before you at today's oversight hearing regarding NOAA's comprehensive preservation for the U.S.S. Monitor. The Monitor may well be the most significant shipwreck in United States's history. Many of her innovations, especially her revolving gun turret, brought about a revolution in naval technology.

Today, however, the Monitor is rapidly losing her sustained battle against the ravages of the sea. Lying in 230 feet of water, 16 miles off Cape Hatteras, North Carolina, the Monitor's hull is suffering rapid deterioration which, if not checked, will result in her total disintegration within the next few years.

The Monitor was located by scientists in 1973, and it is listed on the National Register of Historic Places and it is a national historic landmark. In 1975, Congress designated the remains of the Monitor as the first national marine sanctuary in recognition of its unique historical and archaeological significance.

During its 22-year stewardship of the Monitor National Marine Sanctuary, NOAA has employed some management practices and state-of-the-art technology to investigate the wreck. It was through

NOAA's stewardship activities that the rapid deterioration of the Monitor was detected and identified as a critical problem.

NOAA is now facing a critical decisionmaking juncture on how to best take action to address the deterioration threatening the archaeological integrity of the Monitor. Congress has expressed its concern by directing the Secretary of Commerce to produce a long-range plan. The Secretary was also directed, to the extent feasible, to utilize the resources of other Federal and private entities with expertise and capabilities that are helpful. The scope and timetable for this plan was very ambitious.

NOAA faced several constraints in developing the plan. We had limited resources with which to address the many complexities inherent at any comprehensive marine archaeological preservation plan. Also NOAA lacks the in-house expertise to thoroughly develop all aspects of the plan as specified by Congress such as the specialized engineering skills required for deep-sea recovery operations.

However, we were able to overcome some of these constraints by working with other Federal agencies and private entities to produce a draft comprehensive plan. NOAA believes that this plan will provide the framework necessary to select the right course of action and to implement it.

I am pleased to submit with this testimony a copy of the draft plan entitled, "Charting a New Course for the Monitor." In the plan, the draft plan, NOAA presents a comprehensive management strategy that if implemented should ensure that the Monitor will be preserved and protected for future generations.

Major components of the draft plan are a detailed description of the Monitor's recent deterioration, a wide-range of possible preservation options, evaluations of each option, and recommendations for planning. The draft plan concentrates on the preservation options. These options address the most immediate problem of the Monitor's rapid deterioration. This is the most complex and resource-intensive section of the plan.

The plan reflects the latest data as well as potential solutions made viable by recent technological advances. The deep water and hostile environment at the sanctuary pose unique challenges. In brief, the preservation options range from doing nothing and letting nature take its course, to partial and full recoveries of the remains. Other options propose encapsulating the remains, structurally shoring up the hull or attaching cathartic protection to slow down some of the various forces contributing to the Monitor's degradation.

NOAA's draft recommendation is to use a combination of these options. We propose to selectively recover the most significant artifacts with the gun turret being the most ambitious and to shore up the hull to prevent its imminent collapse.

A final decision on which option or options are selected for preservation of the Monitor will involve a number of considerations. Some of these considerations are the technological feasibility, probability of success, review under the National Historic Act, section 106 process, and other applicable law, consistency with the division's strategic plan and the sanctuary management plan and available funding and support.

NOAA has determined that the draft should be peer reviewed by outside experts before a final plan is released due to the Monitor's extreme historic significance and the importance of determining the best option. NOAA will pursue the following schedule: This month we plan to put out a notice of availability of the draft plan through the Federal Register. Later, in the January/February timeframe, we expect that the final plan will be submitted to the President's Office of Management and Budget for review. And hopefully by late April the final plan will be submitted to Congress. This is an ambitious schedule, but we believe we can meet it.

Time is of the essence if the Monitor is to be preserved without significant damage to its archaeological integrity. The loss of even one summer's work season might well mean the collapse of the Monitor's hull.

The schedule proposed by the draft plan is extremely compressed, and several key objectives must be simultaneously pursued. NOAA believes that it can meet the following essential objectives through NOAA assets and partnerships during the fiscal year 1998: Develop and implement a business plan in cooperation with one or more non-governmental organizations for identifying and raising the necessary funds for recovery and conservation. To develop formal plans for stabilization and recovery of archaeology and conservation and exhibition. Submit the final plans for the National Historic Preservation Act section 106 and applicable law review. And initiate on-sight archaeological survey mapping and recovery activities required by law as a first step in preparing the site for stabilization.

NOAA will require external assets and/or partnerships during fiscal year 1998 and beyond to conduct the most extensive, complex, time consuming, and expansive archaeological survey efforts. The archaeological diving activities must, by law, be supervised by professional archaeologists. Other tasks such as photographic documentation and mapping might be accomplished by remotely operated vehicles also under archaeological supervision.

NOAA has explored a number of possible solutions to this dilemma. One solution is the limited diving assistance of the Navy. Both NOAA and Navy procedures governing dive cross certification currently hamper combined dive operations. We, at NOAA, are working to resolve this issue of cross certification of our personnel.

