

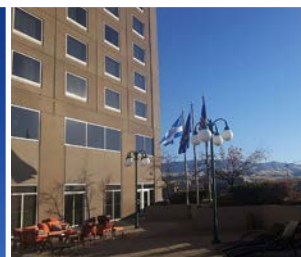


The AQUIFER

www.groundwater.org

A PUBLICATION OF THE GROUNDWATER FOUNDATION

Connecting people, businesses, and communities through local groundwater education and action, making us all part of the solution for clean, sustainable groundwater.



Leading the Way

2017 Groundwater Foundation National Conference Visits Boise, Idaho

by Jennifer Wemhoff, The Groundwater Foundation

The Groundwater Foundation's relationship with Boise goes back to the pilot year of the Groundwater Guardian program in 1994. The Foundation brought its 2017 National Conference to the vibrant city October 24-26. Boise greeted us with gorgeous blue skies, bright, warm sunshine, and brilliant fall foliage.


A pre-conference tour on the 24th highlighted groundwater remediation as part of park construction. That evening, the conference officially kicked off with a reception at the Boise WaterShed Environmental Education Center. The Center is housed at the West Boise Water Renewal Facility, where attendees played around with the hands-on exhibits and interactive artwork, and strolled around the park-like setting.

To start the day on the 25th, former Director of the Southern Nevada Water Authority in Las Vegas Pat Mulroy's keynote launched discussions about groundwater management in a climate-changed world. The day continued with excellent speakers in breakout sessions focusing on groundwater research, understanding and mitigating risks, tools for groundwater management, education as a protection tool, and policy. A luncheon recognized the efforts of Groundwater Guardian teams, as representatives made the rounds and told their community's groundwater story. The day concluded with a networking cocktail hour.

The final day of the conference started with a focus on groundwater sustainability, with Bill and Rosemarie

Alley talking about groundwater as the "neglected child of the water world." The conference concluded with case studies and real-world examples of collaboration to protect and manage groundwater, and giving participants a call to action.

Special thanks to conference Supporting Sponsors Boise City Public Works, Idaho Department of Environmental Quality, Republic Services, Senninger Irrigation, and Southern Nevada Water Authority, as well as Idaho Water Education Foundation, Marshfield Utilities, National Ground Water Association, and Valmont Foundation for additional support.

Find a summary of conference presentations and speaker information and a photo gallery at www.groundwater.org/conference. 

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Recharging Groundwater Education Project Moves Forward

The Groundwater Foundation was awarded funding from the U.S. Environmental Protection Agency (EPA) Region 7 and the Nebraska Department of Environmental Quality (NDEQ) to move forward with Phase 2 of the Recharging Groundwater Education Project. Additional support has been provided by Central Nebraska Public Power and Irrigation District, Eagle Printing and Sign, and Midwest Laboratories.

In the project's first phase, The Groundwater Foundation developed educational toolkits featuring the Awesome Aquifer Kit for elementary and middle school level students and the Hydrogeology Challenge for high school students.

The project includes conducting professional development workshops to train educators in using these toolkits to directly involve students in problem-solving and critical thinking around local environmental threats to their water supply.

Feedback from educators that participated in phase I was positive, with most indicating they planned to utilize the tools and resources in their classrooms.

Partnering with the Nebraska Department of Education, the Nebraska Association of Natural Resource Districts, the Nebraska USGS Science Center, NDEQ, EPA Region 7, Valmont Industries, and Olsson Associates, the toolkits will be incorporated into statewide groundwater science curriculum that is aligned with Next Generation Science Standards (NGSS) and the Nebraska College and Career Ready Standards for Science (NE-CCRSS).

Informal educators, including Groundwater Guardian team members, will also have access to activities within the toolkits as well as have the opportunity to apply for sub-awards to carry out teacher trainings and mentorships in their own communities.

It is the goal of the Groundwater Foundation, its partners and participants that students gain career-related experience and be better prepared to address groundwater issues threatening their community in the future through this project.💧

Memorials for Nebraska Farmer and Land Steward Honor The Groundwater Foundation

The Groundwater Foundation was privileged to be the beneficiary of memorials to the life of Loren Else, who passed away July 23, 2017.

Else, who was 85 and lived in Hebron, Nebraska, devoted his life to the earth and to his family. Else began his farming career with his father, Floyd, who was the first in the county to drill an irrigation well on his cropland. With a little bit of money and his undying passion for farming and improving all land under his care, he built a foundation on which his family continues to stand and grow.

