Summary Record
Hydrographic Services Review Panel FACA Meeting
Public Meeting
April 14-15, 2009
Baltimore, Maryland

Tuesday, April 14, 2009

Introduction

At 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 74, No. 61, Page 14780, dated April 1, 2009), the Hydrographic Services Review Panel (HSRP) meeting was convened on April 14, 2009 at the Renaissance Hotel, Inner Harbor, Baltimore, Maryland. All members were in attendance except Captain Thomas Jacobson, Captain Sherri Hickman, R. Adam McBride, and Captain Ramón Morales.

The following report summarizes the deliberation of this meeting. Presentations and documents available to and/or prepared by the HSRP are available for public inspection via the web at http://www.nauticalcharts.noaa.gov/ocs/hsrp/hsrp.htm. 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. The Agenda is included at Appendix 2.

Call to Order

Mr. Thomas Skinner, chair of the HSRP, called the meeting to order on Tuesday, April 14, 2009, at 8:45am. He asked attendees to introduce themselves. He then turned the meeting over to Captain Barnum for opening comments. Attendance recorded at Appendix 1, Agenda at Appendix 2.

Welcoming Remarks

Captain Steven Barnum, NOAA, Designated Federal Officer, began the meeting by providing emergency procedure logistics and a brief description of the HSRP Panel, its mission goals and meeting protocols.

November Meeting Summary Approval

The minutes from the November 19-20, 2008 HSRP meeting in Tampa, Florida were approved by all panel members present.

Introduction of Juliana Blackwell

Captain Barnum welcomed Juliana Blackwell, head of the National Geodetic Service. With the retirement of Dave Zilkoski, Ms. Blackwell has been appointed as Director of NOAA's National Geodetic Survey.

Regional Stakeholder Panel

Tom Skinner introduced the members of the first Regional Stakeholder Panel of the meeting. Panel members gave their presentations and questions were held till the end of all of the presentations.

Captain Eric Nielsen, President of the Association of Maryland Pilots

Mr. Nielson explained that his association provides bay, canal, river, and harbor pilotage throughout the Chesapeake Bay. The association handles about 5,000 ships annually from the north and south on two deep water shipping channels.

Captain Nielsen indicated that the portable piloting units (which utilize NOAA's electronic navigational charts) are used to assist in navigating and managing traffic. He said that the F-57 vector charts are updated quarterly and that the pilots are able to personalize them to their own specific purpose.

Captain Nielsen said that NOAA's hydrographic survey vessels provide immediate notification of newly discovered obstructions. This immediate notification can help pilots avoid potentially catastrophic accidents. He said that the *Bay Hydrographer* and now the *Bay Hydro 2* are able to provide surveys for special projects. He explained that the equipment was especially valuable in locating remnants of a destroyed pier in the Baltimore Harbor. Once the remnants were removed, MARAD could position a ship in the harbor.

He also said that NOAA's paper charts are extremely useful. He noted that they are particularly helpful to new trainees, but they are also utilized by experienced pilots as well. In addition, the PORTS® information is also very helpful. This system is especially important when pilots are addressing challenges relating to tide heights, changes in salinity, air gap at bridges (i.e. bridge clearance).

Captain Nielsen emphasized the importance of the Chesapeake Bay Operational Forecast System – "CBOFS." He said that this system provides data that is extremely valuable for assisting vessels maneuvering in the region, such as information concerning astronomical tides. This is particularly helpful for planning purposes for maneuvering a ship that is very deeply laden into a berth or to get underneath a bridge that has very limited clearance. This system is also helpful in addressing situations related to weather and wind changes, such as when icing will occur. The relatively new wave buoy off Cape Kettering is also useful for helping pilots plan where to board or disembark a ship (in the lee). Captain Nielsen expressed his appreciation to NOAA for its support.

Frank Hamons, Deputy Director for Harbor Development, Maryland Port Authority

Mr. Hamons explained that the Maryland Port Authority is responsible for everything that takes place on the waterside for the port, such as "channel dredging and placement of dredge spoil, coordinating all navigation systems for the port, as well as the Harbor Safety and Coordination Committee. The Committee is very good at efficiently solving problems.

Mr. Hamons said that the Port of Baltimore is a major economic focus for the state of Maryland. He indicated that the port uses the NOAA's navigational services products, hydrographic services, charts, and PORTS® system.

Mr. Hamons explained that the NOAA charts were particularly important to the Maryland Port Authority's dredge material management program. Hardcopy charts are used as well as electronic versions. The electronic files include Raster images imported into CAD and used for site layout design.

Mr. Hamons indicated that the NOAA charts are an extremely helpful component of the Port of Baltimore dredging project. He explained that when bringing ships through a dredge channel accuracy is critical and that there is little room for error. He said that it is necessary to keep these channels as clear as possible and NOAA's charts are referred to when selecting and planning for the dredge material placement options, when restructuring Miller and Poplar Islands, and when adding dredge to the Chesapeake Bay.

Mr. Hamons suggested that NOAA consider using certified hydrographic surveys commissioned by ports and re-updating project dimensions on the depths on the charts. This would accelerate getting port-led terminal channel modifications on the NOAA charts. He stressed the importance of good, accurate surveys.

Mr. Hamons concluded by emphasizing the importance of the services and products provided by NOAA for navigation to and from the Port of Baltimore. He said that 95 percent of the world's cargo is moved by water, so it is important to United States ports and world trade that services provided by NOAA are continued at or above existing levels. He expressed his appreciation for NOAA's cooperation.

Keith Bailey, Maryland Society of Surveyors

Mr. Bailey explained that the Maryland Society of Surveyors has over 800 members, including office and field technicians and licensed surveyors. Society members determine positions; boundaries; existing features such as roads, buildings, utilities, and the shape of the ground; and new construction. He said that NOAA's services, particularly the National Geodetic Survey and the National Spatial Reference System (NSRS) are very important to the Society's membership.

Mr. Bailey explained that in most jurisdictions in Maryland require the use of the NSRS. The ground is continually shifting. State agencies require that surveys be on a specific coordinate system called the Maryland State Planning Coordinate System (MSPCS). He said that the first step when they begin a project is to get on the MSPCS website and find out where the NOAA control stations are; these stations enhance the vertical and horizontal accuracies.

Mr. Bailey said that the Continually Operating Reference System (CORS) is also extremely helpful. He noted that it supports global positioning system projects. It also helps to assist in the real-time kinematic networks that many vendors are using or establishing. He explained that in the past surveyors would begin a GPS project by establishing a network, begin calculating boundaries, calculate horizontal and vertical dimensions, perform a site adjustment, download all that data, and they begin the actual surveying. However, the real-time kinematic network is able to access NOAA's CORS station immediately. Mr. Bailey stated that NOAA's technology reduces twelve hours of work into fifteen minutes.

