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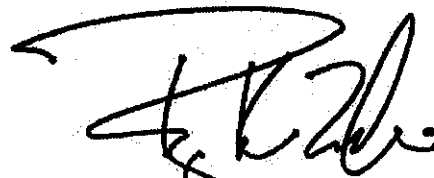
CITATION
FOR DISTINGUISHED SERVICE

BETTY M. ADRIAN

In recognition of her leadership in the preservation of the geologic collections of the U.S. Geological Survey.

As the leader of the U.S. Geological Survey (USGS) National Geological and Geophysical Data Preservation Program, Ms. Betty M. Adrian has built relationships across multiple Federal and State science agencies focused on preserving scientific collections. She led the Geologic Materials Repository Working Group, an intergovernmental collections committee that recently published "The U.S. Geological Survey Geologic Collections Management System—A Master Catalog and Collections Management Plan for U.S. Geological Survey Geologic Samples and Sample Collections". This landmark publication describes a versatile template for a consistent manner of preserving research materials that can be applied to any repository. The template is used for the USGS meteor crater collection, the USGS fossil collections at the National Museum of Natural History, and the National Uranium Resource Evaluation program. Additionally, Ms. Adrian helped revitalize the relationship with the National Science Foundation (NSF) to preserve the role played by USGS in managing the National Ice Core Laboratory (NICL) – one of the largest repositories of ice cores collected from the polar and glaciated regions of the world. She also led NICL's work with NSF on the massive West Antarctic Ice Sheet Divide ice core project. Under Ms. Adrian's supervision, NICL experts built core-processing systems in Antarctica and Denver, Colorado, and managed the logistical challenges of transporting the famous frozen record of paleo-climate history to the United States. She oversaw the curation and protection of this priceless, 2-mile long ice core and facilitates, as well as worldwide scientific access to the 68,000-year-old record of the Earth's atmospheric conditions. For her exceptional accomplishments in preserving scientific collections for the use of scientists around the world, Ms. Betty M. Adrian is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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JULIO L. BETANCOURT

In recognition of his leadership to the U.S. Geological Survey and the Nation.

Dr. Julio L. Betancourt is recognized in the United States, and globally, as a leading expert on a wide range of earth and life sciences topics. His studies of geomorphic change; paleo-hydrology; fire history; and the linkage between climate indices and phenomena such as floods, droughts, fire, and ecological change vastly improved our understanding of these complex Earth systems. His research has been pivotal for establishing baselines to detect and forecast landscape changes and contributed to the development of science-based approaches for managing water and other natural resources under a changing environment. Dr. Betancourt cofounded the USA National Phenology Network (NPN), a highly successful multi-agency national-scale monitoring network focusing on understanding the dynamics related to the timing of biological events as a function of changing temperature, precipitation trends, and land use. The NPN has developed and published standardized protocols for more than 1000 plant and animal species, built partnerships and collaborations with more than 200 organizations including, the National Park Service, the U.S. Fish and Wildlife Service, and the Bureau of Land Management; and produced real-time and forecasted national scale maps of phenology. In addition, Dr. Betancourt cofounded the U.S. Geological Survey's (USGS) Council of Senior Science Advisors (COSSA), bringing together scientists across the Bureau to advise the USGS Director. The COSSA's efforts and Dr. Betancourt's leadership resulted in a pioneering visionary report establishing and prioritizing future grand challenges for USGS. Dr. Betancourt also helped establish the USGS Innovation Center (Center). The Center's projects have addressed mission and national needs in frontier areas and have produced groundbreaking concepts and approaches. By demonstrating the highest level of leadership and excellence, Dr. Betancourt has strengthened both USGS science and its science-based practices. For his outstanding contributions to the mission of USGS, Dr. Julio L. Betancourt is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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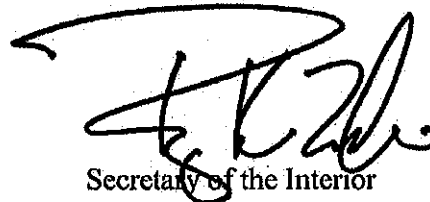
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W. NELSON BEYER

In recognition of his outstanding contributions to the U.S. Geological Survey in the field of ecotoxicology.

Dr. Nelson Beyer is widely recognized for his research on the toxicity of metals to wildlife. At a time when ecotoxicologists were almost entirely focused on annual exposure through food items and biomagnification, Dr. Beyer recognized the importance of ingested soil and developed the concepts and methods now widely used. His seminal paper on this topic has been cited more than 300 times and is used by risk assessors at the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service's (FWS) Natural Resource Damage Assessment and Restoration Program, Environment Canada, and regulatory agencies in Europe and elsewhere. Ecological risk assessors rely on his estimates of soil and sediment ingestion for more than 60 species of birds, mammals, and fish. Much of his research has addressed injury to the Nation's trust resources. He has worked mainly at mining and smelting sites in Oklahoma, Kansas, and Missouri, where he documented lead and zinc poisoning in songbirds and waterfowl. In the Coeur d'Alene River Basin in Idaho, he worked with FWS biologists to demonstrate how tundra swans were poisoned from ingestion of lead-contaminated sediment. At a site contaminated with zinc along the Appalachian National Scenic Trail in Pennsylvania, he documented how emissions from two smelters had injured white-tailed deer, small mammals, and songbirds, as well as the trees and shrubs in the forest. Dr. Beyer has also edited two books on interpreting concentrations of environmental contaminants in wildlife to support basic ecotoxicological research and ecological risk assessment. For more than 40 years, Dr. Beyer's work has substantially contributed to protecting and restoring our Nation's wildlife and habitats. For his extraordinary vision and diligence, Dr. W. Nelson Beyer is granted the Department of the Interior's highest honor, the Distinguished Service Award.