Another solution would be if the Navy assets such as dive teams, ROV's and remote sensing equipment could be utilized at no cost to NOAA possibly in the same manner that the Navy's research submersible participated in a private archaeological survey during 1997 under the direction of oceanographer Robert Valley.

NOAA has also sought and received able assistance from other government agencies including within the Department of Commerce who might be able to render further support. However, most of the support has also been provided on a cost-reimbursable basis.

Finally, the private sector has offered to assist on past expeditions. NOAA has received extremely useful and skilled assistance from such private entities as research institutions, private corporations, and the private diving organizations.

Mr. Chairman, in conclusion, let me say that NOAA appreciates this opportunity to report to you on the status of the draft com-

prehensive plan for the preservation of the Monitor. And we will keep you and the Committee apprised of the plan's progress.

We look forward to working with you and the Committee to help implement the critical recommendations identified by the final report.

At this time, I would like to introduce Mr. John Broadwater.

[The prepared statement of Captain Fields may be found at end of hearing.]

Mr. SAXTON. That will be fine, Captain.

Captain FIELDS. Sure.

Mr. SAXTON. And we appreciate John Broadwater being here.

Your testimony was very thorough and very articulate, and we appreciate it very much. Before, however, we move to Mr. Broadwater, I would like to just ask unanimous consent that Mr. Bateman, who is not a member of this panel, be welcomed to sit on the panel this morning. And welcome, Mr. Bateman, we really appreciate your interest and understand your interest in this issue.

And also, Mr. Jones from North Carolina has two other conflicting activities that are going on concurrently with this hearing. So I would just like to ask him at this point if he has any statement that he would like to make?

STATEMENT OF HON. WALTER B. JONES, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Mr. JONES. Yes, sir, Mr. Chairman.

I want to thank you, and I want to apologize to the panel. I represent the third district of North Carolina, and Hatteras is in my district. And this is—the U.S.S. Monitor is of great interest not only to this Nation, but especially to the people of eastern North Carolina and the entire State of North Carolina. And I was truthfully looking forward to being here for the entire presentation. I do apologize for the conflict that the Chairman mentioned.

But I just want to say, Mr. Chairman, I look forward to working with you, the Committee, and the Congress to see that we do everything that is possible, because this is not only naval history, this is such an important part of America's history. And so, I just wanted to leave with my comments that I look forward to working with you under your leadership and working with the Committee to do what we need to do to give NOAA the support so that we can see this project finished and closure come to this project in the future.

Thank you.

Mr. SAXTON. Well, Mr. Jones, thank you very much. And we certainly look forward to your participation as I know that you are very, very interested in this subject. Thank you.

Captain Fields, if you want to further introduce Mr. Broadwater at this point, or however you want to proceed.

Captain FIELDS. OK, thank you.

I'd like to introduce Mr. John Broadwater who is the manager of the Monitor National Marine Sanctuary. Mr. Broadwater has participated in a number of events since the 1979 timeframe of events that have occurred with the Monitor—that NOAA has had with the Monitor. He comes with an engineering and archaeological background. He has extensive diving experience. And he is going to present some slides and other materials that will hopefully help

you visualize the condition of the Monitor and as well point out some of the challenges and opportunities that lie ahead for us.

Mr. SAXTON. Thank you.

Mr. Broadwater welcome, and we look forward to seeing what you have got to show us this morning. We appreciate it very much.

And while you are getting situated, I would like to ask unanimous consent that Mr. Young's statement appear in the record immediately following the Chairman's.

STATEMENT OF JOHN BROADWATER, MANAGER, THE U.S.S. MONITOR NATIONAL MARINE SANCTUARY

Mr. BROADWATER. Thank you, Mr. Chairman.

It is a pleasure for me to be here, too, and I thought possibly a few visuals might help since the Monitor is a very unusual wreck site as archaeological sites go that we'd be able to give you a better picture of what is going on—if we can get a picture at all here.

Mr. SAXTON. We're working on the lights as we speak here.

Mr. BROADWATER. OK, let's see. I'm not sure why—OK bear with us for a second. Ah, the countdown begins. There we go. Let's see if this is going to do its thing now. Now I think we are in business.

Mr. SAXTON. All right.

Mr. BROADWATER. Just very quickly, to orient you.

[Slides.]

Mr. BROADWATER. The Monitor is a very small sanctuary. It is one nautical mile in diameter. It lies 16 miles off Cape Hatteras in an area just fringing on the Gulf Stream and about 16 miles off shore. It's in 230 feet of water which for most of the scuba-diving projects that have been done in archaeology over the years is quite deep. And I know that the picture on the lower right is not very clear, but the Monitor's hull lies upside down, and it is very unusual. It's revolving turret that made it so famous was dislodged when the ship sank, and the whole ship rolled over and landed on the turret. You'll see in a couple of the visuals later that the fact that it is lying propped up on the turret is one of the problems that is causing the stress and the collapse of the hull today.

I won't go into detail of this, but just put this in to show you that this is some of the area just since 1991 that we've observed major catastrophic changes in the Monitor's hull. Several really key areas have collapsed. Many of those are structural and major meaning that by the collapse of those elements you can be sure that there will be others coming along shortly after. And we literally go out there every year not knowing if the Monitor will be collapsed around the turret base or whether we'll still have a chance. So we are starting to be very concerned which is the reason we are here today.