Mr. Bailey commented that NOAA's Online Positioning User System (OPUS) is another great tool. He explained that OPUS is used in conjunction with the global positional system (GPS). He said that surveyors download their GPS data and upload it into the OPUS system. Within a matter of minutes, the surveyors receive an e-mail to calculate the values. He stated that this assists in providing quality controls and is simple and easy to use.

Mr. Bailey offered the following suggestions to the panel: (1) enhancement of the NSRS system; (2) continue to improve the web interface with the OPUS system, particularly the static calculations; and (3) continue your leadership in developing guidelines for programs, such as the real-time networks. He concluded his remarks by saying that the Maryland Society of Surveyors greatly benefit from NOAA's services and particularly NGS.

Stuart FitzGibbon, Environmental Manager at the Domino Sugar Refinery, part of the American Sugar Refining Company

Mr. FitzGibbon spoke about the importance of U.S. waterways for manufacturing products. The refinery is the second largest refinery in North America and has one of the busiest bulk marine discharge terminals. In addition to the direct jobs, for manufacturing there are generally 2 and a half other jobs supported per direct job. He noted that many big food manufacturers depend on receiving supplies of sugar, that it is an interdependent system. He explained that In order to begin the processing of the sugar, it is essential that Domino Sugar receive the big bulk carriers containing raw sugar. In addition, they also need to address water and air issues since cranes are discharged to transport the raw sugar.

Mr. FitzGibbon gave a detailed explanation about the extensive use of water in a processing the raw sugar. He noted that being aware of water temperatures is critical

part of the manufacturing process. For example, there are restrictions on increasing the temperature of the water through discharge of water from the plant. When the bay water is above 95 degrees F, processing water cannot be discharged, which impacts the ability to operate the refinery. The NOAA water temperature data is useful for validation of the refinery's instrumentation. The prediction aspect of the water temperature is also important, as the refinery takes 16 to 24 hours to shut down, and the decision must be made that far in advance. He noted that water levels and storm surges are also important to monitor for ship passage, as well as water use issues. For example, extremely low water levels may mean shutting the plant due to a lack of water to bring into the plant.

Mr. FitzGibbon noted that air and wind are extremely important in view of Domino Sugar's extensive use of cranes. Due to safety considerations, the cranes cannot be used if the winds are higher than 35 to 45 miles per hour. Domino Sugar uses NOAA's information in conjunction with their own wind speed, and wind direction monitors. .

Mr. FitzGibbon offered feedback about NOAA's products. First, he said that most users are not trained scientists. He emphasized that NOAA's productions should emphasize predictive trends, rather than scientific terminology. Second, he suggested that some of the information provided should relate to conditions at a point in time. Mr. FitzGibbon concluded his presentation by thanking NOAA for their support.

Steve Golder, Chief Survey Team, U.S. Army Corps of Engineers

Mr. Golder explained that the Corps of Engineers performs routine hydrographic surveys as well as monitors rivers, waterways, and navigation conditions for federally authorized channels. He said the information is used as a decision-making tool for the Baltimore harbor, channel operations, and planning around Baltimore. He said that the Corps utilizes NOAA tidal stations and depend on NOAA geodetic and tidal benchmarks. He said that the Baltimore district maintains a hundred projects in the Maryland portion of the Chesapeake Bay and its tributaries, the Potomac River and along the Atlantic Coast of Maryland.

In Maryland the USACE is organized into a deep draft and shallow draft group. The deep draft group does most of their work in the Baltimore Harbor and Channels, whereas the shallow water group works mostly in the Chesapeake Bay tributaries. Both groups collect data using a marine DGPS positing system, ODOM depth sounder, ODOM velocity profiler, POS-MV, calibration bar and manual tide readings. In the future they hope to work more with Multibeam and RTK tides.

Mr. Golder's group uses NOAA products daily, they survey all channels to MLLW, use tidal benchmarks for vertical stability, where vertical tidal marks are not available they get static GPS data for 8 hours and send to National Geodetic Services' OPUS for processing, and get a solution through V-DATUM. The Corps would like NOAA to keep updating its tidal benchmarks and water level stations. Poplar Island is one example of

a project in which the Corps and NOAA cooperated on two efforts; to establish tidal datums, and get tidal data for the area.

In addition Mr. Golder stated that the Corps is looking to upgrade its equipment and vessels so they can support full bottom coverage. He also expressed interest in participating in NOAA training.

David Nemerson, Conservation Biologist, Baltimore Aquarium

Mr. Nemerson said that he is one of the non-traditional users of NOAA data. The Aquarium tries to connect people with aquatic life and make a better world for both. He explained that the aquarium tries to create programs to get people "out of the building" and connected to aquatic life. The main focus of these programs is community-based wetland restoration, a great tool to get the public excited about restoration and preservation work. Projects often focus on beneficial uses of dredged material. He showed exampled of projects, such as a smaller project at Eastern Neck Island, and other projects at Blackwater National Wildlife Refuge and Poplar Island. Projects have been generally successful.

The key aspect in marsh restoration and success is elevation. This is where NGS and NOS come in, as they provide information about land elevation and tide height. NGS worked cooperatively with the Aquarium at Eastern Neck Island to create a nice digital elevation model, which is useful for developing good planting guidance for different plant species. NGS also helped Mr. Nemerson with a low-tech technique to take aerial photos of the marsh, so that it is possible to track how sites are changing over time.

Mr. Nemerson commended the Aquarium's collaborative relationship with NGS and the CO-OPS Coastal Program as an example of an effective public-private partnership. As a result of this partnership, the wetland restoration community and restoration practitioners are able to get access to this invaluable data. He commented that with a new administration it would be a good opportunity to work more cooperatively with the restoration and coastal environmental management community. Mr. Nemerson concluded his remarks by suggesting that tide information be updated more than twice a day to make better tide predictions, as this would be helpful for knowing the current state of the tide and what it is doing for volunteer marsh planting activities.

Captain Brian Kelly, Captain, U.S. Coast Guard, Port of Baltimore

Captain Kelly said that his position combines several key areas for protecting the Port of Baltimore. He explained that his job combines the responsibility of the safety, security, and the stewardship of the region. The approach has enhanced the CG's ability to collaborate regionally. Captain Kelly consults with others rather than make unilateral decisions.

Captain Kelly commended NOAA and the information provided by the agency for not only helping the Coast Guard react and respond to cases, but also to help get to the

planning phase of managing risk. He said that NOAA's projects help Coast Guard members address operational risk management.

