

# THE HYDROGRAPHIC SERVICES IMPROVEMENT ACT OF 1998

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## OVERSIGHT HEARING

BEFORE THE  
SUBCOMMITTEE ON FISHERIES CONSERVATION,  
WILDLIFE AND OCEANS  
OF THE

COMMITTEE ON RESOURCES  
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

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**OVERSIGHT HEARING ON THE HYDRO-  
GRAPHIC SERVICES IMPROVEMENT ACT OF  
1998, AND OTHER NATIONAL OCEAN  
SERVICE PROGRAMS**

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**Thursday, September 13, 2001  
U.S. House of Representatives  
Subcommittee on Fisheries Conservation, Wildlife and Oceans  
Committee on Resources  
Washington, DC**

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The Subcommittee met, pursuant to call, at 10 a.m., in Room 1324, Longworth House Office Building, Hon. Wayne T. Gilchrest [Chairman of the Subcommittee] presiding.

**STATEMENT OF THE HONORABLE WAYNE GILCHREST, A  
MEMBER OF CONGRESS FROM THE STATE OF MARYLAND**

Mr. GILCHREST. The hearing will come to order. I thank you for your indulgence and your patience, the witnesses and those attending the hearing and Mr. Underwood and his staff and my staff.

Today the Subcommittee will be hearing testimony on the reauthorization of the Hydrographic Services Improvement Act of 1998.

As the former Chairman of the Coast Guard Subcommittee, I am particularly interested in hearing about NOAA's updated navigation program and how it fits into the broader transportation, marine transportation system initiative. Congress enacted the Hydrographic Services Improvement Act to help provide the National Oceanic and Atmospheric Administration with a framework for the modernization of the United States nautical charting, tide and current and geodetic programs.

Since the Act became law, significant progress has been made modernizing those programs largely through Congressional additions to NOAA's budget request. Despite the progress that has been made, much work remains to be done, and it is of great concern to the Subcommittee that NOAA has still not been able to put together a long term for maintaining its hydrographic expertise.

The agency was taxed to prepare such a plan in 1998. Nearly 2 years after the statutory deadline has passed and after repeated assurances from the agency that the plan was nearly complete, the agency submitted a list of potential options rather than a plan that chose between options. The Subcommittee had long been aware of potential options and a further recitation of those options was not productive or helpful.

I look forward to NOAA to ultimately produce an acceptable long-range plan. 98 percent of the cargo in the United States international trade moves by water. Without up-to-date navigation services, the trade is neither safe nor as effective as it could be. Therefore I look forward to hearing our witnesses explain this morning what improvements are needed to that navigation services, and how to achieve those improvements.

In light of the events over the last couple of days, we were debating whether or not to continue this hearing. But we felt as many do here, that we as the Congress and the government need to continue to pursue the great ocean of work that keeps this company secure, vital, functioning and operating. We also feel that this particular hearing and this particular issue is also vital to the Nation's interests and the Nation's security. But I also know all of you here feel, under the circumstances, a great, sometimes incomprehensible sadness, a sense of powerful resolve and a sense that America, in its relationship with the rest of the world, has come to a new beginning. It's more than Pearl Harbor. It is more than a civil war. This is a completely new era that now we must take responsibility for, be competent, intelligent, calm, systematic, because what we do now will be of tremendous impact to the next generation, for them, instead of picking up pieces, to be ready to accept the torch from one generation to the next.

So as we move through this hearing and the coming days, we will stick together, be patient, clear-headed, intelligent to work with the international community. And it is my understanding that if we do that, and responsible adults across this entire globe, we can, in fact, rid the world of this terrible scourge.

[The prepared statement of Mr. Gilchrest follows:]

**Statement of the Honorable Wayne T. Gilchrest, Chairman, Subcommittee on Fisheries Conservation, Wildlife and Oceans**

Today the Subcommittee will be hearing testimony on the reauthorization of the Hydrographic Services Improvement Act of 1998. As the former Chairman of the Coast Guard Subcommittee, I am particularly interested in hearing about how NOAA's updated navigation services program fits into the broader Marine Transportation System initiative.

Congress enacted the Hydrographic Services Improvement Act to help provide the National Oceanic and Atmospheric Administration (NOAA) with a framework for the modernization of the United States nautical charting, tide and current and geodetic programs. Since the Act became law, significant progress has been made modernizing those programs largely through Congressional additions to NOAA's budget request.

Despite the progress that has been made, much work remains to be done, and it is of great concern to the Subcommittee that NOAA has still not been able to put together a long term plan for maintaining its hydrographic expertise. The agency was tasked to prepare such a plan in the 1998 Act. Nearly two years after the statutory deadline had passed, and after repeated assurances from the agency that plan was nearly complete, the agency submitted a list of potential options rather than a plan that chose between options. The Subcommittee had long been aware of the potential options and a further recitation of those options was not productive or helpful. I look forward to NOAA ultimately producing an acceptable long range plan.

Ninety-eight percent of the cargo in the United States international trade moves by water. Without up-to-date navigation services, that trade is neither as safe nor as effective as it could be. Therefore, I look forward to hearing our witnesses explain this morning, what improvements are still needed to the our navigation services programs, and how to achieve those improvements.

Mr. GILCHREST. I now would like to yield to the gentleman from Guam, Mr. Underwood.

**STATEMENT OF THE HONORABLE ROBERT UNDERWOOD, A  
DELEGATE TO CONGRESS FROM GUAM**

Mr. UNDERWOOD. Thank you, Mr. Chairman. And of course, I fully endorse the remarks you have just made about the current situation that we are now confronted with as a Nation. Yet, and as we are mindful of the situation that we are in and as we carve out our national project on how to deal with this condition, one of the ways that we defeat terrorism and the effects of their activities is to get back to normal as quickly as possible.

And so it is important that we have this hearing and that we continue to address issues that are significant to our lives as quickly and as normally as possible. And so I thank you for holding this hearing at this time. Thank you, Mr. Chairman.

And the National Oceanic and Atmospheric Administration has few roles more important than the one we are here to discuss today. Hydrographic surveying is an essential element of waterborne trade. The National Ocean Service, part of NOAA and predecessor, the Coast Survey, have had responsibility for maintaining hydrographic data since 1807, that is, since practically the founding of the republic. Hydrographic surveying has been recognized as an integral part of the duties of government and is one of the oldest government functions.

As we all know, ships are not cheap to operate. Hydrographic data is not cheap to gather, nor is it simple to process this data and create usable accurate nautical charts. But this is what NOAA is statutorily required to do, and it is Congress's job to support NOAA and provide it with the resources to fulfill its hydrographic obligations. NOAA must maintain an in-house hydrographic capability and the expertise necessary to carry out this mandate. I can sympathize with the quandary NOAA finds itself in, a huge backlog of ocean areas that need to be surveyed and a limited budget.

Long-term planning by NOAA is also hindered by the uncertainty of future appropriations. But I have to ask the question, why has NOAA not asked for more money for ship surveying operations, either in-house or otherwise? NOAA has requested just over \$20 million for these activities in fiscal year 2002. Yet according to the Marine Navigation Safety Coalition, NOAA should be requesting closer to \$80 million to address the surveying backlog and various other related projects, nearly four times the amount requested by NOAA.

A balance must be reached, and as I am sure that we will hear today between NOAA's in-house capabilities and private survey capabilities, the need to rapidly address the most pressing survey data deficiencies must be balanced with the need to produce and provide the most accurate data and hydrographic products possible. I was very glad to see the report that NOAA finally produced on maintaining Federal expertise and capability in hydrography. Within the report, several options are given as to how NOAA can fulfill its mandate in the future. No one option was selected as the final answer to all hydrographic surveying problems. But a general plan of action was given in the conclusion. I am very interested in

carrying on a discussion on how this general plan will be turned into specifics so that our surveying backlog can be addressed and remedied through the most thorough and efficient methods possible.

Thank you, again, Mr. Chairman, for holding this hearing on an issue so critical to safe marine commerce and transportation and to the economic and social well-being of millions of Americans. Thank you.

[The prepared statement of Mr. Underwood follows:]

**Statement of the Honorable Robert Underwood, A Delegate to Congress  
from Guam**

Thank you, Mr. Chairman. The National Oceanic and Atmospheric Administration has few roles more important than the one we are here to discuss today. Hydrographic surveying is an essential element of waterborne trade. The National Ocean Service, part of NOAA, and its predecessor, the Coast Survey, have had responsibility for maintaining hydrographic data since 1807. That is, since practically the founding of this nation, hydrographic surveying has been recognized as an integral part of the duties of the government, and is one of the oldest government functions.

As we all know, ships are not cheap to operate. Hydrographic data is not cheap to gather; nor is it simple to process this data and create useable, accurate nautical charts. But this is what NOAA is statutorily required to do, and it is Congress's job to support NOAA and provide it with the resources to fulfill its hydrographic obligations. NOAA must maintain an in-house hydrographic capability and the expertise necessary to carry out this mandate.

I can sympathize with the quandary NOAA finds itself in - a huge backlog of ocean areas that need to be surveyed and a limited budget. Long-term planning by NOAA is also hindered by the uncertainty of future appropriations. But I have to ask the question: Why has NOAA not asked for more money for ship surveying operations, either in-house or otherwise? NOAA has requested just over \$20 million for these activities in Fiscal Year 2002. Yet according to the Marine Navigation Safety Coalition, NOAA should be requesting closer to \$80 million to address the surveying backlog and various other related projects - 4 times the amount requested by NOAA.

A balance must be reached, as I am sure we will hear today, between NOAA's in-house abilities and private survey capabilities. The need to rapidly address the most pressing survey data deficiencies must be balanced with the need to produce and provide the most accurate data and hydrographic products possible.

I was very glad to see the report that NOAA finally produced on "Maintaining Federal Expertise and Capability in Hydrography." Within the report several options are given as to how NOAA can fulfill its mandate in the future. No one option was chosen as the final answer to all the hydrographic surveying problems, but a general plan of action was given in the conclusion. I am very interested in carrying on a discussion on how this general plan will be turned into specifics so that our surveying backlog can be addressed and remedied through the most thorough and efficient methods possible.

Thank you again, Mr. Chairman, for holding this hearing on an issue so critical to safe marine commerce and transportation, and to the economic and social well-being of millions of Americans.

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Mr. GILCHREST. Thank you, Mr. Underwood.

Mr. GILCHREST. I understand, Mr. High, you have to leave fairly soon.

Mr. HIGH. Yes, sir.

Mr. GILCHREST. So you may go first, sir.

**STATEMENT OF JEFF HIGH, DIRECTOR, WATERWAYS  
MANAGEMENT, UNITED STATES COAST GUARD**

Mr. HIGH. Thank you, Mr. Chairman, for the opportunity, Mr. Underwood, for the opportunity to speak here on NOAA's Hydrographic Services program and how it fits into the MTS, the Marine



Transportation System, and to let you know how NOAA's services are important to the Coast Guard and the Nation.

First, Mr. Chairman, I was with Admiral Loy this morning dealing with the terrorist incident issues and he sends his regards and his regrets that he couldn't be here personally. I also want to thank you for your leadership in recognizing the importance of the MTS, and of course, I am referring specifically to the first hearing on MTS, I believe, in Congress that you held as the Chairman of the Coast Guard Subcommittee about 3 years ago. And of course it was your Committee that directed the Secretary of Transportation to establish a task force to assess the adequacy of our MTS. And that resulted in the report to Congress of September 1999.

Mr. Chairman, I would like to submit my written testimony for the record, if I may. But I would like to just highlight a couple of points. First, on NOAA as a service provider, as an interagency partner and as a steward of the environment. And I would like to frame those in the context of the Marine Transportation System. The Coast Guard and NOAA have enjoyed a longstanding partnership that includes the exchange of navigation and environmental information and services. NOAA's navigation products have always been essential to the execution of Coast Guard missions, such as search and rescue and oil spill recovery. We also share the critically important goal of navigation safety. Safe navigation mitigates the loss of life and property and promotes a cleaner environment. It also supports the uninterrupted transport by water of the consumer goods that the Americans use in their daily life.

As I know Mr. Gudes will say, because I read his testimony the demand for commercial use of our ports and waterways continues to grow, fueled by increases in world trade. Competition between commercial and recreational users for water space is also increased. The types of vessels that call on our ports are changing. We are seeing larger freight ships. We are seeing higher speed ferries, as well as high speed personal watercraft. All of these changes are challenges to the safe and efficient flow of marine traffic. Mr. Chairman, today's mariners and the time sensitive operating practices of modern shipping require timely and accurate information from and about the operating environment. Meeting these demands requires precision navigation services and system, reliable hydrographic surveys and real time information on weather, water levels and maneuvering clearances, all services that NOAA provides under the Hydrographic Services Improvement Act.

The Coast Guard is a direct partner with NOAA in the production and delivery of safe navigation. I would like to just mention a couple of activities. Since the earliest days of the Republic, buoys and lighthouses have contributed to the safety of navigation. Although sophisticated electronic navigation systems have been introduced in recent years, physical aids remain critical to managing transit risk. The Coast Guard must continue to deliver this important service. I mean, we must continue to partner with NOAA to provide it at the highest levels of quality and reliability. Hydrographic survey data is linked, and with our aid, to navigation data on navigation charts. Both data sets are essential to safe navigation.

The Coast Guard and NOAA are also part of an interagency Committee that is managing the evolution of electronic navigation technology. Electronic navigational chart, ENC-based systems, can improve safety in waterways because they present mariners with real time information. The Coast Guard and NOAA have entered into a formal agreement to support production of ENCs. The sooner we update the electronic navigational charts and they can be delivered, the sooner we will benefit from the safety advantage that they bring.

The Coast Guard agrees that NOAA needs to accelerate the production of electronic navigational charts and needs the resources to do so. Automatic identification systems is a new tool that has tremendous possibilities for managing risk. A vessel's AIS consist of a transponder that continuously broadcasts pertinent navigational data, including vessel documentation, position, course speed and cargo type. AIS is dependent on the availability of precise navigation systems that accurately depict the ship's operating environment.

AIS can also deliver highly accurate information from other sources such as the weather and hydrographic information provided by NOAA's PORTS system. The Coast Guard and NOAA have continued to cooperate on the installation and operation of PORTS in some of our Nation's busiest waterways. Mariner reliance on the system is increasing. The Coast Guard strongly supports the expansion of the system and NOAA's continued roll in the quality control oversight.

In summary, Mr. Chairman the Marine Transportation System provides a structure for all MTS users and stakeholders to work together. The Coast Guard believes that we have no better partner in the MTS effort than NOAA. NOAA is fully engaged in forward thinking, has the best interest of the mariners and the environment in mind at all times, and is a tremendous team player.

You, sir and the American public should be proud of the way NOAA provides its many valuable services to the Nation. The Coast Guard, of course, also has a very significant role in insuring port safety and efficient marine transportation. But we know that our ability to meet our responsibilities is highly dependent upon the ability of our Federal partners, and in particular, NOAA, to accomplish their mission.

Thank you, Mr. Chairman, for the opportunity to discuss this important issue today and I will be happy to answer questions.

[The prepared statement of Mr. High follows:]

**Statement of Jeffrey P. High, Director of Waterways Management, U.S. Coast Guard**

Thank you, Mr. Chairman and distinguished members of the Subcommittee for the opportunity to appear before you today to testify on how NOAA's hydrographic services program fits into the larger Marine Transportation System initiative and let you know how important modernization of the Federal government's navigation services program is to the Coast Guard and to the nation.

I also want to thank you, Mr. Chairman, for your continuing leadership in recognizing the importance of the Marine Transportation System not only today, but in earlier hearings you held. We also appreciate your role in directing the Secretary of Transportation to establish a Task Force to assess the adequacy of the nation's marine transportation system to operate in a safe, efficient, secure, and environmentally responsible manner. This mandate, which was part of the Coast Guard Authorization Act for fiscal year 1998, resulted in the September 1999 Report to Con-

gress An Assessment of the U.S. Marine Transportation System, which Mr. Gudes mentioned in his remarks.

The Marine Transportation System Initiative is the basis for many interagency efforts. This is particularly evident in the Coast Guard's working relationship with NOAA. The Coast Guard's long established partnership with NOAA includes the exchange of navigation and environmental information and services that are used every day in the marine industry and in the course of Coast Guard operations. NOAA's navigation products have always been essential to the execution of Coast Guard missions such as search and rescue and oil spill recovery. Of critical importance to the Coast Guard is our mutual goal of navigation safety for boating and commercial shipping, a goal that is also shared by the marine industry, marine transportation system stakeholders, and other Federal and State government agencies who use, or share responsibility for some aspect of the marine transportation system. Safer navigation not only mitigates the loss of life and property and promotes a cleaner environment, but also supports the uninterrupted transport by water of the consumer goods that Americans use in their daily lives.

The demand for commercial use of our ports and waterways continues to grow, fueled by increases in world trade and domestic use of the waterways to transport goods and people. Competition between commercial and recreational users for water space is also increasing. The types of vessels that call on our ports are changing. We are seeing larger freight ships and higher speed ferries, and high-speed personal watercraft that swell the recreational boating population. Increased use, coupled with increased speed and size, narrows the acceptable risk margin associated with marine transportation.

What are the gaps and how should we close them? Professional mariners require timely and accurate information about their operating environment. The time-sensitive operating practices of modern shipping require unrestricted access to the waterway and confidence in the channel dimensions and the depiction of those dimensions. Meeting these demands requires precision navigation services and systems, reliable hydrographic surveys, and real time information on weather, water levels, and maneuvering clearances, all services that NOAA provides under the Hydrographic Services Improvement Act. These services are critical to achieving the vision of a U.S. Marine Transportation System that will be the world's most technologically advanced, safe, secure, efficient, effective, accessible, globally competitive, dynamic and environmentally responsible system for moving goods and people.

The tools we use to do our business have changed. Safety initiatives now involve information systems and position fixing systems to display cartographic, navigational, and environmental information in near real time. Navigational charts are dynamic, and require frequent updating in response to shoaling, dredging, construction and the related changes to buoys and other aids to navigation. The Coast Guard, NOAA, National Imagery and Mapping Agency and the U.S. Army Corps of Engineers each have data critical to the safety of navigation. The Coast Guard is a direct partner with NOAA in the production and delivery of navigation products. Some of these activities include:

- Since the earliest days of the Republic, buoys and lighthouses have contributed to the safety of navigation. Although sophisticated electronic navigation systems have been introduced in recent years, physical aids remain critical to managing transit risk. The Coast Guard must continue to deliver this important service, and we must provide it at the highest levels of quality and reliability. We must also continue to cooperate with our colleagues at NOAA and the National Ocean Service to ensure that information on our constellation of short range aids to navigation is accurately presented to the mariner. Hydrographic survey data is linked with aids to navigation data on navigation charts. Both data sets are essential to safe navigation. An interagency information technology solution is needed to ensure the seamless exchange and management of the data required to produce navigation information products. The Coast Guard and NOAA are part of an interagency committee that is managing the evolution of electronic navigation technology. Several work groups are looking specifically at the digital data exchange question. Resolving electronic chart data issues in an important joint project that has international and industry implications.
- Technology has been used to reduce the staffing of vessels to make marine transportation economically feasible for a wide range of industry practices - including ferry and cargo operations. Electronic Navigational Chart (ENC) data is the core element of a modern integrated navigation information system. ENC based systems can improve safety in waterways because they present mariners with real-time information quickly and with minimal effort. An accurate, timely position based on Differential Global Positioning System (GPS) information, when presented on an electronic chart, provides mariners with the positioning

accuracy they need to support navigation decisions. The Coast Guard and NOAA have entered into a formal agreement with respect to data sharing to support production of ENC's. The faster updated electronic navigational charts can be delivered to the mariner, the faster we can benefit from the safety advantage they bring. The Coast Guard agrees with NOAA that we need to accelerate the production of electronic navigation charts and will continue to work closely with them to speed this delivery.

- Automatic Identification Systems (AIS) is a new communication tool that has tremendous possibilities for managing risks associated with marine transportation. A vessel's AIS consists of a transponder that continuously broadcasts pertinent navigation data, including vessel identification, position, course, speed, and cargo type. However, AIS is dependent on the availability of precise navigation systems that accurately depict the ship's operating environment. Continued support of the Differential GPS network and the rapid delivery of accurate electronic navigational charts are essential to the success of AIS.
- AIS can also deliver highly accurate information from many sources, such as the weather and hydrographic information provided by NOAA's Physical Oceanographic Real Time System (PORTS). The Coast Guard and NOAA have continued to cooperate on the installation and operation of PORTS in some of our nation's busiest waterways. Mariner reliance on the system is increasing. The Coast Guard strongly supports the expansion of the system and NOAA's quality control oversight of PORTS.

#### *Summary*

The Marine Transportation System Initiative provides a structure for all MTS users and stakeholders to work together to ensure that the system will be safe, secure, efficient, and environmentally responsible for the full range of users in light of the projected increase in demand. Initiatives that contribute to port and marine transportation safety are in the national interest and the services that NOAA provides are critical. The Coast Guard is committed to ensuring that vessel traffic will continue to move on the Nation's waterways safely and efficiently, including the Great Lakes–St. Lawrence Seaway in coordination with the Saint Lawrence Seaway Development Corporation. Modernization of the Federal government's navigation service program, in particular NOAA's navigation products is essential to meeting that objective. Although the Coast Guard has a significant role in ensuring port safety and efficient marine transportation, our ability to meet these responsibilities is dependent upon the ability of our Federal partners to accomplish their missions.

Thank you for the opportunity to discuss this important issue today. I will be happy to answer any questions you may have.

Mr. GILCHREST. And I think we will probably go to questions to you now, Mr. High. Would you say that the hydrographic services we now have in our present Marine Transportation System are adequate?

Mr. HIGH. No, sir. I believe that there is room for improvement. I think that we have databases on charting that need to be updated. I think we can do more on the way of electronic charts that we are working on. I think we can improve our situation tremendously. There is lots of technology that is available to us. We are working toward that end, but I would say that we can make some improvement, sir.

Mr. GILCHREST. Of the options that NOAA has proposed, does the Coast Guard have any one of those options, in particular, that they feel would be the best likely way to proceed?

Mr. HIGH. I'm not sure how to answer that question, sir. I think we need a package of information. We need better data for our ports, things that have been not updated for 50 years. We need to know what is there. We really like the PORTS system, the Physical Oceanographic Real Time System. And we can see that tying into our AIS. The mariners are calling for that kind of thing. Electronic charts are very important to us. For our AIS technology we need to rely upon electronic charts.

So I would say we need the whole package, sir. I would leave it to NOAA and your thinking on what the priorities might be.

Mr. GILCHREST. Mr. High, you said that you have long been in the partnership with NOAA. Could you explain the aspect of that partnership that deals with Hydrographic Services, and do you work closely with NOAA, and have you, in the last several years, as we are, trying to make improvements in this area of marine transportation?

Mr. HIGH. Well, sir, I—let me say that I am not the personal expert on that answer, so I can get you something for the record if you would like. But my understanding is that we have been working with NOAA for many years. I mean, we are—our history goes back as far as NOAA does. We have been working most recently closely on electronic charting. Our Hydrographic Services issues our PORT system under keel clearance data. We are interested in all of the services on tides and depth of channels that provide to ourselves and the Corps of Engineers. And I guess I probably best give you a better answer for the record, if I may.

Mr. GILCHREST. One last question, Mr. High. In your opinion, the state of the Hydrographic Services that we now have fall somewhat short of what the Coast Guard's perspective would be, to meet what you would like to see.

