USGS RETIREES

NEWSLETTER No. 203

May 2024

An organization of retirees of the U.S. Geological Survey, whose purpose is to keep its members in touch with each other and their former agency.

Hello, fellow USGS Retirees. Happy Spring!

There is a lot for you to discover in this quarter's USGS Retirees' Newsletter. We have Big News about Chris Milly, Scientist Emeritus, who's research on the impacts of climate change on hydrology and other career-long contributions earned him election to the National Academy of Engineering; a special award for Barb Ryan (USGS Retirees' Northeast Representative) for her service to the International Astronautical Federation; an article on analysis of streamflow recession curves by AI Rutledge; and a mention about a new memorial scholarship fund to honor Tim Cohn, who many of you will recall was an outstanding statistical hydrologist and a friend and counsel to scores of scientists throughout the Survey. We also highlight the recent tribute to Paul Frederick, a good friend and respected colleague to many throughout his 30-year career with the USGS. We have new retirements to celebrate and memorials to mourn, folks who through their careers, character, and accomplishments with the Survey have made the world a little better.

Also, there is a short story from John Fulton, an active USGS research hydrologist, about his journey with cancer. John, a long-time friend, called me this week. We caught up with each other on our recent activities, travels, and, of course, the trials and tribulations of life. As we did so, we reminisced about the work we did, the people we knew, and the great satisfaction of careers spent in the USGS. We laughed a lot. When the call ended, I was buoyed and happy, partly because John is now okay, and partly the natural result of a good conversation with an old friend. That is what happens when USGS colleagues reconnect.

The USGS Retirees' Organization exists to help us maintain contact with former colleagues and with the Survey. Towards our primary goal, thanks go out to a clutch of great USGS Retirees' volunteers, such as the Board of Directors, and those continuing to (1) plan for our 2025 reunion (Rick Treece, Planning Chair, and his team), (2) update our membership directory (Kate Flynn, Secretary), and (3) deliver this newsletter (Jeff Stoner, Joanne Taylor, and the entire newsletter editing team).

The Board is also hard at work seeking new ways to enhance the effectiveness of the Organization and to increase its value to you and to new, incoming retirees. An important first step is to improve our IT systems, web presence, and virtual meeting capabilities. Towards this end, we have launched a new IT modernization committee. We are also working on a survey of incoming members to gather insight about what they want from this Organization. A similar survey of existing members is planned.

We should be ambitious. As we continue to do the things we have always done, and with modern IT, the Retirees' Organization could provide a unique venue through which to meet, connect with, learn from, and be inspired by the retirement experiences and plans of USGS retirees—many of whom we have yet to meet. The Organization could also help members identify ways to explore, even perform some science as volunteers in retirement.

As I mentioned in the previous newsletter, we could use your help in all of this. Let us know how you would like to help. And don't forget to reach out to an old USGS friend.

Take Care! -Robert

Address: USGS Retirees P.O. Box 280 Herndon, VA 20172-0280 Phone (703) 596-5468 Web Page: <u>http://wrdretirees.org/</u> Email: <u>wrdretirees2014@gmail.com</u>

Newsletter Staff: Editor: Jeff Stoner Layout Editor: Joanne Taylor NR: Debbie McLean SR: John Clarke CR: James (Jim) Bennett WR: Matt Larsen

Regional Directors: Barb Ryan, Northeast Ed Martin, Southeast Bob Swanson, Central Sandy Williamson, Western

National Officers: Robert Mason, President Phil Turnipseed, Vice President Kate Flynn, Secretary Cathy Hill, Treasurer Herb Freiberger, Archivist Bill Carswell, Past President

Mark Your Calendars: Next Retirees' Reunion, September 30 to October 2, 2025, at the new USGS Hydrologic Instrumentation Facility, Tuscaloosa, Alabama

Follow logistical details in subsequent newsletters



Actual USGS HIF under construction March 25, 2024.



Architectural rendering of main entry.

Comments about Streamflow Recession Analysis and Associated Methods

Al Rutledge, Chapel Hill, NC

I was asked to contribute something about streamflow recession analysis in the Newsletter. This might be interesting to a few of the USGS retirees. It should be noted that a large portion of this work is related to products of the USGS, although considerable study of recession has been performed in academia and elsewhere.

The foundation of much of this is a classic article by Rorabaugh (1964), an analytical model that describes groundwater discharge to a stream after instantaneous recharge to an aquifer. It tends to be most useful in humid settings but there can be exceptions. Using the model, a technique was developed (prior to my work) to estimate groundwater recharge which is called the Rorabaugh Method or the recession-curve displacement method. The technique was described in USGS publications (Wilder and Simmons 1978; Bevans 1986; Gerhart and Lazorchick 1988; Hoos 1990). Additional insightful discussion is provided by Daniel (1976) and Johnston (1976).

My contributions began in the early 1990s with a Regional Aquifer System Analysis (RASA) of the Appalachian and Piedmont regions, AP-RASA. A computer program named RORA was developed and applied in the study. This is a version of the Rorabaugh Method that is automated, although the user must specify the recession index (K) and drainage area. (K is expressed in days per log cycle.) Other applications include RECESS and PART. Automation was useful for the regional study, given that long streamflow records were analyzed from many stations.

Among groundwater scientists in the USGS there was interest in these applications for use outside of AP-RASA, such as New England. After the project, this writer helped with the USGS training course on Groundwater/Surface Water Relations. Also, another application PULSE was developed. Unlike RORA, this one requires a calibration process, but it has certain capabilities the other program does not, such as the ability to calculate a hydrograph of daily groundwater discharge and the ability to treat recharge as a gradual process. In using RORA, PART, and PULSE, the hydrologist can derive estimates of two components of the water balance, recharge and discharge. For brevity many references are not included here, but RORA and PULSE are described in two articles cited below (Rutledge 2007; 2014). When the programs were first developed, they worked with streamflow data but these publications show that groundwater levels can be incorporated with their use. These streamflow methods, combined with groundwater level analysis, might have potential value in evaluating long-term changes in groundwater resources.

The basic Rorabaugh model shows that the plot of Log(flow) versus time becomes perfectly linear after a period of time. During the years when the recharge method was developed and used, additional work described mechanisms that cause nonlinearity. This included a dual-aquifer effect described by Riggs (1964), Trainer and Watkins (1974), and Bingham (1982). Further development of the recession model includes gradual recharge which can approximate the effect of leakage or groundwater evapotranspiration (Daniel 1976).

Master recession curves of various shapes were described in the AP-RASA study (Rutledge and Mesko 1996). A recent article describes some of the processes that cause nonlinearity (Rutledge 2023). Included is a dual-aquifer effect, noted in the publications cited above. Other mechanisms include the down valley flow component and gradual leakage which might occur during recession. All three mechanisms can be described mathematically, as noted in the 2023 article. However, there are many other factors that affect the shape of the recession curve, such as errors in ratings, diversions of flow, hyporheic exchange along the streambed, ice in the stream. Master recession curve analysis might be helpful for studies of the sustainability of baseflow.

The 2023 article describes the concept of the dominant recession index. I believe this is important because no natural flow system will show perfect linearity. Analysis seems to indicate that when the Rorabaugh model is used for quantitative analysis, the dominant recession index should be used. I suggest further work by scientists who are interested in this topic. Future work with RORA and PULSE *and many hydrograph separation techniques* should evaluate errors caused by direct surface runoff. It should be emphasized that there are plenty of errors in all these methods. As noted by many wise hydrologists, the best hydrologic studies include multiple methods and associated lines of evidence.

Author's Note – For the sake of brevity, much is not included here. I can send additional information (by e-mail) if anyone requests it (<u>RutledgeAlbert@gmail.com</u>).



Determination of the recession index from a streamflow record.

References

- Bevans, H.E., 1986, Estimating stream-aquifer interactions in coal areas of eastern Kansas by using streamflow records. In: Subitzky, Seymour (ed.), *Selected papers in the hydrologic sciences*. USGS Water-Supply Paper 2290.
- Bingham, R.H., 1982, Low-flow characteristics of Alabama streams. USGS Water Supply Paper 2083.
- Daniel, J.F., 1976, Estimating groundwater evapotranspiration from streamflow records. *Water Resources Research* 12, no. 3: 360-364.
- Gerhart, J.M. and Lazorchick, G.J., 1988, Evaluation of the ground-water resources of the lower Susquehanna River Basin, Pennsylvania, and Maryland. USGS Water Supply Paper 2284.

Hoos, A.B., 1990, Recharge rates and aquifer hydraulic characteristics for selected drainage basins in middle and east Tennessee. USGS Water-Resources Investigations Report 90-4015.

Johnston, R.H., 1976, Relation of ground water to surface water in four small basins of the Delaware coastal plain. Report of Investigation 24, Delaware Geological Survey, Newark, DE.

Riggs, H.C., 1964, The base-flow recession curve as an indicator of ground water. *International Association of Scientific Hydrology Publication* 63: 352-363.

Rorabaugh, M.I., 1964, Estimating changes in bank storage and ground-water contribution to streamflow. *International Association of Scientific Hydrology Publications* 63: 432-441.

Rutledge, A.T., 2007, Update on the use of the RORA program for recharge estimation. Ground Water 45, no. 3: 374-382.

Rutledge, A.T., 2014, Use of groundwater levels with the PULSE analytical model. Ground Water 52, no. 5: 789-797.

Rutledge, A.T., 2023, Comments about selected recession parameters. *Journal of the American Water Resources Association* 59, no. 6: 1198-1210.

Rutledge, A.T. and Mesko., T.O., 1996, Estimating hydrologic characteristics of shallow aquifer systems in the Valley and Ridge, the Blue Ridge, and Piedmont physiographic provinces based on analysis of streamflow recession and base flow. USGS Professional Paper 1422-B.

