

WRITTEN STATEMENT OF
J. SCOTT RAINEY
CHAIRMAN OF THE HYDROGRAPHIC SERVICES REVIEW PANEL
HEARING ON
H.R. 3352 THE “HYDROGRAPHIC SERVICES IMPROVEMENT ACT
AMENDMENTS OF 2007”
BEFORE THE
COMMITTEE ON NATURAL RESOURCES
SUBCOMMITTEE ON FISHERIES, WILDLIFE AND OCEANS
U.S. HOUSE OF REPRESENTATIVES

October 24, 2007

INTRODUCTION

Good morning, Madam Chairwoman and members of the Subcommittee. I am Scott Rainey, Chairman of the Hydrographic Services Review Panel (HSRP). In October 2003, Secretary of Commerce Donald Evans established the Hydrographic Services Review Panel as directed by the Hydrographic Services Improvement Act Amendments of 2002, Public Law 107-372. Accordingly, Conrad C. Lautenbacher, Jr., Vice Admiral, U.S. Navy (Ret.), Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator, appointed the 15-member panel.

The HSRP's duties include providing advice and recommendations to the NOAA Administrator on hydrographic surveying; nautical charting; water level and current measurements; geodetic measurements; shoreline mapping; and, technologies relating to operations, research and development, and dissemination of data. The Panel assists in addressing NOAA's strategic plan to improve the nation's marine transportation system and NOAA's efforts to support commerce with products and services that will help ensure safe, efficient and environmentally sound marine transportation.

The Hydrographic Services Review Panel, which functions in accordance with the Federal Advisory Committee Act, is composed of a diverse field of experts in hydrographic surveying, vessel pilotage, port administration, tides and currents, coastal zone management, geodesy, recreational boating, marine transportation, and education. The director of NOAA's Office of Coast Survey serves as the panel's designated federal official. The co-directors of the NOAA/University of New Hampshire Joint Hydrographic Center, and the directors of NOAA's National Geodetic Survey and the Center for Operational Oceanographic Products and Services, serve as nonvoting members.

The HSRP wishes to acknowledge this Subcommittee's vision and leadership in enacting the Hydrographic Services Improvement Act and its amendments, including directing the establishment of the Hydrographic Services Review Panel. Similarly, the HSRP wishes to thank NOAA for providing the engagement of senior agency officials, extraordinary administrative support, and the necessary funding. Because of this vision, active engagement and support, the HSRP was able to fulfill its charter. This Spring, the HSRP delivered its 2007 Special Report to the NOAA Administrator. This Special Report represents the HSRP's initial assessment of NOAA's hydrographic services and sets forth the HSRP's most significant recommendations to the NOAA Administrator.

The HSRP's "Most Wanted Hydrographic Services Improvements" are for NOAA to (1) Aggressively map the nation's shorelines and navigationally significant waters; (2) Integrate coastal mapping efforts and work with its federal partners to ensure federally maintained channels, approaches and anchorages are surveyed to the highest standard; (3) Implement real-time water level and current observing systems in all major commercial ports; (4) Strengthen its navigation services emergency response and recovery capabilities; and (5) Disseminate NOAA's hydrographic services data and products to achieve the greatest public benefit.

The HSRP appreciates this opportunity to testify before this Subcommittee in support of reauthorizing the Hydrographic Services Improvement Act. My testimony will focus on the HSRP's "Most Wanted Hydrographic Services Improvements."

HSRP 2007 SPECIAL REPORT, "MOST WANTED HYDROGRAPHIC SERVICES IMPROVEMENTS."

I. NOAA needs to Aggressively Map the Nation's Shorelines and Navigationally Significant Waters.

- *NOAA is unable to meet the nation's need for updated navigation information, primarily because NOAA resources to deliver navigation services have not kept pace with U.S. Marine Transportation System (MTS) growth.*

Since 1970 when NOAA was established, the number of commercial, military, and recreational vessels sailing in U.S. waters has increased significantly. More than 95% of U.S. foreign trade by weight moves by sea, and 2 billion tons of cargo moves each year through U.S. ports. Since 1955, maritime trade has doubled and the nation's volume of international trade has nearly quadrupled. By the year 2020, container traffic coming to the U.S. is expected to at least double again. As the world's leading trading nation, the United States' future depends on the quality of our port infrastructure and our ability to deliver goods efficiently, safely, and cost-effectively. Significantly, the Department of Transportation's *1999 Report to Congress: An Assessment of the U.S. Marine Transportation System* noted, "The greatest safety concern voiced at the Regional Listening Sessions and the November MTS National Conference related to the availability of timely, accurate, and reliable navigation information."