This is not a very easy picture to understand. I put it in just to let you know that we are applying some of the latest technology available. The Navy and some private corporations were very helpful last year in getting a new laser line-scanning device, one of the latest imaging devices, to make a pass over the Monitor, which is the lower image. The upper image was done in 1974 by the Navy. And by comparing these two images, we've been able to quantify some of the collapse of the Monitor and actually demonstrate how

serious the problem is and also help plot some of the things that might be solutions to the problem.

The plan that we've presented to you today tries to review all the major options that we thought might be viable under these circumstances from a no action option to just let nature take its course, as Captain Fields mentioned. However, continuing to regulate the access to the sanctuary and conduct research all the way through some time of stabilization which could be shoring it up with some type of mechanical supports or sandbags all the way through some type of limited recovery or even total recovery. So we have considered the whole gamut.

After looking at all the options and talking to a number of experts in ocean engineering an archaeology over quite a few years, actually, but summarizing it here lately, we think that the most likely option for success would be a compromise that would include a combination of two of these options. To first go in and do some type of stabilization to buy us some time. We know that we can do stabilization fairly quickly, and some of it can be done at relatively low cost which would help preserve parts of the Monitor for additional work later on.

Then following that, we could identify some of the more important parts of the Monitor: its propeller and unique engine, and of course, the most unique feature of all, its revolving gun turret which could then be recovered.

Just as a preliminary way of looking at this, and I'll go through this very quickly, but I wanted to give you an idea that we have progressed far beyond just looking at options. We have a preliminary plan that we think is fairly feasible. It is in six phases.

The first being to go in and doing what I'm calling "pre-shoring archaeology." In order to meet the section 106 requirements for significant historic sites, we would need to go in and do mapping in the areas that are most likely to be affected by the stabilization and recovery processes themselves. That could be done starting at any time that the assets are available.

Following that, the shoring activity, this is an attempt to do sort of a profile through the wreck. You can see that the wreck is raised well above the sea bottom, and so there is quite a bit of unsupported armored deck with tremendous amount of weight bearing down on this hull, and that is what is contributing to the catastrophic collapse. So some type of shoring activities seem to be the next most logical phase.

Following that it would be just a continual progression of removal of items that are going to collapse eventually anyhow and to remove them in such a fashion that we minimize any damage to both those components and to the rest of the hull.

We've already made an attempt with the help of the United States Navy to recover the Monitor's propeller. We were unsuccessful very much for the same reason that the Monitor sank in 1862. The weather didn't cooperate at all. But this would be the next phase of actual recovery.

Once those components were out of the way and the lower hull was exposed, removal of the engine could take place. The engine and many of the components in the engine compartment are very unique features to the Monitor as well.

That would leave us with one portion of the hull, also badly deteriorated, lying over the top of and blocking access to the turret. And we initially thought it would be too radical to think about actually cutting into these items and removing them to get access to the turret. People were trying to come up with ways to get the turret out from beneath the hull, but I think it has become very obvious to everyone now that these areas are the areas where we're seeing the most collapse. And entire section of about eight feet of the armor belt that was able to withstand point-blank cannon fire in the Civil War has completely disintegrated since I have been going out there starting in 1992. So it is collapsing anyway. We think it can be removed very carefully without damaging the rest of the hull or the turret. And so that is the suggestion at this point.

That brings us to stage five which is the recovery of the turret itself. They used to talk about the ''little cheese box on a raft'' which was one of the nicknames for the Monitor, but this ''little cheese box'' has eight inches of iron plating around it. It weighs over 110 tons even without the contents which is another 30 tons or so. It is 22 feet in diameter and 9 feet high. And so it is no small salvage operation in and of itself. But in our discussions with salvage experts, certainly it is doable especially with a progression like this.

Then there would be just the final resurvey of the area and an attempt to stabilize anything that was left unstable after all this activity took place.

This is a somewhat accelerated and compressed schedule of how we might go about it. Rather than really go too much on the scheduling, I'd just like to point out the components.

As you can see, development of a preliminary plan was our first step, and that is what we've completed as of today and presented. The next thing is to come up with a very detailed recovery plan that would include all the equipment and procedures and type of skills and assets that are needed to do something of that scale. And at the same time, I think most of you have been exposed to archaeological projects at some point, and the second thing that we always get hit with is the cost of preserving those materials that we've recovered. Objects that have been in salt water for a long time, especially metallic objects, require a lengthy and complicated chemical process of preservation. And so, a detailed plan would have to be developed for those components at the same time. Preliminary estimates that the total cost for those two phases would be in the neighborhood of $250,000.

Then we would get into the rest of the planning, the clearance through the section 106 review process for historical significance.