Trainer, F.W. and Watkins, F.A., 1974, Use of base-runoff recession curves to determine areal transmissivities in the upper Potomac River basin. USGS Journal of Research 2, 125-131.

Wilder, H.B. and Simmons, C.E., 1978, Program for evaluating stream quality in North Carolina. USGS Circular 764.

Survival Story by an Active USGS Employee

(suggested by Robert Mason)

John Fulton, Denver, Colorado



My name is John Fulton. I am a Research Hydrologist with the USGS Colorado Water Science Center and busier than ever and absolutely love my job! As a matter of fact, it is not a job at all. Much of my research focuses on non-contact remote sensing of streamflow and channel bathymetry in gaged and ungaged reaches using light and heavy-lift drones integrated with Doppler velocity radar, ground-penetrating radar, and cameras. We also deploy these sensors on bridges to monitor streamflow and bridge scour. Where infrastructure is lacking such as wildland fire burn scars, we deploy sensors using cable stays to any structure we can access such as trees. Snow is a significant component of the water balance in the Rockies. We have integrated software-defined radars on heavy-lift drones to

measure snowpack metrics such as snow depth and layering associated with avalanche risk.

With that introduction, here is the story that I wish to share. It is not the type of news one wishes to receive on their 60th birthday. We just returned from visiting our oldest son and his family in North Carolina and immediately jumped into a van to move our youngest son from Wright Patterson Air Force Base (WPAFB), Dayton, OH, to Peterson Air Force Base, Colorado Springs, CO, in June 2021. I was extremely tired, which I attributed to a very busy previous two weeks. Two months earlier, I was gravel biking behind our home in Highlands Ranch, CO, and surprised to discover the same hill that I climbed the year prior with ease was much more difficult; however, my fatigue fit a pattern. I lacked the energy to do even the most mundane tasks such as yard work. As a precautionary measure, I scheduled a physical and blood work for June 3, the day before my return to Denver after our WPAFB trek.

On June 5 just two days after my physical and blood work, I received a call from my doctor's office suggesting I visit the emergency room straight-away. On June 6 – my 60th birthday, we checked into a local hospital several miles from our home. We chose this particular hospital based on prior experience. My Mother was admitted to the hospital for a minor stroke while she was visiting from Pennsylvania. We simply loved the attention and care of the staff based on her experience. On June 7, I was formally diagnosed with Adult Acute Lymphoblastic Leukemia (ALL) Philadelphia positive (Ph+), which is the most common childhood cancer. It was a shock. I had no family history of cancer, and there was no reason for me to be predisposed to a cancer diagnosis. Beyond that, we quickly discovered there was no one-size-fits-all roadmap that we could turn to. We had no time to seek a second opinion or research the disease. Treatment was urgently needed. And so, we began our cancer journey in the dark.

Serendipitously, I was greeted on June 7 by a remarkable oncologist, Dr. Chris Benton of the Rocky Mountain Cancer Center. Not knowing anything about Dr. Benton, I did what any person would do in our situation and that involved turning to the Google machine, and we stalked him. What we discovered was a "God Wink." Dr. Benton's pedigree is impeccable. He graduated from MIT, attended medical school at Baylor University, and served as a Fellow at MD Anderson Center Center, one of the premier cancer research centers and clinical care facilities on the planet. After talking with him about the treatment options, we discovered that he, his mentor, and his mentor's mentor specialized in ALL – *my exact diagnosis*. That continuity of decades of care and research resulted in a secret sauce of 4 cycles of inductive chemotherapy (Hyper-CVAD), 8 months of immunotherapy, daily dose of a tyrosine-kinase inhibitor to disrupt the cancer-causing gene

abnormality, lumbar punctures, blood transfusions, and bone marrow biopsies. We experienced unexpected diversions including pancreatitis, viral pneumonia, and COVID—three times!

Without Faith, Family, Friends, and Fantastic science, this journey would not have ended well. I cannot emphasize enough the role of advanced blood cancer research and how it has made and continues to make major improvements in cancer treatment. Much of the treatment options developed by researchers such as by Dr. Benton and his team were pioneered and funded by the Leukemia and Lymphoma Society (LLS). LLS is a global leader in the fight against blood cancer and the funding of **cutting-edge research**. Their commitment to a cure is their mission. During the almost 3 years of my treatment, research has advanced so quickly that the same inductive chemotherapy, which I received in June 2021 would not be used today. Rather, an entirely different, much improved treatment regimen would be recommended that is more effective and offers less side effects.

Today, I am cancer free, and we are forever grateful for this tomorrow! The reason I chose to write this story is to (1) to testify to the importance of LLS and the dedicated researchers, who are pioneering better cancer treatments and (2) to offer the example of my journey as a reason for hope for those who have been or may be diagnosed with blood cancer in the future, regardless of your age. With luck, perseverance, and faith in your doctors, your caregivers, yourself, and your understanding of the Almighty, you too can overcome cancer.

I believe in purposeful work. We have been blessed to have worked for the USGS-the premier earth science agency on the planet. I continued to work during my treatments. Work was a distraction and provided me with purpose. But you can find purpose outside of work. Finding purpose in life and finishing strong in whatever one chooses to do with their time is the key to longevity.

If you are interested in learning more about blood cancers, please visit the Leukemia & Lymphoma Society, Blood Cancer Leaders, LLL webpage: <u>https://www.lls.org</u>. Feel free to contact me about my story.

Although most members do not have geographic connections to the Reston area, many of you knew Tim Cohn and his science reputation. Check out this announcement in his honor.

ANNOUNCING the TIM COHN Scholarship Fund by the Reston Runner Community Fund

Reston Runners Community Fund (RRCF) is launching the \$4,000 Tim Cohn Scholarship in memory of Tim Cohn, avid runner, scientist, and longtime Reston resident. RRCF plans to grant the Tim Cohn scholarship to one graduating senior of the South Lakes or Herndon High School districts who has a passion for running, science and/or mathematics, achievement in both running and academics, a commitment to pursue a STEM field in college, and intention to run in college (pleasure or competitively). RRCF is the charitable giving arm of the Reston Runners Club. RRCF was established in 2012 to further the club's mission of encouraging fitness. Learn more about RRCF at restonrunners.org/communityfund



Please like and follow the WRD Retirees Facebook page at:

https://www.facebook.com/profile.php?id=100080672043579

It has 200 likes and 217 followers. We need a few more to get a named page instead of these numbers in the link.

Chris Milly Elected to the National Academy of Engineering

(first published in USGS @theCORE)



On February 6, 2024, P.C.D. (Chris) Milly, a Research Hydrologist and now Scientist Emeritus with the USGS Water Mission Area, was elected to the National Academy of Engineering (NAE), among the highest professional distinctions accorded to an engineer. He joins USGS hydrologists and scientist emeriti Lenny Konikow, Steve Ingebritsen, and Barbara Bekins as current NAE members. The newly elected class will be formally inducted during the NAE's annual meeting on September 29, 2024. Chris received his MS and PhD from MIT, and his BSE from Princeton University. Prior to joining the USGS, he was an assistant professor at Princeton. In 1988, the USGS stationed Chris at Princeton's Geophysical Fluid Dynamics Lab (GFDL) to improve representation of land-surface hydrology in Global Circulation Models (GCMs). Since

then, he has designed and developed essentially all the hydrologic components of GFDL's climate and earth system models.

A common thread throughout Chris' body of work is his study of the interactions of hydrologic processes at scales from soil pores, to river basins, to the entire globe. Chris' seminal contributions to hydrology span the entire spectrum of physical hydrology. They include global hydrology; climate-change hydrology; land water- and energy balance processes and modeling; impacts of soil-water mass variability on crustal deformation, interannual sea-level variability; soil-water transport theory and modeling; integrated modeling and remote sensing of soil water; and experimental methods to determine multi-phase-flow characteristics of porous media. Chris' work influenced key aspects of the Global Energy and Water Exchanges (GEWEX) program, a core project of the World Climate Research Programme (WCRP) dedicated to understanding Earth's water cycle and energy fluxes at and below the surface and in the atmosphere. Chris served on the National Research Council's Global Water and Energy Cycle Panel and on editorial boards of American Geophysical Union (AGU) journals. He has participated on many committees for the AGU, the American Meteorological Society (AMS), and the International Association of Hydrologic Science, and he has organized and chaired many thematic sessions at AGU and AMS annual meetings.

Chris has given important testimony to Congress on the impacts of climate change on water supply and availability in the United States. He was a reviewer and contributing author for multiple assessment reports of the Intergovernmental Panel on Climate Change (IPCC). His findings have influenced management and operational practice at the USGS, National Park Service, Bureau of Reclamation, and Western States Water Council. In the USGS, he served as a research advisor for surface-water hydrologists in the Water Resources Division, and he co-authored the USGS Climate and Land Use Change Science Strategy and the founding document for the USGS National Streamflow Information Program (NSIP). Chris has effectively communicated science results and their engineering implications to the public through scores of interviews with national and international print, radio and television media, including *The New York Times, Washington Post, USA Today, Scientific American*, Agence-France Presse, National Public Radio, and CNN.