Ironically, NOAA's in-house hydrographic survey capacity decreased 64% in the 1990s, from a high-water mark of 11 NOAA hydrographic ships operating in the 3.4 million square nautical miles (SNM) of U.S. Exclusive Economic Zone (EEZ). Today NOAA operates four hydrographic surveying ships, three of which are approaching 40 years of age. Contract support has replaced some of this lost capacity. But the scope of NOAA's surveying responsibility is extremely vast. With four ships plus complementary contract efforts, NOAA will require years to update the areas of U.S. waters currently charted by obsolete methods with modern sonar technology. In fact, U.S. coastal waters have never been completely surveyed, and for the areas that have been surveyed, approximately 50% of the sounding data shown on NOAA nautical charts is pre-1940, collected by antiquated leadline soundings and wire drags.

NOAA's hydrographic surveys form the basis of the navigation data on official nautical charts required on vessels greater than 1600 gross tons. NOAA has resources to accomplish roughly only 3000 SNM a year between contract and in-house vessels. This equates to less than 1% of navigationally significant area surveyed each year. At this rate, it will take 166 years to survey just the areas routinely transited by commercial shipping, ferries, cruise ships, Navy and Coast Guard vessels, and other ships whose contributions to the economy and defense are so critical. Furthermore, each year additional areas are identified for resurvey due to natural shifts in sea bottoms and water depths caused by such phenomena as currents, hurricanes, glacier melts, and earthquakes. NOAA's current goal, one that the HSRP supports fully, is to achieve the capacity to survey and process 10,000 SNM annually, which would put the navigationally significant areas on a 50-year resurvey cycle.

Maintaining hydrographic expertise is a primary HSRP concern. The HSRP believes it is in the public interest for NOAA to maintain a robust core capability in hydrographic surveying. Hands-on experience aboard NOAA ships builds a seasoned staff of hydrographers competent not only to conduct surveys, but also to provide oversight of contract surveys, evaluate new equipment, and provide international leadership. In the HSRP's view, NOAA's ability to maintain its hydrographic expertise necessarily includes a fleet of modern hydrographic survey vessels. These ships are the only platforms NOAA has to train personnel, build expertise, and test new technologies for efficiency and capacity gains. In addition, they are often pressed into duty to respond to emergency events and Homeland Security support. Over the next 16 years, three of NOAA's four hydrographic ships will reach or exceed their 30-year service lives. The HSRP recognizes that NOAA needs funding to correct the fundamental problem of the agency's aging fleet of survey vessels. NOAA, the Administration, and Congress have yet to approve a replacement strategy for these vessels.

NOAA must replace its aging hydrographic survey ships on schedule to sustain current capability and avoid diminishing critical expertise in a function so key to U.S. economic security. The HSRP recommends that NOAA conduct a fleet recapitalization study to chart the course for a sustainable solution to NOAA's hydrographic survey fleet requirements. NOAA should also look internally for efficiencies, such as fully equipping its entire fleet with bathymetric surveying capability, overhauling its vessel operational and staffing models for maximum efficiency, and replacing its aging single-purpose vessels with new multi-mission platforms to increase productivity and minimize redundant efforts. Mobilization to a project area

is often the single largest cost borne by a program, so the more missions that can be served by one project, the greater the value per dollar spent.

Equally important, NOAA must increase its capacity to contract for hydrographic surveys. There is simply no way to achieve 10,000 SNM a year without contract support. The HSRP has scrutinized NOAA's policy on contracting for hydrographic surveying and applauds NOAA's commitment to leverage its own surveying capabilities through contracting. Since 1994, NOAA's funding for survey contracts has risen from \$0 to \$30 million per year, roughly half of its budget for hydrographic data collection. Despite this impressive progress, NOAA needs to continue to aggressively pursue efficiencies in its contracting process to increase its capability to expeditiously contract for hydrographic services.