And along with all of this there is, of course, the matter of raising the funds for such a project. And NOAA has had several volunteer organizations already come forward—non-profit organizations who are concerned about the Monitor and who have offered assistance in trying to help us develop what we are calling a business plan in general generic terms for coming up with the funding through a variety of possible sources. We've had a long-term cooperative agreement with the Mariner's Museum in Newport News which is the principle museum for the artifacts from the Monitor and the archival material. The Mariner's Museum has stepped for-

ward and said that they would like to participate fully in this operation and to try and possibly be that non-governmental organization that led the charge to raise these additional funds for the conservation and public exhibit phase. Because, after all, our final reason for doing all of this is to preserve parts of the Monitor for people to be able to see and a museum like the Mariner's Museum or some similar facility certainly is essential to that.

The little small boxes that I won't try to define for you are my way of—shorthand way of trying to define some of the many steps of actual on-sight work that would be required both to prepare the site for the recovery and to actually conduct the recovery. And the recovery of the components is included in there, and the preliminary estimates that we were given by the Navy—they were developed at no cost to the government by a contractor—the estimates are $10 to $12 million for recovery and stabilization, and the conservation costs at another $10 million.

One of the reasons that conservation costs are so high is that there is no existing facility that can handle things the size of the Monitor's turret, so that would have to be developed. We do have a preliminary plan that I am very pleased with. I think it is feasible and is as practical and reasonable as anyone could hope for.

Anyone who has been off the Atlantic—I don't need to even tell you that one of our biggest problems is just the very conditions that sank the Monitor. They don't call the place the "Graveyard of the Atlantic" for nothing. Conditions out there are terrible. It is a deep-water site. The currents are strong and unpredictable. We have severe and very unpredictable weather. It is pretty far from shore, but worse than that, there is not a suitable shore base for heavy equipment and the type of equipment that we would need for some of these operations that is nearby. So we're dealing with all these.

These are just some photographs to show the level of collapse and deterioration in the Monitor. I won't even try to describe. But we're monitoring this, literally monitoring the Monitor on an annual basis with the help of a lot of private and governmental groups.

The preliminary estimates for just going in and doing the initial archaeology show that we need over 100 dives just to do the clearances, and so what we're doing there is trying to work a number of different ways, use as many suggestions—and we've gotten some very innovative suggestions from the ocean engineering community as to how we might combine resources and use different types of equipment to get these jobs done.

One of the first things that anybody thinks of when they think of deep-water salvage is of course our own United States Navy. They have been famous for their salvage work for years. They have well-trained people. They have the latest equipment. Some of the disadvantages that we've found in our work with the Navy so far is that it is very difficult for the archaeologist being on the surface to deal with being an archaeologist sitting on the boat while trained Navy divers are down there trying to do the work. But they are trained to do diving and not archaeology, so we're working out ways to communicate and coordinate those activities so that the

wreck is not actually damaged in the process of trying to preserve it. But the Navy has been very cooperative.

The other thing that has been suggested is that there is a whole new world now of remotely operated vehicles, and that we may be able to employ the dozen involved putting people in the water and putting lives at risk. We have a number of private diving groups that have developed some very impressive skills and many of these groups have offered assistance to us, and so this is another avenue that we're pursuing as partnership operations, combined operations with these groups.

This is just to show you some of the assets that the Navy has suggested might could be made available. Their NR1 research submersible is specifically allocated for research. Right in our own port of Norfolk, the Atlantic Fleet has the grasp and the grapple that are two of the finest submarine rescue and salvage ships available. Each of these vessels has the capability of lifting the Monitor's turret in one single lift. So they are very capable ships. And we also have both the CLT and Mena Salvage Dive Unit in Norfolk that have offered assistance as early as this coming year. We're also in contact with the various commercial diving operations and organizations who are also very interested and would like to try to help out in some way.

I've been asked, "Well, has anybody done anything like this before?" Well there have been really famous stories like the Vasa which was raised in the Stockholm harbor. It sank in 1628 and is almost beautifully and perfectly intact. The one more of us are probably familiar with is the Mary Rose which was raised in 1982 in Portsmouth, England.

Unfortunately, there have been some terrible failures. The Karo was another Civil War vessel that with all the best of intentions was almost totally destroyed for lack of proper planning and equipment being available. And recently, a lot of you probably followed the attempt to recover a portion of the Titanic last year which was raised within a few hundred feet of the surface. Everything broke loose. Everything went awry and the thing plummeted over two miles back to the bottom of the sea bed. We're trying to make sure that we don't repeat the bad mistakes.

Very quickly, just a picture of some of the equipment that was required to raise a part of the Mary Rose's hull. That was wooden ship that sank in 1545. It took this much equipment. So we're not talking about small, easy to do projects here with the Monitor.

So that gives you an idea of how far things have progressed and where we are headed with some of this thinking. We're not through yet, though. As we mentioned, one of the things that we desperately want to do is get as much input, as many ideas as possible. We're going to a very select panel of peer review people who have expertise in all of these different areas, and I think they will be able to assist us as we move to the next phase.

So thank you very much, and I'd be happy to answer any questions that there might be on the technology of the thing.

Mr. SAXTON. Well, Mr. Broadwater, thank you very much for a very interesting presentation.

I would like to call on the gentleman from Virginia at this point for any comments or questions he may have.

STATEMENT OF HON. HERBERT H. BATEMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. BATEMAN. Thank you, Mr. Chairman.