Else's commitment to his community echoes that of the Foundation's. He believed that if something was important to you and your family, it was worth the investment of time and energy. He was an active member of local boards and organizations.

Else and his wife, Audrey, had four children, five grandchildren, and eight great-grandchildren.

The Groundwater Foundation is honored to have been the recipient of memorials to Loren Else, and thanks him and his family for the stewardship of the land and natural resources.💧

Jane Griffin Appointed to National Advisory Council

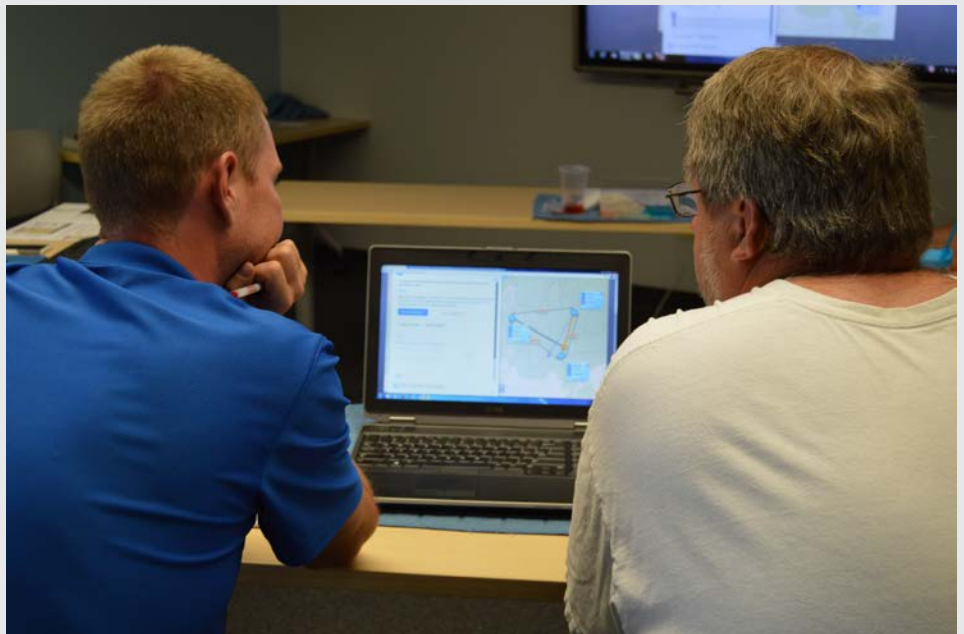
Groundwater Foundation President Jane Griffin was recently appointed to the National Environmental Education Advisory Council (NEEAC).

The Council is comprised of representatives from organizations other than the federal government who provide U.S. EPA with advice on environmental education. As a member of the Council, Griffin will provide EPA with a better understanding of the needs of schools, universities, state departments of education and natural resources and educational organizations.

"I look forward to sharing the knowledge gained from our experiences working with formal and informal educators," said Griffin.

The Council is composed of 11 members, representing different stakeholder perspectives, regions, and sectors. "I'm excited to work with this group of individuals in order to provide youth with meaningful educational experiences learning about our magical and delicate environment," Griffin said.

For more information about the NEEAC, visit www.epa.gov/education/national-environmental-education-advisory-council.💧



▲ Educators learn how to utilize educational tools like the Hydrogeology Challenge in the first phase of the Recharging Groundwater Education Project. The project's second phase will expand teacher trainings and access to resources to formal and informal educators across Nebraska and provide sub-awards to communities to hold their own training sessions.

Study Estimates about 2.1 Million People Using Wells High in Arsenic

A new study by the U.S. Geological Survey and Centers for Disease Control and Prevention estimates about 2.1 million people in the U.S. may be getting their drinking water from private domestic wells considered to have high concentrations of arsenic, presumed to be from natural sources.

"About 44 million people in the lower 48 states use water from domestic wells," said Joe Ayotte, a USGS hydrologist and lead author of the study. "While we're confident our research will help well owners understand if they live in an area of higher risk for arsenic, the only way for them to be certain of what's in their water is to have it tested."