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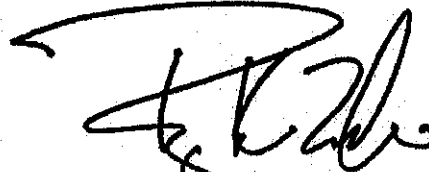
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DOUGLAS R. BINNIE

In recognition of his exceptional scientific expertise to land remote sensing satellite information activities of the U.S. Geological Survey.

As chief of data and information services for the Earth Resources Observation and Science Center (EROS), Mr. Douglas R. Binnie has led the combined efforts of information technology experts, computer engineers, and scientific researchers to create an advanced remote sensing-based land change information system capable of accurately characterizing the rates, causes, and consequences of land cover change. For more than four decades, Mr. Binnie has demonstrated outstanding customer service, insight, technical knowledge, and management skills in the development of enterprise-wide user services, which are of critical importance to land remote sensing satellite information generation, processing, and dissemination. His strong engagement with data management experts around the world has fostered important international collaborations integrating global land cover mapping and monitoring capabilities across the globe. Mr. Binnie's ability to transform technical information into usable knowledge for decision makers, resources managers, and program executives resulted in fundamental connections across national and international science fora, Government, and industry partners. Through his leadership of the Land Processes Distributed Active Archive Center at EROS, he has ensured the success of the long-term interagency partnership between the U.S. Geological Survey (USGS) and National Aeronautics and Space Administration. Mr. Binnie co-led an interagency effort to produce the first true-color high-spatial resolution image of the Antarctic resulting in the Landsat Image Mosaic of Antarctica. This unparalleled survey of the Antarctic continent provided a baseline assessment of the condition of the landmass from a remote sensing perspective essential in determining changes over time. Mr. Binnie's scientific expertise has demonstrated the importance of Landsat data to the worldwide remote sensing community. For his outstanding contributions to USGS, Mr. Douglas R. Binnie is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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JOHN W. EWERT

In recognition of his leadership at the U.S. Geological Survey in reducing the Nation's vulnerability to volcanic hazards and improving international resilience to volcanic eruptions.

Mr. John W. Ewert's work on explosive volcanism and hazards mitigation established the programmatic direction of the U.S. Geological Survey's (USGS) Volcano Hazards Program (VHP) and shaped development of volcano hazards programs globally. Starting at the USGS Cascades Volcano Observatory (CVO) in 1980, Mr. Ewert helped build the CVO into one of the world's premier observatories. He conceived a report on monitoring techniques and strategies that when translated into Spanish, guided developing countries in Latin America as they established and modernized their VHPs. As a founding member of the Volcano Disaster Assistance Program, he and his colleagues designed a successful approach for its mission to reduce loss of life and property in developing countries. These tenets continue to guide the program, which was a finalist for a prestigious Samuel J. Heyman Service to America award in 2016. Mr. Ewert's experiences led to his pioneering work establishing a methodology for ranking volcanoes by their societal threat. His report proposing a National Volcano Early Warning System for the United States became the strategic foundation for the USGS VHP's goals and guides monitoring investments. Numerous other nations have used Mr. Ewert's methods and approach in the development of their own volcano hazards programs. While serving as CVO scientist-in-charge, Mr. Ewert initiated a binational exchange in which State and local officials met with experienced foreign counterparts from Colombia and Chile to discuss similar challenges and experiences in preparing for or responding to volcanic activity. Since the first meeting in 2013, there have been several successful exchanges with local officials, emergency managers, first responders, and mayors from the United States, Columbia, and Chile speaking directly to each other to identify and motivate improvements in volcanic-hazard preparedness. For his outstanding contributions to USGS, Mr. John W. Ewert is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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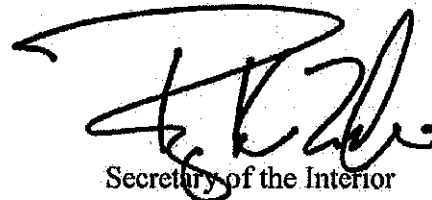
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KEVIN T. GALLAGHER

In recognition of his exceptional vision and leadership in advancing the geospatial programs of the U.S. Geological Survey.

