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2022 Biographies for the NOAA HSRP Federal Advisory Committee Panel Members

Dr. Qassim Abdullah

Dr. Qassim Abdullah, Vice President and Chief Scientist, Woolpert Inc., Adjunct Professor, Penn State and UMBC

Dr. Qassim Abdullah is a scientist with more than 45 years of combined industrial, research and development (R&D), and academic experience in analytical photogrammetry, digital remote sensing, and civil and surveying engineering. Dr. Abdullah obtained his doctorate and master degrees in photogrammetry from the Civil Engineering Department at the University of Washington in Seattle. He is the Vice President and Chief Scientist for Woolpert Inc. His responsibilities include designing and managing strategic programs to develop and implement new remote sensing technologies focused on meeting the evolving needs of geospatial users. He also serves as an adjunct professor at the University of Maryland, and at Penn State, where he teaches graduate courses on unmanned aircraft systems (UAS), photogrammetry and remote sensing. Among his achievements, Dr. Abdullah evaluated and introduced a Geiger-mode and single photon lidar to the geospatial industry while leading Woolpert research activities surrounding intelligent transportation systems, digital twin, smart cities, and UAS sensor calibration and workflow development. Dr. Abdullah is a Fellow with the ASPRS and the creator and principal author of the new ASPRS Positional Accuracy Standards for Digital Geospatial Data where he received the organization's Lifetime Achievement Award in 2019 and has been the recipient of several prestigious awards. He publishes a monthly column, "Mapping Matters," in the American Society for Photogrammetry and Remote Sensing (ASPRS) journal, PE&RS. Dr. Abdullah is a member of the NOAA Hydrographic Services Review Panel (HSRP) and is on two of the Transportation Research Board's Standing Committees, the New Users of Shared Airspace (AV095) and the Geospatial Data Acquisition Technologies (AKD70). Dr. Abdullah is a certified photogrammetrist and licensed professional surveyor and mapper in Florida, Oregon, Virginia, and South Carolina. He is also a certified thermographer by the FLIR Infrared Training Center and a Certified GEOINT Professional in Remote Sensing and Imagery Analysis (CGP-R) by the USGIF.

Capt. Anuj Chopra

Prof. (Capt.) Anuj Chopra, Co-founder and CEO, ESGplus LLC

Captain Anuj Chopra is an international executive, enterprise risk manager, and big data champion who has successfully forged client relationships in the maritime industry for more than three decades. His deep experience developing ethical, customer-focused EQ & SQ cultures has led him to conclude high-value contracts with some of the largest shipping companies in the world. Captain Chopra cofounded ESGplus LLC, an international consulting firm focused on bringing resiliency,

efficiency, and independent board advisory to clients invested in the global maritime supply chain. ESGplus promotes sustainability, increased safety standards, and reducing the environmental impact of the maritime industry as a whole. Captain Chopra guides ESGplus as a diversity-focused company, providing client value by promoting exemplary, transparent customer solutions for a sustainable and resilient maritime supply chain. Captain Chopra spent nearly a decade as a Vice President of RightShip, negotiating high-level due diligence and compliance agreements in developing business across North and South America leading to over 500% growth. Prior to RightShip, he served as the President of U.S. Operations of the Anglo-Eastern Group, with direct oversight of all vessels visiting U.S. ports, risk evaluation, and government relations. Captain Chopra began his seafaring career as a deck cadet, working his way up to Captain. He has commanded large bulk carriers and tankers and holds a Commonwealth Extra Masters Certificate of Competency and Shipping Management from the Indian Institute of Management, Ahmedabad. He serves as a Fellow of The Nautical Institute (Chair, U.S. Gulf Branch), an Ambassador for the Sailor Society, and on the Board of Directors at the Houston International Seafarers Center. He was elected President of the Industry Advisory Board for the Supply Chain & Logistics Technology Degree at the University of Houston, where he is an Adjunct Professor for the Supply Chain & Logistics Program. He is a Board Member and Treasurer of the North American Marine Environment Protection Association (NAMEPA) and a member of NOAA's Hydrographic Services Review Panel. He continually mentors' students and professionals in the maritime supply chain.