Now, do you mean that we have available technology that we haven't incorporated into the process? We need to—by that I mean, is it the Coast Guard's perspective that we do have available technology, but it has not been implemented for whatever reason? Maybe the reason is budgetary. Maybe the reason is a conclusion as to how best to improve the available service through available technology. Is that the reason?

Mr. HIGH. Well, sir, I think we have—there is a couple of issues on technology. One is the use of instruments aboard vessels and that technology is always proceeding the standards that you would have to set for electronic charts. For example, we are making some progress on those things and that is work that has to be done. I think the issue. My view is the issue is the priority and the amount of resources that go into using the technology that we have today to do the surveys that we need to do and to put these systems in place. I believe it is a priority and a resource issue primarily.

Mr. GILCHREST. Thank you very much.

Mr. HIGH. Yes, sir.

Mr. GILCHREST. Mr. Underwood.

Mr. UNDERWOOD. Mr. High, can you explain some of the problems, if there are any, that have been created by inadequate hydrographic surveying from the Coast Guard's point of view?

Mr. HIGH. Well, sir, I have gotten some good advice, in fact, I was going to say—thank you very much. We have had incidents where we have had vessels run aground because they have hit obstructions where we weren't aware that they were there, and what was whispered in my ear and I am right on was the QEII, the Queen Elizabeth II, that ran aground, hit a pinnacle that we were not aware was there. That, to me, was an inadequate charting of the waters, and that is a function of the fact that we can't do them all within the resources that NOAA's been given.

Mr. UNDERWOOD. So, maybe—I know the Chairman touched on this question a little bit in the Coast Guard's relationship with NOAA, on dealing with these particular kinds of issues, is the Coast Guard—he asked the question in a way that said, you know, are you—have you been working closely with NOAA on this particular issue? Let me—I want to ask the same question, but I have forgotten your answer on that, so let me try to think of a better way of getting you to say—well, are there any areas of, perhaps where you have been less than satisfied with, you know, we always—the easiest thing to say on any of these hearings is that we lack the resources to do everything that we want to do. So please give us more resources and there will be inevitably a resolution of these and a fulfillment of the needs that we have.

But I guess the question really is, is there any—from the Coast Guard's point of view, has there been—given the level of resources that we have and that we have expended in the past few years, is there a level of satisfaction and trust with what is going on with hydrographic charting?

Mr. HIGH. Well, sir, absolutely. Anything that we get from NOAA is absolutely—has the quality control that we expect and need and where we have used things. For example, we have started an AIS, automatic identification project, in New Orleans. We need to have a basis for that. Electronic charts, data that we get from NOAA is absolutely trustworthy and that is what we need. I guess I understand your point. The resources are always the issue. One of the reasons that I think it is important that we have looked at the Marine Transportation System as a system where we looked at safety, security, environment, the competitiveness, infrastructure, we believe that perhaps this whole area has been an area that has been underinvested. We have put a lot of money into surface transportation and other things, and it may be time to look at how we are putting the right kind of investment into our Marine Transportation System. So again, I am sorry to not give you the answer that you are looking for.

Mr. UNDERWOOD. No, I am not trying to—I am not trying to identify problems that don't exist. I just want to make sure that we fix the response, you know, we adequately understand where the problems lie. I mean, if it is a resource issue, then it is a resource issue. All right.

Let me see if I—I know this is probably a question more for Mr. Gudes, but I am trying to understand, I know that NOAA currently outsources some of the hydrographic surveying, so from your—from the Coast Guard experience, is there any distinction that you could make in the quality of effort that has been—the kind of hydrographic charting that has been given to you that has been provided on the basis of in-house capabilities or charting that came as a result of outsourcing.

Mr. HIGH. My understanding is that outsourced data and collection is still given quality control review by NOAA, and that is what gives us the credibility that we need. So we are happy with that product as long as NOAA is standing there with it.

Mr. UNDERWOOD. Okay. Thank you very much.

Mr. GILCHREST. Thank you, Mr. Underwood. And I don't think—I don't have any more questions, Mr. High. So if you need to excuse yourself, we appreciate your time and effort here this morning.

Mr. HIGH. Thank you Mr. Chairman. I appreciate that flexibility. We are working on some issues related to the terrorist—.

Mr. GILCHREST. Keep our Nation's waterways and channels and ports secure.

Mr. HIGH. Yes, sir. That is our intent. Thank you very much.

Mr. GILCHREST. Stay safe in the process.

Mr. HIGH. Thank you.

Mr. GILCHREST. You are very welcome, sir.

Mr. Gudes, thank you for coming this morning.

**STATEMENT OF SCOTT GUDES, ACTING UNDER SECRETARY FOR OCEANS AND ATMOSPHERE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ACCOMPANIED BY CAPTAIN DAVID MacFARLAND, DIRECTOR, OFFICE OF COAST SURVEY**

Mr. GUDES. Thank you, Mr. Chairman. Could I just, before you start timing, make a comment?

Mr. GILCHREST. Sure.

Mr. GUDES. I just wanted to thank Jeff. I think actually the relationship between NOAA and the Coast Guard are among the closest in government. I think that is partly the nature of how the two agencies evolved, 1790 or so for the Coast Guard, 1807 for NOAA. But if you take a look at the various programs that we work in, we provide the search and rescue information that goes to the Coast Guard to provide the rescues. We have worked together on HAZMAT. We have worked together in plane crashes, all sorts of safety for the public, the issues that you raised. I just recently was over at the Coast Guard with the commandant where he presented Coast Guard medals to several NOAA officials who took part in the cleanup of the Galapagos Islands and the oil spill, and it really is, I think, quite a very effective and good relationship.

Mr. GILCHREST. Thank you. Proceed.

Mr. GUDES. First of all, Mr. Chairman, Congressman Underwood, let me thank you for holding the hearing. I fully agree with your comments. The last few days have been tough for everyone, been tough for all NOAA employees. I just learned today reading the paper that I knew one of the victims in the Pentagon and it has been quite tough. But we do have to continue the business of government. We kept people on essential services. There could be a hurricane in the Gulf at any time or the east coast, and the issue that you are talking about today is critically important to national security as well, so I want to thank you.

Let me thank you on behalf of Secretary Evans and the 12-1/2 thousand men and women in NOAA for holding this hearing and talking about our navigation and maritime transportation system programs. Let me thank you, Mr. Chairman, Congressman Underwood and the staff, John Rayfield, Dave Jansen, Harry Burroughs and Sarah Morison and this whole Subcommittee for the leadership that it has shown in this area and, I will refer to that several times in my testimony.

Let me also note that I have here today Admiral Fields, the head of our office and marine aviation operations, Captain Ted Lowelstall and captain Dave MacFarland for the National Ocean Service who are sitting right behind me. If you look at the first slide, I have provided you with a set of slides. Our Nation's maritime transportation, a transportation system, is really divided into three legs, if you will, surface transportation, or rail and truck and surface, the aviation transportation system, which we have talked about so much in the last few days.

But the other part that you are focusing on today, which really doesn't, I think, receive enough attention is the maritime transportation system and it is probably the least visible. It carries 95 percent of U.S. overseas trade by weight and 70 percent by value, and it supplies Americans with two-thirds of all consumer goods that they own. The total volume of maritime trade is expected to more than double over the next 20 years, and the added congestion and the size of the ships and the draft they are taking add serious complications for the Nation's economy, vessel safety and the environment.

NOAA has a variety of programs which really support the MPS. It is not just the hydrographic that we are talking about today, but it is also our weather forecast, our search and rescue, our port development habitat restoration and spill response. And I think that it is fair to say that MPS is about the economy. It is about jobs. It is about the environment. It is about safety, and yes, it is about national security. You can turn to the next slide, please. The Hydrographic Service Improvement Act has helped NOAA make progress in a number of areas.

NOAA is responsible for charting the Nation's exclusive economic zone which is greater, the EEZ is greater than the whole size of the United States land mass. That is shown up in the upper left. In fact, it is the largest EEZ area in the world. We prioritized our surveys based on the nature and extent of vessel traffic, the age of prior surveys and prevalence of shoaling. These areas form the nationally—navigationally significant areas and critical areas, and with your leadership and the Subcommittee's leadership, NOAA has modernized some of its survey equipment such as putting in a multi beam sonar and increased outsourcing.

Also, NOAA's backlog of critical areas dropped from 43,000 square miles in the mid 1990's to about 30,000 square nautical miles today. And if you take a look at the lower right-hand corner, you will see that showing the State of Florida of that is about the size of what we had to work down, and the backlog is roughly the size of Florida, and the portion in red shows our progress to date in working down that backlog.

And with the refurbishment of NOAA ship, Fairweather, and activation in 2003 and increased outsourcing, we are confident we are going to be working down that backlog. If you turn to the next slide, we have moved to do business differently. We have, after the passage of the Hydrographic Improvement Act and work in the mid 1990's and leadership again from Congress, we are now contracting out about 50 percent of our survey work and developed a much stronger relationship with the private sector.



This slide shows where we were just a few years ago and where we are now. It is a comparison with other countries. It shows the size of the EEZ on the left showing the United States with the largest EEZ, and it shows what our capabilities are if you put both government assets together with private sector assets for the total NOAA program. And just a few years ago, before the passage of this Act, we were somewhere around 23rd or so in the world. That is behind Mozambique. And now if you take all the capabilities together, we have about five ships and we are about 12th in the world. And we are working to become more effective and increase productivity. If you take a look at the next slide just real briefly, it sort of makes the point that you were just making in your questions that the flip side of what I am talking about is there is still a lot of areas in this country where we need to do a better job of mapping and charting. That is in Togiak Bay, Alaska, that shows just a few years ago we had no soundings at all and now in working down that backlog has been done. The next slide Mr. Chairman shows that we really are looking for three legs, if you will, of the stool of trying to work down that backlog and get new information.

First of all, on the left is the NOAA vessels, and as I said, we are bringing on a new vessel, thanks to the leadership of Congress. On the right are our contract vessels, and on the bottom is a new concept, relatively new concept for NOAA, is the idea of a time charter or a lease charter, and we have been discussing that within the administration. And I know up here in Congress there has been an add-on for that area. I should note, Mr. Chairman, that some of the questions you were asking, in 1998, we spent some \$12 million on hydrographic surveys in the President's budget.

And in 2002, the budget before you, the proposal is \$33 million in the President's budget for hydrographic surveys, NOAA ship time and private sector ship time. I think that shows the sort of change that has taken place in the way that the administrations have looked at this function following your lead and shows the sort of impact that the Act that you passed just a few years ago here in Congress has had on NOAA and on our programs.

If you turn to the next slide, I will run through these very briefly. The way of the future is electronic navigational charts. These are smart charts if you will. If you will allow me, this is a standard NOAA nautical chart. I think it is of James river. We produce about 400 thousand of these for the private sector per year, or for the public and about 400,000 for the military. And this is the traditional way of doing business. In fact, up through the late 1990's or so, this was the only way we did business. This was the product we were producing.

In the late 1990's, we moved to a digitized raster chart with a CREDA, cooperative research and development agreement, where we digitized those sort of images. You could get 50-something charts on one CD. I think the last time I testified we talked about that. But again, these are non smart charts. These are just—the chart that you see is what you see on your screen. What we are moving to is electronic navigational charts.

These are charts that have information that are tied to GPS that allow the mariner to be safe, to have automatic warnings if he goes outside the channel, he or she. The Exxon Valdez, this chart shows

you that the Exxon Valdez accident likely would not have happened had we had electronic navigational charts in the bridge of that ship. There would have been several times that Captain Hazelwood and his crew would have been warned.

If you just go to the next slide, part of this whole area, I think is moving forward into new research and development. As I said, we have a lot of backlog, a lot of charting area to do, and it requires new technologies and new ideas.

And one of the real bright spots, I think, in NOAA, and in the government the last few years, is the creation of the Joint Hydrographic Center at the University of New Hampshire. I was just there a few weeks ago. It is staffed, in part, by University of New Hampshire professors. We actually have some of the best experts in the world. Some of them came from Canada to join this institution. We have NOAA and NOAA Corp officers going to school there, getting advanced degrees. And it really, as you can see from some, the products is producing the next generation of technology such as looking at back scatter, the return from the sonar equipment to try to characterize the bottom. And this is important, not just the hydrography. It is important to essential fish habitat. It is important to all sorts of areas in NOAA's missions.

And then finally, just my last slide. I often talk about that NOAA is much more than our district employees, whether the core officers or men and women serving on the ships or our GS civilians. The NOAA team really is a total team and includes the private sector. It includes the universities and academia. And there are a few images there. And I think that in approaching this issue, in understanding and getting to really working down that backlog, it is going to take that sort of team approach. And that is what we are now doing. Over half the surveys we do are done by the private sector. We are working to do more of that and we are working to modernize our government sector, and as you pointed out, maintain hydrographic expertise. So I see the red light. And I have seen it for a while, so I will stop.

[The prepared statement of Mr. Gudes follows:]

**Statement of Scott B. Gudes, Acting Under Secretary for Oceans and Atmosphere, National Oceanic and Atmospheric Administration, Department of Commerce**

Thank you, Mr. Chairman and Members of the Subcommittee, for the opportunity to appear before you today to testify on the effectiveness of the Hydrographic Services Improvement Act and the navigation information services that this Act authorizes. Promoting safe navigation for the U.S. Marine Transportation System is one of the critical missions provided by the Department of Commerce's National Oceanic and Atmospheric Administration. We are very appreciative of your continued support and interest in examining the progress we have made in modernizing NOAA navigation programs since the enactment of the 1998 Act. The Department testified before this Subcommittee on this subject in 1997, and it was my privilege to testify on NOAA's navigation services in 2000. I would now like to update you on some of our successes and program issues, and conclude by highlighting some changes we would like to see in a new Hydrographic Services Improvement Act. In addition, we will provide some preliminary comments on the Committee's proposed draft reauthorization measure provided to us with the invitation letter for this hearing. The Department of Commerce is also preparing a draft legislative proposal for transmittal to the Congress. It is our hope that reauthorization will allow NOAA to make even greater strides in providing the timely and accurate information so necessary for safe and environmentally sound marine transportation, efficient maritime commerce and ultimately our Nation's economic prosperity in the global marketplace.

*The Marine Transportation System Initiative: NOAA's role*

Since our Nation's founding, maritime trade has been vital to economic prosperity. Today, more than 95 percent of U.S. foreign trade moves by sea. In 1998, about 2.4 billion tons of cargo moved on our waterways and through our ports; by 2020, trade is conservatively projected to double, with the largest increase seen in container shipping. The length, width, and draft of commercial vessels have grown dramatically over the last 50 years, pushing the limits of many ports and posing significant safety concerns and environmental risk as nearly half of all goods transported are oil or other hazardous materials. Growth in ferry, cruise line, and recreational boating also contributes to increased congestion on our waterways. Ensuring safe and efficient port operations is vital to maintaining the competitiveness of the U.S. port industry and U.S. exports. One key to reducing risk is to invest in the national information infrastructure that supports the maritime movement of goods and people.

In 1998, Congress directed Federal agencies to assess the state of the U.S. Marine Transportation System (MTS) and develop a vision for modernizing the system. This was a first step toward developing a 21st century transportation system that addresses the future of the system's safety, security, competitiveness, infrastructure shortages, and environmental health. Federal agencies and the private sector have partnered to continue to support the MTS initiative by raising awareness of MTS issues. In June, NOAA and its partners held the first-ever national event promoting the MTS on the National Mall.

NOAA supports the MTS with a variety of navigation and environmental services. NOAA's programs authorized by the Coast and Geodetic Survey Act of 1947 and the 1998 Hydrographic Services Improvement Act—Mapping and Charting, Survey Backlog, Geodesy, and Tide and Current Data—form the backbone of the MTS information infrastructure. In addition to promoting safe and efficient maritime commerce with its navigation services, NOAA issues marine weather forecasts, conducts satellite-aided search and rescue tracking with the U.S. Coast Guard and other partners, and facilitates sound port development. NOAA also supports an environmentally friendly MTS by conducting waterway risk assessments to aid port planning, carrying out spill preparedness and response activities, and promoting fisheries management and habitat restoration. These activities form a comprehensive and effective program supporting the future of the MTS.

*Modernization of NOAA's Services*

Since President Thomas Jefferson established the Survey of the Coast in 1807, mariners have depended on federally-supported nautical charts, coastal water level observations systems, and a geodetic positioning reference system to navigate safely. NOAA charts are developed from NOAA's hydrographic and shoreline surveys, tide and current measurements, and national geodetic and geographic positioning data, as well as information from many other sources. NOAA continues to provide these traditional and fundamental services, but we now seek to deliver them in ever more innovative ways to meet user demands for accuracy, timeliness and electronic delivery. For example, we have recently begun a prototype release of electronic navigational charts via the Internet. We are exploring new capabilities for improving the accuracy of Global Positioning System technology, and we are adding forecasts to our real-time "nowcasts" of water levels to increase the efficiency of vessel movement and cargo loads. Demonstration projects have shown that these programs can provide the accurate data necessary for determining precise under-keel and overhead/bridge clearances and can support low visibility docking, allowing commercial vessels to navigate more safely and to load and move cargo efficiently in and out of depth-limited harbors. NOAA's integrated suite of surveying, charting, water level, and positioning services is capable of increasing the efficient movement of goods, thereby reducing vessel fuel consumption and port pollution, supporting just-in-time delivery of goods and enhancing the competitiveness of U.S. exports. NOAA's navigation services also reduce the risk of marine accidents and resulting environmental damage, ensuring that tourism, fishing and other ocean- and coastal-dependent industries continue to prosper. If accidents do occur, NOAA can provide the necessary support to ensure a rapid science-based response and eventual restoration of damaged coastal resources.

*User communities*

NOAA's navigation services are being utilized by an increasingly diverse group of users. In addition to the mariner, other end users of NOAA products include port authorities, vessel traffic systems, environmental scientists and researchers, emergency planners and coastal zone managers. The navigation programs have undertaken a deliberate and consistent effort to recognize these new users, to solicit all user input and to enlist the support of the private sector and academia in data col-

lection, product design and research and development. Successes in our efforts to implement digital charting databases and develop useful new products could not have been accomplished without our private sector and academic partners.

Another success is NOAA's regional approach to working directly with the navigation community. This core group, which includes commercial mariners, marine pilots, the Coast Guard and Army Corps of Engineers, among others, has fully participated in developing NOAA's modernization strategy and prioritization of services. Throughout NOAA's navigation services—hydrography, charting, positioning and water level data—the basic strategy has been to make investments where they will yield the greatest benefit to the public and the mariner. Typically this has meant first focusing efforts and implementing advanced technologies in and around the Nation's busiest ports and in areas where the nature of the cargo or the uncertainty of seafloor characteristics present the highest risk of harm or accident. NOAA has effectively engaged the navigation community on a regional basis in order to track and address critical needs. Recent investments in the navigation programs have renewed this user group's confidence that NOAA will deliver the accurate and up-to-date products on which safe and efficient U.S. marine transportation depends. NOAA's long-standing relationships with other maritime interests and organizations, including U.S. Power Squadrons and Coast Guard Auxiliaries, are also very beneficial. These groups often serve as "eyes and ears" for the agency regarding significant changes affecting hydrographic services and nautical charts on local waters. This volunteer activity provides the Nation with a valuable service, one which NOAA would like to see reflected in legislation to reauthorize the Hydrographic Services Improvement Act. Encouraging and promoting this important cooperative charting effort, with NOAA's discretion to accept and define the terms of such volunteer activities, would assist the agency tremendously.

#### *Hydrographic Surveying*

Reducing the critical hydrographic survey backlog is one NOAA priority that has received significant attention in recent years. Responsible for charting the 3.4 million square nautical miles (snm) of the U.S. Exclusive Economic Zone (EEZ), NOAA undertook a realistic assessment of hydrographic surveying needs and capability in 1994. Nearly 500,000 snm of that area—about 15 percent of the EEZ—were determined to be navigationally significant due to the greatest threat of natural and manmade hazards to marine navigation. Given its limited ability to address this huge responsibility, NOAA identified 43,000 snm—about 1.3 percent of the EEZ—as being the most "critical" to survey in terms of vessel usage and safety issues. Critical survey areas are waterways with high commercial traffic volumes, oil or hazardous material transport, compelling requests from users, and transiting vessels with low underkeel clearance over the seafloor. Much of the survey backlog is in Alaska, where large areas have never been surveyed, earthquakes can cause significant change, and high-occupancy cruise ships are venturing into the uncharted waters at the feet of receding glaciers.

In 1994, NOAA estimated that it would take 30 years to complete the 43,000 snm critical survey backlog. When we testified before the Subcommittee in 1997, the backlog stood at approximately 39,000 snm. Now at the end of Fiscal Year 2001, I am pleased to report that the backlog has been reduced to 30,000 snm and the estimate for completion at current funding levels is under 20 years and dropping with contractor acquisition miles and the anticipated production of the refurbished NOAA Ship FAIRWEATHER. NOAA had extremely successful field seasons in fiscal year 00 and fiscal year 01, including several notable obstruction findings. For example, while investigating a shoal bordering the Boston North Channel with side scan and multi-beam sonar, the NOAA Ship RUDE located the wreck of a steel barge rising ten feet off the seafloor just inside the channel limits. This was an important find, as a tanker carrying highly explosive Liquefied Natural Gas with a vessel draft deeper than the barge was due to transit the channel in a matter of days.

NOAA has not achieved this significant reduction in survey miles and time by itself. In 2001, NOAA contracted out over sixty-five percent of its surveying resources, and our contractor relationships are very strong. The contractors are gaining in experience, and their data acquisition miles are increasing. Given the magnitude of survey requirements, NOAA promotes using a balanced mix of resources to acquire survey data. While operating in-house vessels is necessary to maintain the expertise to ensure accurate nautical charts and assume responsibility for contract data, utilizing the capabilities that the private sector brings to bear on this problem makes good sense. Details on our surveying efforts are shown in Table A.

With a plan in place to successfully address the critical survey backlog, NOAA would like to renew its focus on the Nation's other navigationally significant areas of responsibility. Critical areas in need of periodic re-survey due to naturally occur-

ring changes such as silting, storms and earthquakes, increased vessel size using the waterway, and wrecks or changes in navigational use must be placed on a schedule to avoid a recurrence of the backlog situation. The U.S. Coast Guard, marine pilots and port authorities have also identified additional areas as potentially dangerous to safe navigation and in need of survey. NOAA is able to address some of these unanticipated requests on a quick response basis following hurricanes or other disasters. For example, NOAA surveyed in Puget Sound for navigation hazards following the February 2001 earthquake near Seattle. For the most part, however, the remaining priority areas will take over 300 years to survey at the current level of effort. Limiting NOAA's efforts to critical backlog alone does not fully meet the needs of commercial mariners, recreational boaters, our federal partners, or other users, for whom high-accuracy navigation information is essential to operate safely in all nearshore waters. These stakeholders are depending on NOAA to produce new digital hydrographic data to populate the Electronic Navigational Chart and other innovative products that far exceed the paper nautical chart in precision and capability. NOAA's modern survey techniques using the Global Positioning System for positioning accuracy are a significant improvement over older data collection methods.

