

**Written Statement by  
David Millar, Government Accounts Director - Americas, Fugro  
House Natural Resources Subcommittee on Water, Power and Oceans  
Legislative Hearing on H.R. 221**

**November 2, 2017**

Chairman Lamborn, Ranking Member Huffman, and Members of the Subcommittee, thank you for this opportunity to appear before you as you consider a trio of water bills. My name is David Millar and I am the Government Accounts Director – Americas for Fugro, based in Frederick, Maryland. In particular, I will be providing comments on H.R. 221, a bill to reauthorize the Hydrographic Services Improvement Act of 1998. Safe navigation in U.S. waters is vital to waterborne commerce, commercial and recreational fishing, and tourism around the country. It is also increasingly important for national security and homeland security missions.

My background includes 28 years of experience with marine navigation and positioning, hydrographic survey, and ocean and coastal mapping. I was recently appointed as Government Accounts Director – Americas, where I serve as Fugro’s key account manager for the U.S. government, other national governments within the Americas Region, the United Nations, the World Bank, and other multilateral development banks. In this capacity, I interface between Fugro’s government customers and all of Fugro’s site characterization and asset integrity service offerings across the company’s land and marine divisions. I also serve on the board of directors for The Maritime Alliance, as well as the Establishment Board of Seabed 2030. For the eight years prior to this appointment, I served as the President of Fugro Pelagos, Inc., a Fugro company specializing in hydrographic survey and ocean and coastal mapping. My responsibilities included managing approximately 80 staff and an annual budget of approximately \$20M. I also oversaw the delivery of hydrographic survey services to NOAA, as well as the expansion of these services to other national hydrographic offices, including CHS (Canada), UKHO (United Kingdom) and GCS (Kingdom of Saudi Arabia).

Fugro is the world’s leading, independent provider of geo-intelligence and asset integrity solutions for large construction, infrastructure, and natural resource projects. We provide the technical data and information required to design, construct, and maintain structures and infrastructure in a safe, reliable, and efficient manner. Our U.S. and Americas regional headquarters are located in Houston, Texas, and we employ 1,200 employees across 37 offices in 13 states in the United States. Working predominantly in the energy and infrastructure markets, we serve both public- and private-sector clients on land and at sea.

Fugro has been a contractor for NOAA, National Ocean Service (NOS), Office of Coast Survey (OCS) backlog support since the mid-1990s and has been an industry partner with NOAA’s University of New Hampshire Center for Coastal and Ocean Mapping/Joint Hydrographic Center (UNH CCOM/JHC) for almost as long. Through this partnership, innovation, research and development in the area of ocean and coastal mapping has been successfully adopted and applied by Fugro to non-hydrographic survey applications, such as deep ocean search and hydrocarbon seep exploration. Most recently, these technologies were utilized by Fugro’s United States staff

to map approximately 900,000 km<sup>2</sup> in the Gulf of Mexico, making it the largest hydrographic survey ever executed.

In addition to its contract with NOAA OCS, Fugro also holds multi-year contracts with NOAA's National Geodetic Survey (NGS) and Office for Coastal Management (OCM), as well as with the U.S. Army Corps of Engineers (USACE), the U.S. Geological Survey (USGS), the U.S. Bureau of Reclamation (BOR), the Federal Emergency Management Agency (FEMA), and the U.S. Navy.

Since 1997, Fugro has supported NOAA's OCS in the execution of hydrographic surveys all over the United States and its territories, including Maine, the Gulf of Mexico, the Marianas Islands, and Alaska. Most recently, during the 2016 and 2017 survey seasons, Fugro was contracted to provide hydrographic surveying services of approximately 200 km<sup>2</sup> nautical miles in Penobscot Bay and Jericho Bay in Maine. The area, characterized by a vibrant lobster fishery and high vessel traffic, was identified by NOAA as a priority area for nautical chart updates. Until these surveys, charts in the area were between 67 and 142 years old and lacking in detail due to technology limitations at the time of the prior surveys. One difficult aspect of conducting surveys in coastal Maine is the complexity of the coastline and the large number of submerged rocks. In fact, over the two seasons, Fugro verified in excess of 4,200 features, submitted 154 Dangers to Navigation, and discovered one previously uncharted ship wreck.