Using a standard of 10 micrograms of arsenic per liter - the maximum contaminant level allowed for public water supplies - the researchers developed maps of the contiguous U.S. showing locations where there are likely higher levels of arsenic in groundwater, and how many people may be using it.

Nearly all of the arsenic in the groundwater tested for this study and used to map probabilities is likely from natural sources, and is presumed to be coming primarily from rocks and minerals through which the water flows.

The findings highlight the importance of private well owners working with their local and state officials to determine the best way to test and, if necessary, treat their water supplies.

"Fortunately, in most areas of the country and with appropriate safeguards, the majority of homeowners can get good quality drinking water from private wells," said Ayotte. "But this study is a good reminder that prudent, routine testing of the water, including its interaction with the water supply system, is an essential first step so homeowners and their families can confidently drink water from their faucets."

Using water samples from more than 20,000 domestic wells, the researchers developed a statistical model that estimates a region's probability of having high arsenic in domestic wells. They used that model in combination with information on the U.S. domestic well population to

estimate the population in each county of the continental United States with potentially high concentrations of arsenic in domestic wells.

"One of our study's basic assumptions is that the probability of high arsenic can be estimated by a statistical model. We also assume that the domestic water use population is represented by census information used in the study," said Ayotte.

Some of the locations where it's estimated the most people may have high-levels of arsenic in private domestic well water include:

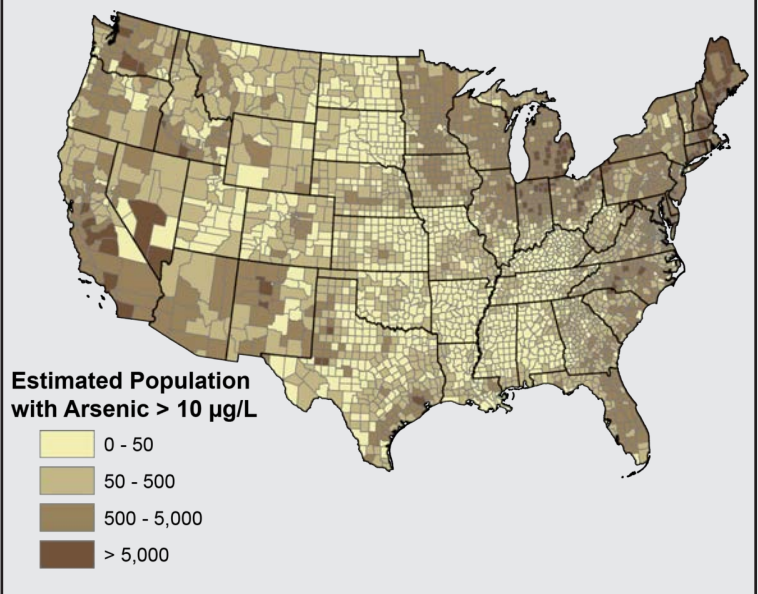
- Much of the West - Washington, Oregon, Nevada, California, Arizona, New Mexico
- Parts of the Northeast and Midwest - Maine, Massachusetts, New Hampshire, New Jersey, Maryland, Michigan, Wisconsin, Illinois, Ohio, Indiana
- Some of the Atlantic southeast coastal states - Florida, Virginia, North Carolina, South Carolina

"Although high-arsenic wells can occur in all 48 contiguous states, it is more prevalent in some states than in others," said Ayotte. "The study did not include Alaska and Hawaii."

The researcher provided a cautionary note that while the study provides state and county estimates, they are not intended to take the place of more detailed or local information that may already be available in some areas.

Long-term exposure to arsenic in domestic wells may cause health-related problems, including an increased risk of cancer. Testing and, if necessary, treating the water is an effective way

▼ This map shows estimates of how many private domestic well users in each county may be drinking water with high levels of arsenic. An estimated 2.1 million people throughout the U.S. may be drinking domestic well water high in arsenic.



of reducing or eliminating the concern. A CDC fact sheet (www.epa.gov/sites/production/files/2014-03/documents/arsenic_factsheet_cdc_2013.pdf) provides more information, as does the CDC's Agency for Toxic Substances and Disease Registry (www.atsdr.cdc.gov/phs/phs.asp?id=18&tid=3).

"Ultimately, this study should be helpful not only in assessing the likelihood of people being exposed to arsenic in domestic well water, but the results of the study may assist other researchers evaluate situations where adverse health outcomes such as cancers or adverse birth outcomes may be related to environmental factors," said Ayotte.