Capt. Alex E. Cruz

Capt. Alex E. Cruz, Owner, West Indies Marine Services, and Vice Chairman, South Coast Harbor Safety and Security Committee, Puerto Rico

Captain Alex E. Cruz is the owner of the West Indies Marine Services and worked in the marine transportation sector for over 25 years. He served as the Vice Chairman of the South Coast Harbor Safety and Security Committee of Puerto Rico since 2012, on the board of the Caribbean Coastal Ocean Observing System (CARICOOS), and as a Harbor Pilot for the Southeast Harbor Pilots. He was a Merchant Marine officer and has experience in Puerto Rico, U.S. Virgin Islands as well as Alaska and east and west coasts of the U.S. He is involved with the private sector and academia and for day to day management of Puerto Rico ports. In 2000 he was appointed by the Governor of PR to serve as a commissioner in the newly created Puerto Rico Pilotage Commission until 2013 including 2 years as the president. He was a key player in the development of the LNG Terminal in Guayanilla, and the Aguirre Gas port. In 1997 he was appointed State Harbor Pilot for all the seaports of Puerto Rico. From 1990-1997 he worked for Exxon Shipping Company as a Second and Third Mate navigating the waters of east and west coast of the U.S. and Alaska. As a naval reserve officer he had the rank of LCDR at naval bases in the U.S. and Puerto Rico, also with

the USCG base in Puerto Rico. He has a B.S. in Maritime Transportation from Texas A&M University, Galveston. He obtained a 3rd Mate license from the U.S. CG and a commission as an Ensign in the U.S. Navy reserve. He is a Licensed Merchant Marine Officer with a Mater 1600 GRT vessel and Chief Mate Unlimited plus First Class pilot for all the seaports of Puerto Rico and U.S. Virgin Islands.

Mr. Sean M. Duffy, Sr.

Mr. Sean M. Duffy, Sr., Executive Director, Big River Coalition

Mr. Duffy directs the Big River Coalition which is committed to protecting maritime commerce across the Mississippi River and Tributaries (MRT). He leads the Coalition which focuses on maximizing transportation efficiencies on the Mississippi River Ship Channel (Baton Rouge to the Gulf of Mexico) with a dedicated focus on channel maintenance. The Big River Coalition is at the forefront of efforts to deepen the Mississippi River Ship Channel to 50 feet. He spearheads the visions of the future deep-draft navigation on the MRT to ensure that systematic approaches protect maritime commerce by maintaining fully authorized channel dimensions while also updating and maintaining navigation infrastructure, specifically the locks and dams along the MRT. The Big River Coalition missions include a dedicated focus to secure increased federal investments for channel maintenance of the Mississippi River Ship Channel. The project to deepen the Ship Channel to 50 feet and to increase the beneficial use of dredge material or "sediment recycling" were projects first promoted by the navigation industry through the Big River Coalition. Mr. Duffy also serves as an Executive Vice President / Maritime Advocate for the parent company the New Orleans Steamship Association and another d.b.a. the Louisiana Maritime Association. Mr. Duffy is a proponent for local industry specializing in advocating on Capitol Hill to secure supplemental funds for maintenance dredging and waterway maintenance. Previous employment experiences include various management positions, Boarding Agent, Deckhand, Stevedore General Superintendent and Marine Surveyor. Mr. Duffy is familiar with obstacles faced by the maritime industry, both nationally and those specific to Louisiana, and has been recognized for his efforts on coastal restoration through maintenance dredging. He became the HSRP co-chair in March 2021.

Dr. Nicole Elko

Dr. Nicole Elko, Science Director, American Shore and Beach Preservation Association (ASBPA), Executive Director of the South Carolina Beach Advocates, and President of Elko Coastal Consulting