Table A

FY	NOAA Vessel Production (snm)	NOAA Cost * (\$M)	Contract Production (snm)	Contract Cost (\$M)	Critical Survey Backlog (from 43,000 snm)
1994	1522	18.0**	61	1.2	41,417
1995	1345	17.8	3	.1	40,069
1996	1297	12.4	15	.1	38,757
1997	1292	13.2	13	.2	37,452
1998	997	13.1	421	8.9	36,034
1999	1080	12.7	869	20.4	34,085
2000	1081	12.7	476***	15.6	32,529
2001 (est)	1465	12.7	1345****	18.0	29,718

\*These figures do not include a number of indirect costs, including actuarial costs of Federal liability and much of the Federal retirement and benefits. Therefore, these costs may not be comparable to the Contract Cost column.

\*\*Actual NOAA vessel costs for hydrographic surveying not broken out separately in FY 1994.

\*\*\* Production decrease for contracts due to less funding available, and higher percentage of work in high-difficulty areas in Alaska, which is more expensive than Gulf of Mexico.

\*\*\*\* Includes higher percentage of contract work in deep water areas, which requires fewer survey lines and item investigations to achieve the necessary coverage.

Maintaining federal expertise in the management of hydrographic surveying has been and will continue to be key to fulfilling NOAA's legal responsibilities as the Nation's hydrographic and charting office. NOAA can maintain that expertise with its hydrographic survey vessels and a core group of government hydrographers and still contract with the private sector for survey data. As I mentioned earlier, NOAA's plan is to employ a mix of assets to acquire hydrographic survey data; that is, to balance NOAA's capabilities with private sector contracting and vessel leases for survey data. In-house expertise enables NOAA to confidently accept data from outside sources, assume liability for contractor data it accepts, and provide competent oversight of all aspects of private surveying practices for these large multi-million dollar contracts or chartered vessels. NOAA takes its responsibilities for assuring the accuracy of the data on its charts very seriously.

To comment on the effectiveness of the Hydrographic Services Improvement Act on this program, the outlook is very good for NOAA to continue to achieve efficiencies in its hydrographic surveying responsibilities. A mix of assets—in-house and contract—has proven highly successful to date, and we hope to see continued support for this approach in a reauthorized Hydrographic Services Improvement Act. At the request of Congressman David Vitter (R-LA) and the Office of Manage-

ment and Budget, NOAA is now exploring a vessel lease option to add survey capacity and flexibility to reducing the hydrographic survey backlog. We have entered into a contract with the auditing firm KPMG to perform an independent cost analysis of NOAA's hydrographic surveying through NOAA vessels, contracting and a vessel lease. KPMG's report is due at the end of September. The purpose is to enable NOAA to most effectively deploy its resources and highlight the most appropriate use of survey options based on geography and risk mitigation. For example, some survey areas strewn with rocks and pinnacles pose complex challenges. It therefore may be more efficient to utilize the experience and size of the NOAA ships RAINIER or FAIRWEATHER in these dynamic regions where it is difficult to specify deliverables and to task contractors with more well-defined seafloor areas on which they have more experience.

NOAA's partners look to us for hydrographic leadership and research into new survey technologies; developing efficiencies with multi-beam and side scan sonar equipment on NOAA survey vessels improves the effectiveness of both in-house and contract operations. NOAA also demonstrates expertise by developing software integration and state-of-the art technology with industry and academia. Advances in NOAA's hydrographic surveying program will fuel this research and development, provide more opportunities and options for contract survey work to speed reduction of the critical backlog, and begin to address the remaining navigationally significant areas in need of survey. The 1999 assessment of the U.S. Marine Transportation System echoes this three-part goal. It recommends that NOAA accelerate backlog reduction, make progress on surveys for the rest of the Exclusive Economic Zone, and incorporate advanced technologies into hydrographic surveying to improve data collection and enhance the Electronic Navigational Chart for safe navigation. However, the language in the draft reauthorization measure provided with the letter of invitation limits NOAA's authority to operate its hydrographic ships without multi-beam equipment after October 1, 2001. We fully support the Subcommittee's intent that NOAA use modern equipment, but submit that the provision is overly specific. For example, it would prohibit NOAA from operating subsequent and more modern generations of equipment as those become available. In some cases, multi-beam systems on NOAA's smaller vessels might be inappropriate. NOAA's goal is to procure multi-beam systems to modernize all larger NOAA survey vessels, but this effort will take funding and time to achieve beyond the deadline specified; furthermore, we believe this limitation on authority is counterproductive to using all available assets to reduce the survey backlog.

Our partnership with the University of New Hampshire Center for Coastal and Ocean Mapping and Joint Hydrographic Center continues NOAA's commitment to productivity improvements by promoting research and development, creating new markets and improving the training and capability of U.S. hydrographers. The Joint Hydrographic Center has been extremely successful, exceeding all expectations in its first two years of operations. Both the educational and research programs are well established and have achieved significant results. M.S. and Ph.D. programs in Ocean Mapping have been approved by the University and recognized by the International Federation of Surveyors/International Hydrographic Organization, and 10 graduate students are enrolled to date. In addition, the Center has developed software tools to read most types of hydrographic data; developed 3-dimensional hydrographic data visualization software; tested the ability of high speed high resolution side scan sonar to deliver bathymetric data; and worked with NOAA to survey Portsmouth Harbor for the Shallow Survey 2001 conference data set. The Center is also supporting NOAA with bathymetric data analysis in connection with potential Law of the Sea continental shelf claims in the Arctic.

#### *Electronic Navigational Charts*

The Electronic Navigational Chart (ENC) is perhaps the most anticipated, and most critical component of NOAA's suite of navigation tools. NOAA began developing ENCs in 1994 when new advances in navigation technology foreshadowed the potential for an integrated MTS information infrastructure. To meet the requirements for civilian transportation, the Department of Transportation began implementing Global Positioning System (GPS) augmentations based on a technique known as "differential" GPS (DGPS). Operated by the U.S. Coast Guard for vessel positioning, the maritime DGPS has revolutionized onboard navigation systems to give mariners very precise location data at 10 meters or less. Because more than fifty percent of NOAA's nautical charting data were collected before 1940, in many cases the DGPS position is more accurate than both the surveying technology that gathered the soundings and the traditional nautical chart itself. Depending on scale, the graphical accuracy portrayed on a nautical chart can range from 40 to 100 meters. This is often the cause of the "ship on the pier" situation, where the vessel

tied up at the pier appears on the navigation system to be on the pier rather than alongside. NOAA recognized early on that mariners need high-accuracy electronic chart data to fuel their real-time navigation display systems for collision and grounding avoidance and “just-in-time” delivery routing practices. Reaching the same conclusion, the international hydrographic community encourages ENC development by countries. The International Maritime and Hydrographic Organizations, the latter on which NOAA represents the United States, developed performance and data standards to authorize use of Electronic Chart Display and Information Systems instead of paper charts. Commercial mariners in particular embraced these concepts, as requirements to carry and update nautical charts aboard vessels are burdensome and bulky.

At the same time, though, NOAA could not abandon its continuing charting mission to focus exclusively on the new ENC technology. Many mariners still required traditional nautical charts. To meet this need efficiently, NOAA developed a digital database system to update its paper charts more quickly and get accurate data into the hands of users in a more timely fashion. Additionally, the Raster Nautical Chart (RNC) was designed with a private sector cooperative research partner as an interim product that mariners could use while the advanced ENCs were being developed. The raster product has been very successful. Continually maintained using base chart program funding, it has proven to be highly efficient and popular in its own right with the computer-savvy mariner. NOAA and its private sector partner, MapTech, Inc. of Amesbury, Massachusetts, and Bangor, Maine, have built on RNC technology to develop a weekly electronic Update Service for the RNC, and a new Print On Demand chart that is also updated on a weekly basis, printed with the latest information when ordered, and then mailed to the customer. Though essentially just an electronic picture of the paper chart, and hampered by the same positioning limitations, the RNC has enabled NOAA to improve its navigation products in the short term and provide the public with affordable, accurate and up-to-date navigation information.

The ENC is the next-generation product required to meet the increasingly sophisticated and technological demands of mariners and to ensure safe navigation. Built to international standards, ENCs, also called vector charts, are not charts but rather a database of chart features and digital hydrographic data that can be intelligently processed and displayed by electronic charting systems. As “smart charts,” ENCs give the user much more information than the paper chart can, and with much greater accuracy. They can be integrated with GPS satellite data and other sensor information (such as water levels, winds and weather) to significantly improve navigation safety and efficiency by warning the mariner of approaching hazards to navigation and situations where the vessel’s current track will take it into danger. The NOAA ENC supports all types of marine navigation by providing the official database for electronic charting systems. The utility of the ENC database extends beyond navigation; for example, it can also support marine geographic information systems for coastal management.

Rather than simply “vectorizing” or digitizing the paper chart, NOAA contracts with the private sector to construct the base ENC, which is then supplemented with more precise data compiled by NOAA for critical chart features such as channels, aids to navigation and obstructions. NOAA’s long-standing partnerships with the Coast Guard, the Army Corps of Engineers and numerous other entities generate immense quantities of this high-accuracy source data, which NOAA digests and quality controls before charting. Our partners also anticipate the availability of the ENC to meet their own objectives. For example, NOAA’s ENC will integrate with the Coast Guard’s Automated Identification System (AIS) to help track and manage vessel movement. The International Maritime Organization has established a 2002 deadline for all new commercial carriers to be fitted for AIS transponders. Existing ships must be retrofitted for AIS transponders by 2005. This international requirement makes it imperative for NOAA to move forward in ENC construction and delivery.

As we testified in 1997, and again in 2000, NOAA has taken an incremental approach to developing the ENC using the limited resources it has available. NOAA’s strategy has been to maintain and update its existing chart suite in paper and raster formats while it creates vector ENCs for waters where more detailed data would best promote safe navigation, principally in and around the 40 major U.S. commercial ports. Using this investment-for-benefit strategy, NOAA has built 135 ENCs, and plans to provide a total of 200 by the end of 2002 for the Nation’s busiest ports under the current budget request. Ultimately, but only as resources allow, NOAA needs to produce approximately 660 ENCs to correlate with the paper chart suite of 1000 charts in order to respond to the Marine Transportation System’s need for full contiguous coverage of U.S. and territory waters. Commercial mariners, as well

as electronic chart system manufacturers, have an expectation that NOAA will produce a full suite of ENC's to provide significantly more accurate and up-to-date information that can enhance safety and environmental protection, reduce risks, and improve efficiency.

As of mid-July, NOAA has started releasing ENC's in a provisional form for free download over the Internet. Since the first 63 ENC's were posted, over 10,000 ENC files have been downloaded. This shows a real interest on the part of the public, given that the availability of these files has not been widely advertised, and the downloading traffic has been steady to date. NOAA intends to make the provisional ENC's into official chart products once we can provide periodic updates (sometime after January 2002).

#### *Shoreline Mapping / Geodetic Positioning*

The Hydrographic Services Improvement Act of 1998 also authorizes appropriations for NOAA's shoreline mapping and geodetic programs, which support NOAA's nautical charting efforts, the MTS infrastructure, and the Nation's positioning needs. NOAA's shoreline mapping activities provide the accurate, consistent, and up-to-date data required to delineate shoreline for NOAA's nautical products and ENC's. The shoreline depicted represents the official National Shoreline of the United States. NOAA delineates shoreline with stereo photogrammetry using tide-coordinated aerial photography controlled by kinematic GPS techniques. This process produces a seamless, digital database of the National Shoreline. NOAA and its partners are working together to develop new remote sensing techniques to accelerate shoreline mapping, but only about 10 percent of the shoreline has been produced digitally to date. In addition, approximately one-third of the U.S. shoreline has yet to be mapped by NOAA and our partners in a manner that meets NOAA's requirements for tide-controlled surveys for nautical charting (primarily areas in Alaska, the Great Lakes, and the West Coast north of Santa Barbara, California). Much of what has been mapped was done prior to 1970, and the accuracy, consistency, and currency of these areas of the coastline cannot be warranted. America's 95,000 miles of coastline are subject to natural and man-made processes that continually alter its shape and character. The National Shoreline should be frequently evaluated, especially in this era of rapid coastal development.

NOAA has determined that, in order to adequately maintain the National Shoreline, it must place critical portions of the coastline on a 5-year average cycle to re-survey and map, with remaining areas mapped on a 10-year average cycle. An area is determined to be critical based upon the level of economic activity, the potential for alteration, and its environmental sensitivity. At the present rate of progress, NOAA maintains the existing shoreline data on a 50-year cycle and cannot address the one-third that has yet to be mapped. This is not sufficient to keep pace with the needs of ENC's and the growing stress on the Marine Transportation System.

NOAA received a \$1.5 million increase for shoreline mapping in fiscal year 2001. In line with its commitment to increase the opportunities for private sector performance for routine data acquisition and processing when appropriate, NOAA is in the process of contracting for shoreline in the Gulf Coast and Alaska in support of hydrographic surveying. NOAA intends to open up all future increases in shoreline mapping and will begin to submit its current in-house operations in the gathering of shoreline data to competition with the private sector, in accordance with the Administration's Competitive Sourcing Initiative. We have held workshops and meetings with relevant private sector entities to inform them and work through issues in advance. Knowledge gained from these activities has helped us devise a strategy for photogrammetric and remote sensing services related to shoreline mapping. We believe this strategy alleviates the need for a report to Congress, as directed in the proposed draft reauthorization measure provided to us. Using experience gained from its hydrographic program as a model, NOAA will maintain core surveying management competency but will also compete with the private sector and develop opportunities to build private sector capability in photogrammetric mapping to NOAA standards. GPS-positioned shoreline provides the high accuracy needed for ENC's. Other new products that the private sector could produce, such as large-scale docking charts, would also rely on NOAA's digital shoreline database.

Over the years NOAA's photogrammetric techniques have also been applied to other environmental problems dealing with the coastal zone. For example, the program has produced boundary maps for government agencies and legal authorities for use in the adjudication of marine boundary disputes among Federal, state, and private litigants. Storm evacuation maps have been used by government and disaster relief agencies for planning emergency evacuation of affected inhabitants from coastal areas subject to flooding by severe storms and hurricanes. NOAA has also provided imagery to disaster relief agencies to assist in rapid response storm dam-



age assessment. Coastal zone managers, planners, scientists, and regulatory agencies use the coastal zone maps prepared by NOAA to assess marshlands, marine sanctuaries and other coastal areas subject to multiple use.

Another crucial part of NOAA's mandate is management of the National Spatial Reference System (NSRS), which provides a common geographic framework and the foundation for the Nation's spatial data infrastructure. NSRS provides the basis for mapping, charting, navigation, boundary determination, property delineation, infrastructure development, resource evaluation surveys, and scientific applications; in other words, it is the underlying reference system that provides positioning consistency for the entire United States. NOAA is enhancing NSRS to complement the Global Positioning System and give more integrity to GPS coordinates. The mainstay of NSRS is the nationwide network of Continuously Operating Reference Stations (National CORS). NOAA supplies data from over 200 National CORS sites through cooperative agreements with academic, commercial, government, and private organizations.

The U.S. Coast Guard's maritime DGPS network is a major contributor to the National CORS. NOAA also provides integrity monitoring for the Coast Guard DGPS sites to help ensure the system's reliability. The Department of Transportation is currently expanding the maritime DGPS network into the Nationwide Differential GPS (NDGPS) network. NDGPS allows the marine navigator to determine vessel location and the National CORS system allows the creation of charts specifying water depth beneath the vessel and the distance from the vessel to a docking site or an obstruction. NDGPS provides data to be used instantaneously for positioning within a few meters. National CORS provides a framework from which users extract data for more precise applications; surveyors, engineers, GIS professionals, and others may use CORS data via the Internet to compute 3-dimensional positions with an accuracy of a few centimeters. Over 90 percent of the conterminous United States is within 200 kilometers of at least one National CORS. It is NOAA's goal to have the entire U.S. within 200 kilometers of three National CORS in order to provide higher positioning accuracies and capabilities. NOAA is also working on techniques for highly accurate positioning with GPS in real time, so that mariners may make better decisions for operating their vessels safely. With this expanded capability, port managers and shippers have the opportunity to safely maximize capacity.

In the words of one GPS equipment manufacturing executive, 'Accuracy is Addictive.' The need for more accurate, timely, and consistent positioning services causes the NSRS to continually evolve in anticipation of meeting these burgeoning demands. One such effort particularly relevant to marine transportation safety is Height Modernization, a set of NOAA-led efforts to enhance the vertical component of NSRS by providing better access to accurate, reliable, real-time height data. NOAA prepared a report on Height Modernization for this Subcommittee in 1998. This vertical accuracy is important because, for example, knowing underkeel clearance (or the vertical distance between a ship's bottom and the channel floor) minimizes the risk of groundings, environmental damage and time spent waiting on high tides to enter or leave a port. Knowing more precisely where a vessel is helps the mariner to maximize use of limited channel depths safely in changing weather and water conditions. Collisions with bridges can be avoided if mariners have height information to navigate precisely and know in real-time the air gap between the bridge and the vessel. Preventing such incidents has an important effect on port capacity because a maritime accident can close down a port, delay and reroute other vessels, trains and road traffic, and cost millions of dollars, especially if the accident results in a hazardous spill. A recent example is the lift bridge struck by a grain freighter in the Great Lakes between Lake Ontario and Lake Erie. This accident had the potential to block the St. Lawrence Seaway to both U.S. and Canadian marine traffic for several days while clean-up took place, causing expensive delays for other vessels moving freight through this major marine trade link.

In order to implement Height Modernization, NOAA engages in a variety of partnerships with the private sector, state and local governments, and other Federal agencies. Many of these partnerships provide geodetic control and access to NSRS, as well as development and implementation of geodetic applications. NOAA is currently assisting the states of California and North and South Carolina with targeted funding, guidance and coordination. The intent is to have these serve as prototype arrangements for implementing Height Modernization nationwide. In fact, as directed in the pre-conference House 2002 Appropriations Bill, NOAA has moved forward on addressing a report request to work with Louisiana and Wisconsin to assess these states' geodetic program needs. NOAA held listening sessions in mid-August and we plan to produce our report by the specified deadline of September 15, 2001, for Conference action.

*National Water Level Observation Network/Physical Oceanographic Real-time Systems*

Real-time water levels, tides and currents are an important tool in NOAA's suite of services to support safe and efficient use of a port. The Physical Oceanographic Real-Time System, or PORTS, has received Congressional attention in recent years, but the network of water level stations that underpins PORTS is perhaps less well known. The National Water Level Observation Network (NWLON) consists of approximately 175 continuously operating water level measurement stations distributed along U.S. coasts, in the Great Lakes and connecting channels, and in the U.S. territories and possessions. NWLON provides basic tidal datums to determine U.S. coastal marine boundaries and for nautical chart datums and long term sea level change. It also provides support for NOAA's tsunami and storm surge warning programs, climate monitoring, coastal processes and tectonic research. In the Great Lakes, water level stations support water management and regulation, navigation and charting, river and harbor improvement, power generation, scientific studies and adjustment for vertical movement of the Earth's crust in the Great Lakes Basin.

Although the NWLON stations have now been modernized with a real-time data dissemination system developed in the 1980's, NOAA has been unable to revisit stations to perform routine maintenance. This has caused some stations to fail, and data from others is suspect. A recent comprehensive assessment of NOAA's tidal current prediction products shows major gaps and deficiencies for the Nation's ports and harbors due in part to this station degradation. NOAA needs to restore failing stations to operational status, collect current meter data at historical locations and at new locations critical to the mariner. The new data will be used in the design of future PORTS and in the calibration and validation of hydrodynamic models for development of nowcast/forecast products of water conditions critical for supporting increasing marine commerce and safe navigation.

NOAA is working with regional and local partners to expand the water levels observation network and PORTS in major U.S. ports. PORTS is a decision support tool which integrates and delivers real-time oceanographic data—water levels, currents, winds and water temperature, forecasts and other geospatial information—to users via the telephone, fax, and Internet. There are currently five large PORTS (Tampa, New York, San Francisco, Narragansett Bay and Houston/Galveston), and several smaller single station real-time systems (Chesapeake Bay, New Haven, Soo Locks, Tacoma, Seattle, Anchorage, Nikiski). Emphasis is now being placed on implementing real-time data dissemination of automatically quality-controlled data from the entire NWLON. Many ports have expressed interest in partnering with NOAA to obtain their own PORTS, including Los Angeles/Long Beach, Charleston, New Orleans, and Jacksonville, Florida, among others. Local authorities fund and maintain the PORTS equipment, and NOAA assists with installation and quality assurance. NOAA has developed and implemented a quality control capability called the Continuous Operational Real-Time Monitoring System (CORMS) to provide a centralized capability to quality control the real-time data. This capability will ensure that mariners and other users have accurate data upon which to confidently base critical operational decisions that can affect life and property.

PORTS can tie into a vessel traffic system to help move ships in and out of port as quickly as possible, and as fully loaded as is safely possible. Underkeel clearance, of course, is again a key aspect of this. A few more inches of draft can mean additional thousands to millions of dollars to a shipper. It may take anywhere from two to eight hours for a ship to leave a port and reach the ocean, and, of course, it can take many hours to load additional cargo. To maximize cargo loads, mariners need to know what the underkeel clearance will be from 6 to 24 hours into the future. This takes forecast models combined with real-time oceanographic systems and up-to-date nautical charts. NOAA is doing research into forecast models and new visibility and air gap sensors tied to PORTS; in fact, the Chesapeake Bay Forecast Model just recently became operational to provide the maritime community with improved predictions of water levels in the Chesapeake Bay. Ships coming into port will use these sensors and models to time arrivals for the best underkeel clearance situation and not have to wait outside the bay or port entrance, wasting fuel. Knowing more exactly where a vessel sits in the water column also reduces the need for deeper safety-margin dredging.

NOAA continues to hear from the navigation community that the need for PORTS data is a high priority. The 1999 MTS Assessment also recommended expanding PORTS technology for maximum safety and efficiency in waterways management. Many members of Congress are aware of the utility of NOAA's real-time water level systems. In 2000 NOAA sought, and appropriators granted, permission to reprogram funds to keep PORTS operational and to activate Narragansett Bay. fiscal year 2001

funding enabled NOAA to maintain support for the existing PORTS and implement the prototype CORMS. The current 2002 budget before Congress would add needed flexibility to the program; this level of funding will help maintain and upgrade the NWLON and allow NOAA to provide quality assurance services for an expanded network of PORTS.

*The Future: A new Hydrographic Services Improvement Act*

Maritime shipping is the cheapest and most environmentally responsible method of transportation. For many bulk products, from oil to farm goods, there is no alternative transportation means. NOAA provides tools to maximize the capacity of American ports while safeguarding the environment. NOAA's navigation services can increase the efficiency of a port's throughput, and they help the coastal manager make informed decisions on development and resources. With better information about bathymetry, water levels, currents, positioning and obstructions, larger vessels can enter U.S. harbors and carry more cargo for export, and every inch matters.

NOAA is an active participant in the MTS Initiative, and it is our hope that a reauthorized Hydrographic Services Improvement Act will allow NOAA to fully implement the integrated suite of services sought by users of the MTS. NOAA's programs also support the National Energy Policy by supporting safe waterborne transport of energy products and national security objectives. To help achieve the world's most technologically advanced, safe, efficient, globally competitive and environmentally responsible system for moving goods and people, NOAA must continue efforts to modernize its navigation services programs and get its data into the hands of mariners and other users. Private sector and fellow MTS agency partnerships are key to our collective success in improving the MTS infrastructure.