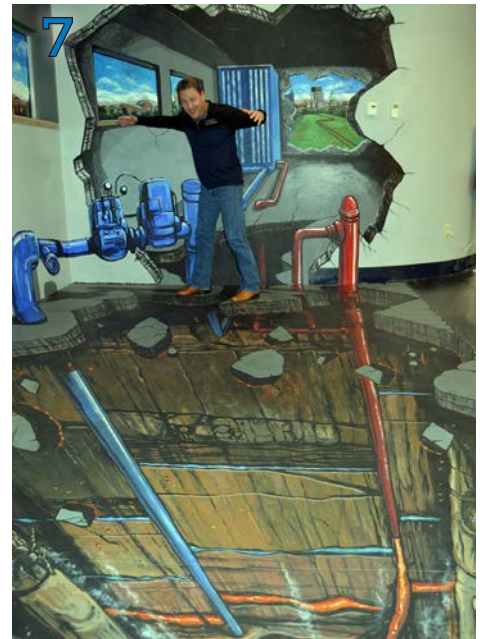
Public water supplies are regulated by the U.S. EPA, but maintenance, testing and treatment of private water supplies are the sole responsibility of the homeowner. About 44 million people in the U.S. get their drinking water from private wells, yet surveys indicate many homeowners are unaware of some basic testing that should be done to help ensure safe drinking water in the home.

The study, "Estimating the high-arsenic domestic well population in the conterminous United States" by J.D. Ayotte, L. Medalie, S.L. Qi, L.C. Backer, and N. T. Nolan is available online in *Environmental Science and Technology* (<http://pubs.acs.org/doi/abs/10.1021/acs.est.7b02881>).

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1. Bill Alley, National Ground Water Association, and Rosemarie Alley give a keynote address about groundwater management. **2.** Ed Hagan, Idaho Department of Environmental Quality, speaks in a breakout session. **3.** Adam Hutchinson, Orange County Water District, discusses wastewater recycling efforts in California. **4.** The conference opened with a reception at the Boise WaterShed Environmental Education Center. **5.** A tour explored groundwater remediation during the construction of a Boise Greenbelt park. **6.** Pat Mulroy, former director of the Southern Nevada Water Authority, discussed the challenges and opportunities of groundwater and climate change in a keynote presentation. **7.** James Burks of Senninger Irrigation enjoys the interactive artwork during the opening reception at the Boise WaterShed Center. **8.** Participants enjoyed networking opportunities to connect with their groundwater peers. **9.** Participants enjoyed a variety of topics during breakout sessions, including research, education, and groundwater management. **10.** Chaunsey Chau-Duong of the Southern Nevada Water Authority, gives a breakout presentation. **11.** Catherine Chertudi of the City of Boise and Boise Groundwater Guardian team served as the conference host. **12.** Kirk Welch of the North Plains Groundwater Conservation District speaks at the Groundwater Guardian recognition luncheon. **13.** Bob Swanson, U.S. Geological Survey Nebraska Water Science Center, speaks in a breakout session. **14.** Groundwater Guardian teams served as rotating panelists and told their community's groundwater story during a luncheon.





Finding the Ways that Work: Groundwater Management in the Western U.S.

by Kate Gibson, Robert B. Daugherty Water for Food Global Institute

Whether it is used as a primary water source or as a buffer for variable surface water supplies, groundwater provides water security to support economic development worldwide.

However, groundwater is a difficult resource to manage and presents challenges that are distinct from those related to surface water management.

The Robert B. Daugherty Water for Food Global Institute and the Environmental Defense Fund have partnered in an attempt to address the challenge of understanding and translating best practices for groundwater management. Their pending collaborative report, *The Future of Groundwater in California – Lessons in Sustainable Management from Across the West*, seeks to provide guidance to groundwater managers in California and beyond by drawing on the diverse experience of water management programs from across the western U.S.

Going beyond the typical technical guidance, the report attempts to get at the “story behind the story” by drawing upon varied experiences of groundwater management to try to understand what works and what doesn’t. The report uses nine case studies from six states to present key lessons learned. Case studies are from Arizona, California, Colorado, Nebraska, Oregon, and Texas, and represent a wide range of hydrology, climates, legal structures, and water uses.