We point you to some salient examples of Chris' contributions to global change hydrology published in the journals *Science* and *Nature*. Two highly cited and seminal papers include "Increasing risk of great floods in a changing climate" (Milly et al., *Nature*, 2002) and "Global pattern of trends in streamflow and water availability in a changing climate" (Milly et al., *Nature*, 2005, cited 2683 times). These were the first papers to show convincingly that GCM-predicted behaviors could be related to important global streamflow timeseries, and thus represent important breakthroughs. Another seminal paper entitled, "Colorado River flow dwindles as warming-driven loss of reflective snow energizes evaporation" (Milly and Dunne, *Science*, 2020) was motivated by the fact that drought and warming are shrinking a water resource that supports more than 1 trillion dollars of economic activity per year. Annual mean discharge has been decreasing by ~9% per degree Celsius of warming. Milly and Dunne found – rather unexpectedly – that the main driver of this trend is increased evapotranspiration, caused mainly by snow loss and the attendant decrease in reflection of solar radiation (i.e., decreased albedo).

Chris' most cited paper, with more than 5,000 citations, is provokingly titled, "Stationarity is Dead: Whither Water Management" (Milly et al., 2008, *Science*). Stationarity is the idea that natural systems fluctuate within an unchanging envelope of variability. It is a foundational concept that can be described statistically and permeates training and practice in hydrology and water-resource engineering. Stationarity is dead because anthropogenic climate change is altering the means and extremes of precipitation, evapotranspiration, and rates of discharge in rivers. Its demise presents difficult challenges for the management of floodplains and water supplies, as well as the renewal and building of water infrastructure in the U.S. and worldwide. After "Stationary is Dead" was published, other disciplines took notice. For example, environmental and natural resources law hinge on assumptions of ecological stationarity and pursue goals of preservation and restoration. Neither of those assumptions or goals fit a world of continual, unpredictable, and nonlinear transformations of complex ecosystems. Milly et al. (2008) has served as inspiration for numerous studies across disciplines, sessions at annual meetings, and special conferences, including the upcoming GEWEX Open Science Conference this summer in Japan.

Along with his election to the NAE, Chris also is an elected AGU and AMS Fellow, and received the AMS Horton Lectureship and AGU Hydrologic Sciences Award, as well as the AGU Editor's Citation for Excellence in Refereeing. In the words of a respected colleague, "Chris' contributions to the field have not been incremental, they have been monumental."

-Steve Ingebritsen, Scientist Emeritus, California Volcano Observatory -Julio Betancourt, Scientist Emeritus, Science and Decisions Center

Congratulations to Barb Ryan Recipient of the 2024 Distinguished Service Award of the International Astronautical Federation (IAF)

(from IAF announcement)



The IAF Distinguished Service Award was established to acknowledge active IAF volunteers for their immense contributions to the progress of astronautics and the Federation.

Barb was recognized "For her exceptional service to the International Astronautical Federation for over a decade as a delegate and member, and as a leader in creating strong collaborations between the IAF and other international organizations."

Under Barbara Ryan's leadership, millions of satellite images and other Earth observation data have been made

available to the general public at no charge, allowing scientists, planners and policy makers to make better-informed decisions on problems that transcend political boundaries. Her work addresses critical issues in agriculture, biodiversity, climate change, disaster planning, energy, health, and water.

Barb's career began in 1974 when she joined the United States Geological Survey (USGS), the nation's largest natural resource science and civilian mapping agency. She advanced steadily in the USGS, earning master's degrees in geography from the University of Denver and in civil engineering from Stanford University. As associate director for geography at the USGS, she was responsible for the agency's remote sensing, geography and civilian mapping programs, including the Landsat satellites. From 2008 to 2012, she was Director of the World Meteorological Organization (WMO) Space Programme, and from 2012 to 2018, Ryan was the Secretariat Director of the Group on Earth Observations (GEO) in Geneva, Switzerland. In January of 2021, Barbara became the second Executive Director of the World Geospatial Industry Council (WGIC), a not-for-profit trade association of private-sector companies working in the geospatial and Earth observation ecosystem – a position she still holds today. Ryan has served as chair of the international Committee on Earth Observation Satellites (CEOS). She has been awarded an honorary Doctor of Science degree from her alma mater, the State University of New York at Cortland. She has been named an Honorary Fellow of the American Geographical Society, in 2017 she was one of 10 global Leaders to be named to the Geospatial World Forum's Hall of Fame, and in 2019 she was awarded the Department of the Interior and NASA's Pecora Award. She serves on several Boards and Advisory Committees including for two start-ups Azimuth1 and Data for Development Insights (D4DInsights), the Ecological Sequestration Trust, the International Centre for Earth Simulation (ICES), the International Symposium for Remote Sensing of Environment (ISRSE), and from 2018-2021, the Jane Goodall Institute.

RETIREMENTS



Jeff Copa, Upper Midwest Water Science Center (Minnesota), retired on January 31, 2024, after more than 27 years of service with the USGS and pre-USGS service with the U.S. Army Corps of Engineers. Jeff started his career with the USGS in 1996 as a hydrologic technician in Iowa. There he primarily gaged streams, but also monitored water quality and assisted with aquatic assessments of fish and habitat as part of the National Water Quality Assessment (NAWQA) of the Eastern Iowa Basins study unit. Jeff made hundreds of discharge measurements across the state including during the 1997 floods when he and a colleague measured 242,200 cfs on the Mississippi River at Davenport, IA. In 1999, Jeff relocated to Mounds View, MN, continued work he started in Iowa: streamgaging and waterquality and aquatic-biology collection for the NAWQA Upper Mississippi

River basin study unit. He also had a knack for continuous water quality monitoring so served as a lead for the water center. In 2006 he helped install a network of streamgaging, autosampler, and continuous water quality sites in the Minnesota River Basin. Jeff decided the Twin Cities "wasn't far enough north" so relocated to Grand Rapids, MN, in 2008, where he continued his career strea-gaging, monitoring water-quality, and assisting with studies and aquatic work. Jeff made over 4,200 discharge measurements in his career. The 2,680 that he made in Minnesota led to every corner of the state, including the Northwest Angle, and everywhere in between. During the in-betweens, he always made time to help and mentor staff, analyze, or review hydrologic records, and lend a hand to whomever needed. He will be missed.

--James Fallon, Data Chief, Minnesota portion of Upper Midwest WSC



Rob Flynn, Colorado Water Science Center, retired on March 31, 2024, after 32 years of Federal Service – 28 years with the USGS and 4 years with the US Coast Guard. Rob is a licensed Professional Engineer, licensed Professional Geologist, and former Project Manager in the New England Water Science Center (WSC). He retires as a Supervisory Hydrologist with the Colorado WSC Hydrologic Studies Program in Lakewood, CO. Rob has been a Project Lead on numerous groundwater and surface-water hydrology and hydraulics studies during his career and authored or co-authored 48 USGS publications, as well as contributed to several non-USGS study reports including US/Canadian International Joint Commission study publication. Rob began his career in 1994 as a student and then as a contract employee. In January 1996, he became a

permanent USGS employee working on water-use and numerical groundwater modeling studies in New England. Other project/study work during his career included Bridge Scour, Sediment Transport, and Statistical analyses, and numerous Hydrologic and Hydraulic modeling studies. In addition to these studies, Rob developed regression equations for estimating flow durations and low flow frequency statistics in New Hampshire and annual and seasonal groundwater recharge rates for drainage basins in New Hampshire. He performed hydrographic, topographic, and land surveying tasks, along with field data collection and creation of numerous US Army Corps of Engineers HEC-RAS hydraulic flow models for flood inundation and sediment transport studies in cooperation with FEMA and with the International Joint Commission. Rob was the Project Manager for the Global Navigation Satellite System (GNSS) study in the Lake Champlain Basin (located in the United States and Canada) to harmonize American and Canadian datums to enable analyses of the causes and effects of the spring 2011 flooding on Lake Champlain and the Richelieu River for the purpose of developing flood mitigation measures. Additional highlights of Rob's career include:

- 1. In 2020, Rob transferred from the New England WSC to the Colorado WSC to become the supervisor of the Surface Water and Alpine Hydrology Studies section.
- 2. U.S. Study Manager for an \$11M International Joint Commission funded study, in collaboration with the Canadian government, to identify measures to mitigate flooding and the impacts of flooding in the Lake Champlain / Richelieu River basin.
- 3. USGS Northeast Region Flood Science Capability Team Leader that advanced flood science and decision support programs in the Regional Water Science Centers.

Rob plans to live at his home in Maine during the late spring, summer, and fall and in a yet to be determined location during the winter months, with plenty of fall visits and spring skiing trips to CO. --Matt Ely, Director, Colorado Water Science Center

Scot Izuka, Pacific Island Water Science Center, retired on March 29, 2024. Scot began his career with the USGS in 1989 in the Pacific Islands Water Science Center (known then as the Hawai'i District) after graduating from the University of Hawai'i with a PhD in Geology and Geophysics. Scot has conducted water-resources studies in Hawai'i, American Samoa, and Micronesia. He also has published work in geomorphology, climate, sedimentology, geochemistry, paleontology, and paleogeography. Scot's contributions to the science of hydrology in the Pacific region are vast and will leave a lasting legacy. He significantly advanced the understanding of groundwater hydrology on American Samoa and was Center's expert on all things American Samoa. On Kaua'i, he was instrumental in improving the understanding of the island's geology and hydrology, especially in the Lihue Basin. One of Scot's most significant contributions is the work he did on the USGS Hawai'i Volcanic Aquifer Study. This definitive work updated the knowledge of the hydrogeology of the Hawaiian Islands and described the limits of groundwater availability. Throughout his career, Scot worked on several diverse projects. He built a reputation as being discerning and knowledgeable, with an attention to details and an ability to communicate. These traits served him well as he collaborated with our stakeholders and authored numerous publications. Through his science and excellent communication skills, Scot has advanced the understanding of island hydrology and left a lasting legacy. Scot hopes that retirement will allow more time to travel with his wife Christy, and to pursue his hobbies of playwriting, playing the guitar and sanshin, and singing. The USGS congratulates Scot on his career and wishes him many happy years in retirement. Please join the Pacific Islands Water Science Center in celebrating Scot's distinguished career.