I am pleased to report that significant headway is being made on the critical backlog, and that NOAA is taking a look at strategies for surveying other Navigationally Significant areas. Contracting for hydrographic surveys is progressing very well. NOAA is satisfied with the overall quality of the data generated by its contractors. The letter of invitation inquires why NOAA was unable to develop a meaningful plan to maintain expertise in hydrography and asks whether it is still necessary for NOAA to maintain expertise. NOAA did submit the report, the Hydrographic Expertise Report to Congress in fiscal year 2001. This report, combined with the plan submitted to Congress five years ago, explains NOAA's basic strategy at that time to 1) use government vessels, 2) increase contracting, 3) pursue a third option of leasing vessels, and 4) work with the private sector and other agencies in the research and development of technologies. NOAA will continue to work on ways to maintain expertise in the management of hydrographic surveying, and ensure that the work is done in the most efficient and reliable way possible and in accordance with Administration policy on competitive sourcing.

The Hydrographic Services Improvement Act has been an effective mechanism to begin addressing the survey backlog, and now NOAA should turn its attention to fully modernizing the rest of the navigation services program to handle the incoming hydrographic data and get this critical information out to the mariner in a timely fashion. Some changes that NOAA would like to see in a reauthorized Act include increased flexibility to work with the private sector, non-governmental and volunteer organizations to fulfill this mission. Authority to increase public awareness on the availability of hydrographic services would also help improve public safety and expand the community of NOAA data users to more environmental groups. Clarifying that NOAA provides basic data for environmental applications as well as engineering and scientific purposes would simply encourage additional uses of this data not foreseen in 1947. Finally, new authorization levels should reflect the costs to implement new technologies in modernizing NOAA's navigation programs, maintain and update charting and associated databases, and provide high-accuracy data and services in the real-time, digital formats demanded by our users. We request that the draft reauthorization levels be consistent with the President's Budget. The Department's draft bill will address the appropriate levels.

An unintended consequence of the draft authorization is that it would nullify the permanent authorization of the programs provided by the Coast and Geodetic Survey Act of 1947. NOAA's navigation programs are perpetual infrastructure needs for the safety of the Marine Transportation System and should remain permanently authorized. They should not be subject to accidental de-authorization in the event that Congress is delayed in acting on a programmatic reauthorization. As I stated earlier, limits on NOAA's authority to operate its hydrographic ships without multi-beam equipment are overly specific. We fully support authorizing NOAA's use of modern equipment, but limitation on authority is unnecessary. The draft legislation also inadvertently restores language that limited NOAA's authority to perform navigation services to U.S. waters; this language was changed in 1960 (Pub.L. 86-409)

and reiterated most recently during the 106th Congress with HR 1000, Title VI, Section 605 (Pub. L. 106-181), to clarify NOAA's ability to operate outside of U.S. waters.

In closing, I would like to reiterate our focus on the ENC, the electronic navigational charts which will integrate all of NOAA's core products—new and accurate hydrographic and shoreline data, precise positioning information, and real-time oceanographic data—to enhance situational awareness and help the mariner utilize water depths more safely and effectively for navigation and cargo movement, in all weather conditions. As MTS trade and congestion increase, mariners will need to be able to navigate in more crowded, low visibility situations to keep traffic flowing. The impact of weather delays on cargo delivery has ripple effects throughout our economy; Houston Ship Channel is an excellent example of this. Home to some of the Nation's largest petrochemical facilities, this port is shut down by heavy fog each winter as ships sit waiting for better weather to transit the channel. Delays in energy delivery translate into higher fuel prices for consumers. The ability to navigate with the ENC in low visibility would help reduce this backlog of ships awaiting passage and improve vessel traffic management.

An initial set of ENCs is now available in prototype format via the Internet and NOAA continues to maintain and update the raster nautical charting database. The shoreline mapping program will expand its contracting efforts this year to acquire more digital shoreline data, and model arrangements with key states will help NOAA initiate Height Modernization of the Nation's spatial reference system. Finally, we are optimistic that the 2002 budget now pending before Congress will enable us to put the ENC on track, as well as adequately maintain the NWLON and PORTS systems, to support the Nation's need for high-accuracy products to promote safe navigation.

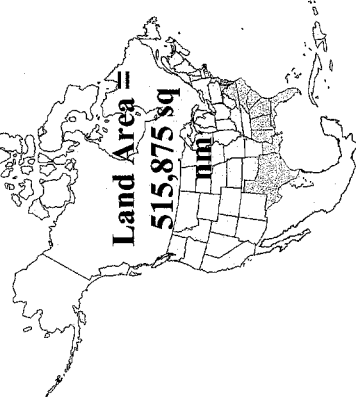
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NOAA's RESPONSIBILITY

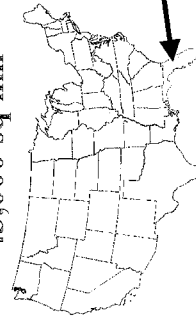
Total EEZ = 3.4 Million Sq nm



Navigationally Significant Areas = 515,000 sq nm



Critical Areas = 43,000 sq nm



Florida Land Area = 44,580 sq nm

Completed Critical Areas = 13,000 sq nm



## U.S. HYDROGRAPHIC CAPABILITY

1	Russia	37
2	Brazil	19
3	China	16
4	Cuba	10
5	Indonesia	09
6	India	08
7	Finland	06
8	United Kingdom	06
9	Spain	06
10	France	06
11	Ukraine	06
12	United States (NOAA/Contractors)	05
13	Germany	05
14	Japan	05
15	Mexico	05
18	Canada	04
19	Dem Peoples Republic of Korea	04
20	Portugal	04
21	Peru	04
22	Mozambique	04
33	Bahrain	03
34	Philippines	03
35	Poland	03
36	Thailand	03
37	Tunisia	03
40	Norway	02
58	Estonia	01

## NATIONAL EEZ

US (NOAA)	3,362,600
Russia	1,745,821
Japan	1,180,791
Canada	1,093,033
Brazil	874,660
Mexico	859,208
Indonesia	787,194
Norway	758,039
India	587,188
Philippines	551,415
Portugal	517,420
China	394,996
Spain	365,608
Peru	291,553
United Kingdom	270,387
Mozambique	163,911
Oman	158,897
Cuba	105,805
France	102,044
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Tunisia	29,155
Finland	25,948
Germany	16,619
Poland	8,309
Bahrain	2,916

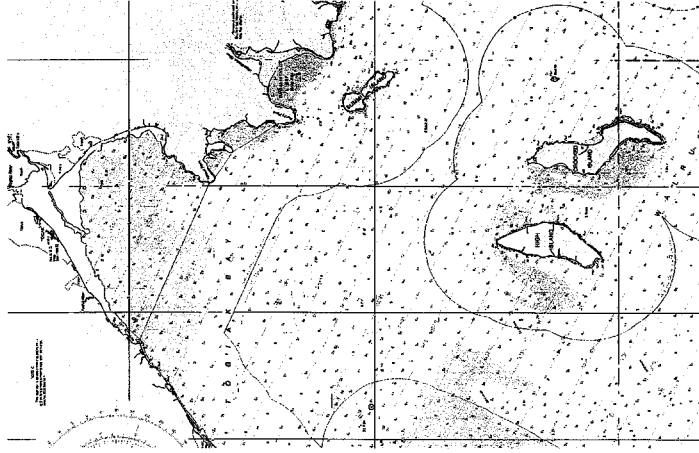
UNITED STATES EXCLUSIVE ECONOMIC ZONE

SOURCE: 310 Special Publication 05 / (1998)  
CIA World Factbook (1999)

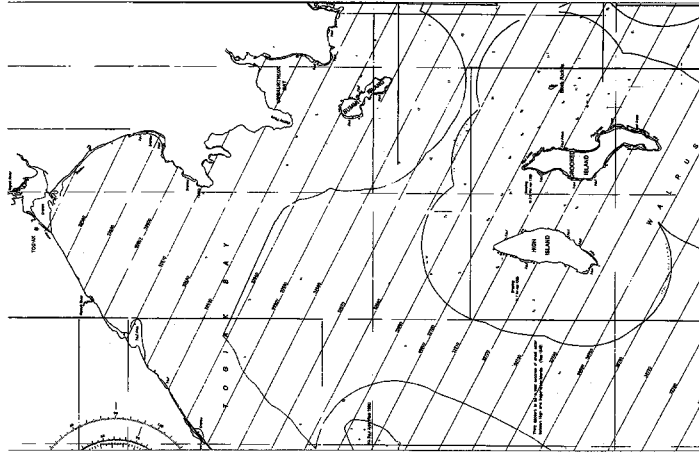


### RESOURCES

### WORK LOAD



**2001, Togiak Bay, after  
modern surveying**



**1985, Togiak Bay, Alaska,  
before modern surveying**

Mr. GILCHREST. Thank you, Mr. Gudes. Is NOAA now—you haven't presented to us a specific road map for a plan that NOAA will embark upon. There are various options out there, and I know, based on certainly ever improving technology, perhaps there is some hesitancy to move in one direction before a technology that is on the horizon could be put into production in the next 6 months. And our Committee would like to work with you, if, in fact, that direction has not been resolved yet, a specific set of options have not come to a fundamental conclusion. So this Committee would like to stay in touch with you, Mr. Gudes, to pursue as quickly as we can, the best available options.

Having said that, can you give us some idea of what we can expect with the extra money from 12 million to 33 million, if, in fact—and we are hoping that you would actually get that 33 million in the President's budget?

Mr. GUDES. I think the Senate bill actually has even more than the 33 million in it for some other programs to enhance our efforts. I think that the lease charter I talked about is on both sides of the House and Senate, or a time charter, I guess the right way to put it, which is the idea of a private sector ship that would really be operating on a much higher op tempo, dedicated on behalf of doing backlogs, possibly in the Gulf of Mexico, for example.

In the case of the 33 million, that change between the 12 million and 33 million, it represents the ship time. It represents bringing the Fairweather to activation. I think that actually takes place in 2003, fiscal year 2003, under our intentions, our plan. It includes operating our other three ships, the Rude, the Whiting on the east coast and the Rainier, which is our most effective vessel on the west coast which has six launches. It includes around \$20 million or so of charter time of using the private sector through specific charters. And I would say that in any sort of plan, in any sort of outlook, we are working with the private sector closely to make those contracts more and more effective on the square nautical miles that can be worked down with each of those contracts. And I think last time I testified, Mr. Chairman, I talked about how we have actually had some of our officers come off of ships, and then the next job was working on shore with the private sector and with the communities in terms of making that relationship more effective.

Mr. GILCHREST. So the extra money would be of a fairly large significant improvement in time, both on board ship, working with the private sector to bring about more and better hydrographic information. Could that also represent, in the near term, the specific way in which NOAA is going to complete this task?

Mr. GUDES. I am sorry. Say it again Mr. Chairman.

Mr. GILCHREST. The extra money, will that bring to fruition a specific plan, a choice of an option or options that NOAA will pursue?

Mr. GUDES. Well, we have submitted a hydrographic service plan to you. I understand some of the criticisms of the Committee that you feel that it—it is too general.

Mr. GILCHREST. Do you feel that—and that is a good—I am glad you said that. Do you feel that you are moving in a direction that you want to move in? Is it just a perception of us that it appears



vague, but in your mind you are on this course and you are in full gallop toward your goals?

Mr. GÜDES. Let me tell you what I do think, Mr. Chairman, and tell the Committee. This is my view, and you can either applaud or get me in trouble for saying any of this. I think that it is—

Mr. GILCHREST. We would be happy to hear you say something that you think might get you in trouble.

Mr. GÜDES. I think I did last time I testified.

Mr. GILCHREST. That is how we make progress here.

Mr. GÜDES. I think we talked about HAZMAT, one of my staff told me. I think that we are on the right track, and I do believe that if you listen, and I know we have been at a few events together, I talk about the impact that NOAA has had on our ocean programs. I think in almost every case it has been very positive. And we now have a new ocean commission, as you know, to take a look at things. But if you take a look at this area of our business, it is quite clear that after 1970, this country and NOAA reduced its capability. We went from 11 ships to 8 ships to three ships in terms of the inherent government capability, the internal capability and we did very little contracting.

And so it is not by accident that really our capabilities by the mid 1990's were less than they were when NOAA was created. We have, through your leadership, through the Congress's leadership and through people like Captain Dave MacFarland and Admiral Fields who are behind me, really turned that around in just the last few years. We are investing in new equipment in our ships. Admittedly, we are not building new hydrographic ships. We are investing in modernizing those ships.

But the Rainier, as I said, is among the most sophisticated and capable ships that we have in the hydrographic area. We are, through the Congress's leadership, modernizing the Fairweather, and so I think on the government side, in terms of the equipment, we are doing the right things.

In terms of the technical expertise, I think that the type of people, Sam Dubow, Commander Sam Dubow, who is behind me, Captain MacFarland, these are the Nation's preeminent government hydrographers. Efforts like creating the Joint Hydrographic Center, these are the right things to do to maintain the expertise. I think last time I testified here, I said that we had come down to about 80-something FTEs in NOAA, full-time equivalents that we considered hydrographic experts and I felt that that was as low and lower that the government should go; that we needed to rebuild that.

And I would make that statement again today, which will probably have me in trouble, who knows. In terms of the private sector, we didn't do enough contracting. In the mid 1990's, we started to turn that around. Again, this was an area where Congress, especially the House of Representatives, came back us too, and now we are doing over \$20 million of private sector contracts a year. This lease charter idea is one that the Congress has come to us with. And it is the idea of really getting a very high operating tempo from the private sector in areas that make sense where the private sector has special expertise, the Gulf of Mexico is a great example where I think we do very few government surveys in that area now. So on the hydrographic survey side, I think we are doing the

right things. In terms of the R&D, I think we are finally starting to do the right things to take a look at new research and development, new tools to do the job. And it always is a question of getting these products out into information that the customers can use.

I will say this, in fact, Captain MacFarland heads the constituent group that we meet with. NOAA does a pretty good job of going out and trying to meet with constituents and finding out what the private sector, the private sector in terms of the people who produce data with us, as well as the users, the ports and the shipping groups. I think that this part of NOAA's business promotes safe navigation or maritime transportation system is doing it right. When we have our constituent workshops, 60 percent or so of the people who come to the constituents workshops are private sector individuals, are customers, are constituents who are coming to us saying this is what we need the agency to do. And that is how we have been trying to change our plans. That is how we have been trying to offer our budget. I hope that answers your question.

Mr. GILCHREST. In a very complete way. Just—well, I have a couple more questions, but I am going to yield to Mr. Underwood at this point. Thank you, Mr. Gudes.

Mr. UNDERWOOD. Thank you, Mr. Chairman and thank you, Mr. Gudes, for your testimony on this. And I want to make sure you understand that even though I have some reservations about the contracting out, I am not asking these questions as away to contrast in House capabilities vs. outsourcing. You know, we are always going to have—we are going to have some contracted out work. I mean, there is not a—this is not a question of either/or, but it is a question of trying to understand what is the—what are the relative merits that would allow us to chart a more reasonable course in this regard.

In terms of the optimum efficiency of the vessels that are directly under NOAA, are those—is the hydrographic capability of the vessels that we have directly under NOAA and their technological capabilities, are they at optimum efficiency now? Is there more—if we gave more resources to those vessels, would they—is there still a long ways to go, or are we at the peak? And how do these vessels compare in terms of their capabilities to vessels in the private sector as well as vessels of other countries?

Mr. GUDDES. Other countries I don't know the answer to that. I'd probably have to get back to you for the record. In the case of the vessels that we have, they were built specifically for the coast, the old coast and geodetic survey for the nautical part of NOAA. I think they are quite efficient. The Rainier, as I said, has six launches, so they can really multiply it capability. Some of the older ships are personnel intensive. It probably costs, I would guess, about 5 to \$6 million a year to operate the Rainier. But again, we have gone back, and one of the things I didn't mention in my testimony as I summarized was that we have gone back and done KPMG studies and others to take a look at the cost of our ships versus private sector versus lease charter. And we feel that actually in terms of the op tempo, in terms of the square nautical miles that we are getting that, in fact, they are very capable platforms.

There is an issue I would be remiss in saying, twofold. One is the operating tempos that I mentioned. How many days at sea and how many days are you working. I just visited the Rainier and Whiting, two of our ships during the August recess. Those crews are working at high operating tempos.

The Rainier is in Alaska for quite some months, and they are working very hard. And I would have a question of how much more we could expect from what we ask our crews to do. In the case of equipment, as you may know, we were prohibited from modernizing the equipment on our ships for some period of time. Multi beam sonar, as you know, we generally use side scan sonar. Multi beam sonar, it depends on the kind of topography underwater that we were looking at. We were prohibited from modernizing. We have been modernizing our ships now, and I think that is the right thing to do. In terms of the newest technologies, I don't—I will have to get back to you for the record about what is on the horizon.

Mr. UNDERWOOD. In terms of the op tempo and the crews, is this comparable to service in the military, in the Naval service? Is this in, like, 6 months on, or is that—

Mr. GUEDES. We are at about 200 and how many days for the Rainier? 220 days.

Mr. UNDERWOOD. At sea?

Mr. GUEDES. For the same crew. That is at sea days. Yes, sir. Admiral Fields just reminded me. In terms for the military operating tempos, I really would have to get back to you.

Mr. UNDERWOOD. That is more. I sit on Armed Services. That is a higher op tempo rate than Naval service.

Mr. GUEDES. It is. It is our fishery ships, our fisheries research vessels as well, and it has to do with the cost effectiveness of the days at sea as well.

But we are convinced that at the current operating tempos that we are providing a pretty cost effective product for the American public. I would just add, Congressman, that in the—in my answer before, I do think that it is not a question of should you contract out or should you not. We believe that there is a lot of work that could be done in the private sector. And as I pointed, out we have aggressively moved to do work in the private sector, going back to Chairman Gilchrest's point, I think that there is a core capability that is important to maintain, and I think that that is about where we really are in terms of NOAA right now, and putting those three components together, as I pointed out, is what is really producing the reduction of the backlog.

Mr. UNDERWOOD. Well, you know, this has many comparisons to a series of—a level of inquiry that we constantly pursue in the Armed Services Committee, which is, as well as A 76 process, to what extent do you outsource? To what are issues of liability? What are core capabilities? What is essential to public health and safety?

And so this is—you know, there are some activities obviously that can be more easily outsourced. At the same time, I want to express my concern that we certainly have in-house capability of the highest order, certainly, the best in the world. And if, based on the kind of information that you have provided in the chart, we don't have the capabilities of many countries to—we are not providing the same level of resources as many countries.

Now, that is not the same as saying that we are not as capable. And obviously that is a judgment call that all of you that are involved in this line of work can make and best advise us on. But at the same time, also, in the process of outsourcing, it is very important that government retains the ability and not only to provide the core competencies and the best technical expertise to this area, but also is in the—can manage and monitor the outsourcing capabilities.

So I am very interested in your chart, table A here on page 7, which you have outlined going back to cost effectiveness, because we can analyze to what extent do we outsource on the basis of technical expertise and cost effectiveness, you know, whether these are dealing with issues concerning our core competencies. But in this chart you have outlined, that just in terms of cost effectiveness, on this chart, basically, the vessels that—the in-house capability for the year 2000 is certainly more cost effective than the outsourced or the contracted-out work.

And then you have 2001, this year, your estimating that the cost effectiveness of that continues to go up in terms of the outsourced work. You know, I am not looking for a general statement of reassurance, but basically, what you have is you, if you have the cost effectiveness of the in-house at one level, and you have the private sector providing it at another level that, in the interest of making sure that you have a balanced approach, that we are actually increasing the capacity of the private sector and not kind of dragging it down.

And if we are not investing the level of resources that we are into the in-house capacity or capabilities, then I am concerned that we are actually creating a balance by, you know, instead of raising one level, we are actually dragging down another level. Now, I don't know, you can—I suppose you can reassure me that that is not happening, and I certainly hope that is not the case. But it is a concern that certainly I want to express at this time.

Mr. GUDER. Yeah. I think that again, going back to my comments before, we really didn't do a significant amount of private contracting until the mid 1990's. That is significant to note. NOAA's been in the—NOAA or its predecessors have been in the hydrographic survey business for years. It is the oldest function in our agency's lineage.

But in the mid 1990's, we really started an aggressive way to do more contracting, again, largely to Congress, I think, saying the right things to us about that we needed to look at doing business differently. I think that we would find that the private sector is getting more and more productive. It also has to do with what areas you ask people to do the work in. There are some areas in Alaska that can be very intensive in terms of how much you can do. There are other areas of the country you can get a lot more square nautical miles done because of the bottom structure and because of the coast line, because of the type of ships.

So there is a lot that goes in. But I think that the private sector and NOAA's relationship with the private sector has been growing stronger every year. I think the relationship between our NOAA fleet commanders, our NOS leadership, our hydrographic expertise in the private sector has been getting better every year. That the

private sector contracts are becoming more and efficient. And so I think it is a good news story as you move toward the future.

I do think, realistically, that looking at trying to solve that backlog problem that I pointed to before, we have got to look to expansion of the private sector capabilities. It is more likely that that is where we are going to be able to get that surge capability, and that is really what we have been doing, and what I think basically my statements were about, what we are looking towards.

Mr. UNDERWOOD. Well, I think I clearly, in this regard, then, NOAA should be in the business of clearly identifying what core competencies we have and we should retain and we should invest R&D efforts in as well as making sure at the same time that in the contract management and the quality of the work that is being done by the private sector, that there be adequate resources devoted to that. There is certainly a great feeling sometimes amongst those people who are really strong advocates of outsourcing, a lot of work, that we are going to save a lot of money, and that this is not the case in this instance.

But I know that that is the tendency inside the Department of Defense, in this case, we are actually adding more money to a necessary activity in which we are going to utilize the private sector. But I would certainly urge that whatever kind of quality assurance, because at the end of the day it is the government that is going to be liable, and it is NOAA that is going to be liable. It is all of us that are involved in this from the public's point of view that we will be liable for anything that goes wrong with that. And so I certainly hope that we provide adequate resources toward contract management and the quality assurance.

Mr. GUEDES. I fully agree with you. And I think Jeff made that statement, or answer, back to you that the Coast Guard looks to NOAA. When they get data from us, they don't know if it is private data or publicly produced data. It is data from NOAA that we are endorsing. And I would agree with you.

Our general counsel points out that we are liable for all the surveying and work and data and products. And that is important to note. But I think that is right.

Mr. UNDERWOOD. Thank you very much.

Mr. GILCHREST. Thank you, Mr. Underwood.

A couple of follow-up questions, Mr. Gudes. One is the ENC Acoustic System. Is that employed on any ships right now?

Mr. GUEDES. Captain MacFarland tells me the answer is yes.

Mr. GILCHREST. What kind of ships are they?

Mr. GUEDES. There are some—this is Captain MacFarland. Can I bring him up? This is Captain Dave MacFarland from National Oceanic Service.

Captain MACFARLAND. Thank you very much.

ENCs now are the fuel for the ECDIS, Electronic Chart Display and Information System, and those systems are employed on a few vessels around the world.

Mr. GILCHREST. American vessels?

Captain MACFARLAND. Sir, I don't know about that. I do know that there are a number of international vessels.

Mr. GILCHREST. Are they oil tankers, cargo?

Captain MACFARLAND. Yes, to all of those, as well as long-distance ferries. There are some vessels in the Great Lakes that are using systems very similar to an ECDIS utilizing some data.

Mr. GILCHREST. When you say ECDIS, what does ECDIS stand for?