The report begins by breaking down the issues that drive groundwater policies:

- Surface water and groundwater interactions
- Long-term aquifer depletion
- Water quality
- Other concerns

Interactions between surface water and groundwater are significant

drivers of groundwater policy across the western U.S. while, in general, long-term aquifer depletion and water quality concerns have been less likely to produce binding groundwater policy changes.

Many types of water management tools are available to water managers, ranging from strict regulations to voluntary efforts. Water managers can seek to change behavior of water users by using tools that are not intended to provide financial incentives, also sometimes referred to as “command and control” approaches. Alternatively, incentive-based tools seek to change behavior through providing direct financial incentives. Managing agencies can also take action to manage water resources on behalf of water users in the district. These actions can be categorized as agency supply augmentation and protection tools. Lastly, many water managers rely heavily on voluntary tools such as education and outreach efforts. All of these tools are present in varying degrees across the nine case studies featured in the report.

The report distills the key elements of effective groundwater management into five themes:

- The importance of building trust
- The need for data
- Using a portfolio of approaches
- Assuring performance
- Access to adequate funding

BUILDING TRUST

Perhaps the most important element of groundwater management is building trust. It is vital that the people who are impacted by groundwater management policies understand and trust management goals for a program to be effective. In many of the case studies, trust building began by having broad community involvement from an early stage.

Data can also be a powerful tool to visualize current groundwater

conditions and show potential future impacts to groundwater resources. A community member who is skeptical of new groundwater use policies may be convinced otherwise if shown that their presently unaffected groundwater well could be impacted by groundwater quality degradation or lowering groundwater levels in the future. Use of data can give credibility to water managers and give the community a sense of ownership in the management program.

Other approaches to build trust with the community include involving key stakeholder groups in the planning process and providing beneficial resources to the community, such as recreation services or agricultural cost-share programs.

THE NEED FOR DATA

Data are critical for groundwater management decision making, whether that's having an accurate record of groundwater levels or having flow meter data to track water use.

However, data collection is time consuming, costly, and often controversial. It is therefore important for water managers to carefully consider how much data is "enough" data to avoid unnecessary costs and jeopardizing community trust.

USING A PORTFOLIO OF APPROACHES

Across the case studies, water managers relied on a multitude of management tools and strategies. While there can be a tendency to want to choose one tool as a panacea (water metering for example), groundwater management as highlighted in the case studies typically begins with a permitting framework, a tracking system, educational component, and funding source. Once this initial framework is established, it becomes easier to add additional tools that are appropriate for local conditions.

ASSURING PERFORMANCE

Effective groundwater management requires a system of monitoring and enforcement to ensure that water users are complying with management policies. Without monitoring to detect noncompliance and subsequent enforcement of the policy, there will always be an incentive for water users to ignore management requirements. However, monitoring and enforcement is often unpopular, incurring significant social, financial, and political costs.

FUNDING

All of the case studies illustrated the need for adequate funding to meet groundwater management goals. Regardless of what approaches are used, groundwater management requires long-term financial resources to support education and outreach, infrastructure improvements, data collection and modeling, and monitoring and enforcement programs. Water managers rely on a wide range of funding mechanisms to support their programs including taxes, bonds, state and federal grants, and user fees.

CONCLUSION

While new groundwater managers have their work cut out for them, there's no need to reinvent the wheel! Experience from groundwater management programs across the western U.S. provides valuable insight into aspects of groundwater management than can make or break a program. Building community trust, knowing what data are most important, using multiple approaches, assuring performance through monitoring and enforcement, and having adequate funding are critical - but not often obvious - components of groundwater management.

For a more in-depth look at the case studies and lessons learned, look for the release of the report, *The Future of Groundwater in California: Lessons in Sustainable Management from Across the West*, by the end of the year.

To learn more about the work that the Robert B. Daugherty Water for Food Global Institute does, visit waterforfood.nebraska.edu.

EDITOR'S NOTE

This article is a summary of the presentation given by Ms. Gibson at the 2017 Groundwater Foundation National Conference.

ABOUT THE AUTHOR

Kate Gibson is a program coordinator at the Robert B. Daugherty Water for Food Global Institute at the University of Nebraska. She manages policy-focused programs related to groundwater management and water security. Kate holds a Master's degree in agronomy and Bachelor's degrees in water sciences and environmental restoration from the University of Nebraska - Lincoln. Reach her at kgibson@nebraska.edu.



