



*Joyce Miller, Chair*  
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May 14, 2018

RDML Tim Gallaudet, PhD., USN (Ret.)  
Acting Under Secretary of Commerce for Oceans and Atmosphere  
U.S. Department of Commerce  
1401 Constitution Avenue, NW  
Washington, D.C. 20230

Dear Rear Admiral Gallaudet:

It was an honor to meet you and Dr. Neil Jacobs at the dedication of the Physical Oceanography Real-time System (PORTS®) system for the Port of Miami on April 3, 2018. The April 3 discussions between NOAA leadership, regional stakeholders, and Hydrographic Services Review Panel (HSRP) members and the April 4-5, 2018 Spring HSRP meeting were greatly informative for the work of the Panel. Below are the highest priority HSRP recommendations and a brief meeting summary with additional background information on the recommendations.

HSRP Recommendations:

1. NOAA and the Department of Commerce should continue to advocate for increased investment in NOAA's navigation services portfolio at levels that will accelerate the implementation and expansion of marine and geospatial data infrastructure projects such as the National Ocean Service's (NOS) precision navigation project, the Center for Operational Oceanographic Products and Services' PORTS® program and the National Geodetic Survey's Foundation Continuously Operating Reference Station (CORS) network. These are integral to a national federal investment in the Blue Economy and transformative infrastructure.
2. Improve NOAA's ability to deliver NOAA's navigation services data, data products, and services, which are not only important for post-disaster assistance, but also for communications in general. These include:
  - Post-disaster airborne and hydrographic surveys that are needed to re-open harbors and for other post disaster uses;
  - Real-time wave, current, and weather reports, as quickly and efficiently as possible to state, federal, academic, commercial and public partners;

Recommended improvements include the following specific actions:

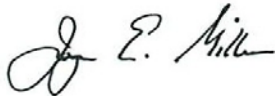
- a. Work with Federal Emergency Management Agency (FEMA) to establish long-term agreements whereby NOAA can be Mission Assigned and reimbursed for post-disaster hydrographic surveys in a manner similar to existing agreements for its aerial survey work, rather than diverting existing funding from scheduled hydrographic surveys.
- b. Urge the United States Coast Guard (USCG) to expedite the utilization of the Automated Information System (AIS) to disseminate PORTS® and other NOS real-time and forecast data to mariners and other stakeholders.

- c. Work with all stakeholders in the Florida/Caribbean region to assess their needs, requirements and options for oceanographic and meteorological information in the coastal waters and the Gulf Stream, hydrographic survey capabilities and other technologies that would improve their ability to plan for and respond to disasters and would also enhance coastal resilience efforts.
- d. Support existing programs such as the Navigation Response Teams (NRTs) and Mobile Integrated Survey Team (MIST) and invest in redundant aerial and hydrographic survey assets with a plan to improve rapid early deployment and in supplemental personnel resources, either in-house or via contracts.
- e. Better coordinate with the U.S. Army Corps of Engineers (USACE) and the USCG to improve navigation, charts and delivery of information in secondary and recreational channels, such as the Inter-Coastal Waterway (ICW), where “going aground in the channel” is a common occurrence.

The HSRP and the NOAA’s Science Advisory Board (SAB) are establishing a relationship to aid the SAB in development of a work plan as they determine how to ‘increase the sustainable economic contributions of fishery and ocean resources’ and to improve the “Coastal and Marine Transportation and Support Infrastructure.” In the future the HSRP will discuss identifying and quantifying the benefit and value of NOAA’s hydrographic services, exploring opportunities for innovative partnerships, and evaluating the potential for use of advanced technologies such as hydrodynamic modeling and autonomous/unmanned systems for hydrographic survey applications.

Attached please find additional HSRP recommendations to NOAA in three issue papers, “Marine and Geodetic Data Infrastructure Is Vital to US Blue Economy”; The NOAA Hydrographic Survey Fleet: A Critical National Asset (revised May 2018); and “Making Precision Navigation the New Norm In Approaches and Ports” (revised May 2018) The official meeting report is also attached. Please save the date for the next HSRP meeting in Juneau, Alaska, August 28-30, 2018, where the HSRP will continue discussing the blue economy and infrastructure, with a focus on Alaska and the U.S. Arctic.

