Summary Record
Hydrographic Services Review Panel
March 21-22, 2007
Washington, DC

Introduction – Wednesday, March 21, 2007

On the call of the Designated Federal Officer (DFO), Captain Steven R. Barnum, National Oceanic and Atmospheric Administration (NOAA), and after public notice in the Federal Register (Volume 72, No. 38, Page 8694 dated February 17, 2007), the Hydrographic Services Review Panel (HSRP) meeting was convened on March 21, 2007, at The J.W. Marriott Hotel, 1331 Pennsylvania Avenue, N.W., Washington, D.C. All voting members attended except William Gray, Richard Harkins, and Admiral Richard Larrabee. The following report summarizes the deliberations of that meeting. Documents available to and or prepared by the HSRP are available for public inspection via the web at http://nauticalcharts.noaa.gov/ocs/hsrp/archive/library.htm and copies can be requested by writing to the Director, Office of Coast Survey (OCS), 1315 East West Highway, SSMC3, N/CS, Silver Spring, MD 20910. A list of the HSRP members and other attendees is provided in Appendix 1.

HSRP Chair, Mr. Scott Rainey, called the meeting to order at 8:30 a.m.

Welcoming Remarks:

Captain Steven Barnum, NOAA, Designated Federal Officer, welcomed the public to the HSRP Washington, D.C. meeting; provided emergency procedure logistics, and, requested all general public attendees sign the Visitor Sign-In Book. *Mr. Scott Rainey* introduced the Keynote Speaker, Brigadier General John (Jack) J. Kelly, U.S. Air Force (Ret.), Deputy Undersecretary for Oceans and Atmosphere. He stated that, among other assignments, General Kelly manages NOAA's day-to-day domestic and international operations, interacts and represents the United States within the World Meteorological Organization, and acted as NOAA's Assistant Administrator for the National Weather Service from1998 to January 2004.

Keynote Speaker:

General Kelly welcomed the Panel and guests to the meeting and pointed out his background in meteorology. He primed the Panel for Mr. John Vickerman's and Dr. Hauke Kite-Powell's presentations and the later-scheduled NOAA Administrator's brief; he mentioned the "NOAA Day on the Hill" and the 200th NOAA Anniversary celebrations; and, he discussed the importance and relevance of the HSRP advice and recommendations that would result from the Panel's time and intellectual capital expended on issues relative to NOAA's Navigation Services programs.

Future Trends and Challenges of the Marine Transportation System (MTS)

Mr. John Vickerman, Founding Principal, TranSystems Corporation, began his talk with a current affairs report on a German bank purchase of the largest terminal operator, Marr Terminals, in the Port of New York/New Jersey and an environmental concern update from Los Angeles on vessel emissions. His first major topic was a global overview of external industry pressures, cargo demands and capacity issues. He stated through-put costs and increased transit speed are determining factors in terminal existence along with secure movement and environmental stewardship.

Mr. Vickerman's presentation focused on the growth of the container industry and discussed the importance of a holistic systemic approach in the shipping industry to avoid future gridlock in many key gateways. He talked about our current intermodal process but lack of a collaborated "system" and mentioned the requirement for different resource allocations to support port security concerns. He discussed the Security and Accountability For Every Port Act (SAFE Port Act) and the necessity of spectrum graphic capabilities and first and second line of defense communication improvements.

Mr. Vickerman illustrated many points with his slide presentation, among which were: containerization continues into the future; new global power and U.S. port capacity predictions; an emerging transcontinental intermodal system; and backwards flow through the Suez Canal. He also discussed vessel trends and described the EMMA MAERSK and Panama Canal maximum throughput; emerging containers on barges; environmental issues concerning unregulated diesel emissions for off-land transport; force projection capability platforms; and, leveraged technology through secure and improved productivity, considering environmental stewardship.

A question and answer period followed Mr. Vickerman's presentation regarding environmental issues in Shanghai; loss of U.S. import/export trade; methods to increase awareness of the valuable MTS; International Maritime Organization's and International Standards Organization's roles in emission standard setting; and, essential U.S. pro-activity in ballast water, frequency identification, and container sizes.

National Economic Benefits of NOAA's Navigation Services

Dr. Hauke Kite-Powell, Ph.D., Research Specialist with the Marine Policy Center, Woods Hole Oceanographic Institute, refocused the Panel's attention from the global changes and impetus in maritime transportation to the quantifiable (though complex to measure) value of NOAA's navigation services on that System. He stated the information NOAA provides is used to support operational and planning decisions made by national waterway users in the maritime industry, recreational boating, marine resource management, weather forecasting, and

others. He discussed some of the credible, measurable costs that can be analyzed to assign a value to the economic importance of the MTS, and stated that, to an economist, the best measure of value generated by an activity or product or service is value added (contributed to the Gross Domestic Product).