Risk Communication Training to Combat Nitrate Contamination

By Sara Brock, The Groundwater Foundation

The Nebraska Department of Environmental Quality (NDEQ), in collaboration with JEO Consulting Group, Inc. (JEO), has developed a series of five risk communication workshops for community leaders and stakeholders that are working to reduce nitrate contamination in groundwater. These workshops are a step towards establishing a statewide campaign on nitrates, including a wide array of partners, and developing a unified message on reducing nitrate contamination by completing the following goals and objectives:

1. Workshop participants, including Natural Resources District (NRD) staff, project partners and stakeholders, encourage the public to adopt best management practices at public meetings, stakeholder meetings, public open houses, and by talking to land owners or producers.
2. Provide participants with a working understanding of science-based risk communication principles and techniques to overcome communication barriers that can occur between communities, producers, municipalities, and regulatory agencies in voluntary solutions for nonpoint source contamination management.
3. Complete hands on training, group exercises, and group-specific scenarios to practice risk communication techniques, which will allow participants to successfully communicate and build trust in difficult situations including all forms of public presentations and public meetings.

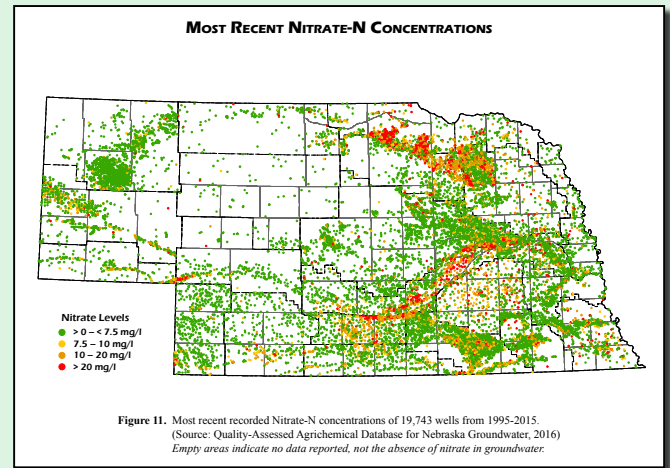
The first workshop was August 22-23 in Norfolk, Nebraska, which lies just south of the newly designated Bazile Groundwater Management Area (BGMA), which encompasses parts of four NRDs, three counties, and eight towns. It was led by Steve Wolf, senior facilitator and public involvement strategist with JEO, who has 37 years of experience in issues management that includes several years with the U.S. Department of Defense Environmental Public Affairs Policy Advisory Board. Risk communication,

Wolf stresses, is a two-way street: a purposeful exchange of information between the public, the experts, and decision makers. With so many individuals involved in the BGMA, effective risk communication is essential. To that end, the participants at the workshop were a diverse group of stakeholders with interests inside the BGMA, including commodity groups such as the Nebraska Cattlemen's Association and Farm Bureau, agencies like the NRDs, and representatives from local utility districts.

"The universal goals of risk communication are firstly, to establish trust and credibility in the message and the messenger and secondly, to create a collaborative environment in which to solve a problem," Wolf states.

Nitrate contamination and treatment is a highly controversial topic in an agricultural state so readily supplied with fresh groundwater, like Nebraska. In 2012, an acute drought caused groundwater shortages throughout the state and contributed to a spike in nitrate concentrations in the Lower Elkhorn NRD (LENRD), bringing attention and support to finding a solution for this issue that was long in the making.

Brian Bruckner, LENRD assistant general manager, recalled the wake-up call to treat drought as a natural disaster, i.e. something to plan for and take measures to reduce negative impact on residents in the area. When developing Wellhead Protection (WHP) plans with communities, it is not uncommon to meet stiff resistance from farmers and producers who are worried about government regulation over their operations. Without the assistance of local zoning councils or NRDs, comprehensive WHP plans are virtually impossible to pass and enforce because many WHP area boundaries lie outside a community's jurisdiction. Wolf emphasizes this point time and time again in his workshop curriculum.



Agencies hoping to significantly change farming practices in Nebraska need to reframe their message so that the public is informed but not needlessly bogged down with technical information. Likewise, agencies can't ignore the years of experience and stewardship of landowners who must inform the agencies whether or not these formal assessments are valid.