Similarly, NOAA's shoreline mapping effort is also falling short due to the scarcity of funding. The HSRP recognizes that shoreline and hydrographic surveys are closely linked. Outdated shoreline information depicted on nautical charts poses significant hazards to the nation's commerce, transportation, and recreational boating sectors navigating along the coast. One of NOAA's critical missions is to survey the 95,000 miles of U.S. coastline and to provide the nation with an accurate, consistent, up-to-date national shoreline. The national shoreline provides the baseline data for demarcating U.S. marine territorial limits, including the EEZ, and the geographic reference and detail needed to manage coastal resources, respond to emergencies, and perform damage assessments, along with many other uses, not the least of which is marine navigation.

Currently NOAA and its contractors can evaluate and remap only 12% of priority port area shoreline annually, falling well short of NOAA's program target of 20% each year. The bulk of the 95,000 miles of U.S. coast is open shoreline, which NOAA can currently map at a rate of only 3% a year. Some U.S. shoreline, primarily in Alaska, has never been mapped to modern standards. There are also many charted areas that have changed significantly since they were last mapped. The HSRP strongly supports NOAA's stated goal of mapping major port areas every 5 years, with open shoreline surveyed on a 10-year cycle.

The HSRP also notes that NOAA's future success in nautical charting depends on its ability to both collect and rapidly process more data. NOAA must accelerate its data flow "pipeline" to reduce the time it takes to get information charted and disseminated in a timely manner. The most costly and labor-intensive elements of a nautical chart are hydrographic and shoreline data. However, technology advances in data acquisition have created a situation wherein, given its current allocation of resources, NOAA collects data much faster than it can process and compile into navigation products. For example, modern multibeam sonar surveys obtain millions of soundings per hour, but it takes NOAA on average 16 months to fully package and disseminate the data to the mariner. Although NOAA forwards dangers to navigation to the mariner in short order, the delay in delivering the full data set is unacceptable. NOAA must take steps to remedy the situation. Implementing technology improvements to the data flow supply chain now will help eliminate the processing backlog and reduce the risk of accident due to outdated navigation information.

NOAA should take a more aggressive approach to shoreline and hydrographic data collection and processing. The HSRP recognizes that resources are scarce government-wide, but the cost of adequately funding NOAA to do its job pales beside the costs of incident response, clean-up, environmental damage, litigation, and the lost lives, property, and revenues that can result if a passenger ship, oil tanker or other vessel grounds or strikes an obstruction. The HSRP strongly believes that the critical and growing national needs for updated hydrographic surveys and shoreline maps demand an increase in productivity and justify the necessary increase in public investment. In an ever-changing marine environment, modern and up-to-date hydrographic products significantly reduce operational risk and improve safety for users of NOAA navigation data.

The HSRP recommends that NOAA aggressively survey and map the 500,000 SNM of navigationally significant areas and 95,000 miles of shoreline by:

- *Expanding NOAA's in-house and contract survey capabilities to acquire and process more hydrographic and shoreline mapping data;*
- *Implementing more efficient surveying, mapping and processing techniques and technologies; and*
- *Replacing aging single purpose hydrographic ships with modern, multi-purpose vessels to further maximize use and reach of NOAA resources.*

II. NOAA needs to Integrate Coastal Mapping Efforts and work with its Federal Partners to Ensure Federally Maintained Channels, Approaches and Anchorages are Surveyed to the Highest Standard.

- *NOAA is not alone in its requirements for accurate hydrographic and shoreline data. Numerous federal and state agencies collect similar or related datasets to perform their own mission-critical functions. The lack of data integration and the use of different datums causes confusion among users. Federal agencies must accelerate their integration of effort to conserve resources and minimize data duplication and inconsistency to maximize the benefit of taxpayers' investment.*

The HSRP urges NOAA to increase its efforts with other agencies to find ways to leverage federal resources to collect and integrate data of a predetermined quality standard so that everyone – federal, state, academia, and the private sector – can seamlessly use the same data, complete with metadata, to address their diverse requirements. In particular, NOAA and the USACE have a number of overlapping data requirements that could be better coordinated to serve the nation's needs. One is shoreline mapping. USACE and NOAA both have Coastal Mapping Programs, though each is attuned to the individual agency's separate requirements. To leverage these somewhat duplicative activities, both agencies should develop a common standard that will meet each agency's needs. Currently there is some coordination of project areas, but the standards to which USACE collects its data does not meet those required by NOAA for charting applications. There have been a few examples of coordination and leveraging, but a comprehensive integrated ocean and coastal mapping standard should be derived. A joint National Survey Plan for shoreline mapping, akin to the NOAA Hydrographic Surveys Priorities document, should also be developed and implemented in order to maximize the internal and

contract resources invested in data collection and processing. From the HSRP's perspective, this coordination would help to address NOAA shoreline mapping and USACE sediment transport modeling requirements as well as to support IOOS with greater utility and integration of datasets. The USGS, FEMA, and state efforts to improve the nation's baseline floodplain maps should also be incorporated in the plan. Mapping in the coastal zone for this purpose should be coordinated with NOAA to identify coincident needs and means to address each agency's mission simultaneously.