Sincerely,



Joyce E. Miller  
Chair, HSRP  
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Edward Saade  
Vice-Chair, HSRP

Hydrographic Services Review Panel (HSRP)  
Meeting Summary and HSRP Comments  
Miami, Florida --April 3-5, 2018

After the dedication of the Port of Miami's Physical Oceanographic Real-Time System (PORTS®) on April 3, 2018, RDML Tim Gallaudet, Acting Under Secretary of Commerce for Oceans and Atmosphere addressed the members of the HSRP and an expert panel of regional stakeholders. The HSRP was pleased to learn that NOAA's precision navigation efforts were highlighted as an example of the Blue Economy and "transformative infrastructure" in the Secretary of Commerce's recent congressional testimony on the President's infrastructure initiative. The Secretary's statement confirms and supports the HSRP's view that technology and data are an increasingly essential and valuable component of the nation's infrastructure. In particular, the HSRP strongly agrees that the demonstrated return on investment and safety benefits of NOAA's hydrographic, navigation and geospatial services warrant inclusion in a national infrastructure initiative.

A panel of stakeholders and experts at the Port of Miami provided the HSRP with an introduction and understanding of the operation of the port and related issues. A brief summary is provided here:

- The Port of Miami is the #1 cruise ship hub in the country and also handles over a million Twenty-foot-Equivalent Units (TEUs) per year. As of 2016 the channel has been widened (450-500') and deepened to 51' and can accommodate vessels carrying up to 14,000 TEU; an access tunnel to the port has been built; and rail access improved.
- The Port continues to grow rapidly with plans for further deepening and widening of the channel and construction of several additional cruise ship terminals. Container facilities will expand but are constrained by available space.
- The main threat to Florida and the Caribbean remains hurricanes or tropical storms. Getting ports reopened quickly after storms or hurricanes is important to all stakeholders, but especially to the cruise industry, which must coordinate with airports, suppliers, hotels and customers. Timely advance information about port closures and openings has a huge economic and operational impact. Cruise ship companies want better access to timely information and want to be more engaged in the planning and decision information pipeline. Stakeholders asked about possible solutions to getting the Port of Miami surveyed immediately post-storm and suggested possible solutions such as installing survey equipment on pilot boats, utilizing local industry capabilities, or faster deployment of NOAA's Mobile Integrated Survey Teams (MIST) and/or the Navigation Response Teams (NRTs).
- Three current meters were installed on individual channel navigation buoys for the Port of Miami's PORTS® installation to address navigation and safety issues. Because the Gulf Stream flows past the mouth of the channel at speeds up to 6 knots, navigating into the channel is extremely challenging. Ships must enter the channel at speed in the outer channel to exit the Gulf Stream, which increases the ship's squat and draft, but must slow to 6 knots or less in the harbor. Ships sometimes crab at angles up to 15 degrees as they enter the channel. The current at the outermost buoy is mainly affected by the Gulf Stream while the currents at the two inner buoys are more tidally driven. Several stakeholders requested additional current measurements both further out in the Gulf Stream and inside the harbor. Additional wind sensors were also requested.
- The Miami River, which flows into the Port of Miami, is a 5-mile long, shallow (15 feet and less) water port and multiuse waterway lined with marinas, boat yards, residential properties, industries, and restaurants. Although rafting of boats is prohibited, rafting led to the sinking of several boats during the 2017 hurricane season, which stopped all river traffic and delayed opening the entire port. The river is crossed by numerous drawbridges, which cannot be operated when power is lost.
- Recreational boating, diving, fishing, and sailing are major economic drivers in the area. The ICW runs through Miami and there are numerous issues regarding access to up-to-date data and charts in these areas with "going aground in the channel" a frequent problem. Overlapping jurisdictions and responsibilities between USACE, USCG, and NOAA complicate efficient data collection and distribution.