If I can be indulged, there is a great deal of nostalgia associated with being back in this room with you where the old Merchant Marine and Fisheries Committee used to meet. And I would have to say with some tinge of regret, but for the action of the House and the Rules Committee in 1995, I probably would be sitting where you are sitting as chairman of that Merchant Marine and Fisheries Committee if it still existed.

Having said that, I want to commend you, Mr. Chairman, for holding this hearing today and for allowing me to sit with the Subcommittee.

The Monitor is of obvious major historical significance of both its specific role in saving the Union fleet in Hampton Roads and its broader role in creating the era of ironclad naval warfare. In fact, if it had not come into existence and had not survived the conflict with the Confederate ship of the C.S.S. Virginia, I think it is fairly well to predict that the entire outcome of the Civil War might have been much different than it was. So it deserves protection for those reasons.

The Mariner's Museum where the sanctuary office is located is in the congressional district that I represent and in fact, is only a few blocks from my home. My district also includes the northern shore of Hampton Roads where the C.S.S. Virginia and the monitor had that famous battle.

NOAA also should want to protect it and preserve imported artifacts from it since it is the Nation's first national marine sanctuary. Unfortunately has spent its limited resources expanding the sanctuary system rather than taking care of the important aspects already under its control. I hope that the draft study on which I commend John Broadwater very highly shows a change in those attitudes toward the importance of the Monitor sanctuary.

The study is well thought out and clearly a great deal of time and effort have gone into it. The preferred alternative to recover and restore certain key artifacts and shore up the remaining structural elements of the wreck strikes an appropriate balance between preserving the site as a resting place of United States sailors who died in wartime and keeping alive the public memory and knowledge of the importance of the Monitor in American and in maritime history. The Federal Government allowed the C.S.S. Virginia to be destroyed for the price of its salvage value. I hope that in the intervening century we have learned to protect our historic resources better than that.

I wish NOAA well in its efforts to resolve the daunting technical and budget obstacles that lie before them, and I stand ready to cooperate in solving those problems.

Thank you, Mr. Chairman. And if I might, let me welcome you, John. It is nice to have you here and you made a very fine presentation.

Mr. BROADWATER. Thank you, sir. It is good to see you.

Mr. BATEMAN. You mentioned that there had been some very noticeable deterioration in the condition of the Monitor since it was

first discovered in 1974 and the latest observations. Is that something that is incremental or is it accelerating?

Mr. BROADWATER. We believe that it is accelerating. We have a difference because no one seems to be able to really get a handle on it. There are so many factors involved, but—the best analogy that I've been able to draw to deal with it in my own mind is that it is sort of like an old barn that used to stand near where I grew up and it always kind of leaned to one side, but it always still seemed solid and kids played in there, and our parents didn't want us there. And then one day the barn fell over. And why did it fall?

I think that what we've got here is a ship that has been deteriorating from natural causes for over a century. It is supported above the bottom with this situation with the turret. So so much of it is actually hanging above the bottom and these tremendous forces of all this armored deck is working on it. And I think that it has just reached the point of deterioration now where it can no longer support these forces and catastrophic collapse is the inevitable result. So it is very definitely accelerating. We never know what part will fall off next.

Mr. BATEMAN. So it makes it imperative that we proceed as expeditiously as our technology permits?

Mr. BROADWATER. Yes, sir. In my own job, I've tried to be very careful in even going to my line office and saying that we have a crisis here. But we've got so much evidence now that I can't call it anything else. I think that it is very, very serious.

Mr. BATEMAN. And the longer the wait, the higher the risk?

Mr. BROADWATER. Yes, sir.

Mr. BATEMAN. Mr. Chairman, I believe that is the extent of what I need to enquire of, and I wish you well as you go forward to see that the Monitor is preserved and taken care of in the best possible manner.

Mr. SAXTON. Mr. Bateman, thank you very much.

Mr. Farr?

Mr. FARR. Thank you very much, Mr. Chairman. And welcome to this Committee. I represent the modern-day national marine sanctuary. And from sanctuary to sanctuary, east to west, welcome.

I'm curious—you know, the entire sanctuary budgets for the entire Nation is $12 million. How—here you are sanctuary manager having to deal with limited funds and the project that you've proposed here really has a horrific bottom line. Is there other—I guess in the priority of things, I think that it is more important right now that our sanctuaries protect our natural resources. Last week in this very room we were talking about how we're having entire fisheries be destroyed and habitats be destroyed, and I guess it's a question of priorities. How do you as a sanctuary manager suggest that we as people that have to make these tough decisions as which of our "children" we're going to invest in and the others that we're not, how do you suggest that we do this? Maybe is the salvage operation with a commercial bent feasible? Almost a bounty? You know, wouldn't it be easier to maybe put out a sum of money, a reward and allow the private sector to go out and do the salvage operations?

Mr. BROADWATER. I understand what you are saying exactly, and certainly one of the frustrations of the program is seeing so many

of the needs and trying to fit that into our budget. Something like what you are suggesting is one of the things on the list to look into. But as far as the question itself, I defer to——

Captain FIELDS. Well I would just like to say that in looking at the problem with the Monitor, one of the things that has to happen is to do the proper archaeological work because of the preservation Act, since it is a historic monument. So you cannot necessarily just allow a salvager to go out without being able to address the preservation issues and the issues of making sure that you've got the proper archaeological information taken care of.