Captain Kelly indicated that NOAA provides extremely valuable services. These services range from post-hurricane surveys to finding hazards to navigation. With NOAA's information, the Port of Baltimore is able to broadcast notices to the mariners so that pilots, the recreational boating community, and commercial operators can be prepared to avoid negative situations. He also commended the NOAA staff for participating in the port's waterways management analysis, providing information to help keep the water channels clear of ice (i.e. planning for when ice breakers are needed), and for maintaining waterway access to the Eastern Shore.

Captain Kelly concluded his remarks by encouraging NOAA to continue its innovation in providing products and services to its stakeholders. He suggested that NOAA's should continue to provide products that are timely, accurate and meaningful. Finally, he encouraged NOAA staff to learn the Incident Command System. He explained courses are available through the FEMA website.

Open Discussion

Topics of discussion following the presentations included:

- Development and implementation of standardization for survey, geodetic and tide information/approach between NOAA and the Corps of Engineers
- Value of paper and electronic charts to the navigation community.
- Suggestion that NOAA provide specifications and guidelines to port authorities so survey data can be incorporated onto nautical charts.
- It was suggested that Mr. FitzGibbon and others participating in public-private partnerships to write a brief letter to their Senators and Congressional Representatives about the success of their relationship with NOAA, and how valuable NOAA's products and services are to their daily operations.
- PORTS® usefulness for Baltimore, selling point, and costs.
- Sea level change predictions.
- Whether jurisdictions should pay for real-time kinematic networks or virtual reference systems containing NOAA data from commercial services
- Accidents or groundings that are caused by unmarked objects on charts because of outdated information, or lack of updates
- Value of storm surge forecasting
- Value of being user-selectable in terms of water level data, importance of selecting time intervals.

BREAK

Report on FY09/10 and Stimulus Budget Update by Captain Barnum

Captain Barnum provided the following information:

- Update about Coast Survey activities.
- Announced that the Bay Hydrographer 2 will be christened on Wednesday, April 15th. (This ship replaced Bay Hydrographer.)
- Explained that the Ferdinand Hassler, a Swath boat, ran into some difficulties. Production is underway again and expects that she will be launched early next year.
- Stated that NOAA had successful 2009 field procedures workshops in hydrographic field training.
- Indicated that Katie Ries (Captain Barnum's deputy) was instrumental in getting funding from The World Bank for equipment for Honduras and the Gulf of Honduras initiative, to build capacity for updating their nautical charts.
- Noted the recent anniversary of the Exxon Valdez. Commented on whether with the advent of electronic navigational charts the Valdez disaster could have been avoided.
- Formal acceptance of the Nautical Chart System 2, a production system for producing paper charts, electronic charts, and raster charts. Some impact during the initial transition phase will slow down the number of new editions till the new system is up to speed. Budget
  - First time got the Presidents' request, including increase for ENCs, which is critical as IMO is moving toward making ENCs mandatory.
  - NOAA received $40 million under the American Recovery and Reinvention Act to reduce the critical hydrographic survey backlog. Status of funding
  - NOAA plan has been submitted to the Hill and now waiting for the details to be ironed out between OMB, the Department, and Congress
  - NOAA is "shovel-ready" and awaiting final approval
  - Stimulus funding will be used via existing contracts for: water level support, automated water level processing, shoreline support for survey areas; increasing the coverage of the V-DATUM around the nation; hydrographic and Cartographic support for chart updates and archiving and distributing data.
  - Million dollar increase in the 2009 Geodesy budget.
  - National Geodetic Survey look to expanded role in real-time positioning; advance IOCM through pilot projects; adapt to coastal management and restoration projects; create new positioning projects; move forward with height modernization and gravity.
  - Tides and currents – increase from $26 million to $31 million
  - '09 Appropriations of $2.5 million to better support systems operations

Discussion related to Captain Barnum's presentation

- Mr. West inquired about single versus double hull tanker requirements.
- Dr. Jeffress discussed the possibility of stimulus money generating jobs in the hydrographic industry.
- Mr. Dasler mentioned the value of field procedures workshops.
- Mr. Welch discussed the impact of stimulus money on the charting backlog.
- Ms. Dickinson asked whether NOAA has sufficient staff to address the agency's requirements.
- Captain Barnum said that the agency is not building the federal government through the stimulus package
- Mr. Dasler said that the stimulus package provides "wheels-up funding" to help get nautical charting up to needed levels.
- Captain Barnum stated that the FY10 President's budget is expected to be released in early May 2009.

Public Comment Session

(No comments presented)

Lunch Recess

2009 Update of CO-OPS Program

Mr. Skinner reconvened the meeting and asked Mr. Szabados to present the updates to the panel.

Mr. Szabados presented an overview of CO-OPS activities in 2009. He began by following up on an action item from the November 2008 Tampa Bay meeting ,the integration of PORTS® and the Coast Guard AIS System. The tests at Tampa were successful and demonstrated that the PORTS® data has been integrated into the AIS system. Furthermore, Mr. Szabados noted that all PORTS® data is available for the AIS system. He said that the Coast Guard is planning to start rolling it out operationally in 2010 and he will report specifics at upcoming meetings. He noted that they are going to do more integration of additional binary formats for additional information in 2009 and then roll out the new enhancements in 2010.

Mr. Szabados gave a status report on the HSRP's 5 most wanted recommendations:

- Recommendation 1 – Aggressively map the national shorelines and navigationally significant waters
  Status

- CO-OPS is installing up to five additional stations this year for a total of 210 stations, getting closer to the 300 needed for proper coverage of reference stations.
- Expanding three reference stations in the Gulf of Mexico and in Alaska – two critical areas

- Recommendation 2 – Integrate coastal mapping efforts and ensure federally maintained channels, approaches and anchorages are surveyed to the highest standards

  Status
  - Emphasized that this is a collaborative effort of the three offices working with the Army Corps of Engineers.
  - The Army Corps of Engineers has identified and implemented NOS standards for control so that all offices are working in accordance with the Coast Guard in training, standard operating procedures, standards, implementation plans.
  - All three offices are looking at the necessary infrastructure to support safe navigation in the Arctic

- Recommendation 3 – Modernize heights and implement real-time water levels and currents, observing systems in all ports

  Status
  - CO-OPS continues to update tidal current predictions. This is critical for safety navigation to be able to predict tidal currents
  - In 2009 we are focusing in Florida, Massachusetts, and Alaska; right now 2010 planning is taking place for work in Long Island Sound, NY; Dutch Harbor AK; Tacoma Narrows and Admiralty Inlet, WA; and Johns Pass, FL. Two new PORTS® are coming on line in Lake Charles and New Orleans, and in cooperation with the Navy, a PORTS system is planned for New London, Connecticut. The 2009 budget includes $2.5 million above the President's request. Money will be used to fully fund or partially fund up to 15 of the PORTS® systems.
  - CO-OPS is integrating four new technologies in 2009, these include microwave water level sensors, visibility sensors that will be integrated with the PORTS systems, Laser Air gap sensors to enhance quality control, and work with USACE and SCRIPS to integrate wave buoy data into PORTS.
- Recommendation 4 – Strengthen NOAA's navigation services for emergency response and recovery capabilities

  Status
  - Nine CO-OPS stations have been identified to be upgraded with elevated platforms so that CO-OPS can provide the most accurate information during extreme weather and water level events.
  - 30 Meteorological stations are planned to be upgraded.

