



*Julie Thomas, Chair*  
*Sean M. Duffy, Sr., Vice-Chair*  
April 5, 2023

Dr. Richard W. Spinrad  
Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator  
U.S. Department of Commerce  
1401 Constitution Avenue, NW  
Washington, D.C. 20230

Dear Dr. Spinrad,

The February/March 2023 Hydrographic Services Review Panel (HSRP) meeting was particularly meaningful as it was the first time the Panel has met in Puerto Rico. Our meeting was opened by RADM Nancy Hann, who provided informative updates that set the stage for productive dialogue throughout the meeting. The Panel was excited to learn of the progress for fleet recapitalization. We were also honored to have Assistant Administrator Nicole LeBoeuf attend our meeting, highlighting the priorities of the National Ocean Service (NOS) and above all, the NOS focus on Climate, Equity and Economic Development. We were fortunate to have Puerto Rico's Representative Gonzalez-Colon attend our meeting. She requested a list of NOAA's five urgent priorities and five long-term priorities for presentation during Ocean Caucus week. Representative Stacey Plaskett from the U.S. Virgin Islands also addressed the panel via video.

RDML Benjamin Evans, Director, Office of Coast Survey (OCS), Director Juliana Blackwell, National Geodetic Survey (NGS), and Marian Westley, acting Director, Center for Operational Oceanographic Products and Services (CO-OPS) provided detailed updates on their respective divisions. There was a robust discussion on the Geodesy Crisis, consisting of lack of new talent, the reduction in academic programs, and the inability to attract college aged students in the U.S. into the challenging field. Dr. Larry Mayer and Capt. Andy Armstrong gave an enticing demonstration on the evolution of 3D visualization in support of precision marine navigation including new tools for monitoring air gaps in the Lower Mississippi River. It highlighted the importance of the NOS foundational digital data to support the transition to evolving digital products and services. Ashley Chappell introduced the Standard Ocean Mapping Protocol, requesting comments from the Panel. The Panel was energized throughout the meeting with reports from the Directors and Co-Directors who added great leadership and expressed tangible excitement about NOAA's future.

The following informational panels were a key part of the meeting. The HSRP acknowledges the participants who contributed their time and knowledge.

- Partnerships, Priorities and Collaborations for the U.S. Caribbean – One of the messages that resonated was that the islands are experiencing the effects of climate change acutely. It is happening now on the islands. The tools that NOAA provides are critical.
- Overview of U.S. Caribbean Island's Perspective - Roy Watlington, CARICOOS Virgin Islands, gave an overview of the historical importance of the islands, introducing the cultural and human element in regards to the challenges over the years.
- Stakeholder Perspectives on Maritime Transportation and Navigation – Captain Alex Cruz, HSRP Member and host in Puerto Rico, and the OCS Navigation Manager moderated an enlightening panel comprised of panel members from diverse maritime services.
- Coastal Resilience Planning in the U.S. Caribbean Using NOAA's Flooding, Inundation, Sea Level Data, Products and Services – This panel highlighted the many science, data, and mapping needs of

coastal managers in Puerto Rico which have been historically underserved by the federal government with the exception of investment in CARICOOS and a slight increase in services in the aftermath of Hurricane Maria.

Following are seven HSRP recommendations from the meeting:

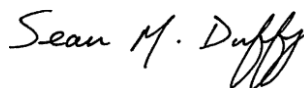
- 1) Sustain and expand core products and services. Be leaders in precise water level information, geodetic measurements, mapping and nautical charts. Continue to focus on these efforts, delivering high quality data to its users. Communicate, educate and advocate for the benefit of these products.
- 2) The HSRP urges NOAA to continue prioritizing sustainability. RDML Evans mentioned that NOAA must incentivize this process and reduce Greenhouse Gas (GHG) emissions and its carbon footprint at large. NOAA should record its GHG emissions and carbon footprint and track fuel economy along with continuing to support new and alternative technologies such as drones and uncrewed vessels, with a goal of becoming carbon neutral for both internal and contractor assets.
- 3) Continue to address the equity of delivery of navigation services and the New Blue Economy for remote, underserved communities.
- 4) Prioritize coastal resilience and sea level change at the forefront of NOAA's efforts. Increased frequency of LIDAR and aerial photography will also capture sediment movement in the coastal zone. Real-time, hyper local, water level measurements are critical. The HSRP requests that NOAA establish a Puerto Rico Coastal Mapping Strategy to guide data collection efforts along this underserved island territory. Ashley Chappell agrees that such a plan could be developed.
- 5) As RDML Evans recognizes that OCS should continue to present an integrated solution for NOAA Electronic Navigation Chart release, coordinating with the Coast Guard on the rollout, and assuring that timely messages reach the maritime community.
- 6) The HSRP requests NOAA to assess, and if possible adopt, the value of Digital Twin and its potentials to NOAA's activities including but not limited to marine and land-based assets management and coastal and ocean observations and modeling. Digital Twin combined with Artificial Intelligence tools is a powerful and promising concept being used throughout the industry today.

The HSRP was impressed with the level of interactions and collaborations among the various federal and local agency representatives and encourages the continuation, and even growth, of such collaborative efforts. The HSRP looks forward to a productive year and to further communication with you and NOS leadership.

Sincerely,



Julie Thomas  
Chair, HSRP



Sean M. Duffy, Sr.  
Vice Chair, HSRP

Attachments:

HSRP Priorities Matrix March 2023

HSRP Meeting Minutes, San Juan, Puerto Rico, March 2023

National Geospatial Advisory Committee Geodesy Resolution