Mr. Kevin T. Gallagher is directly responsible for establishing the highly successful 3D Elevation Program (3DEP) which acquires high-resolution elevation data used for applications related to public safety and health, natural resource assessment, and improvement of our National infrastructure. The 3DEP meets the mission-critical elevation data needs of 34 Federal agencies, all 50 States, local, Tribal, and private sector organizations, and it has the potential to generate billions annually through new business applications and job growth. His executive outreach and coordination efforts have achieved annual budget increases for the U.S. Geological Survey (USGS) and more than tripled all partner investments to \$78 million in 2017. Coverage of 3DEP data for the Nation has grown to 37 percent in a few years due to Mr. Gallagher's skill in engaging key partners and stakeholders; the goal of national coverage in 8 years is now within reach. In addition, he represented the United States as the Chair of the Arctic Spatial Data Infrastructure Board (Board), which brings together the mapping agencies of the eight Arctic nations to address the need for readily available geospatial data. During his 2-year tenure, Mr. Gallagher created a strategic plan and governance structure for the Board and partnered with member nations to develop the first suite of Arctic geospatial products. His ability to coordinate across governments has resulted in transformative new tools to support scientific analyses in the Arctic and his diplomacy has ensured goodwill between countries facing similar challenges. For his outstanding contributions to USGS geospatial programs throughout the world, Mr. Kevin T. Gallagher is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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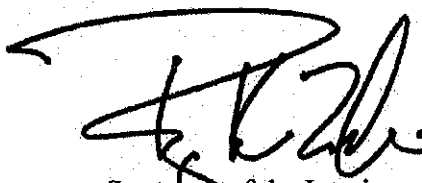
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EARL A. GREENE

In recognition of his outstanding contributions to furthering academic water research at the U.S. Geological Survey.

Mr. Earl A. Greene is the chief of External Research and leads the Water Resources Research Act (WRRRA) program, where he oversees research conducted at 54 Water Resources Research Institutes (Institutes) nationwide. Mr. Greene has fostered increased cooperation between the Institutes and the U.S. Geological Survey (USGS). He formed a national committee to identify opportunities to increase communication, leading to joint meetings, publication of several white papers, and improved local relationships between USGS Water Science Centers and the Institutes. Mr. Greene has also cultivated a new generation of USGS Employees through his role in the WRRRA internship program. His efforts have resulted in greater water resource training and more students participating in the internship program, leading to more USGS post-internship employment. Grants through the WRRRA have increased to an all-time high under Mr. Greene's management. Through the WRRRA competitive grants program, he has developed procedures that ensure USGS scientists are included on grant proposals, further aligning Institute research and USGS priorities. As a consequence of Mr. Greene's revitalization of the WRRRA Program, the last two budgets submitted to Congress have requested full funding for the program. For his outstanding contributions to the USGS, Mr. Earl A. Greene is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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JOHN W. HAINES

For outstanding contributions to the U.S. Geological Survey in improving the Nation's preparedness for coastal hazards.

As the coordinator for the Coastal and Marine Geology Program, Dr. John W. Haines is responsible for engaging U.S. Geological Survey (USGS) science to understand, forecast, and respond to national issues, including coastal water quality, hazards, resource use, and ecosystem restoration. His ability to prioritize critical issues and to think strategically has made him the USGS voice on coastal and marine issues. His leadership was especially valuable following Hurricane Sandy in 2012. Dr. Haines, one of the authors of the USGS Hurricane Sandy Science Plan, identified and prioritized response, recovery, and rebuilding efforts. He subsequently ensured that supplemental funds from Hurricane Sandy advanced USGS scientific goals and established an information delivery infrastructure that greatly improved stakeholder access to USGS products. Dr. Haines represents USGS on the National Science and Technology Council's Subcommittee for Ocean Science and Technology and cochairs its Interagency Working Group for Ocean and Coastal Mapping. He represented USGS and the Department of the Interior in the development of national ocean policy and the framework for coastal and marine spatial planning. Dr. Haines led USGS efforts to energize and engage the collaborative power of his program coordinator counterparts. He formed the Council of Program Coordinators, which has provided an effective forum to share information, address requirements, and plan collaboratively. His strategic planning efforts have been notable for their heavy engagement of early-career scientists in shaping the future directions of USGS coastal and marine activities. For his exceptional efforts and dedication to USGS, Dr. John W. Haines is presented the highest honor award of the Department of the Interior, the Distinguished Service Award.

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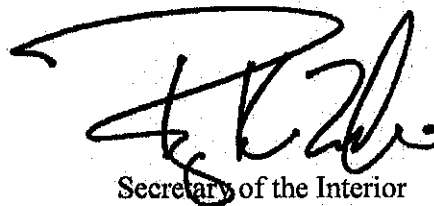
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MARK A. HAROLDSON

In recognition of his outstanding contributions to the U.S. Geological Survey in the long-term studies of the Yellowstone grizzly bear population.