- Recommendation 5 – Dissemination of hydrographic services data and products to achieve greatest public good
  Status
  - CO-OPS has developed a frequency and duration of inundation tool. The tool analyzes historical water level data and can show how long a specific location will be flooded, and the amount of time the area will be flooded. This tool has been used in the Chesapeake Bay for marsh restoration. There is a plan to have the tool built in to the web site. CO-OPS is working to enhanced Sea Levels on line web product. NOS legal authority for US sea level (i.e. Local Mean Sea Level) The web site provides local mean sea level at 120 stations, can provide seasonal variability, five year trends, includes some international stations, and is recognized by the IOC. New and improved modals will roll out this year, for the Chesapeake Bay, Delaware Bay, and Tampa Bay. Some enhancements for the new and existing models include 3-D and high resolution, and will output tide, current, temperature and salinity data.
  - on-going collaborate modeling efforts
  - Working on determining best ways to do public outreach

Mr. Szabados acknowledged that this panel and Admiral West commented that the CO-OPS Program needs an improved communications strategy. He explained that the goal is to inform the general public and others about the benefits of navigational services. He stated that a DVD was created and is being marketed. Mr. Szabados said that the goal is to get this information to the general public and schools prior to hurricane season.

(DVD presentation)

Mr. Szabados asked if there were any questions. Mr. Welsh asked about cost of the sentinels. Mr. Szabados replied that the cost is $500,000 per sentinel. Dr. Jeffress commented that the Corps of Engineers has plans to put two sentinels in Texas.

RADM West asked if there was any money in the budget for O&M. Mr. Szabados said that there was an increase for ports in 2009 for the federal infrastructure, but it was not specifically earmarked in the President's request. He explained that the CO-OPS staff took into consideration the Appropriations Committee guidance from last year as the criteria for how to divide it this year, in addition to other factors. He explained that: (1) Gulf ports in the Gulf of Mexico were a high priority; (2) upper Chesapeake Bay and New York were fully funded; and (3) some other ports received partial funding. He noted that the lower Chesapeake Bay was funded by the Navy, so no additional funds were provided by CO-OPS Program. Mr. Szabados stated that $350,000 was budgeted for spare parts, revitalizing, and upgrading equipment throughout eighteen PORTS® systems. RADM West commented that this is a wonderful opportunity for NOAA to roll it up to the next budget, and develop a firm plan of how to support Q&M. He then asked

what was the technology on CO-OPS' visibility sensor. Mr. Szabados said that the technology used is laser and that they are placed strategically in the event of fog.

Mr. Skinner expressed his appreciation to Mr. Szabados for the update.

Update from Alaska by John Oswald

Mr. Oswald gave an overview of the Alaska region:

- The state is twice the size of the state of Texas
- There are 34,000 miles of tidal coastline and about 1,000 miles of Arctic coastline
- Issue is the sea ice going away and the opening a sea lanes (for commerce/transit)
- UNH, The National Geodetic Survey, the CO-OPS Program, and OCS have provided support and done work in Alaska. Since 1957, oil exploration supported by maritime interests
- NOAA has increased the number of tide stations in AK, this is good, and Alaska still needs more.
- Need to improve the tide predicting capabilities, an example is Red Dog, AK, where in the early spring the tide predictions and observations match up, but in the summer they do not due to the way predictions are calculated. Predictions need to include seasonal events, as well as extreme events.
- Alaskan waterways are extensively used for many purposed, including by cruise ships; for commercial shipping; fisheries, and whaling.
- Alaska holds about 31 percent of the national oil and gas
- Port enlargement is planned
- Shipping has increased in the state of Alaska.
- Chart Surveying has improved in Alaska over time, but more tons more still needs to be done.
- Issues to consider for future work in Alaska work, NOAA should think about the various activities, such as, erosion, ice melt, and the native way of life.

Mr. Oswald informed the panel that the state of Alaska is considering a hundred million dollar mapping project that has some great opportunities for the National Geodetic Survey. He questioned whether NGS's specifications are suitable for analysis in Alaska. He noted that what NGS is doing in the Potomac River (Washington, DC area) is not suitable when Alaskan shorelines change 25 times per year. In addition, he commented that sea level information relating to Alaska on the CO-OPS website is not accurate.

Mr. Oswald offered the following suggestions:

- NGS, CO-OPS, and other stakeholders work together in order to achieve accurate data and coordinated support

- There should be one executive based in Alaska who should be responsible for charting
- Get feedback from the NOAA staff, and local government who work and live in Alaska.
- Be proactive on climate change
- Implement new technology and have a quicker turn-around time on publishing results

Following Mr. Oswald's presentation, there was some question and answer and discussion. One topic was pipelines. Mr. Skinner had a question relating to offshore oil exploration. He asked if there is any requirement for a company or consortium to provide data on those areas to Alaska or the federal government. Mr. Oswald did not know definitively, the ones he has been involved in did not come from a hydrographic survey standpoint, other work under different Federal agency did have some data requirements but he thought that some data submitted relating to offshore exploration may be non-releasable.

Mr. Skinner suggested that the panel should consider that there is a need in the Arctic for hydrographic data and looking at ways to get it. The panel might want to consider this recommendation if MNS or any other agency has this data or if there are efforts in the future to acquire additional data that there be some requirement to acquire the data to a certain standard that can be used by as many people as possible.

Mr. Skinner thanked Mr. Oswald for his presentation

Break

NOAA Next-Generation Strategic Plan from Paul Doremus

Paul Doremus said that in light of the new leadership it was a good opportunity to re-craft NOAA's strategic plan. He noted that this process is at its beginning stages. He said that ultimately this plan will be endorsed by and implemented by the new administration. Prior to that action, Dr. Doremus said there is great value in getting input from this panel along with federal advisory committees and other stakeholders, such as this panel.