An area of grave concern to the HSRP is the fact that in federally maintained channels – where deep-draft commercial ships have to transit and where there is minimal underkeel clearance – the federal government is not using the most effective technology to detect the presence of submerged objects. The USACE, responsible for maintaining, dredging, and surveying inside the channel, does not use the same technology and standards as NOAA to survey areas outside the channel. Since 1985, NOAA has conducted multibeam and side scan sonar surveys to achieve full bottom coverage for depths and obstructions. These surveys give mariners and other users a complete picture of the bottom. Previously undetected rocks, pipes, wrecks, and other marine debris are frequently found by NOAA in navigable waters transited by large container ships, cruise ships, and tankers. Using this technology, NOAA finds new hazardous obstructions at an average rate of about 2.5 per day. However, federally maintained channels, which are the responsibility of USACE, do not often receive this level of scrutiny because USACE's survey mission centers more on sediment management rather than hazard detection.

The HSRP is well aware that the two agencies have historically surveyed to address different purposes, but finds that with channel clearances so tight, the status quo is no longer acceptable. The HSRP strongly recommends NOAA either be authorized and funded to survey all federally maintained channels on a routine basis, or both agencies should use the best available technology and a single full-bottom coverage standard for survey data to prevent accidents and ensure navigation safety. Otherwise, the HSRP anticipates more environmentally and economically devastating incidents such as the *Athos I* tanker spill, caused by an undetected anchor, pump casing, and concrete block submerged in the Delaware River channel and anchorage. Other examples include the *Hai Kang* strike of the remains of a Burlington Northern Railroad bridge pier in the Willamette River, and the *Teal Arrow* rock pinnacle grounding in a deepened Coos Bay channel. The HSRP is concerned that the nation's other channels may also mask hidden dangers. Our waters are much too busy with commercial, military, and recreational traffic to leave so much to chance.

Homeland Security presents another argument for full-bottom coverage surveys in U.S. waterways. Rapid military mobilization depends on safe maritime transits in the same channels used by commercial mariners and recreational boaters. The health of our coastal economies and the nation's success in the global market require safe and efficient marine operations conducted in an environment of assured security, with special focus on sustaining the rights of safe passage. The increasing level of maritime trade poses risks, not only in the form of accidents caused either by human error or environmental conditions, but also by terrorist attacks. The HSRP recognizes that its recommendations for NOAA and its fellow agencies to actively pursue integration of standards and activities for an improved MTS infrastructure is not a simple task. Such

integration will require considerable discussion at the highest levels of the agencies and the Administration. The HSRP recommends that NOAA pursue this issue within the cabinet-level Committee on the Marine Transportation System to ensure widespread support and awareness of the potential partnerships and benefits to navigation safety and the integrity of our maritime borders.

The HSRP recommends that NOAA take a larger role in improving partnerships with other federal and state agencies and non-governmental entities to:

- *Integrate coastal mapping efforts with coordinated mapping plans and tools such as Vdatum; and*
- *Ensure the nation's federally maintained channels, approaches, and anchorages are surveyed with full-bottom coverage technologies.*

III. NOAA needs to Implement Real-Time Water Level and Current Observing Systems in all Major Commercial Ports.

- *NOAA's Navigation Services are a critical component of the federal effort to build an Integrated Ocean Observing System (IOOS), delivering real-time data to a multitude of navigation and non-navigation users.*

As the lead agency for IOOS, NOAA has stated that the physical observations collected by the Navigation Services programs are a critical component of the IOOS backbone. The environmental parameters that NOAA Navigation Services gathers, integrates, and quality controls on behalf of the mariner are also baseline datasets for other stakeholders, including coastal zone managers, researchers, and first responders. Some of these parameters also provide information critical to mitigating natural hazards, such as storm surge, tsunamis, and other extreme events. Thus, the HSRP believes support for comprehensive expansion of the maritime components and building on existing capabilities to link users to useful and timely data should be the top priority for IOOS, and for NOAA.