Mr. FARR. But if you only—I mean we have a limited budget. One thing is Congress in their cut, squeeze and trim attitude is that they would just ignore this. That is one of the options, to do nothing.

Captain FIELDS. Yes, I suppose so. I suppose that is one of the options, but you know, again, we're supposed to follow the statutes and we are obligated to take a look at it from the historical preservation as it is a historic landmark.

Mr. FARR. And the other—I don't disagree with you, but you have budget limitations in doing that, right?

Captain FIELDS. Yes, you do.

Mr. FARR. And I think that what you've presented here is that if we could do it all properly it is going to cost us about $20 million?

Captain FIELDS. Yes, that's true. And that is one of the reasons why we are looking at it from a standpoint of what is the best balance between all of the options available. And we're trying very hard to make sure that we take and objective and a balanced look at preservation——

Mr. SAXTON. Would the gentleman yield for just one question. Will the gentleman yield?

Captain——

Captain FIELDS. Yes.

Mr. SAXTON. I'm told by staff that you are looking at, or that there is a likelihood that there will be some private contributions made that will assist in this effort. Can you speak to that issue?

Captain FIELDS. Well, we are working with a number of private companies—not companies but private areas to try and buildupon some resources in order to address the issues. We have—we obviously work with the Mariner's Museum, and there will be hopefully several or at least one foundation that might be interested and has expressed interest in helping us raise the funds in order to do some of the work that is necessary.

Do you want to add anything?

Mr. BROADWATER. The only thing that I would—rather than touch on the actual policy side of things, if I could just get sort of the managerial point of view for more of a technical aspect. Being an archaeological but having enough background in engineering to really appreciate both sides of the problem, I have talked to commercial salvers about ideas. In fact several commercial salvage firms have come forward with ideas, and quite a few of these salvage firms have an archaeological interest and quite a sympathy for protecting the resource. And the one thing that we found that all of us agreed on is that the importance of the Monitor is plain

and simply its archaeological and historical significance. So anything that we did to further accelerate its destruction would be of no benefit to a salver or to the government. So if there were some way to work together so that the material that we're trying to preserve could be brought up in a commercial, government partnership there may be several really wonderful options there that we just haven't quite been able to come up with yet.

Mr. FARR. Well that's essentially the bent that I'm on. I think that we are with the sanctuaries—in the reauthorization of the sanctuaries, we put in the ability for you to market in logos and products essentially that are consistent with the sanctuaries. And the fees for those sales can be kept with the sanctuary. It seems to me that you've got a commercial opportunity here.

And then we ought to think boldly. I mean in our national parks, we give out concessionaires. We're bringing the private sector in more than we think, and we've never essentially looked at the sanctuaries and being able to in a sense commercialize in that sense. But I think that we ought to think of ways that we could do that. Not in conflict with our purpose which is essentially, as we advertise, that the sanctuaries are sort of the national parks of the oceans. And I'm convinced perhaps even our lifetime that we're going to figure out ways to get people into the ocean through vehicles. I think we're going to have rent-a-cars in the sea some day. And we ought to be thinking about that technology and how we're going to be able to take advantage of it.

So whether you put bounties on this stuff, or whether you think of a concessionaire or come up with another way—I think that this Committee would be challenged because what we're trying to do is in an era of limited budgets is think of new ways in which we can have our public/private partnership that will in the end—enhance—what we've envisioned in creating sanctuaries.

Mr. SAXTON. Thank you, Mr. Farr and Mr. Bateman. And Captain Fields and Mr. Broadwater and Ms. Thorton thank you for being with us. We appreciate it very much. You certainly have a challenge on your hands, and we share that challenge with you. Thank you for being here.

The Committee is adjourned.

[Whereupon, at 11:50 a.m., the Subcommittee adjourned subject to the call of the Chair.]

[Additional material submitted for the record follows.]

STATEMENT OF CAPTAIN EVELYN FIELDS, ACTING DEPUTY ASSISTANT ADMINISTRATOR, NATIONAL OCEAN SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. Chairman and Members of the Subcommittee:

I am Captain Evelyn Fields, Acting Deputy Assistant Administrator of the National Ocean Service of the National Oceanic and Atmospheric Administration (NOAA). It is an honor and a pleasure for me to appear before you at today's oversight hearing regarding the comprehensive preservation plan for the management, stabilization, preservation and recovery of artifacts and materials of the USS Monitor. NOAA is honored to have been given the responsibility for the long-term stewardship of this most famous vessel.

The Monitor may well be the most significant shipwreck in U.S. history. Many of her innovations, especially her revolving gun turret, brought about an international revolution in naval technology still evident in modern warships. Today, however, the Monitor is rapidly losing her sustained battle against the ravages of the sea. Lying in 230 feet of water, 16 miles off Cape Hatteras, North Carolina, the Monitor's hull is suffering devastating deterioration which, if not checked, will result in her total disintegration within the next few years.