Captain MACFARLAND. Electronic Chart Display and Information System.

Mr. GILCHREST. Is that the same as ENC?

Captain MACFARLAND. The ENC—we are into the nitty-gritty of it right now. The ENC, the Electronic Charting data is what is used to fuel the ECDIS system. The ECDIS system is some software and display systems, some hardware also. And, yes, it is being used in some United States waters right now, but as a backup only for paper charts.

Mr. GILCHREST. If you have that on your ship—and I think you probably just answered my question. When you have this ECDIS system on your ship, is it, in fact, better than having the charts?

Captain MACFARLAND. Yes, sir.

Mr. GILCHREST. Or in addition to, you can look at the charts, but this is going to verify whether the charts are accurate?

Captain MACFARLAND. The answer to that is yes. The brand-new electronic navigational chart is far more accurate.

Mr. GILCHREST. That is in real time. That is on your ship and it is telling you what is underneath the boat?

Captain MACFARLAND. It is telling you what is charted under the boat. It has got much more detail. You are also able to use it interactively with a global positioning system so you know exactly where you are at any given moment.

It also, as Mr. Gudes testified, gives you the ability to have warnings. So a captain that is lost out there—and this happens occasionally—where he becomes disoriented, it will give him a warning telling him his ship is running into danger.

Mr. GILCHREST. How does the system know the ship is running into danger? It can actually detect through some type of sonar that there is an object ahead of you?

Captain MACFARLAND. No. That is not exactly how it operates. We give it survey information that tells it where the dangers lie. It knows where the ship is right now from the satellites above, and it can determine the course that the ship is headed. And it will tell you certain number of minutes, 10, 15 minutes ahead of time, before you actually ground.

Mr. GILCHREST. So you actually do, in fact, still need high-tech hydrographic service to put into that system for it to work?

Captain MACFARLAND. That is exactly right. Because it is that high-tech information that you have been talking about that is needed. And that is the information that goes into the ENC that the mariner relies upon.

Mr. GILCHREST. Thank you very much.

One real quick easy question for Mr. Gudes to end the session, that is the cost-sharing at the PORTS or Physical Oceanographic Real Time Systems. Is that an essential part of the funding aspect of NOAA's operation?

Mr. GUDES. Actually, that was again congressional leadership back about 1995 or so when people came back and the original plan

was more of a Federal Government system and correction was to do more of a cost-sharing.

Mr. GILCHREST. Is that the authorizers or the appropriators—congressional leaders?

Mr. GODES. It may have been the appropriators. I think that is right.

Mr. GILCHREST. Thank you, Mr. Godes.

Mr. GODES. Mr. Chairman, we are just about ready to go—commission the Maryland PORTS, Chesapeake PORTS system. And we are working with Virginia on the lower bay to get a PORTS system activated.

Mr. GILCHREST. If you can give us a date on that, we would like to be there when you commission it.

Mr. GODES. Mid to late October, I am told, from both sides.

Mr. GILCHREST. As long as the Pilots' Association aren't still angry at us about the cost-sharing, we will show up. Thank you, Mr. Godes.

Mr. Underwood.

Mr. UNDERWOOD. It is good, Mr. Chairman, to get a lot of attention. You know, if I could ask that NOAA provide a statement on what they would consider core competencies that have to be retained in house on the issue of hydrographic surveying.

I wasn't going to make mention of this in your chart, Mr. Godes, but in terms of the 3.4 million square nautical of EEZ, I assume this includes the Pacific as well?

Mr. GODES. It includes all the EEZ. I hope the map does, too.

Mr. UNDERWOOD. Well, the map doesn't have the Pacific in there, so I just wanted to draw attention to that. It is one thing to miss Hawaii, but, boy, to miss Guam—

Mr. GODES. We will get the map right next time.

Mr. GILCHREST. I am glad you pointed that out.

Mr. Godes, Captain, thank you very much for your testimony; and we continue to look forward to working with you.

Mr. GODES. Thank you very much.

Mr. GILCHREST. And we enjoyed planting grass on one of those beautiful little islands in the Chesapeake Bay a few months ago with NOAA. I am going to tell you that Mr. Godes was on his knees a lot that day.

Mr. GODES. We are supposed to do something on habitat restoration up at the Baltimore Aquarium, maybe tomorrow if the event still happens. Same sort of recognition of them at Morgan State, habitat restoration.

Mr. GILCHREST. The second panel is Ms. Helen Brohl, President of the National Association of Maritime Organizations; Mr. Kurt Allen, Management Association for Private Photogrammetric Surveyors; Mr. Frank Hamons, a dear friend, from the Port of Baltimore; and the rather magnificent pilot, Mr. Mike Watson, President of the American Pilots' Association.

Ms. Brohl here today?

Any rate, gentlemen, thank you all very much. Difficult circumstances for everybody. Thank you for your testimony that you submitted and for coming here this morning.

Mr. GILCHREST. Good morning, Ms. Brohl.

Ms. BROHL. My apologies.

Mr. GILCHREST. I was just welcoming everyone and thanking them for their time and effort under these very, very trying circumstances. And if you are ready, Ms. Brohl, you may begin.

**STATEMENT OF MRS. HELEN A. BROHL, PRESIDENT,  
NATIONAL ASSOCIATION OF MARITIME ORGANIZATIONS**

Ms. BROHL. Thank you very much, Mr. Chairman. Thank you very much for allowing us to be here today to participate in these reauthorization hearings. And we do appreciate the interest of the Committee on Navigation Services in the United States.

My name is Helen Brohl, and I am here today representing the National Association of Maritime Organizations. It is comprised of 17 shipping associations and maritime exchanges from all four seacoasts of the United States. NAMO's membership brings together an important component of commercial maritime activity which is concerned about issues directly or indirectly impacting the safe and efficient navigation of vessels into and through U.S. waters.

Navigation services under NOAA's National Ocean Service Division directly impacts our operational interests in the safe and efficient navigation of commercial vessels. The Hydrographic Services Improvement Act specifically spells out hydrographic responsibilities of the Administrator of NOAA. We believe that the National Ocean Service, as the implementing arm for the Administrator, has fulfilled that mandate very well and lived up to the increased financial support it has gotten in recent years.

We have had experiences, however, where other functions under NOS have been in conflict with their effort to work productively with maritime. This may be resolved in the spirit of the MTS initiative.

We also believe that it may be time for NOS to review their goals and priorities with industry input.

NOAA has successfully expanded and improved its ability to acquire and disseminate hydrographic data with the additional funding from recent years. It is NAMO's understanding that "NOAA versus private surveying contractor" relationship for accumulation of data, has been streamlined and is pretty successful.

You certainly know that there are 500,000 square nautical miles of navigationally significant waters in the U.S., which is about 300 years of work. Getting to the survey backlog has been a successful appropriations priority. We are pleased with the success. But NAMO has always been just as concerned for the dissemination aspect of their mandate, which has not received equal support. Data collection is important, but only valuable as it contributes to updated and accessible nautical charts, whether electronic or on paper.

We believe it is imperative that a thorough examination of chart dissemination, based upon the needs of industry, be organized by NOS with industry participation. We would expect that electronic navigation charts will eventually be the most efficient way to provide virtually real-time data charts to the consumer, whether it be through professional navigation systems, such as ECDIS, which you heard about before, in conjunction with the Automatic Information Systems, AIS, or even the home computer. Yet, we cannot em-



phasize enough, there is still a very real need for updated paper charts.

The U.S. Coast Guard, under 33 CFR 164, states that no person may operate or cause the operation of a self-propelled vessel of 1,600 or more gross tons without an updated marine chart of the U.S. waters in which it sails. It is still the practice on commercial cargo vessels that a NOAA paper chart of those waters is kept on the bridge. The paper chart provides a readily accessible and broad view of those waters and allows the mariner to make written notations, such as you might find in "Local Notice to Mariners." This is essential since it is rare that charts are updated to that moment of use. In fact, many of the paper charts are woefully outdated.

New data is often already on the NOS database, but is not getting to the consumer because of low funding. This, of course, impacts any form of nautical chart. But, again, we remind the distinguished Committee members that mariners will continue using paper charts as long as laptop computers don't fit into an outboard fishing boat or AIS transponders are not yet integrated into a vessel's technology or there is no PORTS station in every reach of navigable waters.

NOAA has been wrestling with the issue of print-on-demand charts for a number of years. It was once proposed that there be a central phone number that could be called for a very small fee, less than \$20. A newly printed chart based upon the data of that moment would be overnight expressed to the consumer. Naturally, chart agents who sell charts objected to this idea.

There was also a real attempt to get chart agents to have plotters in their local store which could link to NOAA data and print the most updated chart on demand. You could walk into the store and they would just print out the most updated chart. But it is our understanding that only the more expensive plotters produce the best charts, and they were too expensive for the average chart sales agent.

NAMO would like to see NOAA continue to accelerate their investigation into a subscription program which would automatically provide chart updates, whether by paper or computer disk. We don't really care if those updates go to a chart agent or directly to the chart or to a ship agent. But we need updated charts sooner rather than later. And we don't want the excitement of electronic charting to put that effort aside.

And, of course, we don't want to hinder work toward free and accessible electronic charts. Obviously, information transfer is essential for all key commercial navigation areas.

It is our understanding that NOAA works with the U.S. Coast Guard and U.S. Army Corps of Engineers to receive new data, and that the Corps of Engineers is also providing obstruction and sounding information in digital format. However, we do not know if the standard from Corps district to district or if all Corps offices are regularly sending any information at all. This was an issue on the Great Lakes.

A lot of the data wasn't getting to NOAA for updating. It has been resolved because of industry intervention, but what of other areas in the country? Is this still a problem?

We would like to commend NOAA for taking the initiative in being deeply involved in the development and adoption of standards that will stand up within the international community. NOS has an active and lead role with the International Hydrographic Organization and actively participates with the International Maritime Organization to ensure that both the national interests and the needs of the mariner are brought together. We believe that NOAA's expertise in hydrographic data standardization, collection and dissemination rivals that of any other country in the world.

Just as the creation of updated charts is of the utmost importance to the safe passage of commercial cargo vessels to navigable waters of the U.S., NAMO fully supports the Physical Oceanographic Real Time System, or PORTS, technology in conjunction with AIS as the most multidimensional information station available to guide vessels through commercial hubs and byways. It is the experience of those NAMO members that have responded that the NOS expertise and capabilities with PORTS is very good. However, NAMO believes that the funding mechanisms are prejudicial by nature and, therefore, should be provided from the general Treasury.

PORTS technology builds on a water level gauge information network, which is also managed by NOAA, but traditionally funded from the Treasury. Water level information, which is now viewed free of charge on line, is actively used for environmental predictions and fisheries management, as well as navigating. Yet only the localities that can find the large sum of money to pay NOAA for a PORTS station will get a PORTS station. Perhaps it was once thought that a PORTS station would pay for itself through additional business. However, PORTS has not proven to make a port more competitive, just safer.

The current requirement for a port or maritime organization to find a million dollars for a PORTS station excludes many deserving areas because of the cost itself. But what of those areas that are essentially byways rather than a central port? What local organization can take responsibility to acquire a PORTS station for a dangerous reach of a river that has no local port attached? Where will the funding be accumulated? What about a busy fishing inlet outside of a port authority jurisdiction? They, too, deserve the most advanced oceanographic real-time data with which to navigate. PORTS is a basic safety feature that corresponds with the Federal Government's MTS initiative.

NAMO asks that the Committee view PORTS as an essential safety feature of every important navigation channel in the United States. We would also ask that NOS ensure that the basic water level gauge network in the United States be tended to as well and not overlooked. The congressional Great Lakes Task Force is asking for 2 million in NOAA appropriations to upgrade basic water level gauges to real-time information reporting. What is the condition of gauges around the rest of the country?

Since the inception of MTS there have been associated discussions about the "cost of MTS." rather than view MTS as this lofty new ideal, we would like NOS to see it as a collection of immediate needs. PORTS, gauge station upgrades and updated accessible nautical charts are small immediate needs that will go a long way to

making our critical navigation areas safer and U.S. trade more efficient and competitive. We believe that funding these types of navigation services from the Treasury or even considering the harbor maintenance trust is appropriate, particularly when it comes to PORTS.

Mr. Chairman, you specifically asked us to address how NOAA programs relate to the Marine Transportation System initiative. NOS programs, in particular, are absolutely most intimately tied to the promotion of a safe and productive maritime transportation system, and we commend NOAA for its leadership role in MTS. NAMO believes that there should be much more emphasis on ways to improve the system now. We also believe that much more work should be done toward intra- or interagency coordination of maritime-related programs.

NOAA has initiated a leadership in MTS with Coast Guard and the U.S. Maritime Administration. This is appropriate and welcome. An important goal of MTS is to have an active and positive information exchange and working relationship between government and industry. We have found the Navigation Service Office of NOS to be very interested in working closely with industry. We ask NOS, however, to also ask the same of their other divisions, such as the Office of Ocean and Coastal Resource Management.

NAMO members are responsive to the need to coordinate vessel operations with natural resource interests such as the right whale migration on the U.S. East Coast or the need for ballast water treatment. We have been surprised to find, however, that working together is not always an option for the sanctuary interests in NOS. We are respectful of agency regulations and requirements and the environment, but would rather work together for viable navigation options as it only proves more productive in the short term and certainly better for long-term planning. It is important that these day-to-day maritime transportation issues be actively resolved for a better MTS.

The Hydrographic Services Act of 1998 has been helpful in bringing NOS to the forefront in recent years. We have to thank Members of Congress and your well-informed Committee staff members who have facilitated much of these strides. It is now time to thoroughly review the next step.

NAMO believes it is entirely appropriate to create an NOS industry working group, if not a formal advisory Committee, to prioritize programs and better understand the associated funding needs. We do not want NOS requirements to fall through the cracks because of a piecemeal approach. NAMO has an extraordinary pedigree of members with a day-to-day interest in the development of NOS programs and would be pleased to participate in such a group.

Thank you again for the opportunity to provide comments and we are pleased to take any questions you may have. Thank you.

Mr. GILCREST. Ms. Brohl, thank you very much.

[The prepared statement of Ms. Brohl follows:]

**Statement of Helen A. Brohl, President, National Association of Maritime Organizations**

Chairman Gilchrest and Members of the Fisheries Conservation, Wildlife and Oceans Subcommittee, I thank you for the opportunity to participate in the reau-

thorization hearing of the Hydrographic Services Improvement Act of 1998 and your interest in navigation services in the United States.

My name is Helen A. Brohl. I am here today representing the National Association of Maritime Organizations (NAMO) which is comprised of 17 shipping associations and maritime exchanges from all four seacoasts of the United States: Chicago to New Orleans, Seattle to Hampton Roads, LA to New York. [Membership list at end of statement.] As the executive director of the U.S. Great Lakes Shipping Association - itself a NAMO member - I am currently serving a two-year term as NAMO president. NAMO's membership brings together an important component of commercial maritime in the United States - that which is concerned about issues directly or indirectly impacting the safe and efficient navigation of vessels into and through U.S. waters. Navigation services under the National Oceanic and Atmospheric Administration's National Ocean Service (NOAA/NOS) division directly impacts our operational interests in the safe and efficient navigation of commercial vessels.

As a young Sea Grant Fellow with a staff position on the old House Oceanography Subcommittee handling budget review for NOAA's Coast Survey, I recall that the program received very little attention and consideration. Industry was not standing in the wings 17 years ago. I am proud to say that I am here representing an organization that testified at the 1998 hydrographic services hearing and helped raise awareness and funding for up-to-date charts of our navigable waters and NOAA's role in navigation services programs. We thank the many Congressional advocates who have turned around this important program and allow us today to talk about continuing and expanding on the successes of the past few years.

The Hydrographic Services Improvement Act of 1998 specifically spells out hydrographic responsibilities of the Administrator of NOAA. We believe that the National Ocean Service, as the implementing arm for the Administrator for these responsibilities, has fulfilled that mandate very well and lived up to the increased financial support. We have had experiences, however, where other functions under NOS have been in conflict with their effort to work productively with maritime. This may be resolved in the spirit of the Marine Transportation System initiative. We also believe that it may be time for NOS to review their goals and priorities with industry input.

NOAA has successfully expanded and improved its ability to acquire and disseminate hydrographic data with the additional funding from recent years. It is NAMO's understanding that the NOAA versus private surveying contractor relationship for accumulation of data has been streamlined and is quite successful. As you may know, there are 500,000 square nautical miles of navigationally significant waters in the United States - which is about 300 years of work. Getting to the survey "backlog" has been a successful appropriations priority. We are pleased with this success but NAMO has always been just as concerned for the dissemination aspect of their mandate which has not received equal support. This is partly the fault of industry for not asking the right questions during the appropriations process and NOAA not making this need clear enough. Data collection is important - but only valuable - as it contributes to updated and accessible nautical charts whether electronic or paper.

We believe it is imperative that a thorough examination of chart dissemination based upon the needs of industry be organized by NOS with industry participation. This would include the role of electronic charts, raster charts, paper charts and mechanisms for access on demand. We would expect that electronic navigation charts (ENC's) will be the most efficient way to provide virtually real-time chart data to the consumer - whether it be through professional navigation system operations such as ECDIS, in conjunction with automatic information systems (AIS) or via the home computer. Yet, we cannot emphasize enough that there is still the very real and immediate need for updated paper charts.

The U.S. Coast Guard under 33 CFR 164.33-164.41 states that no person may operate or cause the operation of a self-propelled vessel of 1600 or more gross tons without an updated marine chart of the U.S. waters in which it sails, excepting innocent passage. It is still the practice on commercial cargo vessels that a NOAA paper chart of those waters is kept on the bridge. The paper chart provides a readily accessible and broad view of those waters. It also allows the mariner to make written notations from the "Local Notice to Mariners." This is essential since it is rare that charts are updated to that moment of use. In fact, many of the paper charts are woefully outdated. The Coast Guard hand of government is mandating the use of outdated charts from the NOAA hand of government. Isn't this a job for MTS?

New data is often already in the NOS database but not getting to the consumer because of low funding. This, of course, impacts any form of nautical chart. But again we remind the distinguished committee members that mariners will continue

using paper charts as long as lap top computers don't fit into the outboard fishing boat or AIS transponders are not yet integrated into a vessel's technology or there is no Physical Real Time Oceanographic System in every reach of our navigable waters.

NOAA has been wrestling with the issue of "print on demand" charts for a number of years. It was once proposed that there be a central phone number that could be called and for a very small fee - less than \$20.00 - a newly-printed chart based upon data at the moment would be overnight expressed to the customer. Naturally, chart agents objected to this idea. There was also a real attempt to get chart agents to have plotters in the local store which could link to NOAA data and print the most updated chart on demand. It is our understanding that only the more expensive plotters produced the best charts but were too expensive for the average chart sales agent. NAMO would like to see NOAA continue and accelerate their investigation into the subscription program which would automatically provide chart updates whether by paper or computer disk. We don't care if those updates go to the chart agent (as long as the cost remains reasonable) or directly to the ship agent but we need updated paper charts sooner than later and don't want the excitement of electronic charting to put that effort aside nor do we want to hinder work toward free and accessible electronic charts.

NOAA needs considerably more funding to pursue electronic navigation charting, raster charts and paper charts and to incorporate the advancing technologies associated with providing updated nautical charts to the commercial or recreational maritime community. It is our understanding that NOAA works with the U.S. Coast Guard and the U.S. Army Corps of Engineers to receive new data. It is our experience that the Corps of Engineers is often providing obstruction and sounding information in digital format. However, we do not know if this is standard from Corps district to district or if all Corps offices are regularly sending any information at all. This was an issue in the Great Lakes which is resolved because of industry intervention. What of other areas around the country?

Obviously, information transfer is essential for all key commercial navigation areas. For example, port authorities work very hard to get Corps of Engineers funding to dredge their port area. If the post-dredge soundings do not get to NOAA in Silver Spring, MD for updating of the local chart, it is as if the port was never dredged. We can quote you vessel masters who live by the chart in front of them, not what the pilot on board may believe is there from experience. Whether it's Duluth or Hampton Roads, even inches of additional under keel clearance matter when loading cargo. Who is reminding the Corps of Engineers to request proper support for their digital information development and ensuring that their information is directed in the best format possible to NOS? Sounds like a classic case for MTS!

We must commend NOAA for taking the initiative with being deeply involved with the development and adoption of standards that will stand up within the international community. NOS has an active and lead role with the International Hydrographic Organization and actively participates with the International Maritime Organization to ensure that the both the national interests and the real needs of the mariner are brought together. We believe that NOAA's expertise in hydrographic data standardization, collection and dissemination rivals that of any other country in the world.

Just as the creation of updated charts is of the utmost importance to the safe passage of commercial cargo vessels through the navigable waters of the United States, NAMO fully supports the Physical Oceanographic Real Time System or PORTS technology in conjunction with AIS as the most multi-dimensional information station available to guide vessels through commercial hubs and by-ways. It is the experience of those NAMO members that have responded that the NOS expertise and capabilities with PORTS is very good. However, NAMO believes that the funding mechanisms are prejudicial by nature and therefore, should be provided from the general treasury.

PORTS technology builds on water level gauge information which is also managed by NOAA but traditionally funded from treasury. Water level information - which can now be viewed free of charge online - is actively used for environmental predictions and fisheries management as well as navigating. Yet, only the localities that can find a large sum of money to pay NOAA for a PORTS station, get to have a PORTS station. Does a city ask its citizens to create a coalition, come up with a design and find a funding source in order to put a stop light at a busy intersection? That stop light is funded from the local tax treasury because it is essential for the safety of the citizens. Perhaps it was once thought that a PORTS station would pay for itself through additional business. However, PORTS has not proven to make a port more competitive, just safer.

The current requirement for a port or maritime organization to find a million dollars for a PORTS station excludes many deserving areas because of the cost itself but what of those areas that are essentially by-ways rather than a central port? What local organization(s) takes responsibility to acquire a PORTS station for a dangerous reach of a river that has no local port attached? What about busy fishing inlets outside of a port authority jurisdiction? They too deserve the most advanced oceanographic real-time data with which to navigate. PORTS is a basic safety feature that corresponds with the Federal Government's MTS initiative. NAMO asks the Committee to view PORTS as an essential safety feature of every important navigation channel in the United States.

The federal agency presentations at MTS briefings show pictures of bigger ships and congested ports which in our perspective doesn't mean spend billions of dollars, taking many, many years to dredge as deep as you can go. It means we need to install PORTS stations and any other navigation safety technology available in critical areas to address this congestion now including making sure that the many basic water level gauge stations around the country are in good shape and providing real-time data. It is a penny-wise choice. But if the relatively small investment still scares you, why not allow the use of Harbor Maintenance Trust Funds? An authorization of even \$6 million per year for new builds might allow two or three PORTS stations to go on-line each year and the upgrade of a large number of solo water level gauge stations. We would have to ask NOS, but its possible that the total cost for maintenance of all existing PORTS stations might be less than \$2 million per year.

Since the inception of MTS, there has been associated discussions about the "cost of MTS." Rather than view MTS as this lofty, new ideal, we would like NOS to see it as a collection of immediate needs. PORTS, gauge station upgrades, and updated, accessible nautical charts are a small immediate need that will go a long way to making our critical navigation areas safer and U.S. trade more efficient and competitive. Allow us to remind you that it is the trade associated with waterborne transportation that provides billions in Customs revenue each year. We believe that funding these types of navigation services from the treasury or the Harbor Maintenance Trust is a reasonable request.