Dr. Doremus provided an overview to the planning process (the Next-Generation Plan):

- Central theme of plan – an opportunity to codify the shared priorities of NOAA as a whole and the agency's stakeholders
- The plan includes mission, vision, long-term goals, nearer-term objectives on paths towards those goals, the functions and capabilities that are required to execute them
- Key piece is deep integration with stakeholder community
- Timeframe extends to 2035

- Goal is to develop a plan that creates challenging ways of thinking about how the world might actually evolve, and then assess how NOAA's strategic plan compares against that
- Considers uncertainty in outcomes, and impacts
- Examples of issues include changes in the Arctic, sustainable fishing, economics, etc.
- Developed scenarios to looks at possible outcomes
- Additional input will be sought from regional NOAA teams conducting stakeholder sessions in the field; there will also be a web-based mechanism for soliciting input
- The draft plan is available for review and comments are welcome

Dr. Doremus concluded his remarks by encouraging the panel and others to review the document and submit comments. He thanked the panel for the opportunity to make this presentation.

Mr. Skinner said Dr. Doremus' presentation was extremely helpful. He explained that following panel meetings a summary is sent in letter form to the NOAA administrator. He asked whether that process was the best way to convey the information received at these meetings or provide recommendations for the planning process.

Dr. Doremus said that input could be provided either directly or indirectly through NOAA's web-based links, stakeholder events, and through direct communications with the NOAA administrator. Mr. Skinner asked if Dr. Doremus could be copied on a letter to the administrator. Dr. Doremus agreed.

Mr. Welsh asked whether the strategic planning for twenty-five years out assumes that there will be a NOAA at that time or that there will still be a Department of Commerce. He also noted that there is some risk is looking too many years out into the future. Dr. Doremus said that the planning process anticipates several different scenarios.

RADM West stated that NOAA needs to reorganize, and asked about pursuing an organic Act for NOAA. There was also some discussion of a National Climate Service.

Mr. Doremus extended open invitation for Panel members connect with him directly.

National Geodetic Survey Update

Juliana Blackwell said that she began her responsibilities as director of the National Geodetic Survey (NGS) in January 2009, and has been officially with NGS since 1996. She said that there is an NGS Strategic Plan available on their website. She invited the panel to review it and post comments. She said that the strategic plan is intended to help the organization and the employees to be more fully engaged. The plan intertwines the HSRP's Five Most Wanted recommendations.

Ms. Blackwell summarized recent NGS accomplishments, including:

- Convened a national height modernization forum in Florida
- NGS has developed training programs that have attracted staff, partners, as well as outside users. They have been successful in training a broad base of users on NGS software and products, as well as processing geodetic data.
- GRAV-D initiative, the next generation of positioning for elevation information, will provide accuracy to 1-2 cm
- NGS is partnering with the Naval Research Lab on collecting gravity data; they are currently in Gulf Coast and Caribbean, and plan to extend to Alaska.
- Working with other Federal agencies on Integrated Ocean and Coastal Mapping initiative, to gather information on the land-water interface. Major projects in FY-08
  - California Seafloor Mapping
  - North Carolina IOCM project
  - Kachemak Bay, Alaska, IOCM project
  - New Hampshire, IOCM project
- Growing state advisor program
- 15th Anniversary of the CORS program (continuously operating reference stations), continues to grow – NGS plans to roll out socioeconomic scoping study on CORS
- NGS will expand their real-time positioning role
- Over a hundred million NGS digital products have been served

When Ms. Blackwell concluded her presentation, Mr. Dasler asked for clarification relating to GRAV-D. She replied that GRAV-D will be grounded by gravity, but most of the data collection will be an airborne collection.

Mr. Dasler commented that there are many regional networks. He asked whether NGS has plans for a consolidated network. Ms. Blackwell replied that it is not necessarily NGS' responsibility to have them be part of CORS, but to ensure they are tying into the National Spatial Reference System. Mr. Dasler commented that there are many sites and there are no guidelines or standards. Ms. Blackwell responded that there is a draft set of standards that should be accessible shortly. Dr. Jeffress said the Europeans recently launched a gravity satellite named GOCE. Ms. Blackwell said she and her staff are aware of this and anticipate that their data will be shared.

Public Comment Period

Mr. Skinner asked if there were any public comments.
No public comments were offered.

Review of Proposed Recommendations, Meet Wrap-Up and Next Steps for Day 1

Mr. Skinner suggested that the panel craft a letter which provides specific recommendations. He proposed that a draft letter with recommendations should be prepared and then a conference call should be convened to approve the final letter. Mr. Skinner reminded the panel that if a teleconference is planned, then it will have to be posted in the *Federal Register*.

Mr. Welsh suggested that in light of the new agency administrator it may be more advantageous to prepare this letter in a more timely fashion. Mr. Skinner offered to write up a draft letter with the recommendations. Mr. Armstrong suggested that the letter should address the questions in the slides from Mr. Doremus' presentation.

Mr. Skinner agreed to collect input from the panelists. Mr. Skinner requested that the panelists review the packet of materials already provided to them between today and tomorrow.

Mr. Welsh suggested the panel should highlight the following items in the letter to the administrator:

- the Maryland Port Administration is highly dependent on the hydrographic charts in fulfilling their dredging mission, which is essential for their port operations
- both the pilots and the port administration indicated how useful the PORTS ® system was in the Chesapeake to making Baltimore a viable port.

Mr. Skinner agreed with Mr. Welsh's comments.

Mr. Skinner requested that travel receipts be submitted within five days.

Expectations for Day 2

Mr. Barnum reviewed plans for the dedication of the Bay Hydro II at the Inner Harbor on Wednesday.

Mr. Welch recommended taking advantage of the opportunity to interact with Mary Glackin (NOAA's Deputy Under Secretary).

Day 1 Concluded

Day 1 of the meeting recessed at 4:31 pm.

Wednesday, April 15, 2009

Welcome to Day 2 and Brief Recap of Day 1

Mr. Skinner reconvened day of the panel proceedings at 8:32 am. He introduced the panel members and guests.

Discussion of NOAA Leadership

Mr. Skinner welcomed Jack Dunnigan, Assistant Administrator, National Ocean Service, NOAA.

Mr. Dunnigan said he regretted that he was unable to participate in the first day of the panel meeting, but had a prior commitment with the first IOOS Industry Workshop Kickoff. He thanked Norwegian Cruise Lines for their work with students and local educators to give them a real experience of the sea in Hawaii. He provided the following update regarding the new NOAA Leadership. Mary Glackin and the new NOAA Administrator, Dr. Jane Lubchenco, have been busy since the day Dr. Lubchenco was sworn in. Dr. Lubchenco was unable to join us today, but we are happy to have Mary Glackin here, and we're going to have a great event despite the rain for the Bay Hydro. He indicated that there is a great deal of optimism in NOAA about the ability to move forward with high priority issues.