Located by scientists in 1973, the Monitor is listed on the National Register of Historic Places and is a National Historic Landmark. In 1975, in recognition of the Monitor's unique historical and archaeological significance, Congress designated the remains of the Monitor as the first National Marine Sanctuary. In its 22-year stewardship of the Monitor National Marine Sanctuary, NOAA has employed sound management practices and state-of-the-art technology to investigate the wreck. Through NOAA's efforts, public interest and understanding of the Monitor has been enhanced and the need for continued preservation of this unique resource has been emphasized. However, despite NOAA's stewardship, research, and observation activities over that time, rapid deterioration of the Monitor is taking place and NOAA is now facing a critical decision-making period which will determine whether the archaeological integrity of the Monitor suffers irreversible damage.

The Challenge: The Rapid Disintegration of the Monitor

Recent on-site research conducted by NOAA and private researchers has determined that the collapse of the Monitor's hull is imminent. Photographic evidence clearly shows that there has been a marked increase in the rate of hull deterioration during the past five years. Accelerated deterioration apparently results from several factors: continual exposure to a high-current, saltwater environment; corrosion and electrochemical action; shipworms; and even human causes. There is a general consensus that the Monitor's hull has reached a critical state of decomposition beyond which catastrophic collapse could occur at any time.

NOAA's Response to the Challenge

In 1992, responding to the alarming degradation of the Monitor's hull, NOAA delayed issuance of a newly-revised management plan for the Sanctuary in order to conduct further site assessment. NOAA's Sanctuaries and Reserves Division (SRD) commenced a broad range of initiatives including: several diving and remote-sensing expeditions to the Sanctuary; a cooperative effort with the U.S. Navy to help stabilize the Monitor's hull; and, development of a revised plan for preservation and management.

In 1993 and 1995, NOAA conducted major engineering and archaeological expeditions to the Sanctuary in conjunction with further archival research and several small-scale site operations. Private research divers have also assisted NOAA in this data-gathering. This research concluded that a concerted, well-planned effort would be required to preserve the remains of the Monitor, and that time was of the essence.

Due to the national importance of the Monitor and limited NOAA resources, SRD developed partnerships with several private and other governmental organizations, including the U.S. Navy, NOAA's National Undersea Research Program (NURP), The Mariners Museum in Newport News, VA, Raytheon Corporation, Northrop Grumman Oceanic Systems, Key West Diver, Inc. and others.

Congressional Mandate for a Comprehensive Preservation Plan

In 1996, Congress formally expressed its concern regarding the rapid deterioration of the Monitor's hull. As part of its 1996 reauthorization of the National Marine Sanctuaries Act, Congress directed the Secretary of Commerce to produce "a long-range, comprehensive plan for the management, stabilization, preservation, and recovery of artifacts and materials of the U.S.S. MONITOR." (Section 4 of Public Law 104-283). The Secretary was also directed that "to the extent feasible utilize the re-

sources of other Federal and private entities with expertise and capabilities that are helpful." The scope and timetable for this plan was very ambitious.

Despite not receiving additional resources with which to address the many complexities inherent in any comprehensive marine archaeological preservation plan, and while recognizing that NOAA lacks the in-house expertise to thoroughly develop all aspects of the plan as specified by Congress, such as the specialized engineering skills required for deep sea recovery operations, NOAA has overcome those limitations by working with other Federal agencies and private entities to produce a draft plan which NOAA believes will provide the framework necessary to face and resolve the crisis.

Overview of the Comprehensive Preservation Plan

I am pleased to submit with this testimony a copy of the draft plan, entitled, "Charting a New Course for the Monitor." Accompanying the draft plan is a compendium of supplementary data including ocean engineering, conservation, previous NOAA research, history and other relevant topics. In the draft plan, NOAA presents a comprehensive management strategy that, if implemented, should ensure that the Monitor will be preserved and protected for future generations.

This draft comprehensive plan reflects the latest data from the Sanctuary as well as potential solutions made viable by recent technological advances. The deep water and hostile environment at the Sanctuary pose unique challenges for protection, management and research. The draft comprehensive plan develops a framework for protection, identifies a range of viable options for the stabilization and preservation of the Monitor, and evaluates those options, based upon the best available historical, archaeological and engineering information.

Major components of the draft plan include: a detailed description of the Monitor's hull and recent deterioration; a wide range of possible preservation options; evaluations of each option; and recommendations for future planning and preservation. The plan necessarily concentrates on the preservation options as they address the most immediate decision to arrest the Monitor's rapid deterioration, as well as being the most complex and resource intensive section of the plan. The preservation options described and reviewed in the plan are:

1. *Non-Intervention*—no preservation action is undertaken and nature is allowed to take its course;
2. *In Situ Preservation by Encapsulation*—the Monitor is buried to significantly reduce deterioration;
3. *In Situ Preservation by Shoring*—sections of the hull in greatest danger of imminent collapse are given structure support;
4. *In Situ Preservation by Cathodic Protection*—technology used to protect vessels today from the sea's corrosive action is used to somewhat slow the Monitor's deterioration;
5. *Selective Recovery of Artifacts and Hull Components*—artifacts and major hull components of significance that can be recovered with reasonable efforts and are threatened with disintegration are recovered;
6. *Selective Recovery Followed by Encapsulation*—a combination of above options;
7. *Selective Recovery Combined With Shoring*—another combination of above options; and
8. *Full Recovery*—the Monitor is recovered in toto.