--John Hoffman, Center Director, Pacific Islands Water Science Center



Bruce Steiner, South Atlantic Water Science Center, retired in December 2023, after 43 years of distinguished Federal Service with the USGS. Bruce began his USGS career in October 1980 with the Ohio District as a hydrologic technician in the regional sediment laboratory. In 1984, after learning the basics of hydrologic data collection and water-quality monitoring, Bruce transferred to the North Carolina District, Charlotte Field Office, and now part of the South Atlantic Water Science Center. During his career, Bruce made significant contributions to a diverse array of projects, including the Charlotte-Mecklenburg Landfill Monitoring Program, the Charlotte-Mecklenburg Stormwater Runoff Program, the state-wide NASQAN network, where he served as Project Chief, and he co-authored the Mountain Island Lake water quality data report. Bruce measured historical flooding and flagged high water marks across NC resulting from numerous tropical storms and hurricanes including Danny, Floyd, Frances,

Hugo, Ivan, and Jerry. He was instrumental in the implementation and operation of the Flood Information and Notification System (FINS), a nationally recognized flood warning network which has saved countless lives and millions of dollars in flood damages over the last 20 years. Bruce's dedication and attention to detail have enabled the South Atlantic WSC to provide timely and accurate hydrologic data to Federal, State and local cooperators, as well as the public, to monitor and manage water resources and mitigate damages due to flooding. Throughout his career, Bruce showed a tireless work ethic and commitment to completing every task to the highest standards. As a Senior Technician, Bruce's willingness and eagerness to mentor less experienced hydrologic technicians helped to ensure that USGS would continue serving, collecting, and producing highquality hydrologic data for many years to come. Bruce was celebrated during a luncheon at the Charlotte Field Office on January 25th. The celebration was well attended by Bruce's peers and retirees and everyone in attendance remarked on Bruce's work ethic, attention to detail and skill as a mentor to up and coming hydrologic technicians. Bruce was quoted in his retirement announcement as saying, "*This has been the most rewarding career that I could have imagined. I will most miss the day-to-day with my coworkers and entire USGS family. I will dearly miss the science. I am extremely proud of all I have contributed to. Not really one highlight. The entire 43 years have been the highlight. Plan to do some travelling with my wife Diane, do some gardening, birding, golfing, biking, and relaxing by the pool in the summer.*"

-- Jeanne Robbins, USGS Retirees NC Contact

NEWS OF RETIREES

Bob Adsit ('98) writes: I guess after 25.5 years of retirement one moves a little slower. I really enjoy the newsletter but the names I'm familiar with are becoming fewer and fewer.

Kent Crawford ('11): writes: Thanks for your time and talent to keep the USGS Retirees organization running.

Mike DeGrand ('01) writes: I recently moved back to Sacramento, where I have friends and a good support group, following the passing of my husband last April. I was with my partner for 40 years and we have been married for almost 10 years until his passing. Our 10th anniversary would have been July 13, 2023.

Clayton Kauffmann, Jr. ('94) writes: My wife, Brenda, and I are doing okay. I always enjoy reading the Retirees Newsletter.

Barb Kerans ('10): Thanks so much for all the work that goes into this volunteer effort. I am still spending my summers at our lake cottage in Ontario, Canada. Still making Evergreen, Colorado home the rest of the year and traveling the beautiful US.

Orville 'Bruce' Lloyd, Jr. ('95) writes: Charlotte and I have moved from NC to Columbia, SC. I have enjoyed reading about the changes in the organization, the science and our friends and colleagues over the years. Keep up the good work. Thanks so much for all you are doing to keep the organization alive!

Larry McGreevy ('88) writes: I'm still here and mostly on my own, but I gave up my car this year. My Joan left almost twelve years ago and I miss her more than ever. My mind wanders around the past a lot and USGS is a big part. I was such a lucky Larry. The first two field seasons I was lucky to be trained by Paul Schneider. My third season I was assigned a study of the ground water for Grand Teton National Park. Paul's training allowed me to do the test drilling etc. that was required. There was no other training. Speaking of Lucky: My first 20 years with the Survey I did studies in the most beautiful parts of Wyoming, Utah, and Pennsylvania. In Wyoming, I worked in the Tetons and in the Wind River Indian Reservation. That is probably the most beautiful Reservation in the nation. (I think the Shoshoni got that area because it was Sacagawea's tribe). Cache Valley Utah, where I worked, is the most beautiful place I ever lived. Chester County in Pennsylvania is nice, but with lots more people. My last 10 years was too much administration, but I did have a nice window. [For those who may remember me: 'My last booze was a beer at Herb 's house in May 1985 -- a few years later than it should have been.]

Linda J. McMullin writes ('05): Thank you for your dedication in providing the newsletter to all of us retirees. It's hard to believe that I've been retired for nearly 20 years, but it's good to remember past colleagues and the happenings of the Survey.

Niel Plummer ('12) writes: I really appreciate all your hard work and that of our friends and colleagues in the USGS Retirees. Best wishes to all!

Curtis Price ('18) writes: Hi Everyone. Curtis Price and his dear Beth have found a place in his old stomping grounds on the South End of Whidbey Island in the Salish Sea. He has been enjoying an intermittent NDAA appointment with the USGS Washington WSC, helping out with some projects there and pitching in on research for the 3D Hydrography Program (3DHP). Warm greetings to all.

Barney Popkin (friend '72) writes: Hello WRD, these recent years have been difficult for me at age 80. I can't get enough sleep. Heart failure, A-fib, sleep apnea, vertigo, back and hip and knee arthritic pain, sciatica, fatigue, blurred vision, dementia of my wife of 50 years, outliving my friends, anxiety and depression, and a fall throwing me in Tucson EDs, hospitals, and rehab centers. Still, I submitted articles to journals on the role of terroir on Napa wines, military geology of Ukraine, water resources of Gaza, and mineral and natural resources of the Levant. These articles are now published or are in-press. Except for the final one on applying modern infrastructure management software to the Levant. It was rejected for "operational reasons" by the voluntary European journal as I submitted it piecemeal through my iPhone in Yahoo email from my Tucson rehabilitation faculty bed. I can't stand or walk but look forward to visits from emotional support dogs. Do the best with what you have!



Darla Straka ('03) writes: We moved from Hereford/Sierra Vista, AZ, in the summer of 2021, lived in a rental in Las Cruces, NM, for 11 months, then moved into a house we bought. Thanks for the job you do publishing the newsletter. I haven't updated much of anything in the newsletter since I retired in 2003. I figure there aren't very many people still around that know who I am. I retired from USGS, WRD, Albuquerque, NM. We were known as WRD then, I don't know what they call the water divisions now. After I retired, my husband worked two more years, then he retired. So, we moved to Sierra Vista, AZ. For the 15 years that we lived in AZ, our hobby was riding Harley Davidson motorcycles, and we belonged to a very active HOG Chapter. My husband, Jim, and I each rode our own and we each both put over 100,000 miles on the bikes. Now at our age, my husband gave up the 2-wheeler and bought a Harley Davidson TriGlide. I gave up on Harleys all together, I bought a Can-Am. We both still love to ride, but haven't taken any more of those long trips like we used to. I also had to give up the line dancing three times a week which was great exercise for the body and the mind. After we moved to Las Cruces, I couldn't find a line dance group here, and I had worn out my feet. I am now paying the price for all that dancing I did, my feet hurt all the time. I still have contact with a few of the people I worked with at USGS, but there are a lot of names of people that started working there after I retired, so I don't recognize very many names when I read the newsletter. Hope everyone has a good 2024.

Gloria Stiltner ('00) writes: Since moving to Peaks View Farm, Monroe, VA, from Waterford, VA, in 2010, Gloria has continued as a Realtor with Berkshire Hathaway, a Property Manager, a Golfer, and as The Farm Manager Roy's wife. She also has been very involved with the Amherst Woman's Club (AWC), serving also as a member of their Education Committee. As one activity, the AWC sponsors a Book reading and essay contest for the Amherst County Middle school 7th graders. The student is to describe a favorite character and how it influences their life. In March 2024, Gloria presented the Award and a Barnes and Noble \$75 gift certificate to the winner. The AWC Education Committee established this contest in 2016 as a result of Gloria's suggestion and encouragement.



Gloria, essay winner, English teacher

Lan Tornes ('08) writes: My wife Laurel and I wrapped up one of the most aberrant of our 30+ years together by moving to a new house in a more rural part of Minnesota. Thanks to all the organization staff, newsletter compilers, and many assistants for keeping us retirees informed and connected.

Bob ('09) and Teresa Tortorelli write: We had a GREAT Holiday season with friends and family. 2023 was a bit of a bummer with Bob suffering a Cardiac Arrest in July. However, we were VERY blessed and fortunate to still have the ornery Italian with us. God MUST have another plan for Bob. It happened in front of his wonderful quick-thinking wife who ran (yes ran!) to get the assistance of our granddaughter Maria (who happened to be visiting) to administer CPR while Teresa called 911 to get the EMTs to the house in under 5 minutes!! We had an AMAZING amount of prayers and support from many family, friends, and great doctors and nurses to assist on the long road to recovery. Our sons Robert, John, and Rich, were just awesome watching after Bob in the hospital and ensuring he got the very best care possible. Pius daughter-in-law Jann, granddaughter Maria helping Teresa in that



stressful time. Also, kudos to friends from USGS, Army Reserves, and church for the many phone calls, visits, and prayers to keep Bob's spirits up. Bob recovered enough to have a pleasant trip to Branson, MO, in November with Teresa, Robert, Jann and nephew Brandon with Jaala and Noah. "Bottom line – Still kickin' with lovely wife! Thanks to her & granddaughter & God!"