He also explained that NOAA's navigation services provide information about the environment in which ship's operate; the topography/hydrography of the sea floor, the dynamic water level and current information, and marine weather forecasts as well. This valuable information is used as a decision-making tool to operate, load, and move ships. Dr. Kite-Powell offered an example of how improved, value-added, navigational data can translate into estimated economic gains for a hypothetical fishing fleet and discussed the estimated annual benefits of NOAA's Physical Oceanographic Real-Time System (PORTS®) in Tampa Bay and the Houston-Galveston area, derived using his economic analysis theories. He assigned costs for avoided accidents, increased efficiency, improved spill response, improved weather forecasts, and recreational use (boating and fishing). The annual, aggregate benefit of operating PORTS® in Tampa Bay was $6.8-$9.0M and for Houston/Galveston, $14.8-$18.3M. Dr. Kite-Powell also evaluated the value added economic benefit of digital chart data use among commercial and recreational users. He asked for HSRP perspectives on improvements for future studies and the availability of additional information that could be used to better explain and quantify environmental considerations of efficiency.

Panel discussions included estimating the economic/safety benefits of updating pre-World War II collected chart data with present day, full bottom coverage survey collection technology; and, the intrinsic value of NOAA's hydrographic services compared to the relatively small public investment.

Recognition of Public Attendees

Mr. Scott Rainey, HSRP Chair, recognized and thanked the public for attending the meeting—in particular he mentioned Mr. John Rayfield and Ms. Bonnie Bruce from Capitol Hill and stated he appreciated their support for the HSRP. Also, Mr. Dunnigan welcomed Mr. Jim Sartucci from Senator Trent Lott's office. For a full listing of Public Attendees, please see Appendix 1.

National Geodetic Survey 10-Year Plan (Mission, Vision, and Strategy 2007-2017)

Mr. Dave Zilkoski, Director, National Geodetic Survey (NGS), emphasized the importance of, but often unnoticed, positioning framework benefits; shoreline mapping; and, satellite and Global Positioning System (GPS) storm modeling, monitoring, and tracking. He mentioned that the NGS 10-year Plan is posted on the web and that he'd appreciate the Panel's unique perspectives and comments on that document.

He discussed NGS' vision and the National Spatial Reference System program for precise positioning, and mapping and charting products and services. New technologies such as the Global Navigation Satellite System (a high-precision international civilian GPS community) and Russian satellites are forcing U.S. competition; however NGS ensures complete infrastructure coverage with over 1000 Continuously Operating Reference Stations (CORS). He also mentioned the role of standards and guidelines and the benefits of the NGS-developed Vertical Data Transformation tool (VDatum); the potential building of local capacity verses Federal government involvement by developing new technologies, models, tools, and training programs; the necessity of maintaining core capabilities; improving communications with stakeholders; increased awareness of height modernization programs and digital elevation models; increased coastal development and environmental concerns; real-time positioning information, on the fly, via the internet; and, product and service development that encourages private-sector, value added input. He mentioned that he recently met with representatives from the American Congress of Surveying and Mapping and had requested their input on the NGS 10-year Plan as well. He said he is interested in interagency data collaboration, cooperation, and coordination which are crucial within the NOAA Integrated Ocean and Coastal Mapping (IOCM) initiative.

He discussed government ownership (only about 7-8%) of the approximately 1000 CORS and explained the details of the cooperative CORS program. NGS is modernizing CORS and incorporating other nations' contributions to the Global Navigation Satellite System. Mr. Zilkoski stated that while NOAA would like to build the best models and tools possible, the equipment must incorporate international signals in order to offer more accuracy and quicker processing time. He mentioned that the geoid modeling and gravity field model are new technologies realizing height accuracies within a few centimeters. This modeling is expensive and his office is considering partnerships similar to the CORS program. He discussed greater automation for coastal mapping programs, photogrammetry improvements, global leadership strategies, and satellite orbit successes.

He asked the Panel to point out missing elements in the NGS 10-year plan and requested comments and a summary by the next HSRP meeting. He stated the Plan should be completed by 2008.

Further discussions included:

- Better integration of NGS' capabilities into other NOAA activities (Integrated Ocean Observing System (IOOS), IOCM, etc.)
- CORS amplification at the State (specifically South Carolina) level for infrastructure improvements and possible uses of that technology for the maritime industry (real-time tides, currents, air gap, docking capabilities)

- Leveraged capabilities via the Committee on the Marine Transportation System (CMTS)
- National height modernization program promotion (in light of earmarks)
- Maintained core competencies
- Essential delineation of the nautical aspects of GPS

Committee on the Marine Transportation System (CMTS)

Chair, Mr. Scott Rainey introduced Ms. Helen Brohl, former Vice-Chair, HSRP and now, cabinet level appointee as the first Executive Director of the Executive Secretariat to the CMTS. Mr. Rainey stated that the President's Ocean Action Plan established the CMTS, a "federal agency partnership," and their mission is policy-level guidance on the Nation's waterways, ports, and intermodal connections.

Ms. Brohl emphasized the value of federal advisory committees and she offered that today, more and more navigational technology and safety issues were discussion points among federal agencies within the CMTS.