Mr. Mark A. Haroldson is recognized by Federal, State, and Tribal managers for his more than four decades of extraordinary contributions to grizzly bear science in the Rocky Mountain West. Mr. Haroldson has studied grizzly bear behavior and ecology in the most remote and rugged regions of the lower 48 States and has been a member of the Interagency Grizzly Bear Study Team since 1984. He has captured hundreds of grizzly bears for research without compromising the safety of field personnel or the animals. Mr. Haroldson is a pioneer in adapting the highest standards of veterinary care to field situations, and his insights into behavior led to valuable discoveries about how bears interact with humans and solutions for co-existence. Mr. Haroldson's concerted efforts to better understand the demographics of Yellowstone grizzly bears set a new standard and culminated in a Wildlife Monographs publication in 2006. He has represented the U.S. Geological Survey (USGS) in high-profile meetings with directors of Federal and State agencies. He played a crucial role in the 2017 determination by the U.S. Fish and Wildlife Service that grizzly bears in the Greater Yellowstone Ecosystem have recovered and that Federal protections under the Endangered Species Act are no longer needed. In 1999, Mr. Haroldson received special recognition from the Yellowstone Ecosystem Subcommittee of the Interagency Grizzly Bear Committee for his high standard of excellence and rigor in collecting scientific data on grizzly bears. Not only have his exceptional efforts and dedication to science created a legacy of knowledge regarding grizzly bears, he has been a mentor to countless early-career scientists and field biologists. By demonstrating the highest level of personal and professional integrity, Mr. Haroldson has strengthened both USGS science and the organization. For his groundbreaking work with USGS, Mr. Mark A. Haroldson is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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DAVID W. HOUSEKNECHT

In recognition of his outstanding contributions to the U.S. Geological Survey and energy resources science.

Dr. David W. Houseknecht is an internationally acclaimed expert on the geology and petroleum resources of the North American Arctic and the broader Arctic Ocean Basin. His prolific, fundamental research on the geological evolution, tectonic framework, and sequence stratigraphy of virtually the entire Arctic region has been an exceptional scientific achievement. Dr. Houseknecht has led or been a significant contributor to all of the petroleum resource assessments conducted by the U.S. Geological Survey (USGS) in the Arctic since the early 1990s. These USGS assessments provide the essential scientific basis for creating sound policy decisions by high-level Federal and State officials. For the past 25 years, Dr. Houseknecht has represented USGS in briefing public and private organizations and the media. Early in his career, he was selected as an American Association of Petroleum Geologists Distinguished Lecturer, a prestigious honor recognizing his ability to effectively conduct groundbreaking scientific research and clearly communicate its implications. His original and innovative approaches to addressing significant geological challenges, including research in diagenesis and basin analysis, continue to drive research directions and thought processes of geologists in both the domestic and international communities. His expertise helped advance the USGS role as a reliable scientific source regarding potential energy resources along the North Slope, including within the Arctic National Wildlife Refuge and National Petroleum Reserve-Alaska. Dr. Houseknecht has sustained an exemplary career of excellence in research, scientific leadership, and personal integrity that reflects the finest traditions of USGS. For his service and commitment to USGS and the international science community, Dr. David W. Houseknecht is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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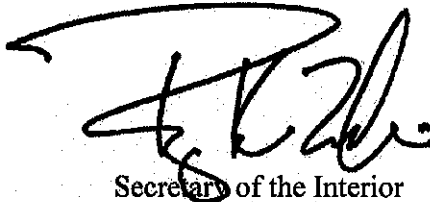
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SAMUEL Y. JOHNSON

In recognition of his outstanding leadership and scientific contributions to the U.S. Geological Survey.

Dr. Samuel Y. Johnson's foresight and guidance have been integral in shaping understanding of the California nearshore and coast. His efforts led to the development of one of the world's most comprehensive seafloor-mapping datasets, providing essential information for managing ocean and coastal resources and for constraining geologic-hazard assessments and models of coastal evolution. Dr. Johnson began his U.S. Geological Survey (USGS) career as a research geologist, focusing on sedimentary geology and basin evolution. His research involved working with the Surficial Uranium Deposits Project and leading the neotectonics group in the central geologic hazards team. Dr. Johnson contributed significant findings to advance the understanding of tectonic activity in Yellowstone Lake and the Pacific Northwest. His work revolutionized investigations of active faulting by incorporating high resolution lidar and his examinations of the Seattle Fault and other Puget Lowland fault zones continue to inspire research in the area. Dr. Johnson has greatly improved seafloor and coastal mapping in California through leading USGS in the multi-agency California Seafloor Mapping Program. His efforts to develop comprehensive bathymetric, geologic, and habitat maps and data for all of California's State waters resulted in the creation and dissemination of one of the largest seafloor-mapping datasets globally. The dataset provides essential information for ocean and coastal management, stimulates and enables research, and raises public awareness of coastal and ocean issues. His latest work characterizing the offshore structure of the Hosgri fault is vital to understanding of California earthquake hazards. For his commitment to helping USGS advance the understanding of geomorphology and seafloor mapping, Dr. Samuel Y. Johnson is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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FRANCIS P. KELLY

In recognition of his exceptional leadership as director of the Earth Resources Observation and Science Center and space policy advisor for the U.S. Geological Survey.