Kathy Wilson ('06) writes: I do enjoy reading what everyone has been doing, so please continue the excellent work you do. Much has changed since I sent you an update. My husband, Bill, is now on oxygen 24/7, so our traveling days are mainly driving to medical appointments down in Chevenne and back. He had an Inogen, but that is pulse flow, and he now needs continuous flow at 5 liters, which means he has to use a large plug-in concentrator or carry 3 ft. tall tanks of oxygen, which only last him about 2 hours each. We sold our camper and traded in our pickup for a more gas-efficient vehicle. We miss our camping buddies and getting out in the wild, but we had a great time while we could still do those things. I did get to make one trip this year. I drove to Branson, MO, for a week-long stay at a resort. It's a long way, so I stopped twice on the way there and back. I did get to visit with friends in Lincoln, NE, coming and going. My brother, Tom, and his wife, Carol, drove up from their home in Conway, AR, for 3 days of my stay, so I had company! We used the hot tub, saw some great shows, and caught up with each other. It's been about 2 years since have gotten together. What a feat that was. I completed my 2 years of bi-monthly infusions to fight my non-Hodgkins lymphoma in July 2023. The tests showed that all but one small kernel deep in the muscles of my right shoulder are gone. We're going to keep an eye on that, but otherwise, I'm cancer free. This was my third round of the disease, and it will probably come back, but I'm doing my best to enjoy whatever time I have left. Bill and I celebrated our 54th wedding anniversary in January. We're both in our 70s now, so we stay home most of the time. I'm the chief cook and bottle washer at home, I'm still active with our church, and am now serving on the board of the Platte Para Transit service, which is a non-profit organization that provides rides to medical appointments that are outside our county. We have a hospital here in Wheatland, but most specialists are in the larger cities, like Cheyenne, Laramie, Torrington, Douglas, or Casper. The local Services for Seniors buses are restricted to within our county, so they can't help. The specialists and all of the dialysis providers are all more than an hour's drive from here, and many patients can't drive due to illness or treatments. We love living in a rural area, but our population here is aging, so medical help is a necessity. This service lets more people stay at home longer. I hope all of you have a terrific 2024I

TRAVEL NEWS

Jeff Stoner ('14) writes: If I'm going to beg members to submit their news, I'll follow Herb Freiberger's lead and step up by example. Linda and I have been fortunate to catch up with post-pandemic travels. Our most recent (January) adventure was to the other side of the world from Minnesota—SE Asis. Not our first choice on the travel list, but with gentle prodding from friends we jumped onto a 3-week trip. We did a 14-day cruise bookended with land stays in Bali (Indonesia) and Singapore. Ports of call were in Indonesia, Malaysia, Thailand, and Singapore.





Modern-day temples: Marina Bay Sands Hotel with Singapore Science Museum in foreground. For some reason we did not stay in this Vegas behemoth with 2,560 rooms across 55 floors complete with pool on top! As a guy not excited about large cities, I must admit that Singapore impressed me through her architecture, gardens, cleanliness, transportation networks, lack of homelessness, respect across cultures, and food.

Let there be rice every day and every meal if desired. This works with a variety of spices and vegetables. The Ceking Rice Terrace impressed with land sculpture, precise planting and replanting, and hydraulics.

Could not keep the camera shots off the many actively-used ornate and well-preserved temples. This one in Langkawi, Malaysia:





Singapore botanic gardens, orchid section.

Typical organized chaos of scooter traffic in Bali. Complete with flip flops, shorts, whole families of four, helmets, and yes; that is a ladder strapped to the back of a scooter. Tooting horns are for courteous traffic control—amazingly we saw no accidents in four days!





One of many local guides who loved his country and shared interesting culture, backstories, and fun memories. These stories and learning how other people live, work, and play took the edge off our 20-hour flight times.

Endnotes: If you want to know about Luwak-enriched coffee, catch me at a weak moment during a retirees' reunion. A shoutout to Joanne Taylor who covered the bulk of editing for the February 2024 newsletter in my absence! Remember to send your news to the retirees' mailboxes shown on p. 1.



Joanne Taylor ('21) writes: "Totality or Bust!" With typical Adirondack early April forecasts predicting 70 percent cloud cover, Bruce and I headed up to our cabin crossing our fingers. Maybe this year would be different, maybe we would actually catch the total eclipse. Our cabin spot was right in the path of totality so, if fingers crossed worked, for one brief 3-minute moment, at 3:26 PM on April 8, it would be a once in a lifetime memory. And it was. Amazing. Barely a cloud in the sky. Dark diamond ring above, complete darkness in front of the cabin, and twilight on Lake Champlain.





N.L. 203; 18

MEETINGS and GATHERINGS



USGS Carson City Coffee Group: February 7, 2024

Starting on the left: Claudia Monroe (Standing Joe Joyner, Kerry Garcia), Dave Berger with hat, Bob Hammond, Don Schaefer head of table; Terry Katzer, standing. Coming forward, Hugh Bevins, Ralph Seiler, Margaret Bunch, Nyle Pennington, and Keith Halford. looking up.

USGS Carson City Coffee Group: March 6, 2024



From left: Bob Hammond, Ralph Seiler, Hugh Bevins, Barb Lewis, Nyle Pennington, Terry Katzer, Kerry Garcia (at head of table). Coming down the table: Claudia Moore, Jim Crompton, and Margaret Bunch.

USGS Iowa District Retirees, Denison, Iowa February 9, 2024



Left to right: Al Conkling, Joe Gorman, Rich Kopish, and Dave Conell met for lunch in Denison, IA. We were part of the Iowa District, Western Field Unit. We talked about kids and grandkids, travel, and hobbies. And, as always when old guys get together, we talked about the 'good old days', including what we had done during the 1993 flood and how we rebuilt and upgraded the stream gage network in Iowa following the flood.

Reston Retirees continue to meet at the USGS National Center for Brown-Bag Lunch Talks





February 5: Bruce Molnia gave a presentation on Repeat Photography of Alaskan Glaciers. Bruce is Emeritus Senior Science Advisor in the National Civil Applications Center (NCAC.) Since 1968, Bruce has taken over 50,000 photographs of glaciers. Along with over 5,000 historical photographs dating back as far as the 1880's, these images are used to understand changes to the glaciers and related landscapes as a result of global environmental change.

March 4: Stacey Archfield gave a presentation on "Recent USGS work to adjust for non-stationarity in floods and low streamflow statistics." Stacey is a research hydrologist currently with the USGS Integrated Modeling and Prediction Division.





April 1: Frank Manheim, USGS Retiree and Affiliate Professor, School of Policy and Government, George Mason University, gave a presentation on American Environment and Policy History. Drawing from a book he is currently working on, he began with pre-Columbian North America and moved up to the 21st Century. He provided data on the origin of our current political polarization, and compared U.S. and more successful European policy.

MEMORIALS



David Jerome Bauer, 84, of Las Vegas, NV, passed away on December 2, 2023. Born on September 19, 1939, in Britton, South Dakota. David was one of five siblings. A true farm boy at heart, he carried the values instilled in him during his formative years throughout his entire life. His love for the outdoors, fishing, and hunting was evident from a young age, and it would become a defining thread woven through the tapestry of his entire life. David's journey took him from South Dakota to Stillwater, LA, and eventually to the bustling city of Las Vegas, NV, where he chose to spend his well-deserved retirement. Along the way, he embraced adventures across this great country, thanks to his nearly 29-year tenure with the USGS as a Hydrologic Technician. In 27 wonderful years of marriage to the love of his life, Edith Virginia Vines, David discovered a partner with whom he shared countless adventures. Embarking on a journey of shared memories and time spent across the country in their

trusty old van, they discovered immense joy in the simple pleasures of life. Whether surrounded by the splendor of nature, casting a line into a peaceful lake, or seeking time with family and friends, their mutual love for exploration and each other cultivated a bond that endured the test of time. David's infectious smile and kind heart endeared him to all who were fortunate enough to know him. He had a knack for storytelling, whether it was sharing a humorous anecdote, relishing in the joy of a good joke or mimicking the voice of Donald Duck. His home in Las Vegas was always open, and he reveled in hosting family and friends, creating cherished memories that will endure for generations. As if his generosity and warmth were not enough, David dedicated his time to volunteering at the VA alongside his wife. Their selflessness and commitment to giving back underscored the depth of their character and the love they had for their community. David touched the lives of many, leaving an indelible mark of love, laughter, and kindness. As we bid farewell to this extraordinary man, let us remember him not with sorrow, but with gratitude for the joy he brought into our lives. His legacy lives on in the stories we share, the laughter we remember, and the enduring love he leaves behind. David will be missed beyond measure, but the memories we hold close will ensure that his spirit lives on in our hearts. A funeral service with military honors for David was held January 5, 2024.