Dr. Nicole Elko is one of the three civilian members of the U.S. Army Corps of Engineers' Coastal Engineering Research Board (CERB). She received her Ph.D. (Geology) from the University of South Florida after working with the USGS Coastal Marine Geology Program, and while serving as the coastal coordinator for Pinellas County, FL. Dr. Elko has 20 years of experience in coastal resource management and has managed or assisted with more than 20 beach preservation projects along the U.S. Southeast and Gulf coasts. She works with various State and Federal agencies to communicate

the coastal resilience needs of local communities. Dr. Elko has co-authored a book on coastal management, numerous technical reports, and 16 journal publications, including The Future of Nearshore Processes Research, a seminal report that provides a research vision developed by the nearshore community. At ASBPA, Dr. Elko helps provide science-based guidance to Congress, Federal and State agencies, and local communities on national coastal resilience challenges. She serves a co-Executive Director for the grass-roots U.S. Coastal Research Program. Regionally, Dr. Elko serves on South Carolina Governor McMaster's Floodwater Commission, and the Southeast Coastal Ocean Observing Regional Association (SECOORA) Science Committee. Her business provides hydrographic surveying, coastal research and advocacy services. Dr. Elko teaches a "Beaches 101" training course to regulators and elected officials in the Carolinas.

Mr. Lindsay Gee

Mr. Lindsay Gee, Hydrographic and Strategic Development Consultant

Mr. Lindsay Gee has over four decades of broad experience working in the international hydrographic surveying and ocean mapping industry. This experience ranged from working at a national hydrographic service, then consulting in the broader offshore industry, and leading a small innovative company providing software and services to the international hydrographic industry, and recently managing the mapping and science operations for the E/V Nautilus. His roles included conducting and managing operational hydrographic surveys for nautical charting and ocean exploration, client representation for geodetic and geo-hazard surveys in the oil and gas industry, through to leading a team in development of software applications to support hydrographic surveying and ocean mapping. He built a deep understanding and expertise in guiding the transfer of technology from research at partner ocean mapping research institutions, and leading the development of an agile company to successfully interpret industry requirements and trends. His consulting is focused on both ocean mapping operations and the technology used in the industry, and the strategic planning and business development required to identify and transition innovative technology to products, services and solutions for general operational use. Mr. Gee is affiliated with the Hydrographic Society of America, Surveying and Spatial Sciences Institute, Australasian Hydrographic Society, Marine Technology Society and American Geophysical Union.

Ms. Deanne Hargrave

Ms. Deanne Hargrave, Geoscience Manager, Atlantic Shores Offshore Wind LLC

Ms. Hargrave is planning, executing and delivering technically complex and logistically challenging offshore geophysical projects for Atlantic Shores Offshore Wind LLC and recently worked for Shell for six years. Over the past 20 years, she has conducted numerous shallow hazard surveys, geotechnical investigations, seep surveys, and navigational positioning projects at worldwide

locations. Deanne strives to anticipate industry technical requirements, interpret regulatory trends, and adopt innovative technologies. She began her career in 1998 as a geotechnical engineer conducting onshore investigations with GeoEngineers. Beginning in 2004, she was project manager and party chief for offshore geophysical and geotechnical investigations throughout Alaska and was instrumental in creating Geo LLC, a company specializing in shallow hazard surveys for the oil and gas industry. In 2011, after acquisition of Geo LLC by Fugro, she was promoted to Operations Manager for Fugro Geo Services - Alaska, supervising technical personnel, implementing quality, health, safety and environmental management systems, and managing operations/logistics for large offshore projects in Alaska, Caribbean, Brazil, and New Zealand. In 2014, she joined Shell in Alaska to deliver seabed clearance/ geotechnical investigations and environmental baseline surveys. Deanne was responsible for implementing Shell's multi-year Marine Mammal Monitoring and Mitigation Program, including an industry-leading underwater sound source verification program, and improved logistics and operational efficiency by managing project risks and collaborating with stakeholders. She successfully identified two innovative methods for completing subsea construction activities necessary in Arctic waters. She completed a B.S. in Civil Engineering at Gonzaga University, continuing education in Arctic Engineering and Project Management at the University of Alaska Anchorage, and is a Professional Engineer licensed in Alaska and Texas.

Capt. Ann Kinner

Capt. Ann Kinner, Owner, Seabreeze Books and Charts, and Chair, San Diego Harbor Safety Committee, San Diego, CA

Capt. Ann Kinner owns and manages Seabreeze Books and Charts in San Diego, California, which provides navigation tools and publications to all sectors of the maritime community, as well as charts provided by hydrographic services from Canada, Mexico, France, the British Admiralty, NOAA, NGA, and offers digital navigation products from Nobeltec and C-Map for use on a variety of on-board systems and personal computers. In addition to instructing boaters in the operations and systems of sail and power vessels, she worked with TowBoat/US as the primary watch-stander and rescue boat driver in San Diego. Her nearly 15 years with the Coast Guard Auxiliary and more than three decades of teaching all things boating give her a broad perspective on the needs, curiosities, and varied interests of the recreational and professional boating communities.