Dr. Francis (Frank) P. Kelly is recognized throughout the U.S. Geological Survey (USGS) for his outstanding leadership and advocacy of land remote sensing satellite research and the data systems required to distribute critical information to policy decision makers and emergency management personnel worldwide. He led the successful development and launch of Landsat 8, which ensured Landsat data continuity into a fifth decade and USGS maintaining its legacy as a world-class provider of remotely sensed land imagery of the Earth. Demonstrating his full commitment to developing long-range vision and goals, Dr. Kelly, in collaboration with his senior leadership team, authored the comprehensive Earth Resources Observation and Science Center's (EROS) 2016-2021 Strategic Plan. This skillfully crafted plan identifies six key directions and describes an innovative restructuring of the science support to better manage all operations and activities at EROS. He established the Land Change Monitoring, Assessment, and Projection program as the framework for an advanced information system capable of accurately characterizing the rates, causes, and consequences of land cover change. Dr. Kelly chartered a team to redesign and consolidate the EROS information technology (IT) architecture – a complex, problem-solving endeavor designed to improve the quality, usefulness, delivery, and security of the information assets and products. This IT transformation enabled EROS to deliver “analysis ready data” from Landsat and the new European Sentinel Earth observing satellites to key decision makers. As the board chair of the International Charter Space and Major Disasters and chair of the Committee on Earth Observation Satellites, Dr. Kelly fostered important international collaborations integrating global land cover mapping and monitoring capabilities across the globe. He has demonstrated the high personal and professional standards that exemplify USGS science in the public service. For his outstanding contributions to USGS, Dr. Francis P. Kelly is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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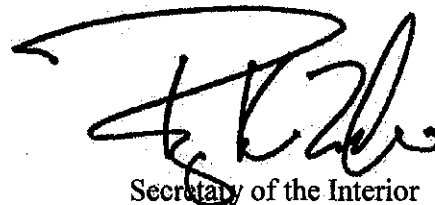
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PATRICIA A. MCCRORY

In recognition of her outstanding contributions to the U.S. Geological Survey in the field of earthquake geophysics.

Dr. Patricia A. McCrory is an expert in geology and geophysics known for her fundamental contributions to western North America plate tectonics and earthquake generation. Dr. McCrory's work has direct application to understanding earthquake hazards. Her novel, interdisciplinary results incorporate findings from her geophysical, geological, and hydrological investigations and explain why and where small and large earthquakes are most likely to occur in tectonically active regions of western North America. Dr. McCrory has used her careful compilation of studies and those of others to produce the definitive picture of the Cascadia subduction zone in the northwestern portion of the United States. This subduction zone has the potential to produce devastating magnitude 8 to 9 earthquakes. The strong ground movements produced by the subduction zone will not only greatly affect the population centers along the coasts of Washington, Oregon, and northern California, but will also generate a tsunami similar to the one in the early 1700s. Dr. McCrory's work characterizing this subduction zone is the basis for most modern earthquake hazard analyses in the Pacific Northwest and is helping communities assess and reduce earthquake risk and increase resiliency. Her achievements have resulted in numerous honors and awards, including her selection as a Fellow of the Geological Society of America. Through her dedication to scientific excellence, Dr. McCrory has strengthened both the U.S. Geological Survey science and the organization. For her commitment to public service, Dr. Patricia A. McCrory is granted the highest honor award of the Department of the Interior, the Distinguished Service Award.

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CHRISTOPHER E. NEUZIL

In recognition of his outstanding scientific vision and leadership in advancing the understanding of geologic processes and groundwater flow.

Dr. Christopher E. Neuzil is an internationally acclaimed expert on low-permeability geologic settings, including shales and other clay-rich rocks. His research on the coupling between geomechanical processes and groundwater flow has led to the understanding of previously unexplained anomalies in fluid pressure and the recognition that low-permeability geologic settings retain the signatures of Earth surface processes, such as erosion, sedimentation, and glaciation. These findings have influenced evaluations of geologic settings as sites for the isolation of nuclear waste. His insights into this issue are currently being sought by Government agencies in Canada, France, and Switzerland, where clay-rich rocks are being evaluated as possible nuclear waste repositories. In addition, Dr. Neuzil's research has highlighted the significant role that low-permeability geologic units play in supplying water within regional aquifer systems. The detailed field investigations and experimentation he conducted in the Pierre Shale of central North America have demonstrated the methods and precision required for data collection in low-permeability geologic settings. Dr. Neuzil is also widely recognized for his scientific publications synthesizing data from numerous sources from around the world. These publications have been extensively cited for demonstrating the wide applicability of the processes postulated in his research. Recognized by his peers as a leader in the field of hydrogeology, Dr. Neuzil was honored by the Hydrogeology Division of the Geological Society of America as part of the Birdsall-Dreiss Distinguished Lecture and was also a recipient of the O.E. Meinzer Award. Dr. Neuzil has provided leadership and guidance to the direction of hydrogeologic research in his capacity as research advisor in the National Research Program of the U.S. Geological Survey (USGS). For his exemplary career contributions to science within USGS and the international scientific community, Dr. Christopher E. Neuzil is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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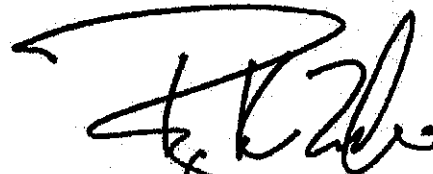
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JANET L. PAQUETTE

In recognition of her administrative excellence at the Woods Hole Coastal and Marine Science Center and U.S. Geological Survey.