Mr. Dunnigan also provided updates about the Committee on the Marine Transportation System (CMTS)**.** He reported that there are a number of integrated action teams that are operating on a multi-agency basis. As part of that process, he announced that a new collaborative research action team would be created to support marine transportation, co-led by NOAA and the Corps of Engineers.

Mr. Dunnigan concluded by saying that he was looking forward to the discussion and gathering information about concerns for the future of maritime transportation.

Mr. Skinner noted that the panel has been having discussion about reissuing the 2007 report, including sections that highlight stakeholder input.

Integrated Ocean Observing System (IOOS) Update

Mr. Skinner introduced Zdenka Willis, Director, Integrated Ocean Observing System, NOAA.

Ms. Willis said that the Integrated Ocean Observing System (IOOS) is a multidisciplinary system designed to enhance our ability to collect, deliver, and use ocean information. She informed the panel the IOOS is a brand name/registered trademark and has become very strong. IOOS will soon launch its own website (www.ioos.gov).

Ms. Willis said that regardless of what type of oceanographic data or who collects it, the information should be in a consistent format or "bi-chain management for oceanographic data." Recent business studies on the value of integration show his change will result in time and money savings for the agency, users, and consumers.

Ms. Willis reported that the agency is moving forward with advancing the IOOS-DMAC Standards Process. She said that the DMAC stands for Data Management and Communications (DMAC) Subsystem. She said that the agency is advancing and "acquisition planning approach." She indicated that briefings with various partners and stakeholders are being convened and feedback is encouraged. Feedback has also been encouraged through the agency's regional associations.

Ms. Willis commented that there are some emerging partnerships with Open Geospatial Consortium, Inc. (OGC) and Google. She explained that this is significant because NOAA, the Navy, and others have Google Ocean. She said that one of the Google programmers was the DMAC data management communications representative for the Great Lakes; and that Google was starting to use DIF (Data Integration Framework) services to reduce the need for data conversions. She indicated that this potential partnership has exciting possibilities. National Science Foundation (NSF) has the Ocean Observatory Initiative that has infrastructure using an Amazon web service that requires testing, and IOOS can collaborate by providing data for the tests.

Ms. Willis reviewed recent projects and activities, including:

- GEOSS (Global Earth Observation System of Systems) and trying to understand their data management system
- SLOSH (Sea, Lake and Overland Surges from Hurricanes) is a computerized model to estimate storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes by taking into account
- IEA (Integrated Ecosystems Assessment.) is an area that everyone is still trying to understand. Hurricane Intensity - Hurricane intensity is looking at the synthetic temperature and salinity and how that affects hurricane intensity forecasting. As part of this process, historical data is being used as one of the benchmarks.
- Standards – Standards used by ISO, FYDC, OPG and other standard bodies are being analyzed and refined to make sure that they are still applicable.

- Waves and Currents – The National Waves Plan has been completed, and CO-OPS is working with the Army Corps of Engineers to integrate this into PORTS
- HF radar – Working with the US Coast Guard to integrate HF radar and SAROPS (Search and Rescue Optimal Planning System)
- Regional Alliances for Coastal Technology, a consortium of eight universities and eleven regional associations. The Alliance has ties to salinity research and the Great Ships Initiative working on invasive species and ballast water systems in the Great Lakes
- Additional regional collaborations with National Water Quality Monitoring Network, working on the monitor and sensor network layout; OPUS, and Oceans Observatory Initiative with NSF
- Building a Communications Capacity – Elements including in this effort include the new IOOS website; outreach materials; podcasts; and videos.
- Financial update – The funding for FY-09 was $21 million. Efforts are underway for planning the budget for FY-10 and well as preliminary projections for FY-11.

Mr. Skinner thanked Ms. Willis for her presentation. He said that he plans to invite her participation at future meetings.

Presentation by Mary Glackin

Mr. Skinner welcomed Mary Glackin, Deputy Under Secretary of NOAA. He introduced the meeting attendees.

Ms. Glackin said that she has been with NOAA for 32 years and in her current position for about eighteen months. She thanked Panel members for their services and indicated that NOAA values the perspectives and advice that come to NOAA through the HSRP and other similar forums. She stated that the purpose of her presentation was to talk about the change in administration and what it means for NOAA.

Ms. Glackin said that it is an exciting time for NOAA, because top leadership was appointed early in the process:

- Governor Gary Locke confirmed as Secretary of Commerce
- Dr. Jane Luchenco confirmed NOAA Administrator
- Nancy Sutley appointed Chair, White House Counsel on Environmental Quality
- Dr. Carol Browner appointed White House Council Coordinator of Energy and Climate Policy
- Dr. John Holdren confirmed as Director, White House Office of Science and Technology Policy

Ms. Glackin said on the congressional side there has been a great deal of turnover in both the Senate as well as in the House of Representatives. She also provided updates

on developments within key congressional committees. She also discussed legislation of interest, such as the Sanctuary Amendments Act; and others. Issues to consider include energy legislation, the importance of good observations and science to back up the policies, and the National Climate Service.

Ms. Glackin summarized the national challenges that NOAA needs to respond to as follows:

- Satellite and ship acquisitions
- Reducing the economic and societal impacts of coastal hazards habitat loss and coastal pollution
- Sustaining the nation's fisheries and ocean ecosystems
- Marine aquaculture
- Improving weather and water models to save lives and property from damaging weather and water events, including fire weather and solar storm forecasting
- Supporting a safe, efficient transportation system
- Addressing the Arctic
- Anticipating and responding to climate change and its impacts

She emphasized the importance of partnerships.

Ms. Glackin described the agency's top priorities:

- Fisheries: end overfishing and rebuild stocks; strengthen science and ecosystem approach to management
- Satellites: maintain continuity of critical weather and climate observations; address management and cost issues
- Opportunities: National Climate Survey established within NOAA
- Integrated Ocean Planning and Management:
  - Proactive balance of utilization and protection of marine resources
  - Ecosystem approach to management for energy solutions

Ms. Glackin thanked the HSRP for this opportunity. She said that the panel feedback is critical for NOAA's planning. She emphasized that NOAA's investment policies are informed by the panel's advice. She said that NOAA continues to pursue increases with both in-house and contract hydroservice capacity. Furthermore, the PORTS® system is working towards expansion and increased funding; continued progress on height modernizations; and the expansion of NWLON (National Water Level Observation Network). NOAA is going to continue building support for these multiple systems, but also with our sister agencies that depend on them.