Ann Cullins Beam, 100, died on March 14, 2024, at the Stewart Health Center, Springmoor Life Retirement Center in Raleigh, NC. Born in Memphis, TN, October 19, 1923, Ann was the daughter of Edward and Lucile Cullins. She graduated from Central High School in Memphis in 1941 and went to Randolph Macon Woman's College in Lynchburg, VA. After her first year, Ann transferred to the University of Alabama where she graduated in 1945 with a B.S. degree in Chemistry. Ann joined the Alpha Delta Pi sorority and enjoyed keeping up with the sisters in later reunions. Following graduation, Ann worked for two years in the Research and Development Laboratory at Standard Oil of New Jersey in Linden, NJ. Returning to Memphis, Ann worked for three years at the Malaria Research Lab for the U.S. Public Health Services. In 1948, she married Robert Shelton Beam and moved to Raleigh in 1950 following Bob's

graduation from dental school. Her first child, Brett, was born in Raleigh in 1950. Later, while living in Sanford, NC, Ann had two more children, Betty and Mary Ann. The family returned to Raleigh in 1958 where Ann began working for the North Carolina Department of Hygiene in the chemistry lab. In 1961, she began her distinguished career with the USGS in the Water Resources Division. In 1974, Ann was transferred from Raleigh to the National Water Quality Lab in Atlanta, GA, and from there was promoted as a management assistant to the Southeastern Regional Chief Hydrologist in Atlanta. In 1980, she was again promoted to the position of Assistant District Chief of Florida for the USGS in Tallahassee, FL. Following her retirement from the USGS in 1985, Ann became a realtor working for Town and Country and Century 21 real estate agencies in Tallahassee where she enjoyed several years of her favorite hobby, fishing. When she returned to Raleigh in 1988 to be closer to her family. Ann continued her real estate career with Fonville Morisev for another five years. Ann Beam lived life with gusto. She was always so outgoing, friendly, and energetic. Her great sense of humor and her infectious, hearty laugh would always make people laugh with her. While in college in the '40's, she secretly used her spending money to take flying lessons. Ahead of her times, Ann translated her degree in Chemistry into a career with the USGS. She bought a boat and loved to go fishing whenever she could. Ann always loved to travel and was able to travel frequently after her retirement to places like New Zealand, England, Belgium, and the Netherlands with the Raleigh Friendship Force. Ann was a loving, devoted mother, grandmother, and great grandmother who was always ready to help, babysit, be at family festivities and celebrations, and provide wisdom and guidance for her family. She was an active member of White Memorial Presbyterian Church, the Woman's Club of Raleigh, the National Association of Retired Federal Employees, and the Caswell Nash DAR. Always anxious to help, Ann volunteered at Rex Hospital and was a docent at the Joel Lane House. Ann is survived by her son and two daughters and their families, including 9 grandchildren, and 11 great grandchildren. A memorial service was held on March 22, 2024, at Springmoor Life Retirement Center.



Dorothy "Dot" N. Beasley, 88 passed away January 2, 2024, at Hospice of South Georgia. Dorothy never met a stranger! She cared deeply for others and would talk to anyone. If she met you, she took the time to find out details about you and would ask you about them the next time she saw you. We all marveled at her ability to remember names and personal details about everyone she met. Dorothy was born in Dublin, GA, as the youngest of five daughters in a family of ten. After briefly dating one of her other sisters, her husband, John, chose Dorothy, and the two of them began their life together. They were married for 71 years. An avid games player, she won the game of life. She enjoyed card and board games with her sisters, children and grandchildren. Dorothy actively participated in activities and played make believe with her great grandchildren. After

retiring from USGS, she and John traveled across the country in a motor home before building their dream house in Conyers, GA. They also enjoyed boating activities and made many friends in Lake Hartwell, GA, where they built a cabin on the lake. During her long retirement that exceeded 30 years, they traveled extensively with family and friends and eventually relocated to Jesup, GA, where they thrived in a small town that included a new church family and a closer relationship with two of their great grandchildren. Dorothy was unable to meet her goal of watching her oldest great granddaughter graduate from high school when her life was cut short by complications related to influenza. She and her husband John, attended the First United Methodist Church of Jesup, GA, and also enjoyed senior outings and Wednesday night suppers with their church family. All of her siblings preceded her in death and she is survived by her husband John, her sister-in-law, three daughters and their families, including three grandchildren and three great grandchildren. Funeral services were held on January 6, 2024, at the First United Methodist Church of Jesup, GA.



Marion Singleton "Doug" Bedinger, 91, of Sequim, WA, passed away at home on March 21, 2023. Doug was born on February 11, 1932, in Navasota, TX, and grew up in eastern Texas. In college, he studied geology, graduating in 1955 from Texas Tech University. As a new graduate, Doug joined the USGS, and moved his young family to Washington DC for the first year of his 32-year tenure with the USGS, before moving to Little Rock, AR. Doug's time in Little Rock was filled with many grand adventures, professional and personal. Float trips on the Buffalo River in Arkansas and the Colorado River through the Grand Canyon with his colleagues were adventures talked about for years afterwards. A natural history guide of the geothermal waters of Hot Springs National Park in Hot Springs, commissioned by the National Park Service (NPS), was a publication he enjoyed authoring, particularly as it was outside the scope of his normal research. Doug spent an additional 10 years in Lakewood, CO working on hydrogeologic issues in nuclear waste disposal. After turning 55 and one second, Doug became eligible for retirement from the USGS and moved to Las Vegas, NV, to continuing hydrogeologic research at the University of Nevada, Las Vegas. During his time in Las Vegas, he met his wife, Mary. Together they discovered the beauty of the Olympic Peninsula (OP) of Washington. Finally unencumbered by employment, they relocated to the OP in 1992, building a home on an 18-acre plot complete with a micro-rainforest habitat, grazing pastures, and trout pond. A greenhouse was later added that contained orchids, assorted tropical plants. As state law eventually allowed, a small number of cannabis plants were added. They enjoyed visits from friends, family, being active in community issues, and became caretakers of a revolving cast of llamas, dogs, cats, geese, chickens, and a rooster named "Charles R." In 2020. Doug and Mary moved to a home on the 8th fairway of the Sunland golf course where they watched, and occasionally dodged, passing golf balls. They particularly enjoyed seeing the bald eagles nesting in a Douglas Fir tree overlooking the ninth green, immediately adjacent to a pond filled with rainbow trout; trips there by foot were numerous enough that Doug was on hand during one occasion when an eagle foraged a meal from the pond. Doug loved genealogical research and pursued it his entire adult life. Doug is survived by his wife, Mary Bedinger, his three children. Mary's three children, and eight grandchildren.



Jack Riley Carter, 99, passed away on November 4, 2023, in Grand Junction, CO. Jack was born in Fresno, CA, on March 31, 1924, to Elwyn Riley and Nellie Mae Carter, and grew up in Exchequer, CA. He spent an idyllic childhood roaming the California foothills, fishing in the reservoir and streams, and riding his pony. His parents encouraged him in his boyhood adventures. One day his father suggested he go camping with just his pony and dog, Jerry. So, Jack headed out on his pony, along with his dog to camp several miles from home. As he lay on his bedroll tucked between his animal companions, he looked up at the night sky and was awed by the sight of a flock of geese crossing in front of a full moon. Thus began a lifelong love of nature and the outdoors. Jack attended a one room school through eighth grade when he left home to board with Jerry

Witt (who became a lifelong friend) and his family for his high school years at Merced Union High School where he played the cornet and was a member of the football team. During summers, Jack worked driving a supply truck in Yosemite Park. Shortly after graduating from high school, Jack registered for the World War II draft. He attended Brigham Young University for his freshman year and while there he met Melba Beckman at a Mat Dance. They were soon inseparable, and they promised to write when Jack left for the war. He spent three years in the Pacific Theater with the Combat Engineers 55 Battalion attached to the 81 Infantry Division. At the end of the war, Jack participated in the occupation of Japan. When he returned home, he married Melba and transferred to Utah State University. When it was time to register for classes, Jack decided to get into the shortest line which happened to be the line for engineering. As it turned out, engineering with a specialty in hydrology was a perfect fit for Dad. It mirrored his childhood experiences of traipsing through streams and lakes in the Sierra Nevada foothills. After graduation Dad worked for over 30 years for the USGS, Water Resources Division. His assignments took the Carter family from Roosevelt and Vernal, UT, on to Statesville, NC, Washington DC, Casper, then Cheyenne, WY, Lawrence, KS, and Denver, CO, where Jack retired from the Survey. Jack then began a second career as a consulting engineer for Wright Water in Denver. A third job took him to Colorado's Western Slope for semi-retirement while doing seasonal work as water commissioner on Kannah Creek in Mesa County, CO. Jack had many interests and hobbies. He and Melba traveled, at times in their small RV, up the Al-Can Highway as far north as the road would take them, down through Mexico, and across Canada. They were fearless travelers, heading off without cell phones to the consternation of their daughters. They loved spending time in nature, hiking and camping in the Colorado Mountains. Dad enjoyed hunting, fishing, golfing, and skiing. He was an avid reader who

especially enjoyed history and biographies. And he always kept up with current events, the news, and politics. Jack had a wonderful, satisfying life and his daughters feel privileged to have had his influence in our lives. Jack is survived by a sister, Carolyn Forrest, and his 5 daughters and their families, 15 grandchildren, 30 great grandchildren, and 5 great-great grandchildren. A memorial service was held on November 11, 2023, at Sundberg-Olpin Mortuary, Orem, UT.

Terence "Terry" Wesley Danielson, 86, passed away in Leeds, Washington County, Utah on May 14, 2023. Terry was born on December 27, 1937, in McKeesport, Allegheny County, PA. Terry retired from the USGS in 1994.

John Briggs writes: Just to let you know that Terry Danielson has passed away. His wife, Nina, passed away in 2021. I would call Terry occasionally and when I called late last year his phone was disconnected. Doing some on-line research, I found this information. I could not find an obituary for either of them.