Chairman Gilchrest specifically asked us to address how NOAA programs relate to the Marine Transportation System or MTS initiative. NOS programs, in particular, are absolutely the most intimately tied to the promotion of a safe and productive maritime transportation system and we commend NOAA for its leadership role in MTS. NAMO believes that there should be much more emphasis on ways to improve the system now. We also believe that much more work should be done toward intra or inter-agency coordination of maritime related programs. The maritime industry is subjected to approximately 127 different user fees from an array of federal agencies who do not consult about the total impact of these measures. For example, U.S. Customs charges vessels an overtime fee for inspections which isn't used for the overtime service of the agent who then may not have enough overtime money in the local budget to provide an inspection in overtime. Providing Customs inspection at the dock is important for promoting trade in the United States. Are these day-to-day operational issues part and parcel of the MTS initiative? Is there a representative from every agency that charges a maritime fee on the MTS Inter-agency Working Group?

NOAA has initiated a leadership partnership in MTS with the US Coast Guard and US Maritime Administration. This is appropriate and welcome. The goal of MTS is to have an active and positive information exchange and working relationship between government and industry. We have found the navigation services office of NOS to be very interested in working closely with industry. We ask NOS to ask the same of their other divisions such as the Office of Ocean and Coastal Resource Management. NAMO members are responsive to the need to coordinate vessel operations with natural resources needs such as with the Right Whale migration on the U.S. East Coast or the need for ballast water treatment. We have been surprised to find, however, that working together is not always an option for sanctuary interests in NOS. We are respectful of agency regulations and requirements but would rather work together for viable navigation options as it only proves more productive in the short term and better for long-term planning. It is important that these day-to-day maritime transportation issues be actively resolved for a better MTS.

The Hydrographic Services Act of 1998 has been helpful in bringing NOS to the forefront in recent years. We have to thank Members of Congress and well-informed committee staff members who have facilitated much of these strides. It is now time to thoroughly review the next step. NAMO believes it is entirely appropriate to create a NOS-industry working group if not formal advisory committee to prioritize programs and better understand the associated funding needs. We do not want NOS

requirements to fall through the cracks because of a piece-meal approach. NAMO has an extraordinary pedigree of members with a day-to-day interest in the development of NOS programs and would be pleased to participate in such a group.

Thank you again for the opportunity to participate in the Hydrographic Services Act reauthorization hearing. I would be pleased to respond to any questions from the Committee.

*Members of the National Association of Maritime Organizations:* Association of Ship Brokers and Agents; Boston Shipping Association; Columbia River Steamship Operators Association; Connecticut Maritime Association; Hampton Roads Maritime Association; Jacksonville Maritime Association; Marine Exchange of LA/LB Harbor, Inc.; Marine Exchange of Puget Sound; Maritime Association of the Port of Charleston; Maritime Association of the Ports of NY/NJ; Maritime Exchange of the Delaware River and Bay; Steamship Association of Louisiana; Puget Sound Steamship Operators Association; Savannah Maritime Association; South Jersey Port Corporation; US Great Lakes Shipping Association; and West Gulf Maritime Association.

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Mr. GILCREST. Mr. Allen.

**STATEMENT OF KURT ALLEN ON BEHALF OF THE MANAGEMENT ASSOCIATION FOR PRIVATE PHOTOGRAMMETRIC SURVEYORS (MAPPS)**

Mr. ALLEN. Good morning, Mr. Chairman. Thank you for letting me have the opportunity to be here today. My name is Kurt Allen. I am Division Manager of Greenhorne & O'Mara, based locally here in Greenbelt, Maryland. I am testifying today on behalf of MAPPS. It is our national association of more than 150 private firms engaged in a variety of mapping-related activities.

We would like to commend the Subcommittee for its leadership in creating the hydrographic surveying contracting program in NOAA. This Subcommittee, together with the Commerce Appropriations Subcommittee, has for the last 7 years provided the leadership that has long been needed to make the changes necessary in NOAA that benefit the American taxpayer, the boating community, and the private surveying and mapping profession. We also would like to commend NOAA for the new direction it has begun with regard to the utilization of the private sector for hydrographic surveying, shoreline mapping, aerial photography, height modernization and airport surveys.

We believe NOAA's move toward contracting has been very successful. Private firms have been able to provide innovative staffing, scheduling and deployment to ensure that the government receives value for its money.

With a significant national backlog in critical ports requiring hydrographic surveys, MAPPS fully supports budget increases for this program. This backlog forms a strong basis for the increased use of the private sector for the conduct of hydrographic surveys and for the NOAA Corps officers and civilians to be refocused on inherently government activities such as contract administration and quality control.

However, there are still a number of qualified private firms, including those experienced in providing hydrographic services and other mapping activities, that can be utilized to further enhance the capabilities of NOAA. We believe NOAA should follow the lead of the Corps of Engineers, the USGS and NOAA in relying on the private sector to provide commercially available mapping services.

We urge the Subcommittee to decrease the authorized level for NOAA ownership and operation of hydrographic survey vessels. As you know, despite the progress that has been made and the leadership exerted by the Subcommittee, the NOAA ship survey operation activities remain on GAO's list of high-risk programs and continue to be a major management challenge and program risk.

There are capable and qualified private sector mapping firms that should be used to a greater extent by NOAA. These activities not only include hydrography, but include geodetic surveying, aerial photography, remote sensing, photogrammetric mapping and the actual production of electronic navigational charts.

We believe NOAA should focus its in-house activities in the establishment of professional and technical standards, the certification of data, research and development, funding and administration of grants and contracts and perform these services that are inherently governmental in nature and which are not necessarily competitive with the private sector.

We would urge the inclusion of the following provisions in the reauthorization of the Hydrographic Services Improvement Act.

First, that NOAA should be required to use the private sector for all commercially available surveying and mapping services. NOAA should be mandated to maintain an intellectual core capability in hydrography versus a large dollar capital capability.

Also, Congress should provide a more steady stream of funding to enhance productivity and efficiency of contractors even further. Legislation should require NOAA data certification program for electronic navigational charts. We regret that NOAA has not utilized the authority it was granted in 1998, and we urge the Committee to amend section 304, Public Law 105-384, by changing the "may" to "shall" with regard to establishing a data certification program and establishing the statutory deadline for NOAA to implement a program.

The cap on funds for in-house NOAA ships should also be lowered and revised to include both ownership and operation of vessels. MAPPS opposes NOAA's leasing of ships. This strategy fails to resolve the issue of unfair government competition and fails to take advantage of saving dollars and increased efficiency that has been identified by the Inspector General. It can also be realized by contracting to firms that have the ships, equipment, personnel and expertise to meet NOAA's needs.

Mr. Chairman and this Committee, I thank you for the opportunity to be here.

Mr. GILCREST. I think maybe we should have had Mr. Gudes on this panel. Thank you, Mr. Allen.

[The prepared statement of Mr. Allen follows:]

**Statement of Kurt Allen, Greenhorne & O'Mara, Greenbelt, MD on behalf of the Management Association for Private Photogrammetric Surveyors (MAPPS)**

Mr. Chairman, I am Kurt Allen, Division Manager of Greenhorne & O'Mara, Inc. My firm provides a full spectrum of surveying and mapping services to the USGS, NIMA, Corps of Engineers, Fish and Wildlife Service, among other Federal agencies.

Our firm is based in Greenbelt, Maryland. I am personally a resident of Annapolis. We employ more than 350 persons in Maryland and another 350 in offices in North Carolina, Florida, Virginia, Pennsylvania, West Virginia and Georgia.



Let me first commend this Subcommittee for its leadership in creating the hydrographic survey contracting program in NOAA in the Hydrographic Services Improvement Act. This subcommittee, together with the Commerce Appropriations Subcommittee, has for the past 7 years, provided the leadership that has long been needed to make the necessary changes in NOAA that benefit the American taxpayer, the recreational and commercial boating community, and the private surveying and mapping profession. We also commend NOAA for the new direction it has begun with regard to utilization of the private sector for hydrographic surveying, shoreline mapping, height modernization, aerial photography, and airport surveys.

For the services that NOAA has begun contracting to the private sector, we believe the agency is highly satisfied. Private firms have been innovative in staffing, scheduling and deployment to ensure that the government receives value for its money. Currently, almost all the NOAA hydrographic contractors are MAPPS member firms.

Our members in the hydrographic program believe the professional relationship that has been established and the development of new tools and techniques for efficient acquisition and processing of hydrographic data in support of nautical charting is beneficial to both NOAA and the private sector, and to the nation as a whole. With the significant national backlog in critical areas requiring hydrographic surveys, MAPPS fully supports the need to expand budget allocations for this program. This backlog forms a strong basis for the increased use of the private sector for the conduct of hydrographic surveys, and for the NOAA Corps officers and civilians to be refocused on inherently governmental activities such as in contract administration and quality control.

The critical expertise in hydrography resident within NOAA can be of significant assistance to the private sector in the form of necessary standardization, certification, quality control and contract administration.

However, there are still a number of qualified private firms, including those experienced in performing hydrographic services for the Corps of Engineers in its inland waterways program, that have not been selected for contracts by NOAA. Mr. Chairman, there is additional private sector capacity and capability that could be utilized to further enhance the capabilities of NOAA.

We would urge the Subcommittee to decrease the authorized level for NOAA ownership and operation of hydrographic survey vessels. As you may know, despite the progress that has been made, and the leadership exerted by this Subcommittee, the NOAA survey ship operation activities remain on the General Accounting Office list of high risk programs, and as recently as January of this year, continues to be a major management challenge and program risk in the Department of Commerce. GAO found, "NOAA continues to rely heavily on its in-house fleet and still plans to replace or upgrade some of these ships. Consequently, continued oversight of NOAA's plans to replace or upgrade ships will be needed to ensure that NOAA is pursuing the most cost-effective alternatives for acquiring marine data." (GAO-01-243, Commerce Challenges, January 2001)

NOAA can stretch its dollars in the production of nautical charts to support commerce and ensure safe navigation by transforming itself into an organization that performs only those services that are inherently governmental in nature. It should not be expending funds for in-house performance of commercially available mapping activities.

There is a capable and qualified private sector in mapping that can and should be used to a greater extent by NOAA. These activities include not only hydrography, but geodetic surveying, aerial photography, remote sensing, and photogrammetric mapping, and the actual production of electronic navigational charts (ENCs).

We believe NOAA should focus its in-house activities on the establishment of professional and technical standards, certification of data, research and development, funding and administration of grants, and to perform those services that are inherently governmental in nature and which are not competitive with the private sector.

We would urge the inclusion of the following provisions in the reauthorization of the Hydrographic Services Improvement Act:

- NOAA should use the private sector for all commercially available surveying and mapping services. This is not only required by OMB policy (SEE OMB Circular A-76), but by language in the fiscal year 96 Commerce Appropriations bill. It should be noted that NOAA has still not completed a fully inventory of all its commercial mapping activities, as it is required to do by the Federal Activities Inventory Reform (FAIR) Act, Public Law 105-270);

- NOAA should maintain an "intellectual" core capability in hydrography, versus a large dollar capital capability;

- NOAA should provide a more steady stream of funding to enhance the productivity and efficiency of contractors even further; and it should strive to improve its contract management capability.
  - A NOAA data certification program for Electronic Navigational Chart data, and the S-57 format, is needed for private sector firms. We would urge the Committee to amend section 304 of PL 105-384 by changing the “may” to “shall” with regard to establishing a data certification program and establishing a statutory deadline for NOAA to implement such a program. We regret that NOAA has not utilized the authority it was granted in 1998.
  - The cap on funds for in-house NOAA ships should be lowered, and revised to include both ownership and operation of vessels. MAPPs opposes NOAA’s leasing of ships. This strategy fails to resolve the issue of unfair government competition, and fails to take advantage of the saving of dollars and increased efficiency identified by the Inspector General, that could be realized by contracting to firms that have the ships, equipment, personnel and expertise to meet NOAA’s needs.
  - The expansion of private sector utilization for photogrammetry, geodesy, remote sensing, aerial photography and other commercially available geospatial activities is both welcomed and encouraged.
- Mr. Chairman, I thank you and your subcommittee for the opportunity to appear before you today.

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Mr. GILCHREST. Mr. Hamons, welcome.

**STATEMENT OF FRANK HAMONS, MANAGER, HARBOR DEVELOPMENT, MARYLAND PORT ADMINISTRATION**

Mr. HAMONS. Thank you, Mr. Chairman. I appreciate the opportunity to testify before this Committee today. I do think that while recognizing the seriousness of the situation that we have faced in recent days, continuing with business is a necessity in order that those who perpetrated this do not get what they want out of it.

Mr. GILCHREST. Thank you very much.

Mr. HAMONS. Mr. Chairman, members of the Committee, I am Frank Hamons, Manager of Harbor Development at the Maryland Port Administration, Chairman of the American Association of Port Authorities’ Harbors, Navigation and Environment Committee. Founded in 1912, AAPA is an association of 160 public port authorities in the United States, Canada, Latin America and the Caribbean. My testimony today reflects the views of AAPA’s United States delegation.

AAPA port members are public entities, divisions or agents of the State and local governments mandated by law to serve public purposes. Public port authorities are charged with developing port facilities, facilitating waterborne commerce and promoting economic development.

The success of U.S. international trade depends on a viable and safe navigation system. Without modern navigational tools, the United States cannot move cargo that is important to the U.S. economy through ports without compromising safety or threatening the environment. For these reasons, reauthorization of the Hydrographic Services Improvement Act is a priority—must be a priority.

AAPA has consistently advocated for increased funding for navigational services provided by the National Oceanic and Atmospheric Administration. Safety systems, such as PORTS, that provide valuable navigation information should be provided for all U.S. ports, not simply to those who can afford it. And I speak of one port that is installing this system right now—is in the process, and we should have an agreement signed probably by late October,

perhaps early November, to do so. One of those ports can proceed with this, but we are recognizing that all ports need this service.

Safety should not be a matter of choice, but of necessity. It is also the view of the Marine Navigation Safety Coalition, a coalition of over 40 industry groups representing various aspects of the Nation's marine transportation system, formed to promote the importance of funding NOAA's navigation services programs as authorized under the Hydrographic Services Improvement Act.

Today, mariners transiting U.S. waters are forced in many locations and many situations to rely on outdated navigation charts and tidal predictions produced by the National Oceanic and Atmospheric Administration. In fact, over the past 10 years or more, NOAA has been forced to withdraw tide and current predictions at several major ports, including the Port of New York and New Jersey due to insufficient and outdated information.

The San Francisco chart was also withdrawn in 1991, and more are expected to be pulled since 50 percent of them are based on observations over 50 years old.

I would say that we at the Port of Baltimore and Chesapeake Bay are being served very well right now by NOAA. They are doing a lot of hydrographic surveying in our area.

But to give you an indication of the type of problem that is faced, some of the information that was recently replaced within the past year was almost reaching its centennial anniversary when the resurveying occurred. It was 99 years old. So it gives you an idea of what is on some of the charts.

As I say, we are being served right now—the resurveying is under way, and that is great for us, but for those who are still dealing with this data around the country, it is a real problem.

Compounding these problems is the rapid growth of traffic on U.S. waters. Waterborne commerce has tripled since 1947. The U.S. Department of Transportation projects that it will triple again over the next 3 decades. Electronic navigation charts are the new standard for safe navigation of vessels and are the base ingredient or visual backdrop for collision avoidance systems, such as the Electronic Chart Display and Information System and the United States Coast Guard proposed Automated Identification System. These complementary systems are designed to prevent accidents and spills by alerting the mariner of a potential grounding in enough time for the mariner to take corrective action. Despite the importance of integrating ENC's for use within the maritime industry, NOAA has not received the necessary funding over the years to bring them on line.

Another important NOAA navigational tool is the Physical Oceanographic Real Time System, or PORTS. With accurate real-time information and modern forecasts, ships can safely adjust loads to use available draft margins. Despite the success of this program and enhancing safety and improving efficiency of vessel movements in international trade, PORTS has only been available to a small number of commercial harbors. Those fortunate few are paying for its operation and maintenance, and those wishing to install a new system must pay for this as well.

In the case of Maryland, we are—Port of Baltimore, we are 150 miles from the ocean, southern approach; the northern approach,

we are 112 miles from the ocean. We have 126 miles of dredged channel in these various systems. It is invaluable to be able to project, as you start, where you are going to go and what the conditions are going to be when you get there and then verify it en route. This is an invaluable service.

Over the years, Federal funding for the PORTS system has been meager at best, and in fiscal year 2000 was nonexistent. This year for the first time we may see a bigger jump in funding thanks to the support of this Committee. However, the tides and currents line item that funds PORTS has never received the annual \$22 million outlined in the Hydrographic Services Improvement Act of 1998.

We urge the Committee to continue its push for the necessary funds and the reauthorization of the Hydrographic Services Act to guarantee that NOAA can continue to provide the quality assurance and infrastructure necessary to keep existing ports in operation and enable other ports to install PORTS.

Further, AAPA believes the Federal Government should pay for not only design and quality assurance, but also the installation and maintenance of the PORTS system to ensure a uniform state-of-the-art national program. Beyond the need to secure additional funding for NOAA's suite of navigation services, reauthorization of the Hydrographic Services Act presents other opportunities to improve on these services. The 1998 bill required that within 6 months of enactment, NOAA and the U.S. Coast Guard was supposed to submit a report to Congress on the status of real-time tide and current data systems and U.S. ports, existing safety and efficiency needs in U.S. ports that could be met by increased use of these systems, and provide a plan for expanding PORTS to enhance safety needs.

NOAA did submit two reports to Congress. However, these reports did not go far enough in examining the current needs of the maritime industry and outlining NOAA's long-range plan for addressing these needs.

AAPA suggests that before any new recommendations or plans are made with regard to the future of NOAA navigation programs, a more comprehensive report should be completed. National Ocean Service should be charged with developing a long-range strategic plan for addressing these recommendations.

Also, AAPA believes the National Ocean Service should develop a stakeholder advisory group to provide guidance, expertise and direction on navigation safety issues, as well as consultation on a comprehensive review of the needs of the industry.

Finally, the bill should direct the various Federal agencies that have jurisdiction over navigation safety, such as NOAA, the U.S. Coast Guard and U.S. Army Corps of Engineers, to better coordinate their efforts to eliminate duplication of efforts and maximize limited resources. AAPA believes this cooperation will lead to better services for the maritime industry.

Overall, the goal of the Hydrographic Services Improvement Act, 1998 was to focus attention on improving the infrastructure of the Nation's navigation system and to provide the framework for catching up with the survey backlog and modernizing navigation operations. Though it authorized significant funding to improve

NOAA's navigation services, the administration has never requested nor has Congress appropriated these higher funding levels.

The bill was a positive first step toward raising awareness for navigation safety. However, we have a long way to go. Safety programs such as PORTS should not be an option for those who can afford it, but a national priority funded by the Federal Government. It must be a Federal priority to maintain our Nation's waterways, to provide the necessary tools to allow mariners to do their jobs, and to facilitate the commerce that provides significant economic benefits to our Nation.

[The prepared statement of Mr. Hamons follows:]

**Statement of Frank Hamons, Manager, Harbor Development, Maryland Port Administration and, Chairman of the American Association of Port Authorities, Harbors, Navigation and the Environment Committee**

Good morning. I am Frank Hamons, Manager of Harbor Development at the Maryland Port Administration and Chairman of the American Association of Port Authorities' Harbors, Navigation and the Environment Committee. Founded in 1912, AAPA is an association of 160 public port authorities in the United States, Canada, Latin America and the Caribbean. In addition, the Association represents almost 300 sustaining and associate members, firms and individuals with an interest in the seaports of the Western Hemisphere. My testimony today reflects the views of AAPA's United States delegation.

AAPA port members are public entities, divisions or agents of State and local government mandated by law to serve public purposes. Public Port Authorities are charged with developing port facilities, facilitating waterborne commerce, and promoting economic development. Ports are key to this nation's ability to trade internationally, providing American consumers and businesses with the choices they demand for worldwide products and markets. Ports provide this connection to the world by handling 95 percent of all U.S. overseas trade by weight, and 75 percent by value.

The success of U.S. international trade depends on a viable and safe navigation system. Without modern navigational tools, the United States cannot move cargo that is important to the U.S. economy safely and efficiently through ports. In addition, with an increase in the number of larger, deep draft vessels, the United States cannot afford to compromise safety or threaten the environment. For all of these reasons, reauthorization of the Hydrographic Services Improvement Act must be a priority.

AAPA has consistently advocated for increased funding for navigation services, including mapping and charting, tides and currents and Physical Oceanographic and Real-Time Systems (PORTS) provided by the National Oceanic and Atmospheric Administration (NOAA). Providing adequate resources to maintain modern and accurate navigation services must be a national priority because these programs provide critical environmental protection and safety tools to all waterway users and enhance the efficiency of international trade. Safety systems such as PORTS that provide valuable navigation information should be provided for all U.S. ports and not simply to those that can afford it. Safety should not be a matter of choice but of necessity.

That is also the view of the Marine Navigation Safety Coalition, a coalition of over 40 industry groups representing various aspects of the nation's Marine Transportation System, including marine pilots, maritime exchanges, cargo and vessel owners, rail and terminal operators, and ports. The Coalition, coordinated by AAPA, was formed four years ago to promote the importance of funding NOAA's navigation services programs as authorized under the Hydrographic Services Improvement Act.

*Background*

Today mariners transiting U.S. waters are forced, in many situations, to rely on out-dated navigation charts and tidal predictions produced by the National Oceanic and Atmospheric Administration (NOAA). A large percentage of depths shown on NOAA charts are based on surveys that were conducted over 50 years ago. In fact, a number of deep draft ships that travel through U.S. waters are relying on charts with depths that were determined by the use of lead lines prior to World War II. Over the past ten years or more, NOAA has been forced to withdraw tide and current predictions for several major ports, including the Port of New York and New Jersey, due to insufficient and outdated information. The San Francisco chart also

was withdrawn in 1991 and more are expected to be pulled, since 50 percent of them are based on observations over 50 years old.

Ships routinely pass within a few feet of the bottom when entering and transiting our nation's coastal and inland waterways. A single impediment such as an uncharted rock, an old concrete buoy block, or the fluke of an abandoned anchor has the potential to puncture the hull of a ship. The environmental damage from such an accident can be measured in billions of dollars.

Compounding these problems is the rapid growth of traffic on U.S. waters. Waterborne commerce has tripled since 1947. The U.S. Department of Transportation projects that it will triple again over the next three decades. The number of recreational boaters has nearly doubled since 1970, crowding already overflowing harbors.

Electronic Nautical Charts (ENC) are the new standard for safe navigation of vessels and are the base ingredient or visual backdrop for collision avoidance systems such as the Electronic Chart Display and Information System (ECDIS) and the United States Coast Guard's proposed Automated Identification System (AIS). These complementary systems are designed to prevent accidents and spills by alerting the mariner of a potential grounding in enough time for the mariner to take corrective action. Creating an ENC is not simply a matter of converting the paper chart data to an electronic format, since most of the chart data was collected using positioning methods that predate Global Positioning System. NOAA is recollecting position-critical data using geodesy and aerial imagery on critical chart features such as petroleum docks, ferry terminals and aids to navigation to enable mariners to safely navigate vessels in constricted waterways and in times of limited visibility. Unfortunately, despite the importance of integrating ENCs for use within the maritime industry, NOAA has not received the necessary funding over the years to bring them on line.