A final decision on which option or options are selected for preservation of the Monitor will involve considerations of technological feasibility, probability of, success, review under the National Historic Preservation Act section 106 process and other applicable law, consistency with the Division's Strategic Plan and Sanctuary Management Plan, and available funding and support. NOAA is confident that this preliminary plan contains the necessary information for decision-making and for moving to the next phase of planning and preservation.

Next Steps in Completing the Plan

NOAA has determined that the draft should be peer reviewed by outside experts before a final plan is released because of the Monitor's extreme historic significance and the importance of determining the best option for preserving the ship's remains. The draft plan will be distributed for review to a select group of marine archaeologists and engineers. Their comments will be carefully reviewed and, if necessary, the draft plan will be revised to incorporate appropriate comments and suggestions. NOAA will pursue the following schedule for submittal of the final plan:

- November 15, 1997: A notice of availability of draft plan will be submitted for publication in the Federal Register for a 45-day public comment period;

- January 30, 1998: The Final Plan will be submitted to the President's Office of Management and Budget for review; and,
- April 30, 1998 (Target date): The Final Monitor Comprehensive Preservation Plan will be submitted to Congress.

Critical Steps in Implementing the Plan

Time is of the essence if the Monitor is to be preserved without significant damage to its archaeological integrity. The loss of even one summer work season might well mean the collapse of the Monitor's hull. The schedule proposed by the draft plan is extremely compressed and can only be met if several key objectives are met simultaneously. It is important to note that several essential objectives require assets that are currently beyond NOAA's capabilities, as described below.

1. Essential objectives that can be met through NOAA assets and partnerships during FY 98 (Completion of these objectives are pending passage of the FY 98 funding appropriation.):

- A "business plan" must be developed and implemented early in FY 98, in cooperation with one or more non-governmental organizations, for identifying and raising the necessary funds for recovery and conservation;
- Formal plans for stabilization/recovery, archaeology, conservation and exhibition must be developed in FY 98;
- The final plans must be submitted for review under National Historic Preservation Act section 106 and other applicable law in FY 98;
- On-site archaeological survey, mapping and recovery must be initiated during FY 98 as a first step in preparing the site for stabilization and recovery activities.

2. Essential objectives that require additional assets and/or partnerships during FY 98 and beyond:

- Mandatory on-site archaeological survey and artifact recovery activities must, by law, precede engineering and stabilization efforts; they will require exceedingly time-consuming and expensive efforts due to the extreme depth and adverse weather conditions. These archaeological activities could be accomplished by diving teams that included persons relatively unskilled in archaeology, so long as they were constantly supervised by professional archaeologists; other tasks, such as photographic documentation and mapping, might be accomplished by remotely-operated vehicles (ROVs), also under archaeological supervision. Several possible solutions to this dilemma exist, but all are currently stalled or seriously hampered:
- The U.S. Navy has offered limited assistance on a variety of important tasks, but in most cases on a reimbursable basis; even if the costs are at a reduced rate, they exceed the limited funds available to NOAA. It would be extremely helpful if Navy assets such as dive teams, ROVs and remote- sensing equipment, could be utilized for the Monitor at no cost to NOAA, possibly in the same manner that the Navy's research submersible NR-1 participated in a private archaeological survey during 1997 under the direction of oceanographer Robert Ballard.
- The U.S. Navy has also offered limited diving assistance, but both NOAA and Navy procedures governing dive certification hamper combined dive operations. NOAA is working to resolve this issue through cross-certification of personnel.
- The U.S. Navy also has access to equipment that might assist in reducing the need for placing divers on the site, including some of the state-of-the-art ROVs and submersibles that might be able to accomplish some archaeological and engineering tasks as well as survey and mapping.
- NOAA has also sought and received able assistance from other governmental agencies, including those within the Department of Commerce, who might be able to render further support, including the National Undersea Research Program, NOAA Corps Operations, the U.S. Army Reserve and the Smithsonian Institution; however, most of that support has also been provided on a cost-reimbursable basis.
- The private sector has also offered to assist. On past expeditions, NOAA has received extremely useful and skilled assistance from such private entities as research institutions, including the Harbor Branch Oceanographic Institution and The Mariners' Museum; private corporations, including Newport News Shipbuilding, Northrop Grumman Oceanic Systems, Raytheon Corporation, Reynolds Metals Corporation, and the Westinghouse Corporation; and private diving organizations including Farb Monitor Expeditions and The Cambrian Foundation. The latter two groups have requested to organize joint research dive expeditions with NOAA to the Monitor.

Conclusion

Mr. Chairman, in conclusion let me say that NOAA appreciates this opportunity to report to you on the status of the draft comprehensive plan for preservation of the Monitor and will keep you and the Committee apprised of the plan's progress. We look forward to working with you and the Committee to help implement the critical recommendations identified by the final report.