Neville Gene Gaggiani, 79, passed away on October 2, 2023. Born in Australia while his father was stationed there during World War II. Neville grew up in Pennsylvania and Florida. After serving in the Air Force, working as a computer technician at NORAD, he received a Bachelor's degree in Chemistry and Geology from Florida Atlantic University. He worked his entire career for the USGS, first in Florida and then in Colorado, mostly as a hydrologist specializing in water-quality work. He spent many years working on the Superfund site at Rocky Mountain Arsenal. Neville was a kind and quiet man with a sly sense of humor. He loved music and sang in numerous choirs, most recently with the Metropolitan Choral Festival. A lyric tenor, he also did solo work. He

loved cats, fast cars, and flying. He obtained his pilot's license after he retired. He also loved to hike and over the years followed many trails in Colorado and Wyoming. When he couldn't make it to the mountains, he took advantage of the many walking trails near his house and his office at the old Rocky Mountain Arsenal. A devout Christian, he was an active member of St. Augustine Antiochian Orthodox Church. He is survived by his wife of 43 years, Patricia, as well as his brother and three sisters.



George C. Gravlee, Jr., 84, of West Hartford, CT, passed away on February 5, 2024. He was born in Gadsden, AL, on January 20, 1940. He moved with his family to California in 1949 and graduated from the University of California at Berkeley in 1963 with a B.S. in Civil Engineering. During his college years he enjoyed playing trumpet in the CAL Marching & Straw Hat Bands. He married Diane Druin on September 8, 1962. He spent his career with the USGS as a Hydrologist with the Water Resources Division. He worked in offices in Sacramento, CA, Milford, PA (Delaware River Master's Office), Columbus, OH, and Albany, NY, and retired in 1994. He served on the investigative team after a death from a streamgage cable accident and later served on the team working to write new software. He was the Scoutmaster of the local Boy Scout troop in Milford, PA, and in

Albany, he volunteered with the Albany Mediation Dispute Association as a mediator. He spent most of his retirement traveling the United States with Diane in their motor home. For much of this time they volunteered with Habitat for Humanity. They helped build houses in all 50 states, with George often carrying his blue clipboard and overseeing the construction. For that work, they were honored with the George H. W. Bush Daily Point of Light award in 2015. Together they also enjoyed exploring family histories and cemeteries. After living full time in their motor home from 1999 to 2005, they bought a house in Greenwood, SC, as a travel base and continued a life of service. In September of 2019, they moved to West Hartford, CT, to be near family. George was a member of the West Hartford United Methodist Church, American Society of Civil Engineers, CAL Alumni Association, CAL Engineers, and was a licensed Professional Engineer in Ohio. He was known to the family as

someone who could repair anything and he enjoyed doing so, volunteering to help with everything from minor fixes to larger home projects, and always having valued advice for troubleshooting. He is survived by his wife, a brother, a son and his wife and their 2 children as well as a daughter and her husband and their 2 children.

James Hollenbach, 65, a proud veteran of the United States Marine Corps, passed away suddenly on February 3, 2024. A son of Marlin Hollenbach and Eleanor Rebecca (Kreis) Hollenbach, he was a 1976 graduate of Shikellamy High School. He enjoyed golfing, was on the bowling league, and active gardener and thought of himself as comedic. He added sarcasm to everything. James, aka Jim had been on a local softball league for many years and taught his daughter the sport and instilled his passion of it to her. He was also a fanatic of the Philadelphia Eagles and Phillies. Not only did he serve in the Marine Corps but he obtained a degree in civil engineering from WACC and spent most of his life working for the USGS as a hydrologic technician. (A mouthful to say but something he took much pride in doing for his career.) He is survived by his daughter, his father, his brother and sister and their families, including 3 grandchildren and a great-grandson. He had many other relatives not listed and a good friend, Julie Bricker. A memorial service was held on February 24, in Northumberland, PA.



William "Bill" Robert Kaehrle, 80, passed away September 12, 2023, in Slidell, LA. Bill was born October 18, 1942, to Martin Alfred Kaehrle and Ruth Elizabeth Coe Kaehrle in Hartford, CT. He is survived by his wife Jan Barbero, his sisters, his son and daughter-in-law, and his daughter as well as two grandchildren and five nieces and nephews. Bill grew up in West Hartford, CT, and went to prep school at the Gunnery (now The Frederick Gunn School) in Washington, CT. He earned his undergraduate and graduate engineering degrees at the University of Connecticut and stayed at UConn to teach for 6 years. One of his favorite classes was for nonscience students to fulfill their science requirement. Bill called that class 'Physics for Poets.' In 1974 he started his career with the USGS as a hydrologist in Connecticut. Then in 1977, after he and Jan were married,

they moved to Slidell, LA. He worked at the USGS Hydrologic Instrumentation Facility (HIF), Stennis Space Center until 1995 when he retired. Bill will be remembered for his many pots of party jambalaya, his fast Buick which he raced on local tracks, his enjoyment of fishing in the Gulf, and watching the Saints. He had a full life and he will be missed. The immediate family will mark his passing with a memorial service, and his cremains will be interred in a small cemetery in North Stonington that he helped to maintain when he lived in Connecticut.

Kate Flynn writes: One of my best memories of Bill is the deep-sea fishing trip I went on with folks from the Bay St Louis and Baton Rouge offices. It was the only time I have been deep sea fishing. We drew numbers for when we would get a turn for king mackerel; I was last just behind Bill. As our time was running out, Bill gave up his turn and let me have a go at it. I pulled in a 28 pounder and was quite pleased with myself. Found out later that Bill stood behind me so he could grab me if I started to go overboard.

Marshall Jennings writes: Bill was a uniquely talented hydrologist and a good friend to all who knew him. Bill planned my retirement gathering upon leaving Gulf Coast Hydroscience Center (GCHC) in 1989 and it was both fun and heartwarming. He was very active in the local Branch, American Society of Civil Engineers. Bill ran the Hydraulic Facilities at GCHC with efficiency and technical care thereby serving WRD Districts and other clients well. He was always interested in new ideas. He was a good friend of mine. Best wishes and prayers to his family.

Kirk Thibodeaux writes: I will remember Bill as one of those people who was always ready to offer a helping hand. Whether it was personal (driving to the New Orleans airport to pick up a young contractor he barely knew returning from an around-the-world vacation (me), or introducing me to my future wife), or professional, the helping hand was always extended.

Phil Turnipseed writes: I met Bill Kaehrle in the late 1980s early in my career. He was in charge of the Hydraulic Flume at the HIF at that time. The HIF Flume was responsible for the calibration and maintenance of all current meters used by the USGS to measure the Nation's streams and rivers. His almost instant geniality and consideration of my career caught me completely off guard. I remember Bill as an amazing Hydraulic Engineer who cared about his work and also almost everyone who came near him. He was an early influence on me and my work in the USGS and also my involvement with the American Society of Civil Engineers (ASCE). Bill was involved with the ASCE all the years I knew him. He was a kind and considerate man. He will be missed, I know, by many.

Herbert Lacayo, Jr., 89, of Alexandria, VA, passed away on November 19, 2023. Herbert was born on March 16, 1934. Herbert was born in NY.

Isabelle Lacayo writes: It is with deep sadness that I advise you that one of your retirees, Herbert Lacayo, died November 19, 2023. He was 89+ years old. He enjoyed attending these meetings in the past and thank you for the many reminders.



Charles Orville Morgan,92, passed away peacefully on January 13, 2024, at his home in Boulder City, NV. Charles was born in Fairfield, IA, on November 28, 1931, and was raised on a farm outside of Rubio, IA. Charles Graduated from Richland High school in 1949. He attended the University of Iowa earning BS and MS in Geology. Charles married Pauline Baumert in Keota, IA on September 7, 1952, and they recently celebrated 71 years together. After graduating, Charles joined the USGS which started the journey living in Michigan, LA, KS, Pakistan, CA, VA, before settling and retiring in Boulder City, NV, in 1986. After retirement from the USGS, he worked with the EPA at UNLV part time until 2000 with a 1-year expat assignment in Oman in 1988. Charles was a respected Groundwater hydrologist serving on many professional committees and publishing numerous papers in his field. Charles was an early adaptor in ground-

breaking work helping to develop computer programs/data bases to help model/map groundwater tables starting in the 1960's. Charles is survived by his wife Pauline Morgan, 2 sons, 7 grandchildren, and 2 great grandchildren. Charles had many hobbies/interests which included collecting records, coins, Indian Artifact Hunting, fishing, garage sales, and traveling to all of the 50 United States and 23 countries.



Charles "Chuck" Parrett, **78**, of Helena, MT, passed away on January 16, 2024. Like his parents before him, Chuck was born in Butte, MT, on July 26, 1945, and lived a hardscrabble life growing up in Butte. After graduating from Butte High School in 1963, he married his high school sweetheart, Bonnie Pettersen in 1966. He earned a degree in Engineering Science from Montana Tech in 1967 and master's degree in civil engineering from his beloved alma mater Montana State University in 1970 and then settled in Helena, MT, to raise a family. Chuck worked as a hydraulic engineer for the Montana Department of Transportation and as the Floodway Management Bureau Chief with the Montana Department of Natural Resources before settling into his career with the USGS in 1975.