Another important navigational tool NOAA has developed is the Physical Oceanographic Real-Time System (PORTS). With accurate, real-time information and modern forecasts, ships can safely adjust loads to use available draft margins. PORTS allows ships—berthed or under way—to access real-time data from a variety of instruments that measure currents, winds and waves, water levels (tides), depths, temperatures, and salinity. Despite the success of this program in enhancing safety and improving the efficiency of vessel movements and international trade, PORTS has only been available to a small number of commercial harbors. Those fortunate few are paying for its operation and maintenance and those wishing to install a new system must pay for this as well.

The data available from PORTS enables much more accurate tide and current predictions, thus reducing travel delays and increasing traffic-handling capabilities. Many of this country's export products are price-sensitive commodities. Because shipping contracts can hinge on a few tenths of a cent per bushel of grain or ton of coal, transportation costs can be the deciding factor for foreign buyers choosing between American or foreign bulk products. Maximizing the use of channel depths is an important factor in the efficiency of waterborne commerce. PORTS systems are also instrumental in preventing and responding to spills of hazardous materials and oil, predicting coastal floods and conducting scientific research. The success of PORTS in Tampa Bay, Florida, New York–New Jersey, San Francisco, Houston and the Chesapeake Bay is fueling interest in the establishment and expansion of these systems at other harbors around the country.

Without PORTS, true depth, rise in tide and on-site wind and channel current information is not readily available. Furthermore, as trade and vessel operations increase, harbors that do not have this system will have trouble handling the increasing volume of traffic at the same level of safety as they do today. It has become clear that at a number of ports, the PORTS program is no longer an enhancement but a necessity for many groups, including but not limited to pilots, vessel operators, shippers, the U.S. Coast Guard and port authorities. With no other tool to accurately monitor these conditions, significant safety and environmental risks could result.

There is another important contribution that PORTS makes to safeguarding the coastal environment. On July 5, 2000, an accident occurred in which a tugboat towing an oil barge punctured a hole in the hull of the barge, thus causing an oil spill in the Narragansett Bay. Less than two weeks prior, Rhode Island celebrated the installation of PORTS in the Narragansett Bay area, and it is a good thing the system was in place. With PORTS up and running, Rhode Island's Department of Environmental Management worked with NOAA and other agencies to contain the oil spill by predicting how the slick would move as a result of the current, wind and tides. PORTS was instrumental in minimizing the environmental impact from this accident and, no doubt, saved a great deal in clean up costs.

Over the years, Federal funds for the PORTS system have been meager at best, and in fiscal year 2000 were non-existent. This year, for the first time, we may see a bigger jump in funding thanks to the support of this Committee; however, the Tides and Currents line item that funds PORTS has never received the annual \$22 million outlined in the Hydrographic Services Improvement Act of 1998. PORTS must receive a stronger financial commitment from the Administration and Congress to ensure a nationally viable program. We urge the Committee to continue its push for the necessary funds in the reauthorization of the Hydrographic Services Act to guarantee that NOAA can continue to provide the quality assurance and infrastructure necessary to keep existing PORTS in operation and enable other harbors to install PORTS. Further, AAPA believes that the Federal government should pay for not only design and quality assurance, but also the installation and maintenance of PORTS systems to ensure a uniform, state-of-the-art national program.

#### *Recommendations*

Beyond the need to secure additional funding for NOAA's suite of navigation services, reauthorization of the Hydrographic Services Act presents other opportunities to improve on these services. The 1998 bill required that within six months of enactment, NOAA and the USCG were supposed to submit a report to Congress on the status of real-time tide and current data systems in U.S. ports, existing safety and efficiency needs in U.S. ports that could be met by increased use of those systems and provide a plan for expanding PORTS to enhance safety needs. NOAA did submit two reports to Congress; however, these did not go far enough in examining the current needs of the maritime industry and outlining NOAA's long-range plan for addressing these needs. AAPA suggests that before any new recommendations or plans are made with regard to the future of NOAA navigation programs, a report should be completed that includes a comprehensive review of the status of these programs, the needs of the maritime industry, and recommendations for the most cost-effective and efficient means for addressing these issues. This study should be fully coordinated with the maritime industry. Once it is completed, the National Ocean Service (NOS) should be charged with developing a long-range strategic plan for addressing these recommendations.

AAPA believes that the National Ocean Service should develop a stakeholder advisory group to get feedback and direction from the private sector. With the growth of international trade over the next twenty years, safety will become an even greater priority. In planning to meet the needs of the maritime industry, NOS should establish this advisory group to provide guidance, expertise, and direction on navigation safety issues as well as consultation on a comprehensive review of the needs of the industry.

Finally, the bill should direct the various Federal agencies that have jurisdiction over navigation safety, such as NOAA, the U.S. Coast Guard and the Army Corps of Engineers, to better coordinate their efforts to eliminate duplication of efforts and to maximize limited resources. The 1999 Marine Transportation System (MTS) Report, An Assessment of the U.S. Marine Transportation System, identifies the greatest safety concern among stakeholders as the "unavailability of timely, accurate, and reliable navigation information." Therefore it suggests that NOAA work in conjunction with the Army Corps of Engineers and the Coast Guard as well as local communities to design, develop and install appropriate Physical Oceanographic Real-Time Systems (PORTS) technology, accelerate the current timetable for reducing the survey backlog, and expand and develop the coverage of electronic navigational charts. AAPA believes that this cooperation will lead to better services for the maritime industry.

#### *Conclusion*

Overall, the goal of the Hydrographic Services Improvement Act of 1998 was to focus attention on improving the infrastructure of the nation's navigation systems. The Act was to provide the framework for catching up with the survey backlog and to modernize navigation operations. Though it authorized significant funding to improve NOAA's navigation services, the Administration has never requested, nor has Congress appropriated, these higher funding levels.

The bill was a positive first step towards raising awareness for navigation safety; however, we have a long way to go. Safety programs such as PORTS should not be an option for those who can afford it but a national priority funded by the Federal government. Without these essential programs that provide valuable information to mariners, there is an increased probability that maritime accidents, taking a substantial toll on the industry and the environment, will occur. It must be a Federal priority to maintain our nation's waterways, to provide the necessary tools to allow

mariners to do their job, and to facilitate the commerce that provides significant economic benefits to our nation.

Mr. GILCHREST. Thank you, Mr. Hamons. We will hopefully, what with our efforts and your expertise, make sure we take that vital next step.

I also want to thank Mr. Hamons. We have worked for a number of years now on some very, very controversial issues in the State of Maryland, often at opposite ends of the opinion scale. Mr. Hamons has always showed himself to be highly professional, and as a result of that, we have been able to retain a very fluid, workable, professional relationship by which people that we both represent benefit.

Thank you very much.

Mr. HAMONS. Thank you, sir.

Mr. GILCHREST. And Mike Watson, somebody else we worked with in the State of Maryland for a number of years.

Mike, welcome this morning.

I would like to also say that Mike has always been a professional person in his career and in his profession, and has been a benefit to the people that he represents and has also been a benefit to us with the information you provide us with.

You may begin, Mike.

**STATEMENT OF CAPTAIN MICHAEL R. WATSON, PRESIDENT,  
AMERICAN PILOTS' ASSOCIATION**

Mr. WATSON. Thank you very much, Mr. Chairman. To you and Mr. Underwood, I can only say, I and all the pilots in the United States echo your thoughts and concerns; and we are proud to have your leadership here and the leadership of Congress to represent our country in these terrible times.

Members of my group this morning, we see the TV going in New York, going all the time. The Port of New York is closed, but the American Pilots' Association operation is running 24 hours a day to help the rescue efforts up there.

So, Mr. Chairman, Committee, my name is Michael Watson. I am President of the association of—excuse me, of the American Pilots' Association. I work in that category with you, Mr. Chairman, which represents all of the licensed State pilots throughout the United States.

We have had opening remarks that 95 percent of the commerce coming to and from the United States is coming by way of maritime activity, of that 95 percent, 95 percent of those ships are daily manned by members of the American Pilots' Association representing not only the Federal interests, but the State interests for each and every port.

The Hydrographic Services Improvement Act of 1998 was an important first step in providing an effective mechanism for NOAA to modernize its navigation services. The act authorized urgently needed levels of funding and enhanced NOAA's ability to leverage its limited resources by the increased use of contracting. The act also encouraged further development and implementation of NOAA's Physical Oceanographic Real Time System known as



PORTS, which provides critical real-time tide and current information.

Today I salute you for your vision and offer a pilot's-eye view of the act where it matters most from the bridge of the large commercial ships navigating our Nation's waterways. As I am talking, APA members are piloting loaded tankers, cruise ships, coal colliers, bulkers, car carriers, LNG ships, product carriers, container ships, which all are moving our Nation's commerce.

Some of them are on unfamiliar ships. Some are in restricted visibility. Most are handling ships drafting within a few feet of the bottom and with similar air draft clearances under bridge spans. Virtually all are aboard foreign vessels with captains and crew who are, most likely, struggling to communicate in the English language. Some are threading their way through fishing fleets, others are keeping a sharp eye on the high-speed ferries. And if today, we were on a weekend in normal times, more than a few pilots of these deep-draft ships would be threading their way through many sailboats and recreational boaters.

The Hydrographic Services Improvement Act of 1998 established authorized levels of funding that would enable NOAA to make significant improvements to the safety of navigation in U.S. waters. Unfortunately, the amount of funding appropriated has been substantially less than the authorized levels. Most confounding has been the administration's failure to request in its budgets the funding levels authorized under the Hydrographic Services Improvement Act. A quick review of the funding history for NOAA's PORTS system provides an excellent illustration.

The Hydrographic Services Improvement Act of 1998 authorized 22.5 million for NOAA's tides and currents program for each of fiscal years 1999 through 2001. Of these amounts, 11.5 million was authorized for each fiscal year to implement and operate a national quality control system for real-time tide and current programs and to maintain the national tide network and to design and install real-time tide and current data measurement systems.

During this 3-year time period, 34.5 million was specifically authorized for NOAA's real-time tide and current program. Despite overwhelming support for the program from the maritime industry, however, the administration requested only 2.8 million in additional funding for PORTS over the entire 3-year period.

Within the Department of Commerce, NOAA carries the responsibility for providing the essential hydrographic services that facilitate the safe and efficient movement of our waterborne commerce and protect the marine environment. This is a considerable undertaking. These programs—offices within the National Service who shoulder this responsibility have a remarkable record of achievement given their limited funding and resources. Despite the critical importance of these promote safe navigation programs to our Nation, these programs currently receive a paltry 3.5 percent of NOAA's budget.

The American Pilots' Association has a formal partnership with NOAA, as well as the United States Coast Guard. My staff and I have met personally with senior NOAA management and expressed our concern that the agency must elevate the priority of its promote safe navigation programs.

We look forward to meeting with the Secretary of Commerce to convey this very same message.

Mr. Chairman, we hope that we can also count on the Subcommittee's continued leadership on this subject. The challenges facing our Nation's marine transportation system demand a significantly greater commitment to funding NOAA's promote safe navigation programs.

I should also point out that the promote safe navigation programs are extremely cost-effective. If adequately funded and aggressively implemented, they have the potential to reduce the need for or minimize the extent of many dredging projects. The resulting net financial savings and the increased protection of the environment could be extremely important.

Finally, Mr. Chairman, I would like to offer some specific comments on NOAA's surveying activities. The American Pilots' Association supports the responsible use of contract surveying, which has been effective in reducing the surveying backlog. However, contracting is a means to an end, not in itself the measure of success. Surveying, whether contract or in-house, should be undertaken first in those priority areas NOAA has appropriately identified as critical in their national charting plan.

Further, public money spent on contract surveying, should expedite NOAA's completion of its electronic navigation chart database, not emasculate it by diverting already scarce funding. The APA recommends amending the act to require NOAA to provide regular periodic surveying and a rapid response surveying capability for our country's major ports and harbors and their approaches. These are the critical navigation areas where our country's commerce is flowing, where the channel and shoreline is consistently changing by dredging and port infrastructure development, where recreational and other competing vessel traffic is the most concentrated in the areas of greatest populations. NOAA's Office of Coast Survey established a Navigation Services Division comprised of regional navigation managers to enhance its rapid response capabilities and focus on these critical areas. This enhanced rapid response capability has proven invaluable to pilots.

The APA is aware of numerous examples where NOAA has drawn on its in-house expertise and resources to respond to pilots' request for emergency hydrographic surveys. These are field investigations, have located submerged barges, wrecks, shoaling, underwater pipes, fish havens and artificial reefs in pilotage waters. Sadly, the Navigation Services Division has received funding for only two boats to cover our entire country.

We should have this critical capability in every major port. A good next step would be to provide a rapid-response boat for each regional navigation manager. An APA member pilot is frequently the only United States citizen aboard ocean-going ships entering and leaving our ports and harbors.

Pilots need the best available navigation information and tools. Modernizing and delivering NOAA's hydrographic products and services will provide the greatest return for the public's money in facilitating our maritime commerce and protecting our marine environment.

I hope the Subcommittee will continue to meet these challenges by leading Congress to reauthorize the Hydrographic Services Improvement Act. Thank you very much, sir  
 [The prepared statement of Mr. Watson follows:]

**Statement of Captain Michael R. Watson, President, American Pilots' Association**

Good morning Mr. Chairman and Members of the Subcommittee. I am Captain Michael Watson, President of the American Pilots' Association. The American Pilots' Association is the national trade association of professional maritime pilots. Its membership is made up of 56 groups of state-licensed pilots, representing virtually all state pilots in the country, as well as the three groups of United States-registered pilots operating in the Great Lakes. APA members pilot over 95 percent of all ocean-going vessels moving in United States waters. I appreciate this opportunity to testify and express the American Pilots' Association's support for the reauthorization of the Hydrographic Services Improvement Act.

Mr. Chairman, you have asked for our views on whether the Act has provided an effective mechanism for NOAA to modernize its navigation services program; for our recommended changes to the Act; and our thoughts on the development and implementation of Electronic Navigation Charts and Physical Oceanographic Real Time (PORTS) Systems. I understand that you are also interested to hear how NOAA's programs relate to the Marine Transportation System initiative.

NOAA's promote safe navigation programs are essential to our Marine Transportation System. NOAA's hydrographic products and services are critical government services that facilitate the safe movement of our nation's waterborne commerce and protect our marine environment. Over ninety-five percent of our nation's international commerce moves by water. This commerce is expected to double and perhaps triple within the next twenty years. The report to Congress on the U.S. Marine Transportation System<sup>1</sup> observed that the greatest safety concern voiced at the Regional Listening Sessions and the November 1998 MTS National Conference related to the availability of timely, accurate, and reliable navigation information. This May, as one of its first resolutions, the Marine Transportation System National Advisory Council, of which I am a member, recommended to the Secretary of Transportation that he work with the Secretary of Commerce to support the further implementation of NOAA's PORTS program.

In 1998, this Subcommittee had the vision to draft and facilitate the enactment of the Hydrographic Services Improvement Act. The Hydrographic Services Improvement Act of 1998 was an important first step in providing an effective mechanism for NOAA to modernize its navigation services. The Act authorized urgently needed levels of funding and enhanced NOAA's ability to leverage its limited resources by the increased use of contracting. The Act also encouraged further development and implementation of NOAA's Physical Oceanographic Real-Time (PORTS) System, which provides critical real-time tide and current information. Today, I salute you for your vision and offer a pilot's-eye view of the Act where it matters—from the bridge of large commercial ships navigating our nation's waterways.

As I am talking, APA members are piloting loaded tankers, cruise ships, coal colliers, bulkers, car carriers, LNG ships, product carriers, and containerships, moving our nation's commerce. Some of them are on unfamiliar ships, some are in restricted visibility, most are handling ships drafting within a few feet of the bottom and with similar air gap clearances under bridge spans. . . . virtually all are aboard foreign vessels with Captains and crew who are most likely struggling to communicate in English. Some are threading their way through fishing fleets, others are keeping a sharp eye on high-speed ferries, and, if today were on a weekend, more than a few pilots on these deep-draft vessels would be busy skirting sailing regattas.

NOAA's hydrographic products and services—nautical charts, tide, current and weather information—are essential decision-support tools for safe navigation. Pilots use these tools to safely navigate ocean-going ships through our nation's waterways. With the evolution in ship size, there is increasingly little margin for error. The stakes are high. The risk to life, commerce and the environment is real. Accelerating the development and delivery of NOAA's hydrographic products and services is critical to our ability to move our country's increasing waterborne commerce safely and efficiently.

<sup>1</sup>September 1999 Report to Congress, "An Assessment of the U.S. Maritime Transportation System," pg. 84.

From our perspective, NOAA is making headway in modernizing and delivering its navigation services. However, we are concerned because the modernization is not on pace to meet the imminent challenges facing our nation's marine transportation system. A good example is NOAA's effort to build our national database for electronic navigational charts or ENC's. In addition to leveraging its in-house surveying capability through contracting, NOAA has entered into data sharing initiatives with the Coast Guard and the Army Corps of Engineers to facilitate the production of ENC's. This summer, NOAA began making available provisional ENC's on the internet. This is a giant step in making the ENC data available to the public and will enable the market to develop electronic charting systems for mariners. However, despite this effective program management, ENC production is falling behind schedule due to a lack of sufficient funding. The funding for NOAA's promote safe navigation programs needs to be increased.

The Hydrographic Services Improvement Act of 1998 authorized levels of funding that would have enabled NOAA to make significant improvements to the safety of navigation in U.S. waters. Unfortunately, the amount of funding appropriated has been substantially less than the authorized levels. Most confounding has been the Administration's failure to request in its budgets the funding levels authorized under the Hydrographic Services Improvement Act. A quick review of the funding history for NOAA's PORTS program provides an excellent illustration.

The Hydrographic Services Improvement Act of 1998 authorized \$22.5 million for NOAA's tides and currents programs for each of fiscal years 1999 through 2001. Of these amounts, \$11.5 million was authorized for each fiscal year to implement and operate a national quality control system for real-time tide and current programs and to maintain the national tide network, and to design and install real-time tide and current data measurement systems. During this three-year time period, \$34.5 million was specifically authorized for NOAA's real-time tide and current program. Despite overwhelming support for the program from the maritime industry, the Administration requested only \$2.8 million in additional funding for PORTS over the entire three-year period.

After an emergency reprogramming of NOAA funds—robbing Peter to pay Paul—to keep the highly touted PORTS program alive, the \$2.8 million was finally appropriated this fiscal year. Unfortunately, a large percentage of the money was consumed by Agency overhead, federal salary increases, and increased operating costs. The remaining funds have proven woefully inadequate to deliver on the automation of CORMS—the quality control system, modernization of the instrument testing facility, OSTEP, and to catch up on the deferred maintenance of the national water-level observation network as promised. In fact, most of the Field Operations Division personnel—those who perform the maintenance and repair work—have been travel restricted due to a lack of funds. Astonishingly, the Administration's current budget request for fiscal year 2002 requests zero additional dollars for this critical navigation program.

Within the Department of Commerce, NOAA carries the responsibility for providing the critical hydrographic services that facilitate the safe and efficient movement of our waterborne commerce and protect the marine environment. This is a considerable undertaking. Those program offices within the National Ocean Service who shoulder this responsibility have a remarkable record of achievement given their limited funding and resources. Despite the critical importance of these promote safe navigation programs to our nation, these programs currently receive a paltry 3.5% of the total NOAA budget.

The American Pilots' Association has a formal partnership with NOAA. My staff and I have met personally with senior NOAA management and expressed our concern that the Agency must elevate the priority of its promote safe navigation programs. We look forward to meeting with the Secretary of Commerce. Mr. Chairman, we hope that we can count on this Subcommittee's continued leadership. The challenges facing our nation's marine transportation system demand a significantly greater commitment to funding NOAA's promote safe navigation programs.

While we all work to increase funding for navigation services, NOAA must continue to make best use of the funding it receives. It is imperative that NOAA be empowered to allocate its resources to achieve the greatest public good. In this instance, the greatest public good is for NOAA to develop and deliver timely, accurate and reliable hydrographic products and services to the mariner. In the process, we must never confuse a means to an end with the ultimate purpose. As an example, one of the critical needs that has been identified is the backlog of hydrographic surveying. The primary reason it is important to survey is to make sure that there are no uncharted hazards to navigation. NOAA is responsible for surveying over 3 million square miles of the U.S. exclusive economic zone. Clearly, not all survey miles

are equal and we should be spending the public's money to complete the critical areas first.

The increased use of contracting has been effective in reducing the backlog. The American Pilots' Association supports continuing the responsible use of contract surveying. However, contracting is a means to an end, not in itself the measure of success. Surveying, whether contract or in-house, should be undertaken first in those priority areas NOAA has appropriately identified as critical in their national charting plan. Further, public money spent on contract surveying should expedite NOAA's completion of its ENC database, not emasculate it by diverting already scarce funding.

The APA recommends amending the Act to require NOAA to provide regular periodic surveying and a rapid response surveying capability for our country's major ports and harbors and their approaches. These are the critical navigation areas where our country's commerce is flowing, where the channel and shoreline is constantly changing by dredging and port infrastructure development, where recreational and other competing vessel traffic is the most concentrated, and the areas of greatest population.

NOAA's Office of Coast Survey has established a Navigation Services Division comprised of regional Navigation Managers to enhance its rapid response capabilities and focus on these critical issues. NOAA's enhanced rapid response capability has proven invaluable to pilots. The APA is aware of numerous examples where NOAA has drawn on its in-house expertise and resources to respond to pilots' requests for emergency hydrographic surveys. An emergency survey may be required to reopen a port following a hurricane or other severe storm, to investigate an unexplained or apparent chart discrepancy or sounding. These NOAA's field investigations have located submerged barges, wrecks, shoaling, underwater pipes, fish havens and artificial reefs in pilotage waters. Sadly, the Navigation Services Division has received funding for only two boats to cover our entire country. We should have this critical capability in every major port. A good next step would be to provide a rapid response boat for each regional Navigation Manager.

An APA member pilot is frequently the only United States citizen aboard ocean-going ships entering and leaving our ports and harbors. Pilots need the best available navigation information and tools. Modernizing and delivering NOAA's hydrographic products and services will provide the greatest return for the public's money in facilitating our maritime commerce and protecting our marine environment. I hope you will stay the course to meet these challenges by leading Congress to reauthorize the Hydrographic Services Improvement Act.

Thank you.

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Mr. GILCREST. Thank you very much, Mr. Watson.

I guess I will start with you, Mike, and what you said near the end of your testimony. And this has to do with Mr. Allen's proposal that NOAA contract out all of its hydrographic activities or data collection. I think I am saying that correctly.

Mike, it seems that you said the contracting-out might enhance NOAA's capability. But are you saying that—would you disagree with Mr. Allen that all those data collecting surveys should not be contracted out?

Mr. WATSON. Yes. I would disagree with that, sir. And I can expand on that a little bit.

Hydrographic surveys and charting are, for the mariner, all mariners, probably the most important aspect. You have to know where you are, where you are going and where not to go. Every country in the world has its own hydrographic survey department, and they are the responsible entity of that government to protect not only their own citizens, but all mariners coming into the waters.

We saw with the QE2 incident, which Mr. Gudes remarked upon, the need for accurate surveys. I happened to be in contact with the president of that pilot group the morning that happened. I must commend NOAA. They did have a vessel on that site, I would say,

within 10 hours. It was luck that it was up there, but they had the capability of finding out the problem.