The survey, over the highly complex coastline and shallow waters, was also challenged by the peak of lobster season, due to the high density of lobster trap rigging and the continual need for avoidance maneuvering. In an effort to gain efficiency, reduce costs, and lower personnel/property risk, Fugro developed a survey plan that involved the integration of aircraft-based laser and camera technology with vessel-based acoustic technology. Such an approach allowed the project to be completed almost twice as fast as traditional vessel-only-based surveys, while avoiding conflict with the lobster fishery. To this end, NOAA and Fugro proactively engaged the Maine Lobstermen's Association in advance of the surveys, maintained constant communications during the surveys, and hosted a Stakeholders Meeting in Belfast, Maine, in September 2017.

Much of the experience required to execute such a complex set of projects in Maine came from years of conducting equally challenging surveys in Alaska. Fugro has been operating in Alaska—specifically Arctic Alaska—since the mid-1980's, and over the past twenty years has conducted on the order of twenty hydrographic surveys for NOAA in the state. Nationwide, NOAA is responsible for maintaining over 1,000 charts and publications, covering 95,000 mi of shoreline and 3.4 million nautical mi<sup>2</sup> of water. Over one-third of this area is located in Alaska, and as a result, the state has always been high on NOAA's list of charting backlog priorities. Over the 20 years that Fugro has supported NOAA in Alaska, the company conducted surveys in areas where data on the nautical charts were acquired by Captain James Cook, and in others where no prior data existed; i.e., areas that had never been surveyed before.

The backlog of hydrographic survey data and nautical charting updates in Alaska has always been daunting, but an ice diminishing Arctic is compounding the demand. The reduction in sea

ice in the Arctic Ocean means that the region is seeing continued increases in vessel activity, making the need for current and accurate nautical charts ever more urgent. These data, which can really be considered the most basic form of infrastructure, are required to support an already evident increase in shipping and cruise industry traffic, the inevitable activities associated with energy and natural resource exploration and development, as well as the naval and Coast Guard vessels that will ultimately be responsible for patrolling and protecting these waters. In fact, in recent years, Fugro has conducted numerous surveys in the Beaufort and Chukchi Seas in support of oil and gas exploration, as well as infrastructure development, including the survey of a submarine cable route that connects several remote communities along the north and west coast of Alaska. Data from this survey were also provided to NOAA by the owner, as an outside source data contribution.

Despite NOAA's annual efforts to decrease the growing hydrographic data and nautical charting backlog, the need in Alaska is daunting and it will take decades to address. Two recent incidents demonstrate the stakes in this region. First, in July 2015, the MV Fennica struck an uncharted rock in Unalaska's harbor. The incident was unfortunate on many levels, but first and most importantly because the MV Fennica was a required support vessel for Shell's drilling activities in the Chukchi Sea. The resulting damage necessitated repairs in the Lower 48, which delayed Shell's operations by more than a month. Second, on June 24, 2016, the chemical tanker MV Champion Ebony ran aground on an uncharted shoal near Nunivak Island in southwest Alaska. She was carrying more than 14.2 million gallons of fuel products, and fortunately was able to refloat without a spill. Both of these near-misses demonstrate the value of current and accurate charts that are created using modern survey technologies and methods.