Ms. Brohl highlighted the chronology of the CMTS, beginning with the 1996 INTERTANKO Report, the 1999 Report to Congress, "An Assessment of the U.S. Marine Transportation System," the creation of the International Committee on MTS, the Marine Transportation System National Advisory Council (MTSNAC), and outreach and policy planning efforts that took place. She stated that the CMTS' formal charter was effective August 11, 2005. Their mission was to form a partnership to discuss waterways, ports and their intermodal connectors; and to encourage cooperation and collaboration between agencies before incongruent policies or proposed rules are suggested. She also described the Coordinating Board of the CMTS and said that the 2007 Chairman is NOAA Administrator, Vice Admiral Conrad C. Lautenbacher, Jr.; she described the Staff Office that employs Mr. Gary Magnuson, NOAA; and, she discussed the *current* Integrated Action Teams: MTS National Strategy, MTS Assessment, Maritime Data Collection, Maritime Recovery (under review), and Navigation Technology. She explained a general asset management program and risk assessment models. She said maritime data is collected by about 135 to 140 offices in 12 different departments or agencies and that work is in progress to find maritime data portals to help users access pertinent data. She reported that Captain David MacFarland, NOAA, named the lead for the Navigation Technology IAT, recently met with the Team and had discussed common interest areas: marine navigation safety, scope, current modeling efforts, AIS standards, and GPS policy defining.

Through search efforts, Ms. Brohl found that there were approximately 20 Federal Advisory Committees (FAC) that could possibly impact the MTS, directly or indirectly, and that her staff would introduce the CMTS mission to these FACs, look for synergies between Committees, and glean their vision for safe marine

transportation. As an illustration, she mentioned that the HSRP and the U.S. Coast Guard-sponsored Navigation Safety Advisory Committee both discuss electronic charting. She encouraged visionary thinking on behalf of the HSRP, related to the safety in electronic charting systems for the country.

Panel discussions included Mr. Dunnigan's confirmation that VADM Lautenbacher is very interested and engaged in his new responsibility as the Coordinating Board Chair and that he agrees that Federal agency collaboration is key for a strong MTS. Some of the questions or comments raised were: succeeding with the new business model; identifying areas of common ground among several agencies; clarifying procedures for the HSRP to suggest issues for CMTS attention through VADM Lautenbacher; educating Congressional representatives beginning with strategic plans and specific action items (i.e., infrastructure issues related to the Harbor Maintenance Trust Fund); and, Canada's national policy changes and transcontinental land bridge connections, gateway strategy linkages, and a "Framework for National Freight Policy" from Department of the Transportation.

<u>HSRP Most Wanted Hydrographic Services Improvement Report—Delivered to VADM Conrad C. Lautenbacher, Jr.</u>

Mr. Rainey introduced VADM Lautenbacher and discussed his recent work with the first, Earth Observation Summit; his support and encouragement for a sustained Global Earth Observation System of Systems; and, his previous interactions with the HSRP.

VADM Lautenbacher stated that he had just offered his testimony before a budget hearing in the House Appropriations Subcommittee. His testimony included the mention of the 200th Anniversary of the establishment of the Survey of the Coast and NOAA's applicable navigation products and services' relevance today that promote safe navigation. He thanked Mr. Vickerman for his compelling story about the entire MTS; expressed his support for the Physical Oceanographic Real Time System (PORTS®) program and his appreciation to Dr. Hauke Kite-Powell for his economic benefits studies for PORTS® in Tampa Bay, Florida and Houston, Texas. He also thanked the HSRP for their collective expertise, knowledge, advice, and recommendations on establishing survey priority areas, improving NOAA's contracting policies, identifying NOAA's role in the Integrated Ocean Observing System (IOOS), drafting the Hydrographic Services Improvement Act Reauthorization language, and reviewing and analyzing NOAA's emergency response actions during the 2005 Gulf coast hurricane season. VADM Lautenbacher stated he looked forward to HSRP input on NOAA's Fleet Recapitalization Plan, National Geodetic Survey's (NGS) "10-Year Plan," and policy recommendations that he could carry to the CMTS through his role as CMTS Coordinating Board Chair. As Chair, he has the unique opportunity to highlight NOAA's relationship with, and critical contributions to, the MTS, and to deliver the *HSRP Special Report* to the whole CMTS. He

mentioned that Secretary of Commerce Gutierrez is participating in the International Association of Ports and Harbors Conference and that the role of maritime marine sciences is included in his free trade agreement discussions. He discussed the status of the reauthorization of the Hydrographic Service Improvement Act.

Mr. Rainey and the Panel formally presented the *HSRP Special Report* to VADM Lautenbacher and highlighted the Panel's primary recommendations regarding near-term priorities and direction for NOAA's hydrographic services. He focused attention on NOAA resources in comparison with national needs and the growing MTS. He said that timely, accurate, and reliable navigation information was the greatest safety concern offered in the Department of Transportation 1999 Report to Congress, "An Assessment of the U.S. Marine Transportation System" and that nearly 50% of the depth information on NOAA charts was collected by leadline soundings and wire drags. Mr. Rainey said at the current data collection rate, it would take NOAA and contract surveyors 166 years to survey the high priority areas within NOAA's hydrographic survey area of responsibility. He also said that NOAA's NGS shoreline mapping capabilities only afford 3% of the highest priority port-area shoreline and that particular areas of U.S. shoreline have never been mapped to official standards. He discussed data collection inefficiencies and processing concerns and mentioned HSRP support of NOAA's efforts to increase academia and private sector partnerships for advanced technology research and development. He supported NOAA's in house levels of hydrographic expertise; discussed the benefits of core capabilities and increased levels of contracting for hydrographic services; and stated because there are multiple federal and state agencies collecting similar data--integration, standards and consistent vertical datums are essential today to minimize confusion, conserve resources, and minimize duplication and inconsistencies. He said NOAA should develop a national survey plan for shoreline mapping similar to the "NOAA Hydrographic Survey Priorities;" that the Nation's federally maintained channels, approaches, and anchorages should be surveyed with full-bottom coverage technology; and, that NOAA's navigation services are essential, vital, components as the Nation builds an Integrated Ocean Observing System (IOOS). He supported expansion of and funding for real time water level and current observations nationwide, such as PORTS®; additional funding and staffing for NOAA's emergency response efforts for issues that affect the marine transportation system; more timely distribution of NOAA's Electronic Navigational Chart (ENC) data and a single production system for ENCs and raster and paper charts; and, ramped up outreach efforts to promote non-traditional use of hydrographic survey data.