At the April 4-5, 2018, HSRP Miami meeting two topics, disaster response and coastal resilience, were the primary focus of the discussions. The HSRP greatly appreciates the contributions of the expert panelists and especially the participation of the Honorable Kristin Jacobs of the Florida House of Representatives and the Honorable Chip LaMarca of the Broward County Commission, and attendance of Jennifer Blanco from the office of the Hon. Mario Diaz-Balart. The HSRP also notes the usefulness of engagement with a truly diverse set of stakeholders – local, regional, and extra-regional – to provide significant insights into the value of NOAA products and services as well as the need for continued support and technological advances to promote safe navigation and disaster response and recovery. The HSRP will continue to work with NOAA to build on these efforts and ensure that each meeting provides a platform for these representatives and organizations to directly engage with both the Panel and NOAA.

In 2017 Florida, Puerto Rico, and the Virgin Islands were impacted by Hurricanes Irma, Jose, and Maria during the most active hurricane seasons on record. After these events, NOAA re-opened 26 ports, mostly within 3-5 days, saving \$500M/day, which is equal to the entire annual National Ocean Service (NOS) budget. The panel learned that more trained responders and redundancy for NOAA's aerial remote sensing and hydrographic surveys assets are needed to ensure that response efforts are not threatened.

The U.S. Coast Guard, USACE, FEMA and many stakeholders expressed their appreciation for NOAA's efforts to assess damage and assist in reopening ports and waterways following last year's hurricanes. The Panel agrees and extends its gratitude and appreciation for these heroic efforts, including the rapid collection and distribution of aerial imagery and the on-the-water efforts of NOS's Navigation Managers, Navigation Response Teams and the NOAA ship *Thomas Jefferson*. Because these services are so critical to the area's economy and safety, there was a consensus that NOAA should provide more tools to support the Blue Economy and storm response and also improve the timeliness of delivery and accuracy of its products and services. In particular, several stakeholders requested that NOAA consider installation of additional current and wind monitoring sensors and provide assistance to ensure that the Port of Miami has immediate access to survey capabilities in order to re-open this major port. There was consensus that communications among all federal, state, local, and commercial agencies was very challenging during and after the storms; efforts to improve communication are a high priority and there were suggestions to run disaster response exercises to provide stronger coordination and communication channels.

The Panel learned that FEMA's direct and immediate need for remote sensing imagery led it to issue reimbursable Mission Assignments for NOAA's aerial survey work. However, the Panel learned that FEMA declined requests by the U.S. Coast Guard and NOAA to Mission Assign in order to reimburse NOAA's hydrographic survey efforts. This resulted in NOAA re-tasking resources from existing hydrographic survey projects to support the response without means and resources to subsequently resume and complete those deferred projects. The HSRP understands NOS is working to address and remedy this inequity. *The Panel supports NOAA being Mission Assigned and reimbursed for its hydrographic work in a manner similar to that of its aerial remote sensing survey work. The Panel offers its support and requests updates on NOAA's efforts.*

During the meeting's panel on coastal resiliency it was clear that The Southeast Florida Regional Compact on Climate Change has a successful model and has accomplished a lot to foster sustainability and climate resilience at a regional level by coordinating a coalition of Broward, Miami-Dade, Monroe, and Palm Beach Counties representing 109 cities. South Florida has a unified sea level rise projection of 2' by 2060. Many areas are already experiencing 2' of flooding during high tides, and the porosity of the substrate causes flooding in areas remote from the coastline. Florida recently passed a major climate change initiative and has allocated \$3.6M for Coastal Resilience. Many innovative approaches to managing sea level rise and flooding are being tested in southeast Florida. Coastal Resilience panel speakers requested that NOAA provide offshore real-time oceanographic and meteorological data along the entire Florida coast. There are no offshore wave buoys in the area, partially because it is difficult to accurately measure waves in currents above 4 knots. These data are needed to provide advance warnings and as input for hydrodynamic models; technical assistance and tools are needed to properly use increasingly large data inputs.

The HSRP discussed and voted to respond positively to a request to work with the NOAA Science Advisory Board on their work plan and a request to consider how to 'increase the sustainable economic contributions of fishery and ocean resources' and to improve the "Coastal and Marine Transportation and Support Infrastructure." The HSRP discussed and declined a request from the National Society of Professional Surveyors to comment on policy regarding state vs. federal licensing of hydrographic surveyors because this is peripheral to the HSRP mandate.