Ms. Janet L. Paquette is recognized for her leadership in the advancement of the U.S. Geological Survey (USGS) mission to provide reliable scientific information regarding the Nation's coastal and submerged lands. Ms. Paquette rose through the administrative ranks to become the Woods Hole Coastal and Marine Science Center's (Center) chief administrative officer, a position that requires one of the most diverse and demanding skillsets within USGS. Ms. Paquette is responsible for managing the critical capabilities required by the Center to meet mission objectives, controlling a multi-million dollar annual budget, overseeing numerous cooperative and interagency agreements, and providing guidance to a workforce of nearly 100 people. She has worked with four Center directors and ably guided the Center through multiple reorganizations and changing mandates in personnel actions and procurement. Although the responsibilities of the administrative staff has increased dramatically over the years, the Center has continued to operate smoothly under Ms. Paquette's leadership. Her knowledge and ability to resolve bureaucratic bottlenecks have steered the Center through fluctuating budget cycles, always keeping it on a healthy financial footing. She handles challenging personnel issues with expert advice, fairness, and compassion. In her role as a supervisor and group leader, Ms. Paquette exemplifies USGS leadership qualities by mentoring early-career employees, training administrative staff at other USGS Science Centers, and recruiting and developing a strong administrative team. Ms. Paquette has been an exemplary employee, faithfully displaying the highest personal and technical standards that characterize her commendable public service, and has earned the deepest respect of her colleagues throughout the Bureau. For her laudable commitment to public service with USGS, Ms. Janet L. Paquette is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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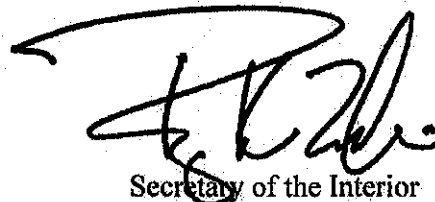
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BARNETT A. RATTNER

In recognition of his outstanding contributions to the U.S. Geological Survey in the field of ecotoxicology.

Dr. Barnett A. Rattner is widely recognized for his research describing the exposure and adverse effects of contaminants on wildlife. His research has improved our understanding of the effects of contaminants such as industrial chemicals, flame retardants, metals, pesticides, and pharmaceuticals. Dr. Rattner was instrumental to the development of the testing and risk assessment protocol adopted by the U.S. Fish and Wildlife Service for evaluating candidate nontoxic shot materials and shot coatings for use in hunting waterfowl. This protocol approved multiple alternatives to lead and steel shot that then became commercially available. Dr. Rattner has conducted large-scale studies examining the contaminant exposure in osprey, a fish-eating bird representing the top of the food chain. His research demonstrated that concentrations of some legacy compounds, such as organochlorine pesticides, pose a significant hazard to waterbirds in parts of the Chesapeake Bay and Delaware Bay estuaries. Recently, Dr. Rattner reexamined the Chesapeake Bay and documented continued recovery of osprey populations and declining levels of persistent halogenated compounds. He is the senior author of several books and numerous scientific journal articles. In addition to serving on advisory boards and committees, Dr. Rattner has served as the Department of the Interior's (Department) representative to the Toxic Substances Control Act-Interagency Testing Committee, which comprises scientists from 16 Federal agencies and is an independent advisory body to the Environmental Protection Agency. This Interagency Testing Committee is charged with determining the adequacy of toxicological data and prioritizes the testing of regulated chemicals. For more than 20 years, Dr. Rattner has also served as the Department's representative to the statutory Interagency Coordinating Committee for the Validation of Alternative Methods, which is composed of 15 Federal agencies working together to find scientifically validated alternative test methods to reduce or replace animal testing. For his extraordinary vision and commitment to public service, Dr. Barnett A. Rattner is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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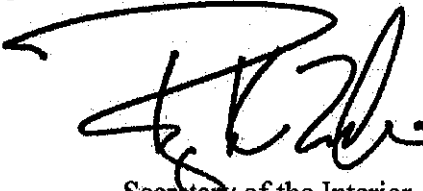
FOR DISTINGUISHED SERVICE

J. ANDREW ROYLE

In recognition of his foremost contributions to the U.S. Geological Survey in the field of quantitative ecological theory, which have significantly advanced the management and stewardship of the Nation's wildlife resources.

Throughout his career, Dr. J. Andrew Royle has demonstrated profound scientific insight and technical wisdom in the development and advancement of applied ecological modeling. Over the past decade, Dr. Royle has singlehandedly advanced the field of spatial capture-recapture, creating several spatially explicit approaches for estimating animal population size and density. He also unraveled a variety of complex ecological relationships between animals and their environments. He is responsible, in collaboration with his colleagues, for the development of occupancy estimation methods that revolutionized how scientists sample and assess the status of animal populations and ecological communities. He has significantly influenced the use and application of hierarchical models in the field of ecology and wildlife management. Dr. Royle has coauthored numerous publications and published four books on quantitative ecology, which have influenced the management of Federal trust wildlife resources. He has simultaneously developed and taught formal workshops on hierarchical modeling, occupancy estimation, and spatial capture-recapture that have now reached thousands of students, scientists, and academicians around the world. His work has benefitted some of the world's most endangered species including the polar bear, jaguar, orangutan, California scrub jay, tiger, Florida panther, and grizzly bear. Dr. Royle's reputation has attracted dozens of graduate students and post-doctoral research fellows to the U.S. Geological Survey (USGS), many of whom are now at the world's most prestigious academic institutions and Federal research centers. His name and use of the techniques he developed are commonplace at national and international meetings and conferences, and he is a leading force in applied ecology. His expertise is routinely sought out by scientists and resource managers the world over who apply robust statistical methods to improve our understanding of population ecology. For his exceptional contributions to the USGS, Dr. J. Andrew Royle is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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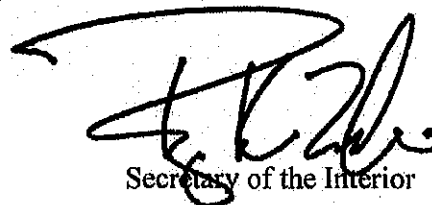
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JOHN R. SAUER