The Panel members were given the opportunity to discuss their views on the importance and relevance of the advice and recommendations included in the Special Report. Discussions included: photogrammetric technology changes for shoreline mapping improve accuracy of features on nautical charts; NOAA's mission, products, services, and efforts go largely unnoticed by the general

public and Congress; the National Spatial Reference System is foundational in all facets of industry that depend on accurate positioning; incidents or near incidents caused by debris and obstructions, undetected and, therefore, uncharted in federally maintained channels; the recreational boating interest group's unmet requirements for surveys and exponentially higher insurance claims for groundings and submerged object allisions; NOAA's effective contracting policy should continue to use the Qualified Base Selection system; the existent PORTS®, the intrinsic value of NOAAs electronic navigational data and Navigation Response Teams'; and, the usefulness of conducting an economic analysis of shutdowns on differing modes of transportation (air, marine transportation system).

VADM Lautenbacher requested the *HSRP Special Report* be given much exposure and he would do his share to deliver it within his realm of influence. He agreed with the statements offered from Panel members around the table and discussed the need for more education and attention to acquaint congressional representatives (and the general public) with NOAA's diverse mission, accomplishments, and their role in moving commerce safely and efficiently through U.S. ports and the marine transportation system.

Public Comment Period

Mr. Thomas Chance, President and Chief Executive Officer, C&C Technologies, commented on his international and domestic workload. He criticized NOAA's outdated charts and data throughout some of the Gulf Coast in areas where vessels support the oil industry and commercial fishing operations and he also related bottom clearance statistics. He commended NOAA's change, over the past 20 years or so, to contract for survey work and held it up as a "model example of how government and the private sector can work together" to accomplish the work "efficiently and effectively."

Thursday, March 22, 2007

Welcoming Remarks

Captain Steve Barnum welcomed everyone to the HSRP meeting and provided hotel logistics for emergency operating procedures.

Administrative Business

Mr. Scott Rainey asked for Panel approval of the "Meeting Summary" from the August 18-19, 2006, Anchorage, Alaska, HSRP meeting. All Panel members were in approval, none opposed.

Budget Overview (FY07-08)

Captain Barnum presented the NOS Budget Briefing for Mr. Dunnigan as he was called away on a family emergency. Captain Barnum provided a link (http://www.noaa.gov) to access the "NOAA Blue Book" for FY 2008 budget summary information and stated that NOS' main concern is about America's oceans and coasts—that they are a safe, healthy, and productive. He talked about major NOS accomplishments for the past year, including: the establishment of a new IOOS office and appointment of Ms. Zdenka Willis as the Program Director; the completion of a major readjustment to the nation's positioning infrastructure and the benefits realized within transportation, mapping, charting, and scientific and engineering applications; receipt of $20M in supplemental funding last year for the Office of Response and Restoration and Office of Coast Survey Gulf of Mexico Marine Debris Surveying and Mapping Project (which is currently 60% complete); supplemental funding for four new PORTS® in Mobile, Pascagoula, New Orleans, and Gulfport; and, the hardening of the National Water Level Observation Network (NWLON) stations along the Gulf Coast.

He stated that, collectively, NOS contracts for FY06 were about $75.1M; showed increased budget trends between the President's budget and the enacted amounts; and, highlighted specific monetary amounts for Autonomous Underwater Vehicle (AUV) technology, upgrades for the NWLON Systems, IOOS plan support, and continental shelf mapping. He discussed interagency coordination and cooperation efforts within the Integrated Ocean and Coastal Mapping (IOCM) program for shoreline mapping, channel mapping management, and joint technology research and efforts to maximize the NOAA fleet through multi-mission fleet and aircraft platforms.

Panel discussions included questions about $122M in earmark allocations and possible upcoming changes and restrictions within the earmark process of receiving federal dollars; budgeting challenges and priority-setting while operating under a Continuing Resolution; differences between the President's budget and the enacted-by-Congress budget figures; the urgent need to educate people on the criticality and benefits of NOAA's products and services; concerns about U.S. non-compliance with Law of the Sea rules; advantages of the adage related to data collection, "map once, use many times;" and, shortfalls in funding allocations that could affect the timely completion of the NOAA ENC data base to afford compliance with U.S. Coast Guard regulations.