Mr. Skinner thanked Ms. Glackin for her presentation. He commented that a common theme from the stakeholders is that NOAA's hydrographic products are excellent, but that more are needed and they need to be delivered more quickly.

The panel hopes to have the new Administrator at a future meeting. Mr. Welch made some suggestions for approaches to funding hydrographic services, and also mentioned needs in the Arctic. He also asked about whether the stimulus funding would speed up the replacement for hydrographic vessels and fund PORTS. Mr. Welch asked if the administration could actually put PORTS as a line item in the budget instead of an add-on each year. Discussion about FY 10 and FY 11 funding followed. RADM West indicated he would like to see more involvement from the DOD (Department of Defense) in the Arctic and IOOS. Dr. Jeffress is pleased with the improvement in partnerships between NOAA and FEMA and the Corps of Engineers, but would like to see more. Dr. Jeffress expressed concerns with FEMA floodplain mapping efforts using ineffective control and encourage NOAA to establish more communication with FEMA and Corp of Engineers. Also should consider FEMA as a possible funding source for some NOAA services. Mr. Dasler suggested more coordination with NOAA and Corps of Engineers along the Columbia River mapping efforts and encourage them to tie into the same datums. Ms. Glackin said that these are great highlights and some of these are on the to-do list for a discussion between NOAA and the Department of Homeland Security.

Public Comment Period

Mr. Skinner announced the public comment period.
Helen Brohl who current serves as Director of the Executive Secretariat, Committee on the Marine Transportation System (CMTS) and was a former HSRP Panel member, addressed the panel.

Ms. Brohl presented the panel with the following updates relating to CMTS:

- CMTS took to heart the recommendations of the Most Wanted list, brought to CMTS by VADM Lautenbaucher last year.
- Development of Research and Development Integrated Action Team- to provide the CMTS with the strategic capability to identify, develop and implement innovative research and technologies, to address the pressing challenges identified in the National Strategy.
- Full assessment on Marine Transportation System will be completed at the end of the fiscal year. MTS challenges including an overall assessment of infrastructure needs: economic, environmental, assessment of MS safety, national security and institutional challenges.
- Update on the Navigation Technology Integrated Action Team - They are reviewing the Automatic Identification System (AIS) communication with the Mariner. We are presently testing NOAA Tampa Bay PORTS data combined with the Coast Guard's AIS. Additional testing is scheduled to be conducted on the Columbia River this year. The goal of this research is to bring the inland system up to real-time in a way that is compatible with the coast, so it's a seamless system.

She said that CMTS' goal is to approach the integrated coastal mapping effort in a holistic manner.

Ms. Brohl concluded her remarks by thanking the panel for recommending to the NOAA administrator that the CMTS should be continued. Currently CMTS exists by Presidential directive, but there is some work on developing legislation authorizing CMTS.

Break for NOA Bay Hydro II Dedication at the Inner Harbor

Lunch

Mapping System of Systems and IOCM Update

The first speaker was Mr. Dunnigan, discussing mapping initiatives.
Mr. Dunnigan said that he wanted to share some thoughts with the panel based on recent discussions within NOAA: He commented that NOAA needs to be a better job of planning and executing long-term, large capital investments (for example fleet investments, or regional facilities).

Mr. Dunnigan acknowledged the challenge of planning for NOAA missions in 2050 timeframe and developing a system of systems to focus on acquiring and maintaining data and information. NOAA needs to think ahead about actions such as replacing the Rainer or Thomas Jefferson (aging 40-50 yrs survey vessels), because whatever assets we own we're going to own for a long time. For the future, NOAA needs to be thinking about the data acquisition process rather than just about replacing vessels. He said to address some of these challenges he created a "Tiger Team" within NOAA; he wants NOAA to be committed to build a system of systems to collect data over a long period of time.

Mr. Dunnigan has had many conversations with NOAA personal and learned that it is not all bathymetry and navigation charting; it's all about NOAA's multi-missions where habitat characterization is going along with nautical charting. For instance the California program has habitat related issues where they needed benthic characterizations along the whole California coast. Mr. Dunnigan expressed that this was a win-win situation both from the nautical charting as well as the benthic characterization map, and this validates the concept of having IOCM.

Mr. Dunnigan also stated that it is necessary for NOAA to build a constituency on Capitol Hill that supports NOAA's mission. Finally, he acknowledged that in looking forward the future, people will need to think "outside the box."

Following Mr. Dunnigan's presentation, the following comments were made:

- Mr. Parsons – Expresses that this is a good time and opportunity to look forward 20 to 30 years at what the future holds for ocean and coastal mapping and HSRP will be a valuable source for advice or recommendations.
- RADM West – Challenges include difficulty of getting the federal government to change, and getting multiple agencies to work together. Might want to take a look at the work the NAVY did on the UNOLS fleet which is a university-base, federally funded ships to do ocean research. Encourages keeping the industry involved. For instance, if the bill supports IOOS and IOCM and it will help industries increase their profits than you will have their support. RADM thinks that NOAA should set out to create a satellite program to receive separate funding.
- Ms. Dickinson - Paper printing is falling by the wayside; need to consider the data distribution issues
- Dr. Jeffress discussed a possible technology used in Australia.
- Mr. Welch – it's tough to plan for long-term goals for long lasting technology and to keep public support; or to plan for diverse technology or technology with short life to take care of rapid transitions that may spend a lot of money spread out over the years for wider variety. Mr. Welch expressed that it all depends on the budget demands.
- Mr. Armstrong
  - Discussion of dichotomy
  - Attracting industry with large amount of money versus recycling with lower costs.
- Mr. Kearse – Stressed that most important asset is people and how they fit into the system. An issue for the Tiger Team to consider is the reluctance of the new generation to go to sea.
- Mr. Dasler –Mr. Dasler expressed concerns for mapping standards and vessels integrating data collection. He also suggested thinking about addressing staffing needs by having contractors on NOAA vessels.

Mr. Dunnigan indicated that it is very helpful to feedback on areas in which Panel members do not agree with NOAA's ideas; it is good to have critical comments.

Open Discussion – Recommendations, Strategic Plan Work from Tampa HSRP Meeting, Next Steps

Mr. Skinner led the discussion about writing a recommendation letter and the next steps regarding the strategic exercise from the Tampa HSRP Meeting and made the following suggestions:

- Edits needed
- Clarification of wording on GPS, GRAV-D, and elevations.
- the strategic goals be placed on a matrix
  - visibility and awareness
  - budget
  - long-time viability of products and services

  - climate change
  - efficiency
- the other portion of the matrix should list the "Five Most Wanted"
- useful format to track discussions
- perhaps this matrix should be part of each meeting

Mr. Skinner asked if there was any further discussion concerning the Tampa strategic exercise. There was no affirmative response.