In recognition of his outstanding contributions to the U.S. Geological Survey through avian conservation, population ecology, and the assessment of avian biodiversity in North America.

Dr. John R. Sauer's research spans the disciplines of statistical research, conservation biology, and ecological theory. He is well recognized within the U.S. Fish and Wildlife Service and the Canadian Wildlife Service for his work in estimating change in bird populations and supporting North American bird survey programs such as the North American Breeding Bird Survey (BBS) and Christmas Bird Count. His analyses for the BBS provides the scientific information used to create the State of the Birds report published by the North American Bird Conservation Initiative (NABCI) and virtually all other information used by Federal agencies to assess avian biodiversity. He pioneered development of an internet-based summary and display of bird population data. His websites were some of the first to be acknowledged as authoritative scientific publications and are used worldwide as the source of information on North American bird populations. Dr. Sauer has been appointed to international committees such as the Black Duck Joint Venture, NABCI, Steering Committee of the North American Bat Monitoring Initiative, and a National Science Foundation-funded initiative on use of citizen science for insect monitoring. He has served on editorial boards for premier ecological journals, and his scientific publications in Ecology, Proceedings of the National Academy of Sciences, Bioscience, and Science have made significant contributions to geographical and population ecology. Dr. Sauer's collaborations with statisticians have provided a firm theoretical basis for innovative analysis of biological survey data of many types. He has mentored numerous post-doctoral scholars, several of whom now hold tenure-track positions at the world's leading academic and scientific institutions. For his unprecedented expertise in avian sciences, Dr. John R. Sauer is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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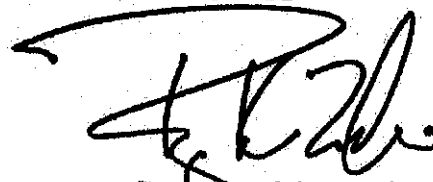
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CAROL A. SCHULER

In recognition of her outstanding contributions and leadership to the U.S. Geological Survey.

For more than three decades, Ms. Carol A. Schuler has demonstrated a vision for delivering relevant and collaborative science to the Department of the Interior (Department). She has led research and technology development for a wide variety of issues, including Departmental decisions about development of energy resources; rapid response to emerging invasive species in Hawaii; providing tools for before, during, and after wildland fire; and collaborative conservation of species, including the greater sage-grouse. Ms. Schuler has, with utmost integrity, provided scientific tools and understanding to address some of the Department's most challenging decisions. She is well-known for her successful work with universities, Federal science agencies, Tribes, States, conservation groups, and private partners. For almost 20 years, Ms. Schuler served the U.S. Fish and Wildlife Service (FWS), leading a highly successful effort in Willamette, Oregon, to deliver expertise and technical assistance to the local community's efforts to ensure a healthy watershed, a partnership that continues to this day. She was an exceptional manager and leader in her role as the FWS assistant regional director for science applications in the Pacific Region, delivering the best available science to address priorities. In her decade as director of the U.S. Geological Survey (USGS) Forest and Rangeland Ecosystem Science Center, she helped transform it into one of the most productive and relevant centers. As senior science advisor to the associate director for ecosystems, Ms. Schuler has been instrumental in bringing together researchers and managers to address the most critical science needs to effectively manage Department trust lands and species. She is an invaluable mentor to many center directors and scientists and is outstanding at garnering results through engagement and collaboration with all parties. She is decisive, is willing to make hard choices, and takes difficult actions when it leads to better science. For her many contributions to USGS and the Department, Ms. Carol A. Schuler is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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WILLIAM C. SCHWAB

In recognition of his outstanding contributions to the U.S. Geological Survey and the Department of the Interior in publication and application of scientific information to coastal hazards and land management issues.