The HSRP is a strong proponent of PORTS® and NOAA's other observing systems that enhance commerce, support marine models and flood predictions, and provide fast response support to natural or manmade hazards (such as storms or oil spills) or Homeland Security events. As with hydrographic and shoreline mapping, funding gaps limit the expansion of these networks, a situation that must be remedied given the benefits they provide to safety and the economy. Often in financial jeopardy, PORTS® depends on both NOAA and its port partners to obtain their funding shares each year. For example, port funding shortfalls forced the Delaware Bay and River PORTS® offline for 6 months in 2004, and the San Francisco Bay PORTS® has barely avoided shutdown, with much of its sensor suite no longer operating. Although the 2002 Hydrographic Services Improvement Act authorized full federal funding for these systems to enhance navigation safety and efficiency, regrettably, sufficient funding has not been appropriated to fund even the NOAA portion.

The HSRP recommends the expansion of the PORTS® program to additional major U.S. seaports be made a high priority for future IOOS funding appropriated to NOAA, including the ability to implement operational forecast models coupled with each PORTS®. PORTS® is

already a well-developed NOAA capability, a demonstrated success with documented benefits, and has high visibility with the user community and Congress. A 2005 Tampa Bay economic study identified \$7 million in quantifiable economic benefits from the area's PORTS®. Similarly, a 2007 study of the Houston/Galveston PORTS® identified \$18 million in benefits to the Gulf Region.

The HSRP also supports NOAA's management of the National Spatial Reference System (NSRS) as a primary element of IOOS infrastructure, given that precise positioning information is an essential component of all observing systems. The NSRS allows Global Positioning System (GPS) receivers to determine positional coordinates to centimeter-level accuracy anywhere on the surface of the Earth. Unfortunately, NOAA's efforts to improve the height element in GPS positioning and provide better nationwide access to accurate and reliable height information have not been efficient, as much of the funding available for this function comes from state specific earmarks. Thus far, 11 states have received funds in the President's Budget and/or through earmarks to begin work on updating their heights. An increase in funds for a National Height Modernization program would allow NOAA more discretion in obtaining accurate heights in the most efficient manner.

Many states have indicated a strong interest in NOAA's National Height Modernization Program to address regional or national problems, such as coastal and estuarine flooding in the mid-Atlantic and subsidence (sinking) along the Gulf of Mexico. Height Modernization is critical for the calculation of sea level rise and climate-change impacts, vessel underkeel and bridge clearance measurements, safe hurricane evacuation routes determination, subsidence and crustal motion monitoring, storm surge modeling, and restoration of coastal habitats. In addition to the benefits Height Modernization provides along the coast, it is also critical to inland applications such as precision agriculture, flood plain mapping, construction, and stream gauge monitoring. As with PORTS®, investments in improving our ability to obtain accurate heights are relatively low in relation to the possible benefits and return on investment.

The HSRP recommends that NOAA expand and fund real-time water-level and current observations, such as its Physical Oceanographic Real Time Systems, or PORTS®, in commercial ports, and improve positioning for heights nationwide as critical components of the Integrated Ocean Observing System.

IV. NOAA needs to Strengthen its Navigation Services Emergency Response and Recovery Capabilities.

- *NOAA's Navigation Services support emergency response to incidents such as hurricanes and oil spills. They are an important contributor to Homeland Security and Maritime Domain Awareness. From hurricanes to oil spills and all-hazard crises, NOAA's role is crucial but under-resourced.*

The U.S. economy and national security depend upon the reliable movement of waterborne cargo. Even a brief disruption in a major port can cause significant economic losses. For example, in June of 2006 a major oil spill shut down the Calcasieu Ship Channel, closing the Port of Lake Charles, Louisiana, for nine days. Four percent of the nation's refining capability

and one-third of the nation's Liquefied Natural Gas import capacity are located on the channel. The strategic petroleum reserve was opened as a result of this temporary disruption. According to an economic analysis released by the Port, the nine-day closure resulted in increases of energy costs to U.S. consumers exceeding \$1 billion.