Break

Open Discussion Continued

The open discussion included the following observations:

- Mr. Skinner asked how does the Hydrographic Services Review Panel continue to influence what happens at NOAA, particularly in hydrographic services
- General consensus on the update of the Five Most Wanted Report (keep core part of the report, include new information from the last three years including stakeholder panels such as what is going on in the Arctic)
- Discussion of regions to go to the Great Lakes or Pacific, as not all regions gone to yet
- Mr. Welch emphasized the need to revise the report before a shift in panel members; Dr. Jeffress agreed
- Discussion of splitting panel into two groups to go to last two regions (Great Lakes and Pacific)
- Mr. Welch commented it is necessary to balance the need to do the report versus meaningful visits to places that the panel has not yet visited
- Discussion of approaches for revising the report – effort needed.
- Captain Myrtidis suggested that the panel divide into groups of three; each group should pick one recommendation; each group should focus on their recommendation and work on it until the next panel meeting. Dr. Jeffress agreed that this should happen quickly
- Admiral West would like NOAA input on the suggestions that have implemented/how the feds are responding
- Mr. Parson said the Great Lakes draws a great deal of public interest this summer due to events such as the 50th anniversary of the Saint Lawrence Seaway
- Admiral West would like to see stakeholder input used to reinforce ideas in the report

There was a discussion about the location for the next panel meeting:

- Mr. Skinner discussed the possibility of having the next meeting in September in Chicago

- Ms. Brohl suggested Ann Arbor, the Upper lakes, or Cleveland in order to attract more stakeholders
- Mr. Dunnigan noted there are good reasons to hold a meeting in either the Pacific or Great Lakes region Mr. Welch suggested that the panel meeting should be convened in Hawaii during the Congressional break in order to attract Congressmen and Senators
- Mr. Skinner expressed concern about how a meeting in Hawaii would be perceived by the general public

Mr. Skinner asked for a polled the panelists to find out if there was a clear consensus whether the meeting should be held in the Great Lakes or Hawaii. There was no clear preference. Final decision was deferred until research is done on the comparative costs of the respective regions.

Admiral West commented that the dates are more important than the location at this point.

Closing Remarks

Mr. Skinner thanked the panelists, speakers, and attendees for their participation.

Adjournment

Mr. Skinner adjourned the panel meeting at 2:43 pm.

DRAFT

APPENDIX 1
HSRP BALTIMORE MEETING ATTENDEES
April 14-15, 2009

Voting HSRP Members Attending

Jonathan Dasler	Director of Hydrographic Services, David Evans and Associates, Inc.
Elaine L. Dickinson	Boat Owners Association of the United States (BoatU.S.)
Dr. Gary Jeffress	Professor of Geographic Information Science, Texas A&M University – Corpus Christi
Captain Andrew McGovern	Sandy Hook Pilots Association
Captain Minas Myrtidis	VP, Fleet Regulatory Compliance, Norwegian Cruise Line
Thomas Skinner, HSRP Chair	Senior Project Manager, Durand & Anastas Environmental Strategies, Inc.
Edmund Welch, HSRP Vice Chair	Independent Consultant for Maritime and Ocean Policy; Passenger Vessel Association; Union of Greek Shipowners
Matthew Wellslager	Program Manager, South Carolina Geodetic Survey
Rear Admiral Richard West, U.S. Navy (Retired);	Past President, Consortium for Oceanographic Research and Education (CORE); former Oceanographer and Navigator of the U.S. Navy
Larry Whiting	TerraSound, LLC (Retired)

Voting HSRP Members Not Attending

Captain Sherri Hickman	Houston Pilots Association
Captain Tom Jacobsen	President, Jacobson Pilot Service, Inc. & Bay Survey Enterprises, Inc.
R. Adam McBride	Port Director, Lake Charles and Terminal District
Captain Ramón Torres Morales	Port of Las Americas Authority

Non-voting Members

Andy Armstrong	Co-director, Joint Hydrographic Center, NOAA
Juliana Blackwell	Director, National Geodetic Survey, NOAA
Mike Szabados	Director, Center for Operational Oceanographic Products and Services, NOAA

Designated Federal Officer

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

HSRP Decision Maker

John (Jack) Dunnigan	Assistant Administrator, National Ocean Service, NOAA

Presenters/Speakers

Captain Eric Nielsen	President, Association of Maryland Pilots
Frank Hamons	Deputy Director for Harbor Development, Maryland Port Authority
Keith Bailey	Maryland Society of Surveyors
Stuart FitzGibbon	American Sugar Refining, Inc., Domino Sugar Corporation
Steven Golder	Chief Survey Team, U.S. Army Corps of Engineers, Baltimore
David Nemerson	Conservation Biologist, Baltimore Aquarium
Captain Brian Kelley	Captain of the Port, U.S. Coast Guard, Baltimore
John Oswald	Partner and President, John Oswald & Associates LLC
Paul Doremus	Acting Deputy Assistant Administrator and Director of Strategic Planning, NOAA
John (Jack) Dunnigan	Assistant Administrator, National Ocean Service, NOAA
Elaine Dickenson	*BoatU.S. Magazine*
Zdenka Willis	Director, Integrated Ocean Observing System, NOAA
Mary Glackin	Deputy Under Secretary, NOAA

Staff

Kathy Watson	Office of Coast Survey, NOAA
Virginia Dentler	Center for Operational Oceanographic Products and Services, NOAA
Danielle Stuby	National Geodetic Survey, NOAA
Ashley Chappell	Office of Coast Survey, National Ocean Service, NOAA

Others Attendees /Public

Andy Armstrong	Co-director, Joint Hydrographic Center, NOAA
Michael Aslaksen	National Geodetic Survey, NOAA
Steve Austin	PA&E Director, NOAA
Helen Brohl	Director, Committee on the Marine Transportation System
David Enabit	Technical Director, Office of Coast Survey, NOAA
Mary Erickson	Chief, Coast Survey Development Lab, Office of Coast Survey, National Office Service, NOAA
Jeff Ferguson	Chief, Hydrographic Survey Division, Office of Coast Survey, NOAA
Brad Kearsey	Office of Marine and Aviation Operations, NOAA
Terence Lynch	Office of Coast Survey, National Ocean Survey, NOAA
John Lowell	Chief, Marine Chart Division, Office of Coast Survey, NOAA

Ed Martin	Office of Coast Survey, National Ocean Service, NOAA
Susan O'Brien	National Ocean Service, NOAA
Roger Parsons	Integrated Ocean Coastal Mapping Coordinator, NOAA
Kristen Tronvig	Center for Operational Oceanographic Products and Services, Office of Planning, NOAA