She was appointed to the San Diego Harbor Safety Committee, and has served as the Chair since July 2016. Frequently called upon to speak to boating associations, she assisted with navigational guidance for the CUBAR powerboat rally from San Diego to La Paz, Baja California, and was a speaker and instructor for the annual Women's Sailing Convention in Newport Beach. Capt. Kinner grew up sailing in Narragansett Bay, Rhode Island. She

has a lifetime love of the ocean, is a live-aboard boater, experienced on sail and power boats - both simple and high-tech, and is familiar with harbors from Ensenada to Santa Barbara.

Dr. David Maune

Dr. David F. Maune, PhD, CP, CFM, PSM, PS, GS, SP, Associate Vice President and Senior Remote Sensing project manager, Dewberry Engineers, Inc.

Dr. David Maune manages major geospatial products and services contracts with the U.S. Geological Survey (USGS) and the National Oceanographic and Atmospheric Administration (NOAA) – both the National Geodetic Survey (NGS) and the Office for Coastal Management (OCM). He earned his M.S. and PhD degrees in geodesy and photogrammetry from The Ohio State University. He authored and co-authored major positional accuracy standards, guidelines and specifications published by the Federal Emergency Management Agency (FEMA), the National Digital Elevation Program (NDEP), and the American Society for Photogrammetry and Remote Sensing (ASPRS), including the *ASPRS Positional Accuracy Standards for Digital Geospatial Data* (2014). He is a specialist in topographic mapping and elevation data and is the editor of three editions of ASPRS's "Digital Elevation Model Technologies and Applications: The DEM "Users Manual". For NOAA, he authored the *National Height Modernization Study*, *Report to Congress*, on how to modernize the national height system. For USGS, he authored the *National Enhanced Elevation Assessment* that served as the blueprint for the 3D Elevation Program (3DEP) which focuses on standardized lidar mapping nationwide. For the U.S. Army Corps of Engineers (USACE), he authored EM 1110-1-1000, *Photogrammetric and Lidar Mapping* (2015). He managed Dewberry's statewide mapping of Alaska with airborne interferometric synthetic aperture radar (IFSAR) to satisfy urgent requirements for aviation safety and to help the state and federal agencies to manage the vast natural resources in America's Last Frontier. He is a retired U.S. Army Colonel, and served as Director, U.S. Army Topographic Engineering Center (TEC). He is an ASPRS Fellow and charter member of the National Geospatial Advisory Committee (NGAC); an ASPRS Certified Photogrammetrist (CP); and an ASFPM Certified Floodplain Manager (CFM). His recent awards include: 2016 ASPRS Photogrammetric Award; 2018 Outstanding Personal Achievement in Lidar Award from the International LiDAR Mapping Forum (ILMF); and the 2022 Grand and Pinnacle Awards from the American Council of Engineering Companies (ACEC) Virginia.

Capt. Anne McIntyre

Captain Anne McIntyre, Business Manager, San Francisco Bar Pilots

Capt. Anne L. McIntyre is a 1988 deck officer graduate of the California Maritime Academy. Upon graduation she was hired by Chevron Shipping Co. and served 8 years in both sea-going and shore-based positions. In 1996, she was selected by the Oregon Board of Maritime Pilots to become the first woman Columbia River Pilot.

During her tenure as a Pilot, she has served in a number of management positions including Administrative Pilot, Commissioner, Oregon Board of Maritime Pilots and Vice Chair of the Lower Columbia River Harbor Safety Committee. In 2013, she earned a M.S. in Transportation and Engineering Management, also from the California Maritime Academy where she is an active member of the CMA Alumni Association. In 2020, she retired as a Columbia River Pilot and charted a new course as Business Director for the San Francisco Bar Pilots. In her spare time she enjoys sailing, reading, as well as a variety of snow and water sports and viticulture.