Panel members discussed a current newspaper article on Hurricane Katrina and offered that NOAA standards for vertical data could have alleviated sea level data discrepancies in the U.S Corps of Engineers (USCOE) construction of canal walls and levies. NOAA Panel representatives mentioned resultant USCOE guidance changes to follow NOAA's standards for geodetic and water level measurements and regional approaches to height modernization.

Hydrography Major Project

Mr. Richard Edwing, Deputy Director, NOAA Center for Operational Oceanographic Products and Services reported that in 2005, a NOAA Administrative Order was issued that re-established a "Hydrography Major Project," (high priority, profile, and visibility; significant resource allocation; stood up by the Deputy Undersecretary for Commerce; and, subject to Council review) a process offering better integration with the NOAA Planning, Programming, Budgeting, and Execution System (PPBES). Hydrography was one of 13 different NOAA projects identified as a "major project," and is overseen by the NOAA Ocean Council. This project cross-cuts NOAA Line Offices and his team:

- addresses functional and operational requirements
- ensures customer satisfaction
- communicates project status
- schedules key decision point reviews

He explained "Key Decision Points (KDP)" as part of the major process. These KDPs consist of briefings, approvals, and endorsements required before proceeding to next stage of the process. KDP1 is the basic project identification, definition, and justification stage. KDP2 is the shortfall detection and logistics stage; the investment strategy segment that identifies the preeminent method of operation. KDP3 is further analysis, execution plans, and milestones. He said that most major projects are new start, major acquisition projects (i.e., new satellite or facility) that have discrete start/stop dates whereas NOAA has been performing hydrography for about 200 years.

Panel members requested real world examples; discussed the timing of the external buy-in process and the timing of the impartation of the HSRP's expertise; deduced that this process could improve the chances of receiving additional, programmatic funding through good program management and credibility; and mentioned that the process seemed unbalanced if NOAA only included the data acquisition and didn't include final products and dissemination. The panel also noted that the definition of "hydrography" must include tide and shoreline data, and the answer to the question, "what is the need?" would be "to prevent ships from running aground."

Mr. Edwing stated that an outcome of the KDP1 process led to the establishment of a technical working group to provide oversight. Approval was also received from the Ocean Council to move on to KDP2 and Mr. Edwing then provided specifics agreed upon as to the scope of the project (i.e., 3.4 million square nautical miles (SNM) of survey area, 10,000 SNMs required to meet a 100% requirement per year, current resources allow 3,000 SNMs per year=shortfall, 7,000 SNMs). He said that the process included identifying the available means required and logistics involved to collect hydrography. Through economic analysis, his team would pick the best strategy to realize the 100% requirement. This could include ramping up contract survey operations only; it could include

ramping up contract *and* in-house survey operations; and either scenario would include an estimate for technology infusion. Risk mitigation, maximized internal/external and congressional support, and human capital are all factors they'll consider in the final analysis. He stated that his team is in the early stages of KDP2, the analysis work is complex, and they plan to present KDP2 before the end of the FY07. Mr. Edwing mentioned that to complete KDP1 his team used HSRP advice and recommendations. The Panel and Mr. Edwin agreed to work together to establish an effective and timely collaborative process.

Fleet Recapitalization Study

Captain Roger L. Parsons, NOAA (ret.), contract employee with BMT Designers and Planners stated his task is to develop a ship recapitalization plan for NOAA—a comprehensive investment strategy for maintaining a fleet of 19 ships, average age of which is 28 years. He stated that the investment strategy for the acquisition of several T-AGOS vessels and the new, Small Waterplane Area Twin Hull (SWATH) vessel could have been more comprehensive. He related that over the years, NOAA has developed several fleet modernization plans but that the applicable authorizers and appropriators could certainly benefit from an education on infrastructure requirements and organizational needs. He explained NOAA must establish a process—one that describes: NOAA's mission, why it's important, the ramifications of NOAA not performing that mission, and how best to fulfill that mission. He described a two-part approach, ship recapitalization and aircraft recapitalization. For the ships, the process includes the ship recapitalization plan, an interim study on Fisheries Survey Vessels (FSV) 5 and 6; and, an eventual Report to Congress. The recapitalization plan includes:

- a mission needs assessment
- requirement development
- an analysis of alternatives
- an optimization analysis

The mission needs assessment will contain input from approximately 20 NOAA programs deemed to have at-sea data requirements from FY09 to FY24 and will identify and quantify shortfalls and socio-economic impacts. The requirements development (Operational Requirements Document (ORD)) will be a broad perspective on minimum and optimal performance standards requirements for at-sea data acquisition systems which will identify similar requirements for data acquisition. The Analysis of Alternatives (AOA) describes multiple scenarios, costs, asset ownership, investment strategies and current and new technologies (i.e., Autonomous Underwater Vehicles, Unmanned Aerial Vehicle Systems, etc.) for data acquisition. Captain Parsons stated that the Study necessitates close coordination and cooperation with the Hydrography Major Project Team and NOAAs Office of Coast Survey applicable program managers.

These components will be considered in the Comprehensive Recapitalization Plan—recommendations to NOAA for maintaining the ability to acquire, observe, and monitor mission-critical data and will serve as the basis of the Report to Congress.