Beyond the Arctic, many other areas also face significant data gaps and charting backlogs. In fact, the United States has yet to map its extended continental shelf using modern methods. This situation is further complicated by the impact of major storms and hurricanes. Every time a major storm or hurricane hits the United States, NOAA's hydrographic survey and nautical charting backlog priorities are overshadowed by post-hurricane mapping priorities. NOAA's limited resources and budgets often need to be re-directed to address the urgent needs that follow a major hurricane, such as those recently experienced with Hurricane Harvey, Hurricane Irma and Hurricane Maria. These events destroy coastal infrastructure, cause coastal erosion, and change the accuracy of existing nautical charts. In many cases, natural shoals and manmade debris appear in locations where they did not previously exist. This obviously creates an extremely dangerous situation and liability that needs prompt resolution. So, when these events occur, NOAA needs to immediately re-prioritize and is not able to progress the already delayed mapping of its hydrographic survey and nautical charting backlog.

### **Comments on HR 221**

Turning to provisions included in HR 221, I would first like to thank Congressman Young for his strong support of hydrographic survey work in the United States. While NOAA, private sector hydrographic survey companies, and the many stakeholders who rely on current and accurate

navigational charts, are important to this discussion, it has been and continues to be Congress's role to determine levels of funding and to identify key priorities.

As noted in the June 2017 GAO Study, "Hydrographic Surveying - NOAA Needs Better Cost Data and a Strategy for Expanding Private Sector Involvement in Data Collection," NOAA has indicated that it is working to expand its use of private sector resources, but is constrained due to budget limitations and challenges with its own internal cost accounting. Congress provided direction to the agency in its 2009 amendments to the Act to increase the use of contract surveyors, and HR 221 will help to ensure that progress is made to achieve this goal.

In these challenging budget times, I understand that choices must be made and not all compelling national priorities can receive ideal levels of funding. However, I am here to make the case that Congress should consider increasing the authorizing levels to support accelerated work to eliminate the hydrographic charting backlog. Specifically, funding should include both higher levels for contract survey work, as well as more robust funding to allow NOAA's assets to continue to contribute to this mission. Section 2 of HR 221 does increase the baseline levels for contract survey work, which is very positive, and it is my recommendation that Congress do as much as possible in this area given budget constraints.

It should be mentioned that the NOAA Charting Backlog program, along with its industry partners and various R&D/innovation initiatives at UNH CCOM/JHC, have combined to be the leading technologies creators, developing multibeam echo sounder (MBES) technology and related applications and improvements that have ultimately been adopted and applied, and which have extensively benefitted industry end users. Since the early 2000s a small sampling list of such applications includes TrueHeave™, MBES Snippets, and Geocoder. This small sampling of applications, integrated into various seabed mapping industries in the United States alone, directly benefits more than \$200 million of mapping services annually. So, the value of NOAA's hydrographic survey and charting backlog program extends beyond direct contracts for civil hydrography, but includes the application of the associated and jointly developed technologies and methodologies to private sector mapping applications at a value many times greater.

Section 2(b) of the Act addresses funding for Arctic charting activities. Earlier I referenced two incidents in U.S. Arctic waters that underscore the critical need for up-to-date navigation charts – near misses involving the M/V Fennica and the M/V Ebony Champion. In both cases vessels struck uncharted, or inaccurately surveyed, submerged features. With more and larger vessels expected to be operate in the Arctic Ocean in the future, the risks are significant in this region, and I cannot emphasize strongly enough how important it is to continue to aggressively attack existing charting deficiencies to avoid a maritime casualty with potentially catastrophic environmental consequences. I believe it is safe to say that funds invested now to reduce these risks through better navigational charts will be far less than the cost of addressing a maritime casualty in the U.S. Arctic.

## **Conclusion**

Once again I would like to thank the Committee for allowing me to provide this statement for the record and to give testimony on this matter. Improving the nation's hydrographic charting capabilities and ensuring the safe navigation is a critical mission and Congress's attention to this

issue will help advance the goal of eliminating risks to maritime activities. H.R. 221 supports the continuation of the partnership between NOAA and companies such as Fugro to reduce the cost of hydrographic charting and maximize the ability to survey priority areas and eliminate the charting backlog. I would be happy to answer any questions from the Committee on H.R. 221.