Dr. H. Tuba Özkan-Haller

Dr. H. Tuba Özkan-Haller, Acting Dean and Professor, College of Earth, Ocean, and Atmospheric Sciences, Oregon State University

Tuba Özkan-Haller is the Acting Dean and a professor in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University while on leave from her position as Associate Vice President for Research Administration and Development. She previously served as Associate Dean for Research and Faculty Advancement in the College of Earth, Ocean, and Atmospheric Sciences. As a faculty member, she focuses on the use of numerical, field, laboratory, and analytical approaches to arrive at a predictive understanding of waves, circulation, and beach change in the nearshore ocean, including the continental shelf, the surf zone, inlets, and estuaries. The results of this work are being applied to navigational planning, for the development and design of wave energy conversion devices, and for forecasting of beach-goer hazards. She previously served as a member of the Ocean Studies Board of the National Academies of Science, Engineering and Medicine, has participated in various Academies committee on marine hydrokinetic energy and long-term coastal change, including chairing a consensus study on the future of the U.S. Gulf Coast. Özkan-Haller is passionate about communicating science to the public and appeared in numerous documentaries produced by the History Channel, the National Geographic Channel, and Oregon Public Broadcasting, and was quoted in various news segments and newspaper articles, most recently about sneaker wave fatalities along the Pacific Northwest Coastline of the U.S. Özkan-Haller is the recipient of the Office of Naval Research Young Investigator Award, the Outstanding Faculty Member Award at the University of Michigan as well as the Pattullo Award for Excellence in Teaching Award and Woman of Excellence Award at OSU. She holds a B.S. in Civil Engineering from Boğaziçi University in Istanbul, Turkey, and a M.C.E. and Ph.D. in Civil Engineering from the University of Delaware.

Mr. Edward Saade

Mr. Edward J. Saade, Group Director Americas, President USA, Fugro Inc. (retired)

Edward J. Saade has 40+ years of hydrographic, coastal zone management, geospatial survey and ocean engineering experience. Since 2014, Mr. Saade has served as Americas Regional Director for the Fugro Marine Division and in June of 2015 was promoted to the President of Fugro (USA) Inc., serving Fugro in both capacities. His responsibilities included the management of the largest of Fugro's Regional Divisions, overseeing a staff of 1200, operating from eleven offices located from Alaska and Canada to Brazil, with multiple offices in the USA, Mexico, Colombia and Trinidad and Tobago; operating in virtually every country in the Region. He has overseen the expansion of Fugro's capabilities to become the world leader in hydrographic LiDAR, multi-beam and backscatter data acquisition and mapping techniques for charting, coastal zone and essential fish habitat analysis. These techniques have been directly applied to the offshore oil and gas and construction industries and a wide variety of national hydrographic offices including NOAA, CHS (Canada), GCS (Kingdom of Saudi Arabia), RAN (Australia) and SHOM (France). He has been actively involved in high resolution geophysical survey data acquisition and interpretation programs, both domestically and overseas. He holds a B.S. in geology from the University of California, Santa Barbara, and completed Ph.D. courses and research in marine geophysics at the Hawaii Institute of Geophysics. Mr. Saade is a California Professional Geophysicist, and authored/coauthored over 70 reports and studies related to seafloor geology and sub-bottom conditions. He served as the HSRP chair for three years.

Ms. Julie Thomas

Ms. Julie Thomas, Senior Advisor, Southern California Coastal Observing System (SCCOOS) and the Coastal Data Information Program (CDIP) Scripps Institution of Oceanography, La Jolla, CA (retired)

Since 1976, Julie Thomas worked at the Scripps Institution of Oceanography, and during the last several years, served as the Program Manager and Principal Investigator for the Coastal Data Information Program (CDIP). She served as the Executive Director for the Southern California Coastal Ocean Observing System (SCCOOS) from 2009 to 2018. She is now serving in an Advisory capacity for both of the above mentioned programs. She has been an advocate for sustained funding for real-time monitoring and model validation, working closely with many federal agencies, in particular the U.S. Army Corps of Engineers (USACE) and NOAA. She worked closely with many of the coastal USACE whose projects are dependent upon high quality, long-term wave data, realizing that this long term history