Captain Parsons' presentation included framework and detailed schematic diagrams and evaluation methodologies which are available to download on the HSRP website listed at the end of this Summary. He discussed future data collection expectations, diversified data use, status of the new Fishery Survey Vessels 5 and 6, and the prerequisites of multimission capabilities for both government and contract vessels.

The Panel suggested that NOAA establish several goal-based outcomes--perhaps using differentiations assigned in *NOAAs Hydrographic Surveys Priorities*, between critical survey areas and specific priority level areas--and develop compelling arguments for each that attributes shortfalls and ramifications should the goals be unmet. The need to be able to identify the impact of a shortfall, whether in major acquisitions or survey operations, will be helpful in justifying major ($80-$100M) investments.

Panel members pointed out a correlation between Office of Coast Survey, hydrographic survey operations; the Hydrography Major Project; and, the results of the Fleet Recapitalization Study and encouraged collaboration. Also, some suggested possible factors or input for the assessment include: the integration of not only NOAA's in-house requirements for at-sea data collection but other agencies' requirements as well, i.e., Corps of Engineers, Homeland Security Program Office, federal, state and local emergency response agencies; the training capacity of NOAA fleet platforms to maintain a core capability in hydrography; the importance of shoreline mapping in both the ship and aircraft recapitalization; and, a suggestion to request a review of the Fleet Recapitalization Study through the Federal Oceanographic Facilities Committee (FOFC) [NOTE: This group has transitioned to the Interagency Working Group on Facilities (IWG-F) under the Administration's Ocean Action Plan structure, and now provides guidance on requirements and other matters relative to national oceanographic assets to its parent body, the Joint Subcommittee on Ocean Science and Technology (JSOST)].

Captain Parsons was also asked to brief the panel on the SWATH Coastal Mapping Vessel (CMV) and a damage assessment aircraft. He said the contract for the SWATH was fixed price and two-phased and this vessel would replace the NOAA Ship RUDE. VT Halter marine was awarded the design competition in September 2004 and the detail design competition in 2006. The keel laying is June 15, 2007, and the contract delivery date is 12 months later. Available funding for the SWATH is $19M, which is inadequate to fund some additional improvements such as management reserves, dynamic positioning, integrated bridge system, increased A-frame capability in addition to crane loads, and,

complete spare parts and outfitting, however, Captain Parsons reported the platform will be very capable.

The Hurricane Supplemental Bill provided $12M to acquire a replacement for the Citation II jet. Requests for Proposals will go out sometime in March 2007, delivery is expected by June 2008, and the aircraft will be operational at the beginning of the FY09 hurricane season. The NOS mission, particularly for damage assessment, requires a lower, slower aircraft. A large format digital camera and topographic Light Detection and Ranging (LIDAR) equipment are under consideration for the plane.

Panel discussions on the new SWATH CMV and the damage assessment aircraft included expressed concern about minimal spare parts and the lack of management reserves; the operational differential between the SWATH and the RUDE; and, Captain Barnum added that a final decision was forthcoming but he believed there was consideration of these shortfalls in the FY07 spending plan.

Also discussed was NOAA's utilization of time charters over the past few seasons. The FY08 budget request included funding for time charters to address the survey backlog; however, contractors will have the flexibility to determine the most suitable data collection approach.

The Panel was provided a specific tasking for the Fleet Recapitalization Study and Captain Parsons requested input on the process as soon as possible. NOAA expects to deliver the comprehensive plan to the HSRP sometime in September 2007.

Integrating PORTS® in Automatic Identification System (AIS)

Mr. Mike Szabados, Director, CO-OPS, explained that this project is included in the NOAA-led Navigation Technology, (IAT); sponsored by the CMTS; and, there is on-going collaboration between several federal agencies (for example, the U.S. Coast Guard, and NOAA).

Mr. Darren Wright, NOAA PORTS® Program Director, described the PORTS® as a network of sensors, installed at the request of local users. The system can consist of side-looking, buoy-mounted, and bottom-mounted current meters; water level and air gap sensors; and various meteorological sensors. There are currently 13 PORTS® within the U.S. that service 39 different seaports; however, five new installations are planned in the Gulf Coast area this year and two more are scheduled in 2008--Cherry Point, WA, and Lake Charles, LA. Mr. Wright related that the USCG's AIS consists of a transceiver aboard a vessel that shares positional data with other vessels in the area; it is considered a safety precaution and that there is now coverage in critical areas in various ports. The Coast Guard plans to have complete coastal coverage, adding additional receiving stations, (beginning with the "critical" port and coastline areas,

expanding out to 50 nautical miles) and then finally incorporating satellites for worldwide, information sharing.

Currently, AIS is a one-way system, data is transmitted from ship-to-ship, back to the U.S. and disseminated to the Coast Guard. Mr. Wright displayed a third-party vendor's Graphical User Interface that included ships within a channel near New Orleans. He explained that within the 26 different message types, PORTS® data would be broadcast through the binary part of the message, [ID# 6,7 and 8], through the Coast Guard for composition, to the vessels' AIS box, processed through third-party vendor software, and, finally, displayed on the vessel. Testbed plans for the project are New York and Houston (by spring 2008), where Vessel Traffic Services (VTS) and PORTS® currently coexist, then on to other, similar situational areas. As the Coast Guard expands their coverage, NOAA will work toward National Water Level Observation Network data integration within the AIS and will transmit real-time data every six minutes. Mr. Wright stated that presently, air gap sensor data is lacking a set format but all other data would be available.