In 2005, NOAA responded to Hurricane Katrina — the most devastating storm in U.S. history, causing at least 1300 casualties and damages exceeding \$80 billion — with NOAA ships, planes, scientific experts, and specialized response teams. Using its unique capabilities, NOAA responded immediately and assessed hurricane damage, surveyed to re-open ports and waterways to safe transport of commerce and relief supplies, conducted environmental assessments, and provided critical scientific support to the U.S. Coast Guard, Environmental Protection Agency, and the Federal Emergency Management Agency. In a situation fraught with communication challenges, NOAA coordinated its emergency response efforts with numerous agencies, giving encore performances after Hurricanes Rita and Wilma. Even today the agency continues to support the region with marine debris surveys to detect hazards left in waterways by the hurricanes.

NOAA manages its emergency preparedness and response in concert with other agencies, often in advance of an incident. For example, NOAA partners with the Coast Guard and other authorities to maintain spill preparedness in major U.S. ports, thus helping to minimize the impact of oil or chemicals to the environment. In matters of Homeland Security, NOAA supports the U.S. Navy and the Coast Guard with aerial imagery, hydrographic survey vessels, and Navigation Response Teams. In a function vital to protecting our ports, harbors, and coastal borders, NOAA uses its state-of-the-art technologies to create highly accurate surveys of our nation's coastal areas and navigation routes.

The HSRP learned from reviewing NOAA's performance in the 2005 hurricane season that NOAA's information and service delivery during emergency events is stellar, but the agency lacks the capacity to sustain its response broadly and for extended periods. This concerns the HSRP, particularly with the predictions of increasing catastrophic-level storm activity. All of NOAA's unique emergency response capabilities need to be funded and staffed to meet this critical national demand. First and foremost, NOAA's suite of Navigation Response Teams (NRT) must be expanded from the 6 teams operating on a shoestring budget now to a minimum of 10 fully funded and staffed teams staged regionally around the country. Highly mobile, the NRTs respond on short notice to emergency situations requiring hydrographic survey support such as vessel groundings and hurricane damage to ports 365 days a year throughout U.S. waters. Consider that within a few weeks after Katrina and Rita made landfall, NOAA surveys enabled the re-opening of all 13 major ports and waterways in the region, allowing access to over 100 ships awaiting entry with food and relief supplies. But to achieve this, NOAA had to pull NRTs from California and the Great Lakes to work in the Gulf Coast, leaving these areas vulnerable.

The utility of NOAA's NRTs is limited only by their numbers. The six NRTs — two each on the East and West Coasts, one on the Gulf Coast and one in the Great Lakes — cannot provide adequate rapid response on a national scale. The HSRP believes that NOAA response to customer needs, navigation safety, Homeland Security, and economic stability will be dramatically improved when NOAA can provide NRTs for more geographically diverse

customers. Additional teams and the funding to staff and equip them with the most modern survey technologies will also allow the NRTs to complete critical port surveys more quickly. It is imperative for our economy and Homeland Security that we are able to re-open our ports and waterways very quickly after a significant incident. A dramatic and meaningful improvement to the resiliency of our MTS can be achieved by a comparatively small investment in more NRTs.

Similarly, NOAA's capacity to respond to oil and chemical spills is stretched thin. Since 2004, the annual appropriation for this function has been lower than the President's Budget Request, cutting into the program's base budget by 18%. The HSRP is alarmed by this reduction, as it significantly diminishes NOAA's ability to execute its core mission responsibilities, including scientific support on hazard characterization, environmental chemistry, oil slick tracking, pollutant transport modeling, natural resources at risk analysis, information management, and assessment of environmental trade-offs related to alternative spill countermeasures and cleanup techniques.

NOAA's Navigation Services also need to be recognized and adequately funded as essential support functions in the National Response Plan. The HSRP recommends that NOAA seek a dedicated source of annual funding for emergency training, planning, and coordinating joint response strategies with other federal agencies. If this is unachievable, NOAA should seek funding through FEMA's Disaster Relief Fund to reimburse the agency for its emergency response activities. NOAA cannot sustain acceptable levels of mission performance without identifying, seeking, and receiving reimbursement for significant unbudgeted expenses incurred by the Navigation Services program in response to incidents of national significance.

The HSRP recommends that NOAA strengthen its Navigation Services emergency response and recovery capabilities by seeking adequate recognition and funding for its essential support functions within federal response to all-hazards crises.