Dr. William C. Schwab is recognized for his leadership in the advancement of the U.S. Geological Survey's (USGS) mission to provide reliable scientific information about the Nation's coastal and submerged lands. In 2000, Dr. Schwab published a highly influential paper on the role of inner continental shelf geology and sediment availability in the evolution of Fire Island, New York. As the director of the USGS Woods Hole Coastal and Marine Science Center for 7 years and upon his return to research, he has been an untiring advocate for using science as a means to understand and inform land management decisions. For the controversial Fire Island National Seashore land management plan, Dr. Schwab engaged other USGS scientists, the National Park Service, U.S. Fish and Wildlife Service, Department of the Interior's (Department) Solicitor's Office, and U.S. Army Corps of Engineers. His groundbreaking work provided new data and scientific interpretations that challenged existing geologic and engineering principles and provided new insights into sediment sources, transport pathways, and deposition. Dr. Schwab served as the lead scientist representing the Department in negotiations among Federal agencies and briefings to Congress and stakeholder groups. Following Hurricane Sandy, Dr. Schwab led a multidisciplinary team that examined the processes controlling coastal erosion on Fire Island and served as a mentor to younger scientists who quantified the vulnerability of mainland Long Island to flooding from extreme events. His work has reframed the discussion about coastal management strategies to focus resources on reducing the long-term vulnerability of at-risk communities while achieving broad environmental conservation goals. Dr. Schwab's high scientific and personal standards characterize public service and have earned the respect of his colleagues across the Department. For his exceptional accomplishments with USGS, Dr. William C. Schwab is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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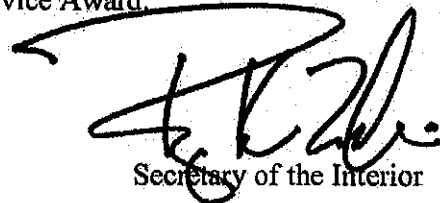
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FOR DISTINGUISHED SERVICE
CHARLES M. TRAUTWEIN

In recognition of his outstanding contributions to the Earth Resources Observation and Science Center of the U.S. Geological Survey.

Dr. Charles M. Trautwein is recognized throughout the U.S. Geological Survey (USGS) for decades of leadership as a researcher, supervisor, and scientific advisor. Dr. Trautwein pioneered the use of remote sensing and geographic information systems for geological applications. He established the USGS Conterminous United States Mineral Assessment Program, an innovative project using new technologies to map the probability of the occurrence of economically important minerals. As a key member of the early National Aeronautics Space Administration Landsat Data Continuity Mission (Mission) planning and evaluation team, he helped establish a government-industry strategy for the Mission and the global data set development initiative at Earth Resources Observation (EROS). In 2007 and 2008, he greatly contributed to the expansion and modernization of the EROS science team by leading the recruitment of principal investigators. As science and applications branch chief, Dr. Trautwein facilitated the growth of science through development of a strong career program for research grade scientists. The research conducted by the science and applications branch at EROS reflects the ever-evolving nature of the scientific contributions of the USGS. Fully committed to developing long-range strategic vision, goals, and future direction, Dr. Trautwein was a key author of the EROS comprehensive 2016-2021 Strategic Plan, and the innovative restructuring of the science activities at EROS in support of the Land Change Monitoring, Assessment, and Projection program. Throughout his career, he personally developed, mentored, and inspired generations of scientists through enthusiastic participation in outreach efforts, intern programs, and workshops. Dr. Trautwein exemplifies the high personal and technical standards of USGS science in the public service. For his dedicated service and commitment to the USGS, Dr. Charles M. Trautwein is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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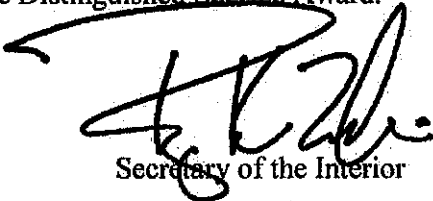
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DON A. VROBLESKY

For his outstanding leadership and scientific contributions to the U.S. Geological Survey in the field of groundwater contaminant hydrology.

For more than 35 years, Dr. Don A. Vroblesky has been at the forefront of developing innovative methods for assessing and remediating groundwater systems that have been contaminated by human activities. The contaminants that his work addresses include toxic heavy metals, petroleum hydrocarbons, and volatile organic compounds (VOC). His interest in these problems began in the early 1980s when he was assessing VOC-contaminated groundwater at the Aberdeen Proving Ground in Maryland. While paddling a canoe in a creek that was receiving VOC-contaminated groundwater, he noticed methane gas bubbling up from the creek sediments. Knowing that VOCs preferentially partitioned into gasses, he reasoned that he could map the areal extent of contamination by collecting and analyzing the methane bubbles. This proved true, and it led to his designing and patenting gas samplers that mimic the action of the methane bubbles. During his career, he has received patents for three devices: the passive diffusion bag sampler, the pore-water sampler, and the in-well baffle. According to the U.S. Patent and Trademark Office, these are some of the most successful U.S. Geological Survey (USGS) patents. These devices are much less expensive to deploy than monitoring wells, and their use has saved the U.S. Department of Defense an estimated \$50 million over the last 30 years. In addition, Dr. Vroblesky has unpatented inventions, including passive vapor diffusion samplers for mapping VOC-contaminated groundwater discharge zones beneath streams and lakes, a method to recover subsurface microbes from fractured-rock aquifers using downhole mesocosms, and many more; all are used internationally. These patented and unpatented inventions have resulted in estimated savings of hundreds of millions of dollars to the U.S. Government alone. In addition to his research, patents, and numerous publications and journal articles, he has mentored several junior scientists during his career. For his exceptional contributions to the USGS, Dr. Don A. Vroblesky is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

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