Panel members reiterated the need for real-time, verified (verses QC) tide data for improved productivity in hydrographic survey work and for navigation and were told this was possibly a first step toward that end. They were interested in the current and future regulations and carriage requirements for AIS. *Commander Brian Tetreault, Chief of Vessel Traffic Services (VTS), USCG,* stated that within a year to 18 months, carriage requirements would affect most commercial vessels over 65 feet, operating in a VTS-covered area. He said that the Coast Guard should enforce the law that requires complete AIS information entries and updates but that resources don't always allow enforcement to the extent desired. He also added that a Class B, AIS device, intended for voluntary carriage on smaller vessels and fishing vessels, could be a beneficial, navigation safety tool and that collaboration with the Army Corps of Engineers to provide real-time current information near locks and dams (currently having no carriage requirements), will, hopefully, encourage voluntary carriage as well. Panel members expressed concern about the logistics involved with the format change and system upgrades related to the PORTS® binary message display. They suggested that once the data integration is complete, end users and customers could provide valuable information as to further data integration into their specific and relevant onboard applications CDR Tetreault said that the formats would be vetted through national and international forums and they are currently testing existing, published meteorological and hydrographical binary formats. CDR Tetreault and the Panel discussed the Maritime Mobile Services Identity (MMSI) registration for AIS users and they also identified possible funding opportunities for PORTS® (and IOOS) leveraged against oil companies for spills and mitigation funds for buoys from offshore projects. Mr. Szabados and CDR Tetreault confirmed there were no financial concerns for this project and that a meeting to set timelines and agenda was planned.

Mr. Szabados also briefly discussed a demonstration project in Norfolk, VA, where the PORTS data, through AIS, facilitated dynamic charts.

NOS IOOS Project Office

Ms. Zkenka Willis, Director, NOAA's Integrated Ocean Observing System (IOOS) Program Office, stated that IOOS was designated as a NOAA "major project" in 2005, and that it is currently in the "pre-KDP1" stage. Ms. Willis, acting as a member of a team assembled to offer recommendations on how NOAA could exert greater leadership and make measurable progress in the advancement of IOOS, focused on three questions:

- What can NOAA do to fundamentally contribute to the U.S. IOOS effort?
- What is feasible for NOAA to implement?
- What can be accomplished in the next 36 months?

The team concluded that IOOS efforts would be unsuccessful without full-time leadership, strategic goals, and authorized central programming management. Mr. Dunnigan subsequently conveyed two recommendations to VADM Lautenbacher: create a dedicated IOOS program office to collaborate with federal and non-federal partners and implement an initial operating capability for data integration.

The IOOS Program Office was established in December 2006; reports to Mr. Dunnigan; and represents all of NOAA. The major project designation is "System Acquisition" and, advantages for a "Program Office" designation within the NOAA Planning, Programming, Budgeting, and Execution System (PPBES), allows the development of IOOS requirements and the opportunity for funding competition. Ms. Willis stated she understands that integrated ocean observation capacity exists within NOAA at the Federal and regional levels (including the National Data Buoy Center, archive centers, and NOAA's Office of Global Observations) and external to NOAA (Ocean U.S. which will be co-located with the new IOOS Program Office in NOAA's Wayne Avenue, Silver Spring, MD, building) and those capacities need to be integrated. Ms. Willis stated that there are stipulations against subsuming existing capabilities and that, in the near future, Ms. Willis and Mr. Szabados plan to discuss shared requirements within their two program areas.

Mr. Willis stated that societal challenges include the following facts: "global climate" (not well understood); and, coastal populations and ocean, coastal, and Great Lakes coastal ecosystems are at risk. She reviewed the informational needs including, global climate system characterization, improved models (hurricane intensity, coastal inundation, etc), and improved access to information. She offered several IOOS core variables but said the initial program concentration would be on five major variables for integration purposes--temperature, salinity, sea level, surface currents, and ocean color. Integration of

the specific core variables produce several different models and assessments but requires: significant program coordination; mathematical and scientific readiness; funding; products and services availability; data format, standards, and interoperability; and, finally, test criteria for measuring success. Ms. Willis discussed the Integrated Data Framework; time schedules and milestones; and, the regional component budget information, capability, and capacity. Ms. Willis summed up her brief by stating that her role is to further coordinate NOAA's efforts with federal and nonfederal partners to achieve an IOOS.

Panel discussions with Ms. Willis included mention of regional earmarks and line item funding for IOOS; omission of commerce and transportation strategic goals within the initial program concept of the IOOS challenge and also at the regional-level IOOS forums; PORTS® data integration concerns and future ramifications of multiplicity in NOAA data collection efforts; data quality assurance, quality control, and transport standards requirements; benefits of an evaluation of co-located sensors for proper investment management; and, Panel input for the KDP process.