V. NOAA needs to Disseminate NOAA's Hydrographic Services Data and Products to Achieve Greatest Public Benefit.

- *The more timely and widespread NOAA's navigation data delivery is, the more benefit it can provide to safe navigation and other uses.*

The HSRP firmly believes the federal government needs to invest its increasingly scarce resources in programs that will achieve the greatest return on public investment. NOAA's Navigation Services not only support safe, efficient, and environmentally sound navigation, but the same dollar invested in hydrographic surveys, Electronic Navigational Charts (ENC), water levels, or positioning accuracies yields multiple benefits to a wide variety of stakeholders.

The scope and impact of NOAA's hydrographic information on U.S. Marine Transportation System (MTS) users is significant. NOAA's nautical charts, shoreline surveys, PORTS® real-time data, sea-floor images, and other products are absolutely essential to the safe movement of vessels transiting U.S. waters. The HSRP applauds the development of hydrographic products and services available to mariners within NOAA's suite of navigation services. However, despite NOAA's impressive record of achievement, especially considering

its constrained resources, the HSRP sees a strategic need for NOAA to accelerate the development and dissemination of certain hydrographic products and services.

The HSRP is particularly concerned over the pace at which NOAA is building its ENC coverage to match the area covered by the 1000-paper-chart suite. Recognizing that this is both a funding and capacity issue – the Administration’s budget requests have sought the same \$2-million increase for ENCs every year since 2004 — the HSRP understands the delay. However, it notes that an incomplete suite of ENCs directly impacts safety of navigation and Homeland Security; without adequate funding, NOAA is falling short in its responsibility to provide ENCs coincident with the U.S. Coast Guard’s introduction of electronic charting system carriage regulations. Additionally, the HSRP urges NOAA to accelerate the rationalization of its separate raster chart and ENC production lines into an integrated single process. While the HSRP recognizes the short-term challenges, including the re-training of some personnel, NOAA needs to follow through on its commitment to complete its ENC portfolio.

NOAA’s hydrographic services have broad applications. In addition to navigation, these same data and services provide the basis for inundation modeling, marine habitat mapping, coastal resource management, engineering projects, long-term sea level trends, climate change, and more. The HSRP would like to see NOAA expand the potential that navigation data has to offer to non-navigational uses. For example, at the same time that ports and shippers are under pressure to remain competitive, coastal zone managers are juggling responsibilities for effective use of coastal resources. NOAA’s decision-support tools – high-accuracy nautical charts, positioning information, and real-time water-level and current data – help the mariner maximize use of limited channel depths safely, and also help the coastal manager make informed decisions on sustainable development and protection of coastal and ocean resources. NOAA navigation data can also benefit surveyors, managers, planners, engineers, and scientists working in the coastal zone. The HSRP recommends that NOAA increase its efforts to educate its diverse stakeholders — from mariners and navigators to consumers and coastal zone managers — on the importance of accurate surveys, charts, real-time information, and other hydrographic data. NOAA should expand the reach of its regional navigation managers, currently focused primarily on commercial shipping and port issues, to recreational and environmental stakeholders.

The HSRP recommends that NOAA expand efforts to deliver its navigation products and services more quickly, and increase outreach to make navigation and non-navigation users more aware of the NOAA mapping and data resources available to them.

In conclusion, the HSRP’s “Most Wanted Hydrographic Services Improvements” are for NOAA to (1) Aggressively map the nation’s shorelines and navigationally significant waters; (2) Integrate coastal mapping efforts and work with its federal partners to ensure federally maintained channels, approaches and anchorages are surveyed to the highest standard; (3) Implement real-time water level and current observing systems in all major commercial ports; (4) Strengthen its navigation services emergency response and recovery capabilities; and (5) Disseminate NOAA’s hydrographic services data and products to achieve the greatest public benefit.

This year marks the 200th Anniversary of the Survey of the Coast. NOAA has a proud history as our nation's first scientific agency and our official hydrographic office. The HSRP supports the reauthorization of the Hydrographic Services Improvement Act as a significant step to codify NOAA's continuing federal leadership role and to ensure its ability to deliver essential hydrographic services to our nation.

Thank you again for this opportunity to testify on behalf of the Hydrographic Services Review Panel. I will be pleased to answer any questions regarding our recommendations.

Enclosure: HSRP 2007 Special Report, "*Most Wanted Hydrographic Services Improvements.*"