is critical in infrastructure design and repair. Through the State of California, she has obtained sustained project funding, working closely with the recreational and commercial maritime community, including the Coast Guard and state Oil Spill Prevention and Response agencies. At the local and regional level, she is engaged with coastal issues, particularly those that are affected by energetic wave action, providing data for infrastructure design, shoreline change and sea level rise. Ms. Thomas has extensive outreach experience. She focused on listening to comments from the maritime users/operators, spent many hours walking the fishing docks with nautical chart in hand, discussing the best location for a buoy deployment, and attending the maritime industry meetings to help resolve their concerns. Her priority is to maintain standards for collecting and disseminating high quality data, assure that these data are curated and archived at the NOAA National Centers for Environmental Information (NCEI), and advocate for the integration and communication of information that helps ensure safety, economic and environmental resilience, and the sustainable use of coastal oceans. She became the HSRP chairwoman in March 2021.

Mr. Gary Thompson

Mr. Gary Thompson, Deputy Hazard Mitigation Chief, and Chief, North Carolina Geodetic Survey, NC Department of Public Safety

Mr. Thompson has worked for the North Carolina Geodetic Survey (NCGS), which is the agency responsible for developing and maintaining North Carolina's official survey base, since 1977. As

Section Chief since 1994, he has been continually modernizing the agency to keep up with advances and spatial data needs in the engineering, surveying, mapping, and scientific fields. He put the agency's modernized technologies, expertise, and quality control to the test while on the research team that conducted Light Detection and Ranging (LiDAR) aerial mapping research projects with NASA. He incorporated the results of those projects in to practice while on the program management team that completed the engineering and surveying project that produced a statewide set of Digital Flood Insurance Rate Maps (DRIRMs) for North Carolina. Mr. Thompson promulgates outreach and technological transfer by conducting workshops with engineers and surveyors and by serving on two college advisory boards. He participated in numerous state and national professional organizations and managed/coordinated national and state conferences. He authored and co-authored numerous articles and issue papers on floodplain mapping and LiDAR technology. He is a member of the Accreditation Board for Engineering and Technology (ABET) Engineering Technology Accreditation Commission and serves on the National Geospatial Advisory Committee (NGAC), National Space-Based Positioning, Navigation, and Timing Advisory Board, and continues to conduct seminars throughout the state on a wide variety of topics important to the engineering and surveying professions.

Mr. Nathan Wardwell

Mr. Nathan Wardwell, Managing Partner, JOA Surveys LLC

Mr. Nathan C. Wardwell is the Managing Partner of JOA Surveys LLC, a small business located in Anchorage, AK, that specializes in measuring water levels for tidal datum determinations. He began his career as an intern for the U.S. Geological Survey (USGS) measuring stream discharge and sediment transport around Alaska's Cook Inlet. He received a Bachelors of Science in Environmental Science from Alaska Pacific University and a Master's of Science from the University of New Hampshire's Center for Coastal and Ocean Mapping (UNH-CCOM) with a focus in ocean mapping. His graduate research included the use of Global Navigation Satellite Systems (GNSS) and a mobile platform for offshore geoid model validation. While at UNH-CCOM he had the opportunity to participate in UNCLOS Law of the Sea surveys of the Arctic and Atlantic oceans. He served as chair of the University of Alaska Anchorage Geomatics Advisory Board from 2016 to 2018. He is a member of the Alaska Water Level Water (AWLW) Steering Committee since 2019. The AWLW is a group of federal, state and private stakeholders working to improve the quality, coverage, and accessibility to water level observations in Alaska's coastal zones through innovative technologies and collaborative partnerships. He is a member of The Hydrographic Society of America's Education Committee and the International Hydrographic Office's Hydrographic Surveys Working Group. As a field technician at the beginning of his career he was a member of a team that installed 5 long term tide stations in Alaska for the National Oceanic and Atmospheric Administration's (NOAA) National Water Level Observation Network. In 2013 he became the Director of an Environmental Field Services contract with NOAA's Center for Operational Oceanographic Products and Services and managed an effort to collect tidal and GNSS observations at more than 200 locations along the coasts of the U.S. and its territories for the National Ocean Service's VDatum Program. From 2010 to 2018 he managed the ground survey of more than 1000 bare earth locations across Alaska to validate IfSAR data collected through the USGS 3D Elevation Program to update topographic maps for the state.