Recommendations

The panel discussed and approved: the proposed approach, mission needs assessment, and additional requirements identified by the Federal Oceanographic Facilities Committee (FOFC) for the NOAA Fleet Recapitalization Study; funding concerns for the SWATH; and, that the ramifications of the expanding MTS be addressed as a component of IOOS.

HSRP Task Assignments and *HSRP Special Repor*t Discussions

Mr. Rainey stood up working groups for the fleet recapitalization study, the Hydrography Major Project, the National Geodetic Survey 10-year Plan, and the PORTS integration into AIS.

Panel discussions included various typographical and minor changes to the *HSRP Special Report*, graphic caption concerns, and a general letter of acknowledgment from VADM Lautenbacher to include in the Report.

New Business

The Panel discussed the logistics for the next meeting; suggestions included the U.S. Hydrographic Conference in Norfolk, Virginia, in June; the NOAA Great Lakes Environmental Research Laboratory, Environmental Observing System, Oceans Week in June, D.C.; NOAA's 200th Anniversary celebration in Seattle, WA, in September.

Public Meeting Adjourned

To view any slide presentations, please visit:
http://nauticalcharts.noaa.gov/ocs/hsrp/archive/library.htm.

The public meeting was adjourned at 3:10 p.m. To view or download the verbatim meeting transcript, please visit:
http://nauticalcharts.noaa.gov/ocs/hsrp/archive/minutes/mar21_07tran.txt or
http://nauticalcharts.noaa.gov/ocs/hsrp/archive/minutes/mar22_07tran.txt.

Appendix I
Attendees

Voting HSRP Members

Jon Dasler	Director of Hydrographic Services, David Evans and Associates, Inc.
Elaine L. Dickinson	Boat Owners Association of the United States (BoatU.S.)
Captain Sherri Hickman	Houston Pilots Association
Dr. Lewis Lapine	Chief, South Carolina Geodetic Survey
Adam McBride	Port Director, Lake Charles and Terminal District
Captain Andrew McGovern	Sandy Hook Pilot's Association
Captain Minas Myrtidis	Norwegian Cruise Line
John Oswald	President, John Oswald and Associates, LLC
Scott Rainey, HSRP Chair	Consultant
Tom Skinner	Senior Project Manager, Durand & Anastas Environmental Strategies, Inc.
Rear Admiral Richard West, USN (Ret.) (via conference call)	President and CEO, Consortium for Oceanographic Research and Education (CORE)
Larry Whiting	Hydrographer, Terra Surveys LLC

Non-voting Members

Captain Andrew Armstrong, NOAA (Ret.)	Co-Director, NOAA/UNH Joint Hydrographic Center
Dave Zilkoski	Director, National Geodetic Survey
Michael Szabados	Director, Center for Operational Oceanographic Products and Services

Designated Federal Officer

Captain Steven R. Barnum, NOAA	Director, Office of Coast Survey

HSRP Decision Maker

John H. Dunnigan	Assistant Administrator, National Ocean Service

Presenter/Speaker

VADM Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.)	NOAA Administrator
Brigadier General John J. Kelly, Jr. USAF (Ret.),	Deputy Undersecretary for Oceans and Atmosphere, NOAA
Mr. M. John Vickerman	Founding Principal, TranSystems Corporation
Hauke Kite-Powell, Ph.D.	Research Specialist, Woods Hole Oceanographic Institution
Ms. Helen Brohl	Director, Executive Secretariat, Committee on the Marine Transportation System (CMTS), Department of Transportation
Mr. Richard Edwing	Deputy Director, Center for Operational Oceanographic Products and Services, NOAA
Captain Roger Parsons, NOAA (Ret.)	BMT Designers & Planners, Inc., Ship Acquisition and Management
Mr. Darren Wright	PORTS® Program Manager, Center for Operational Oceanographic Products and Services, NOAA
Ms. Zdenka Willis	Director, NOAA Integrated Ocean Observing System Program Office

Staff

Steve Vogel	National Geodetic Survey
Monica Cisternelli	Center for Operational Oceanographic Products and Services
Barbara Hess	Office of Coast Survey
Virginia Dentler	Center for Operational Oceanographic Products and Services

Others/Public

Ms. Bonnie Bruce	House Natural Resources Subcommittee on Fisheries, Wildlife and Oceans
Ms. Ashley Chappell	NOAA, Coast Survey
Mr. Richard Legatski	NOAA
Mr. Thomas Chance	C&C Technologies
Mr. Art Kleiner	C&C Technologies
CDR Gerd Glang	NOAA, Coast Survey, Hydrographic Surveys Division
Ms. April Black	NOAA, Legislative Affairs
Mr. Paul Fielding	United Kingdom Hydrographic Office
Mr. Jim Sartucci	Secretary Trent Lott's Staff

Mr. Tom Spurling	Tenix Lads, Inc.
Mr. Tim Cawood	McKim & Creed
Mr. David Laurence	NRSC
CDR Brian Tetreault	U.S. Coast Guard
Mr. Bob Hamilton	Woods Hole Group
Mr. Tom Newman	TerraSond, Ltd.
Mr. Paul Cooper	CARIS
Mr. Bob Richards	Fugro Pelagos, Inc.