While working in Montana, Chuck worked on a variety of investigative and often innovative projects including regional flood-frequency analyses based on watershed characteristics and channel geometry, water-supply and water use studies, precipitation frequency analyses using L-moments, bridge scour investigations, flood-hazard mapping studies and documentation of extreme floods. He received numerous awards from USGS including several cash awards, a Meritorious Service Award, and the Central Region Report of the Year Award in 1991. He was also recognized by the Montana Section of the American Water Resources Association as a "Montana Water Legend" in 2006. In 2005, Chuck left his beloved Helena and moved to Sacramento, CA, to serve as the Surface Water

Specialist for the California Water Science Center. During his time in California, he was the principal investigator on a project to update flood-frequency estimates for USGS gaging stations and to develop new regional regression equations for estimating flood frequency for ungaged streams. Chuck also wrote a report documenting the December 2005-January 2006 flood in Northern California. He helped teach several surface water hydrology courses at the USGS Training Center in Denver, CO, and the U.S. Army Corps of Engineers Hydrologic Engineering Center in Davis, CA. Chuck retired from the USGS in 2015 and worked part time for David Ford Engineers in Sacramento, CA, and for his own consulting firm (Black Swan Hydrology) in Helena, MT. Chuck forged lifelong friendships with his colleagues and mentored several young engineers while also being a devoted family man, friend, and community volunteer. While living in California after retiring, he volunteered to teach English to immigrants. Throughout his life, he was an avid fly fisherman, loved woodworking, reading, and puzzles of all sorts. Chuck was admired by all who ever met him for his honesty, integrity, and steadfast ethical worldview. He was a good husband, father, brother, friend, and citizen and will be missed by all. He is survived by his wife Bonnie, a son and daughter and their spouses, three grandchildren, a brother, and numerous cousins in Butte. A memorial service will be held for Chuck sometime this summer. -contributed by Will Thomas and Pete McCarthy

Nancy Barth (Hydrologist, WY-MT Water Science Center) writes: Sad news, indeed. He was my mentor and M.S. advisor, etc. We've always kept in contact after he retired, throughout my Ph.D. program and upon my return to the USGS. The saddest part is that I finally moved to Helena on Nov. 16th as part of my relocation to the WY-MT WSC, and I didn't get to see him in person.

Peter McCarthy (National StreamStats Coordinator, WY-MT Water Science Center) writes: Chuck hired me first as a student in 2000 and later as a SCEP hire in 2003 and mentored me for much of my early career. I've only been able to catch up with him a couple times since he moved back to Helena from California and have always been impressed with how much he cares about the agency, the science, and the people who he has gotten to know over the years.

Will Thomas writes ('95): Very surprised and saddened to hear of the passing of Chuck Parrett. I became acquainted with Chuck while working in the Surface Water Branch (later OSW) in Reston, VA (1976-1995). In the 1980s, Chuck became the go-to guy in Montana on all things surface water oriented. He was innovative and published several reports on flood frequency analysis, development of regression equations, precipitation frequency using L-moments and documentation of extreme floods. During the 1993 floods in the Midwest, Chuck worked for the OSW and developed a USGS Circular documenting those extreme floods. The last time I saw Chuck in person was in 2008 when I visited the Region IX FEMA office in Oakland, CA (while working for Michael Baker International). Chuck was working on the statewide flood frequency report for California and a couple of FEMA engineers and I ventured to Sacramento to discuss the flood frequency analysis. It was great to see him again and discuss technical issues. Chuck was very low spoken and hardworking and did not have an egotistical bone in his body. He was a joy to work with and credit to our profession. Obviously, he was a great family man and treated his family the same way he did his colleagues. He will surely be missed by many.



Gladys M. Thomas, 93 (wife of Don Thomas, USGS), known as Corky, beloved mother, grandmother, and great-grandmother passed away on February 19, 2024, in Ashburn, Virginia. She was weeks short of her 94th birthday. Born in Fargo, ND, in 1930 to the late Irene Raen, and Alva Boner, she later moved to Seattle, WA, where she graduated from Roosevelt High School, and the University of Washington. She also lived in Walla Walla, Spokane, and Tacoma, as well as Levittown, PA, and Springfield, Locust Grove, and Ashburn, VA. Married to Donald Thomas. She raised 3 sons and a daughter. She retired from the Fairfax County Public Schools (FCPS) in 1987, having been the Physical Education teacher at both Rose Hill and Clermont Elementary schools, where she was known to put on elaborate tumbling shows, field days, and organized swimming lessons and competitive track teams for her students. She received an "Outstanding Teacher of

America" award, and her program was selected as a "National Physical Fitness Demonstration

School" from 1974 – 76. After retiring from FCPS, she was a travel agent for Pan American World Airlines. A member of many social and civic organizations, she was a Cub Scout Leader, President of the North Springfield Little League Auxiliary, President of the Braddock Road Boys and Girls Club, President of the Women's Association of the Levittown Congregational Church, an active member of the Fairfax County Retired Educators Association, and Program Lead for the local chapter of the AARP. She also served in several leadership capacities in the Lioness Club, as well as acting in the Ashby Pond Players Group. Gladys was preceded in death by her husband, Donald Thomas, and her son David Thomas. She is survived by her 3 children and their families, including 9 grandchildren, and 9 great-grandchildren.

From Gladys's daughter, Cindy Michaels: My parents have many fond memories of the wonderful people and events associated with the WRD. Dad was very fortunate when he landed a job that provided him with not only a career, but with life-long friends for them both. I was thinking back to the picnics we enjoyed over at Fort Hunt Park as I packed away my mother's hole-in-one trophy, for landing closest to the pin. And, I recall ruining a few shirts on the grease pole over the years. I also reflected on the many friends my parents had at the Survey that used to come to our house. I know my parents truly loved and enjoyed their friendships.

George Gravlee and a Little Bit of WRD History

By Ivan James

Last week I was saddened to hear from Diane Gravlee of George's death after a long and heartrending illness. I first met George in January, 1964 at the seven-week Hydrology Short Course, taught to fairly new employees and located at the university in Tucson, AZ.

The WRD at that time was a discipline-oriented organization with a Surface Water Branch (SWB), Ground Water Branch (GWB) and a Water Quality Branch (QWB). These discipline branches were line organizations all the way from separate district offices through the regions to headquarters branch chiefs who answered to the Chief Hydrologist. Luna Leopold was Chief Hydrologist and he foresaw the need for more integrative approach to hydrology. Hence, he had in mind an integration of the branches at the district level all the way up. The Hydrology Short Course was one initiative to get the mostly engineers of the SWB, geologists of the GWB and chemists of the QWB to thinking and working together as hydrologists.

When we arrived in Tucson, we still seemed to somewhat socially segregate into branch disciplines. Besides George and me, I particularly remember other engineers such as Marshall Moss, Paul Rhone and Billie Colson. George and I, both being relatively newly married to the loves of our lives, tended to hang out together and became good friends. As I had driven down from Kansas and had a car, we often spent our weekends on excursions and adventures to the hills and mountains. One weekend while on a drive up Mount Lemmon we were the first on the scene of a serious motorcycle accident and spent the next several hours protecting the victims and directing traffic while we sent someone down the mountain to get an ambulance. Another weekend we went to a beautiful live-oak and grassland area at about 4,000'.

Then there was President's Day weekend when we decided to camp out in Oak Creek Canyon. Having no camping gear, we heard that the Arizona District had some WWII surplus gear. We borrowed some surplus down mummy sleeping bags and were off, accompanied by Myron P. Molneau. Getting a few basic food items from a grocery store we were on our way. We found an abandoned campground, built a fire in a fire pit, and proceeded to cook on the grill. As it gets dark early that time of year and it was forecast to get down to the mid-teens that night, we heated some scoria boulders in the fire to keep some warmth near our feet and were snug in our mummy bags before 9 pm. It wasn't long after that that the skunk showed up. Whether the skunk was attracted to the smell of our food or just wanted to crawl into one of our warm sleeping bags with us I don't know, but it first tried the latter with George. George just growled at it and turned the small opening of the mummy bag to the ground. The skunk, thus thwarted, headed for Myron's bag. By now I was sitting up watching the commotion by the dwindling light of the fire's coals. What George and I did not know was that Myron was deathly afraid of skunks. Myron stood up, took off at a dead run in his mummy bag, got about 3 feet when he tripped up and fell flat. The skunk proceeded to investigate Myron's bag, crossing from one side to the other and then end to end while Myron shook. I put some shoes on, took a long stick and tried to drive the skunk away. Did you ever try to drive a skunk? 'Tain't easy. Every time you get somewhat close to the skunk, he turns his business end to you and you retreat. I finally got the skunk about 100 yards away and returned to my sleeping bag. It didn't help Myron's sleep much when I said that the skunk would probably return before first light in the morning, which it did.

We spent the next day hiking and goofing around. George had heard of a place where one might find blood stones and he found a couple of nice pebbles.

I thought that the Hydrology Short Course was quite good and introduced us to all aspects of the hydrologic cycle. Shortly thereafter, the course was shortened to five weeks and later replaced by an 18-month interdisciplinary work study program for new hydrologists. Luna's reorganization of the discipline-based districts into integrated WRD districts went ahead. Most of us who had less than 10 years with the USGS adapted to the reorganization quite easily. A few of the old timers were less accepting and remained so throughout their careers.

I transferred to headquarters in 1968. George was then in the Office of the Delaware River Master, in Milford, PA. This was not a great distance from where we lived in Northern Virginia. George and Diane's small children Scott and Brenda were roughly the same age as our two boys so we occasionally got together. Later I had opportunities to work with George on a couple of surface water reviews. He continued to exhibit the same quiet competence that I had always known in him.

TREASURER'S REPORT, FIRST QUARTER 2024

Treasurer Cathy Hill reports the organization had \$18,950 at the end of the first quarter. Federal taxes for 2023 have been filed.

Special thanks for contributions above dues go to Larry McGeevy, Pete Anttila, Linda Britton McMullen, Cathy Hill, Judy Steiger, Patricia McElwee, and Kenneth Markham. Many thanks for your generosity.



NEW MEMBERS

David S. Armstrong ('23) Kathryn Leigh Crepeau ('24) Douglas 'Doug' W. Duncan ('16) Mary Giorgino ('23) William 'Bill' Franklin Hazell ('23) David 'Dave' Holtschlag ('18) Scott Phillips ('23) Elsie Sanchez ('89) David K. Yancy ('23)

NEW LIAISONS / MEMBERS

Nancy Gibbs, Lawrenceville, NJ