Biographies for the HSRP Non-Voting Members

Capt. (NOAA, Ret.) Andrew (Andy) Armstrong III

Capt. (NOAA, Ret.) Andrew A. Armstrong III, Co-Director, NOAA/University of New Hampshire Joint Hydrographic Center, NOS, NOAA

Andrew Armstrong is Co-Director of the NOAA/University of New Hampshire Joint Hydrographic Center where leads NOAA's role in the research, mapping, and educational programs of the Center. He is the Bathymetric Data Acquisition team leader for the U.S. Interagency Extended Continental Shelf Task Project where he has been responsible for mapping nearly 875,000 square nautical miles of the seafloor in the Arctic Ocean, the U.S. Pacific Islands, and along the U.S. Atlantic and Pacific margins. Andy joined the NOAA Commissioned Officer Corps in 1974, following 4 years of commissioned service in the U.S. Navy. He retired from the NOAA Corps in 2001, continuing with NOAA as Co-Director of the Joint Hydrographic Center in a civil service capacity. He specialized in hydrographic surveying and seafloor mapping. He has served on several NOAA hydrographic ships and field parties, conducting hydrographic and bathymetric surveys in Alaska and Hawaii, along the Pacific, Atlantic, Gulf of Mexico coasts, and in the Great Lakes. He served as commanding officer of *NOAA Ship Peirce* and *NOAA Ship Whiting*, and as chief of NOAA's Hydrographic Surveys Division. He has a B.S. in geology from Tulane University and a M.S. in technical management from The Johns Hopkins University.

Ms. Juliana P. Blackwell

Ms. Juliana P. Blackwell, Director, National Geodetic Survey, NOS, NOAA

Ms. Juliana P. Blackwell is the Director of NOAA's National Geodetic Survey (NGS). As Director, she is responsible for the financial, administrative and programmatic performance of NGS, the lead federal agency for positioning activities in the Nation. She oversees the management and delivery of the National Spatial Reference System (NSRS), the nation's consistent coordinate system for latitude, longitude, height, shoreline, gravity measurements and shoreline information throughout the United States. The NSRS supports a wide range of important activities including mapping and charting, navigation, flood risk determination, transportation, land use and ecosystem management. Ms. Blackwell serves as Chair of the Federal Geodetic Control Subcommittee of the Federal Geographic Data Committee, exercising government-wide leadership in the development and improvement of geodetic surveying specifications, methods, instrumentation, and data transfers. She is a member of NOAA's Hydrographic Services Review Panel, a federal advisory committee providing

advice to the NOAA Administrator on matters related to hydrographic services. She represents NOAA on the interagency Alaska Mapping Executive Committee and the 3D Elevation Program Executive Forum. A graduate of Tufts University, Ms. Blackwell earned a B.S. in mathematics. She received a MBA from the University of Maryland's Robert H. Smith School of Business.

Mr. Richard Edwing

Mr. Richard Edwing, Director, Center for Operational Oceanographic Products and Services, NOS, NOAA

Richard Edwing is the director of **NOAA's Center for Operational Oceanographic Products and Services** (CO-OPS), the nation's authoritative source for accurate, reliable and timely water-level and current measurements. In his role, he oversees and continues to improve this 24-hour a day operation to provide mariners, coastal managers, and many other users with historic, real-time, and forecast data on ocean conditions along America's 95,000-mile coastline. Mr. Edwing's career with NOAA spans over four decades with much of that time spent advancing NOAA's navigation services mission to provide the nation with up-to-date ocean, weather, mapping and positioning data and tools for safe transits to and from U.S. ports. He started with NOAA in 1976 in the Marine Boundary Program, a partnership between NOAA and coastal states to establish tidal data such as base elevations in sensitive wetland areas vulnerable to urban growth. He later advanced through various positions in the field and at NOAA headquarters, including several years as division chief of the National Ocean Service's policy, planning and analysis division, where he shaped NOAA's priorities for ocean issues, as well as identified budget needs to advance and modernize ocean science for the twenty-first century. Graduating in 1976 from George Washington University, Mr. Edwing earned a B.S. in oceanography, and completed graduate level work in civil engineering at the University of Maryland. For two hundred years, CO-OPS and its predecessor agencies have provided the critical oceanographic data needed to protect life, property, and the marine environment. Today, the Center manages NOAA's Physical Oceanographic Real-Time System, the National Water Level Program, the National Current Observation Program, and Operational Forecast System models - major national systems critical to keeping America's oceans, coasts, and Great Lakes safe, healthy and productive.