NOAA and the United States Government, in my particular opinion, are like our military. You cannot charter everything out. You have to have a corps of responsible, trained people and equipment to ascertain and certify that this is accurate data. With that, I would be opposed to contracting all of this work out. I think it has a role to play in the right area, but I think NOAA still needs to have a strong arm in it and have a rapid response team to do this.

Mr. GILCREST. Thank you.

Mr. Allen, can you comment on that?

Mr. ALLEN. Yes, Mr. Chairman. I wouldn't disagree with anything Captain Watson said, other than if we are talking about data collection, I think there is certainly a role for NOAA to play, a very big and important role for NOAA to play.

But in the area of data collection, which is where most of our interest is, I would say that we are just as committed—the private sector is just as committed as the government and has a track record of doing this with other agencies to do data collection and be able to provide the level of quality that the government is currently—or more so than the government is currently providing.

Captain Watson mentioned the Department of Defense and military. We currently do this for the military. We do data collection for them in a classified environment in which we are actually on the front lines providing data to the warfighter.

It is not an unusual scenario for us to potentially understand how important this data is; and from a data collection perspective, we have the motivation and the market forces to innovate. A lot of the vision that has come out of NOAA recently has come from this Committee and not necessarily from the agency itself. And, you know, my perception from the private industry is, as a firm, really kind of sees NOAA's budgetary process as status quo, as opposed to looking for new ways to get things done and improve electronic charting.

Mr. GILCREST. Ms. Brohl, do you want to comment on that?

Ms. BROHL. I think that we are concerned primarily with the movement of a vessel from point A to point B safely; and frankly, we rely heavily on the pilots. I commend you for inviting the pilots here. They are really the number one defense and best expertise for actually asking what their needs on the bridge are.

In some respects, I have to say that as long as we have updated information, it may not matter who does it. But I have to also agree with Captain Watson that NOAA, as a government entity, has been extraordinarily responsible about certain things that we need. In terms of the accumulation of the data, whether that accumulation needs a security oversight to it—there are instances where NOAA vessels were on site. For the airline that went down off of Long Island, where there were concerns about that, I seem to recall that NOAA was there right away. So there is a security aspect to NOAA's mandate, as well, which is important to having some equipment of their own and ability to do that. But NOAA, as a government agency whose response is to respond to the needs of the stakeholder, has been so tremendous.

I particularly represent the Great Lakes Shipping Association. In the Great Lakes, we have had a lot of low water problems. We have a lot more critical areas and the need for real-time information. NOAA, out of Silver Spring, has been responsive to our needs to provide vector charts when we needed them. And I don't think those are things—of course, we are talking about the accumulation of data, but they definitely need the in-house expertise; and there have been times when, as Captain Watson said, you needed someone to be out there.

I can't answer the question, whether a contractor who is under contract to accumulate data under a certain contract, you can call them and say, Oh, would you go off that contract and do something else now because we have a critical need, I can't answer whether that is doable with the agreements that they have with the private contracting.

Mr. GILCHREST. Mr. Hamons.

Mr. HAMONS. Well, I agree with the sentiments that Captain Watson expressed, and I understand why he said that. My concern simply would be this. The quality of the data depends upon the standards that are being enforced. And it doesn't matter to me too much where the data comes from, as long as it meets that quality and those standards. That would be a critical NOAA responsibility, and they must be funded to maintain that level of standard and that quality.

If the system—if NOAA drives the system, we are okay. If the system demand reaches a point that it is driving NOAA, that is where you get into trouble unless you can enforce the quality of the standards. So NOAA must be funded to that level so they can enforce the quality of the data that is coming in. If that happens, then I am not worried.

Mr. GILCHREST. Thank you very much.

Mr. Underwood?

Mr. UNDERWOOD. Thank you very much, Mr. Chairman, and thank you very much for your testimony and, in particular, Captain Watson, I found your testimony very sobering and very important to understand the constellation of this.

We have discussed the—I guess we are trying to understand the general continuum of what is appropriate work to outsource in the private sector and what kind of capability we want to continue to maintain and develop and cultivate within NOAA. I understand that market-driven forces helps improve cost efficiency. But also market-driven forces sometimes perhaps in issues of safety in issues that we are addressing here, public safety and the safety of our maritime industry, you know, it has to respond to a different set of standards. It can't respond simply to market-driven issues.

Mr. Allen, I know you represent a number of people interested in securing these contracts. And yet, as I understand it, NOAA only started contracting out this work sometime in the mid-90's. So what kind of work are the firms that you represent generally involved in prior to that and what kind of activities were they involved in?

Mr. ALLEN. Mr. Underwood, a lot of work that we are talking about is also similarly contracted out by the Corps of Engineers around the country. And we have been doing hydrographic sur-

veying—firms within our organization have been doing hydrographic surveying for 20, 30 years for the Corps of Engineers and throughout the waterways, and have had a very successful partnership with the Corps. And we are looking for that partnership with NOAA. And with the contracting out that has happened to date, there has been much progress. We would like to see that progress continue and improve.

Mr. UNDERWOOD. I would have to say, Mr. Allen, that your responses to the question by Mr. Gilcrest, and my own, certainly are a little bit more moderate in tone than your statement that has been submitted to the record. So I just wanted to make a note of that. And it is important we understand exactly where we are going with this issue.

You know, contracting out is not an objective in and of itself. It can't be the main objective. There is a higher purpose for NOAA to exist. There is a higher purpose for the oversight that is provided for this. Otherwise, we would be contracting out Committee work, and that would be pretty scary.

So there is a defined purpose and a higher purpose here. And so, I guess that was the—I guess the urgency in trying to understand exactly what is that core competence and how do we sustain that, because it is not only sustaining the expertise and the capability and then, in turn, having the ability to provide adequate oversight, which is not—is always an iffy issue in defense activities that have been contracted out, because there has been the tendency to see this as a way to save the government money; and as a consequence, the level of oversight has decreased over time rather than has increased.

And then you get into a whole range of other issues. And of course, ultimately, it is NOAA that is responsible—it is the government that is responsible. And so the issues of liability loom very large in this as well as just sustaining and maintaining a sense of security and safety for the public as well as for people involved in maritime industries.

I have no real questions other than that. I guess I think we are at least trying to find that appropriate mix. And in that sense, I think we will take into account—at least I will take into account—the day-to-day users of the information of hydrographic charting in that sense. I will take their comments with a little—put more credence into their comments.

Mr. GILCREST. Thank you, Mr. Underwood. Just a couple of follow-up questions.

Two things, Mike. You don't have to comment on the first one. It was interesting, you said we could dredge less if we had a better hydrographic system in place.

I thought that was encouraging and provided us with incentive to get this thing in place immediately, for the Chesapeake Bay region. The other—Mike, would you agree with Mr. Gudes in his—Mr. Gudes talked about this—these priority areas, the critical priority areas along our coast. Would you agree with his selection of the critical priority areas?

Mr. WATSON. Um—.

Mr. GILCREST. I'm not sure if you saw the slide that he—.



Mr. WATSON. I did not see the slides, no. Having said that, the pilots from around the country have worked closely, very closely, with NOAA to establish the critical areas. In your district in the Chesapeake Bay, before I came to Washington, we have worked for years with NOAA, and that is why I say appropriate use of funding and management is imperative, because we sat down with NOAA. We have our 50-foot channel, and we put that channel together, the original Army Corps of Engineers funding and design criteria for that channel, and I worked with Mr. Hamons. It was about 30 percent more than was needed by quality professionals, working in a redesign channel. And the Maryland pilots—

Mr. GILCHREST. I am sorry, Mike. The redesign channel was 30 percent more than what?

Mr. WATSON. No. We redesigned the Federal Army Corps of Engineers channel. We cut it by about 30 percent—

Mr. GILCHREST. Oh, I see.

Mr. WATSON. —of necessary dredging and channel design. Consequently, 33 percent less mud was dumped in the Chesapeake Bay; \$110 million were saved for the taxpayers on that one particular project. That would not—

Mr. GILCHREST. What project was that?

Mr. WATSON. The 50-foot channel project, that was completed back in the late 1980's. Without the cooperation of NOAA and the Coast Guard, we would not have been able to do that because it required better knowledge of current direction and water level measurement, which is a great variable. You can't just go on predicted tides. As you know, a front comes through, the Chesapeake Bay goes down 1 meter. So that cooperation and that ability at that time allowed that project to go ahead and save environmental concerns as well as financial interests. If these projects are no longer funded—and the Maryland pilots have worked for 10 years with NOAA as a test base to develop the port system. I am very proud of that. And consequently, Maryland will come in with a very good package. But, yes, if it is used throughout the country, the professionals that are moving the big ships that require the dredging and the real concerns can more professionally ascertain the channel design and what is needed to protect the environment.

Mr. GILCHREST. Thank you.

Mr. WATSON. I might make one other comment about the need for the accuracy of this data, and, again, I can refer to your district. The data is so old, and it needs to be updated, that the technology today of GPS and DGPS and navigation systems of which we have developed is so much more accurate than the current paper charts. When we moved the Constellation for her repairs from the Inner Harbor to the dry docks, if you superimpose the true position of the vessel as compared with the chart, it would have been about a hundred feet outside of the dry dock. So vessels operating in restricted visibility with high-tech means of navigation, these ECDIS systems are no better than the database and the chart that they have. And as a matter of fact, it can lead people into terrible situations if they are not aware of that.

Mr. GILCHREST. Thank you, Mike.

Apparently we have a vote on. I just have just some brief questions for some of the witnesses.

Ms. Brohl, you made a comment about a subscription program. Could you explain that briefly?

Ms. BROHL. Sir, I don't know that I can explain it all that well. It is something I have only really heard about. NAMO had been working on the print on demand for quite a long time with NOAA to get them moving with the ability to get updated prints charts, paper charts. There is a lot of data that is currently in the computers at NOAA that is just not getting onto a chart. The electronic is easier because once you have it in the database, you can access that.

But we were frustrated. There was a while there where the issue of printing a chart at NOAA got mixed up into the aeronautical chart printing. Where was that going to go? Is that going to go to defense or go back to DOT? And it really held off any of our ability to try to get a more readily accessible real time paper chart. I know that sounds strange, because the minute the paper chart is updated it is no longer real time.

But I understand that for NOAA now, after having gone through a number of scenarios with providing more real time paper charts, that a subscription service is very simple. It is merely that you have an interest in one area, Maryland or wherever—.

Mr. GILCHREST. So there is not one in place now.

Ms. BROHL. No. They hoped to get that going. We would like to see it accelerate, come up with something where we are not waiting around to find out.

Mr. GILCHREST. Is that something that you are discussing with NOAA, and NOAA has—.

Ms. BROHL. I only recently became aware of it. We have not had any meaningful discussions with NOAA about it, and we intend to do that.

Mr. GILCHREST. All right. We will follow up on that.

Ms. BROHL. Thank you.

Mr. GILCHREST. I had a couple more questions, but I think I can—Frank, for example, I would like to talk to you about the PORTS system and the cost-sharing process and all those things, but I will give you a call or visit Baltimore.

Mr. Watson, Mr. Allen, Ms. Brohl, Mr. Hamons, thank you all very much for coming today under these trying circumstances. And we appreciate the information that you exchanged with us today.

The hearing is adjourned.

[Whereupon, at 12:13 p.m., the Subcommittee was adjourned.]

[The prepared statement of Mr. Saade follows:]

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Congressional Response:

Congressman Wayne T. Gilchrest, Chairman  
Subcommittee on Fisheries Conservation, Wildlife and Oceans  
Washington, DC 20515

Dear Congressman Gilchrest:

Thank you for the invitation to testify before the Subcommittee on Fisheries Conservation, Wildlife and Oceans on Thursday, September 13, 2001, regarding the reauthorization of the Hydrographic Services Improvement Act of 1998.

By way of background, I have provided detailed applicable information on the disclosure statement. To summarize herein, I have been conducting hydrographic and seabed engineering surveys for industry and government agencies since my first at-sea summer in the Bering Sea in 1975. My formal education has been in Marine Geology and Geophysics, with subsequent courses and training in hydrographic surveying and multibeam data acquisition. I have conducted survey operations along all of Alaska's coastlines and in many of its inlets and bays. In addition, I have conducted these same types of surveys throughout all of the rest of the coastal United States and most oceans in the world. I have authored or co-authored over 60 professional reports and written several professional papers.

I am the General Manager of Thales Geosolutions (Pacific) Inc. (TGPI) which is headquartered in San Diego, California and maintains a full time office in Anchorage, Alaska and various satellite locations around Alaska during the survey season. TGPI is considered a world leader in conducting hydrographic surveys, producing and operating precision hydrographic survey software, and the conducting of seabed geophysical/seabed engineering surveys worldwide.

With specific consideration to the topics referenced in your invitation to testify, I have the following information which I will present in the format you requested and also will include several topics of discussion for the Subcommittee:

- **Has the Act provided an effective mechanism for NOAA to modernize their navigational services program and reduce the backlog of survey and charting needs?**

Absolutely – In Alaska, NOAA employs TGPI specifically to provide our large range of assets using our ability to muster qualified crew and provide various survey platforms in order to attack areas that have particular or unique challenges. As examples:

- Cook Inlet required us to address a 38-foot tidal range with its very high current regime while surveying over boulder fields, shoals, and sand waves;

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- Kenai Fjords National Park required working areas of recently emerged shoreline as a result of glacial retreat, over uncharted glacial moraines, within ice infested waters;
- Around the Semidi Islands we worked remote locations with minimal existing bathymetric data and limited tidal datums, in the vicinity of endangered species rookeries.

In each case, TGPI and its subcontractors were able to put together a program that allowed for 24/7 operations to tackle these challenging areas. The use of Multibeam technology identified uncharted hazards to navigation and reduced the safe charted depth in several areas. The execution of these surveys has directly reduced the backlog of survey and charting needs by providing the update of:

- the charts that cover the major shipping lanes used by large tankers which routinely transit to supply the port of Anchorage;
- the routes used by the tourist industry into Kenai Fjords; and
- historical fishing grounds around National Wildlife refuges.

TGPI staff and personnel have been conducting seabed mapping and hydrographic services throughout Alaska and the world since the late 1960's. During this time, extensive experience has been gained in field data collection, instrumentation and software advancements, and the first-hand witnessing of the incredible growth in technology. This growth in technology and its application have directly provided an effective mechanism for NOAA to modernize their navigational services program. At no time in history has this technological growth been greater than right now. The major stimulation for the advancement in technology has been the outsourcing of hydrographic charting by NOAA to commercial contractors. Direct advancements directly related to the NOAA charting activities in Alaska include:

- Implementation of new multibeam systems, including the RESON systems 8101, 8125 and 8111;
- Software breakthroughs;
- Implementation of motion sensors and US Government-supported Global Positioning System;
- Refinement of real-time tide analysis and corrections and the emergence of our teaming partner, Alaska-based LCMF, as the premier commercial tide experts in the United States;
- Implementation of US-manufactured, UNIX-based computer systems and data management techniques;
- Advancement of the imagery derived from the acoustic return of the multibeam systems (commonly known as "backscatter") which have many scientific applications.

TGPI and its sub-contractors have developed or refined the use of these technologies in direct application to the NOAA charting requirements for Alaskan waters. In turn, TGPI has directly applied these technologies and methodologies for its other seabed mapping

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applications utilized worldwide, providing a technological and cost competitive advantage.

In the short 2001 Alaska season from May 17 through August 15, we surveyed nearly 6500 square kilometers in Alaska for NOAA's Hydrographic Surveys Division and other government agencies that will ultimately be used to update charts, thereby decreasing the backlog and increasing the safety of navigation. This high technology, full coverage data and associated technology advancements are, and will continue to be, a significant contributor to the modernization of NOAA's navigation services program. In addition, these data are now commonly being used or sought by such diverse agencies as:

- National Marine Fisheries Service;
- Alaska Department of Fish and Game;
- National Undersea Research Program;
- US Geological Survey;
- Pacific Disaster Center and associated State and Federal Agencies.

We whole heartedly agree that the Act is providing an effective mechanism for NOAA to modernize their navigational services program and reduce the backlog of survey and charting needs.

• **What changes do you believe are necessary in the act?**

In general, the act has been very effective in stepping up the application of technology and increasing the effort effectively expended towards reducing the charting backlog. We think that changes to the act should be aimed at continuing this effective approach and ensuring continued fairness of the process for contractors and NOAA alike. Contractors are currently selected by qualifications-based criteria. Since this is a professional service requiring the depth of an experienced company, the selection process should stay this way for staffing contract surveys.

We feel the demand for this level of professionalism is what makes the process work. Specifically:

- Experienced survey contractors that work closely with NOAA provide the same thought process to the implementation of the survey operations. The NOAA personnel have extensive experience in running large, multi-disciplinary charting surveys. We as the contractors are a mirror image of that organizational philosophy.
- The Program Manager has 10-15 years experience, including field time, of direct hydrographic data collection and processing, which includes the management of:
  - A vessel, or vessels, and the staffing and logistics that are required to sustain that vessel

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- The survey crew that is responsible, experienced and educated in the conducting of the surveys
- The tides-crew responsible for the unique requirements of each area
- Technical support and improvements unique to the world of programmers, computer experts and instrument engineers that are required to not only keep the job running but to find new ways to make it better.
- Data processing oversight either in the field or in an office, as the conditions dictate. Each professional contractor has identified a different approach to most cost-effectively conduct this major portion of the surveys.
- The Program Management of the entire project is also proven historically by looking at how contractors have evolved in Industry and other Governmental approaches, which are well established both in the US and worldwide. In all aspects of hydrographic surveying, the survey is controlled and responsible to learned experienced hydrographic surveyors and engineers that make the critical decisions and understand the "big picture".

The system is working because professional, experienced contractors are being selected by NOAA. The established process ensures that the data are collected accurately and correctly to established and understood NOAA standards. In addition, by selecting and including established, experienced hydrographic survey contractors, a high level of responsibility to the profession is maintained.

- **Has the increase in contracting out for hydrographic surveys proven to be a cost-effective measure?**

Contracting out has definitely proven to be cost effective for eliminating the critical survey backlog and we expect it to improve. Contractor cost effectiveness is significantly influenced by how NOAA employs and tasks us. As all have learned to operate in this environment, contractor effectiveness has increased; we expect it to continue to improve as NOAA more effectively employs contractors under their guidelines. We work closely with NOAA planners to optimize our use of vessels mobilized for NOAA work orders. Thus far we have achieved cost-effective solutions for the survey areas with which we have been tasked.

This 2001 survey season, in particular, was an excellent example of the benefits and effectiveness of contracting. Instead of replicating a NOAA operation, we were employed to complement NOAA's fixed assets. In the area of the Semidi Islands, we prepared to survey deep water with our vessels, and also engaged an airborne laser system to survey the shoreline and the very shallow hazardous waters around the islands. NOAA employed their fixed assets on the NOAA survey vessel Rainier (6 launches), which are perfectly suited to survey the moderate depths between those areas surveyed by TGPI. Further savings in level of effort were achieved by NOAA crews utilizing tide data from stations installed and operated by TGPI subcontractor and team member, LCMF. Quick turn-around of preliminary survey data from the airborne

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laser system allowed the NOAA crews to safely and efficiently approach the shallow water. This type of progressive thinking by NOAA is accelerating the completion of a large critical area in Alaskan waters and is optimizing contracting dollars. NOAA's Hydrographic Survey Division should be commended for this approach.

Working in relatively close proximity during the last several seasons has fostered a healthy competition and technology exchange between NOAA crews and TGPI crews. Crew exchanges and cross-platform visits occurred several times during this survey season. These interactions have enabled the exchange of technology, procedures, solutions and discussion of common problems. We feel that this cooperative and competitive environment has pushed each crew to greater technical achievement and production.

During the past 36-months additional applications of the NOAA charting data have emerged in the field of Fisheries Habitat Studies and Tsunami research. The high quality of the NOAA multibeam data is identical to the requirements for NOAA and Federal and State fisheries and environmental research programs that utilize acoustic mapping techniques to better define the characteristics of known fisheries habitats and the seabed. The utilization of NOAA quality multibeam and sidescan-type imagery (backscatter) has been directly applied to support charting and fisheries habitat assessment. These two disciplines can be combined to more efficiently utilize the funding and to expand the overall data base for both interests.

As an example, during the 2001 season, the mobilization of our large survey vessel will appear as part of our cost for "addressing the critical charting backlog" for the completion of the 2880 square kilometers contracted for. However, additional government agencies with Alaska responsibilities have benefited as a result of this vessel being mobilized to the area, in that an additional 3600 square kilometers for fisheries habitat studies, geologic investigations and tsunami research were surveyed. NOAA showed their spirit of interagency cooperation by allowing the use of this mobilized asset by these other agencies. These data, funded by other agencies, will also be used to update NOAA charts. Without this cooperation these agencies would have been unable to employ state-of-the-art survey technology to fulfill their research objectives. Again, NOAA should be commended for their handling of this situation as it allowed the optimization of government research dollars, expending them directly on survey activities as opposed to mobilization, while at the same time generating data that will update charts. We look forward to participating with NOAA to expand on this achievement.

We could become more cost effective by earlier execution of task orders. Early award of work orders, and assigning larger survey areas would allow us to identify the optimum vessels and to reduce risk and cost with long-term planning. Short-fuse awards increase risk and decrease efficiency resulting in higher costs to both NOAA and the contractor. This is particularly important to our tides contractor, LCMF, whose efforts have to precede ours in the field. NOAA survey planners and contracting personnel understand

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this and have agreed to a series of milestones that will ensure the award of tasks with reasonable lead time in the future.

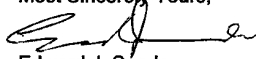
In summary, we feel we have achieved cost effective approaches to the survey areas assigned through the negotiation process with NOAA.

General Topics for the Subcommittee to consider:

- 1) TGPI and its significant sub-contractors have targeted and achieved a majority of NOAA revenue dollars being spent in Alaska or with Alaska-affiliated companies. As we plan for the next three years, the team is targeting larger local participation by identifying additional Alaska based companies that can successfully support the goals of the contract.
- 2) Multiple education programs have been put into place to train both contractors and potential employees to conduct hydrographic surveying. The University of Alaska School of Engineering maintains an annual Hydrographic Surveying Course to introduce geomatics students to hydrographic surveying. Those interested in furthering their experience in hydrographic surveying have been hired by TGPI (RPI), Terra, and LCMF for the survey work. Dialogue has been initiated for a Memorandum of Agreement between the University of Alaska and University of New Hampshire for coastal mapping and hydrographic surveying.
- 3) TGPI and its personnel have been conducting Federally funded projects since the early 1980's. At no time has a relationship with the Federal customer been more positive. The interaction with the NOAA technical staff and COTR is very positive and supportive. The information flow is extensive, educational and productive. Working with the NOAA contracting officer and staff has also been a very positive experience. This includes well-defined work specifications, rapid turn-around of Task Order awards and timely payments.

In closing, I would like to thank you, Mr. Chairman, and the Subcommittee for allowing us the opportunity to share our experiences and thoughts regarding the important issue of the successes in implementing the Hydrographic Services Improvement Act of 1998. We at Thales GeoSolutions (Pacific), Inc. feel that the NOAA support contracts and charting services are an important service to the general sea-going community as well as to the newly focused interests in the fishery and scientific community. We fully support the program and consider the process to be a success. We take great pride in knowing we are a part of the process.

Most Sincerely Yours;



Edward J. Saade  
Vice President and General Manager  
Thales Geosolutions (Pacific) Inc.