Dr. Larry Mayer

Dr. Larry Mayer, Director, Center for Coastal and Ocean Mapping, and Co-Director, Joint Hydrographic Center, University of New Hampshire

Larry Mayer is a Professor and Director of The Center for Coastal and Ocean Mapping at the University of New Hampshire. He received a Ph.D. from the Scripps Institution of Oceanography in Marine Geophysics (1979). After being selected as an astronaut candidate finalist for NASA's first class of mission specialists, Larry went on to a Post-Doc at the School of Oceanography at the University of Rhode Island where he worked on the early development of the Chirp Sonar and

problems of deep-sea sediment transport and paleoceanography. In 2000 Larry became the founding director of the Center for Coastal and Ocean Mapping at the University of New Hampshire. Larry has

participated in more than 95 cruises (over 75 months at sea!) during the last 38 years including 13 mapping expeditions in the ice-covered regions of the high Arctic. He is the recipient of the Keen Medal for Marine Geology and an Honorary Doctorate from the University of Stockholm. He was a member of the President's Panel on Ocean Exploration and chaired National Academy of Science studies on national needs for coastal mapping and charting and the impact of the Deepwater Horizon Spill on ecosystem services in the Gulf of Mexico. He was the co-chair of the NOAA's Ocean Exploration Advisory Working Group, the Vice-Chair of the Consortium of Ocean Leadership's Board of Trustees, and is currently the Chair of the National Academies of Science's Oceans Studies Board and the U.S. Committee for the Decade of Ocean Science, a member of the State Dept.'s Extended Continental Shelf Task Force, the Navy's SCICEX Advisory Committee, and Vice Chair of the Board of the Ocean Exploration Trust. In 2016 Larry was appointed by President Obama to the Arctic Research Commission, in 2017 he was elected to the Hydrographic Society of America Hall of Fame. In 2018 he was elected to the National Academy of Engineering and in 2019 he was elected as a foreign member of the Royal Swedish Academy of Sciences. In 2020 Larry became the first recipient of the Walter Munk Medal from The Oceanography Society and was elected a Fellow of the American Geophysical Union. Larry's current research deals with sonar imaging and remote characterization of the seafloor as well as advanced applications of 3-D visualization to ocean mapping problems and applications of mapping to Law of the Sea issues, particularly in the Arctic.

Biography for the HSRP Designated Federal Officer

Rear Admiral Benjamin K. Evans

Rear Admiral Benjamin K. Evans, Designated Federal Officer, HSRP; and Director, Office of Coast Survey, NOS, NOAA

Rear Admiral (lower half) Benjamin K. Evans is the Director of the Office of Coast Survey and U.S. National Hydrographer responsible for overseeing NOAA's hydrographic services, including the mapping and charting of all U.S. coastal waters, as well as representing the U.S. on interagency and in international hydrographic efforts. He leads NOAA's ocean mapping and nautical charting program, continuing the transformation of the agency's navigation services to meet the needs of twenty first century mariners and apply Coast Survey's technical expertise to meet a broad range of requirements for

authoritative ocean mapping data. He is an experienced hydrographer with over twenty-one years of service in the NOAA Commissioned Corps, most of which has been in the NOAA mapping and charting community afloat and ashore. He has served in a wide range of leadership, technical, and policy roles, including command of NOAA Ships *Ferdinand R. Hassler* and *Rainier*, management positions in Coast Survey and the Office of Marine and Aviation Operations, and on the staff of the NOAA Administrator and the acting chief of staff of the NOS Assistant Administrator. Rear Admiral Evans holds degrees in Physics from Williams College, and Ocean Engineering from the MIT/WHOI Joint Program where his research focused on uncrewed systems. He is an American Conference on Surveying and Mapping / Hydrographic Society of America Certified Hydrographer.