The focus of the workshops is not just a study in how and why people react the way they do. They are also a concerted effort to provide community leaders, with various public affairs experience, a toolbox with which they can effectively communicate the hot-button topic of nitrate contamination. Armed with realistic scenarios provided by NDEQ, Wolf is able to provide hands-on training on how to give presentations at public meetings using risk communication skills participants learn in the workshops. Examples of how to avoid contentious public hearings and increase public education by employing an "open-house" style public hearing was a unique and popular tool according to first workshop's participants. The LENRD plans to use this innovative format to hold a public hearing around drought mitigation in late 2017. Bruckner explained that informational booths would be displayed outside of the hearing room, in a sort of quasi-open house layout, thus shifting the hearing's atmosphere from one of dominance to one of dialogue. A station or room would be dedicated to providing written testimony, giving supporters and opponents a chance to be heard without the pressure of speaking publicly.

Recognizing Service to Groundwater

Jack Daniel to Receive 2017 Kremer Award

Jack Daniel, retired Administrator of the Office of Drinking Water and Environmental Health at the Nebraska Department of Health and Human Services (DHHS), has been selected to receive the 2017 Maurice Kremer Groundwater Achievement Award.

The Kremer Award is presented annually by the Groundwater Foundation to an outstanding Nebraskan who has made a substantive contribution to the conservation and protection of Nebraska's groundwater.

"Jack has been important to Nebraska's water resources," said Groundwater Foundation President Jane Griffin. "Nebraska's groundwater has benefited from Jack's decades of work. On behalf of all of us at the Groundwater Foundation I am honored to recognize Jack with the Kremer Award."

The Kremer Award is chosen each year by a selection committee appointed by the Groundwater Foundation's Board of Directors. It is named for Senator Maurice Kremer, who spent 20 years in the Nebraska Legislature where he was best known for his contributions toward protecting the state's water resources, earning him the nickname "Mr. Water."

Daniel is a native of Crete, Nebraska. He earned a degree in Wildlife Biology from South Dakota State University in 1967. He served in the Nebraska National Guard as a field radio specialist before an honorable discharge in 1972, then went on to receive a Masters of Environmental Science Degree from the University of Oklahoma.

Daniel started at the Nebraska Department of Health in 1968, then served at DHHS from January 1997 through his retirement in December

2014. He worked primarily with the department's Public Water Supply Program, Water Well Contractors' licensure program, and other environmental health programs. He also served two terms on the Association of State Drinking Water Administrators.

Since retiring, Daniel continues his hobbies of beekeeping, bird-watching, and managing the land to promote wildlife. He manages 170 acres of CRP ground focused on pollinator-related crops and flowers. Daniel believes long-term land management is critical to promoting environmental diversity, and that strong leadership is important to ground and surface water management.

Selection committee member and past Kremer recipient Lee Orton nominated Daniel for the award. "My main reason for nominating Jack was because of his 'can do' management style," Orton said. "His attitude about finding ways to get things done versus finding reasons why something could not be done helped Nebraska become a leader in groundwater research, management and national leadership contributions."



▲ Jack Daniel, retired Administrator of the Office of Drinking Water at Nebraska Department of Health and Human Services.

For more information about the Maurice Kremer Groundwater Achievement Award, please visit www.groundwater.org/kremer. ♦

PAST KREMER AWARD WINNERS

2016: Tom Carlson	2008: Ann Bleed	1999: Richard Harnsberger	1992: Ted Filipi
2015: Susan Seacrest	2007: Jim Cook	1998: Les Sheffield	1991: Ralph Marlette
2014: Robert Kuzelka	2006: Ed Schrock	1997: Robert B. Daugherty	1990: Warren Fairchild
2013: Ron Bishop	2005: Roger Patterson	1996: Frank A. Smith	1989: Val Kuska
2012: Dayle Williamson	2004: Darrell Watts	1995: Fred Salmon and Family	1988: Eugene Reed
2011: Lee Orton	2003: Chris Beutler	1994: Virginia Smith	1987: Maurice Kremer
2010: J. Michael Jess	2002: Eugene Haarberg	1993: Robert B. Crosby	1986: Vincent Dreeszen
2009: Vance Anderson	2001: Jim Goeke		
	2000: Wayne Madsen		

Jason Kvols, Northeast Regional Director of Farm Bureau, noted that in previous public hearings, leaders or board members were often situated on a stage or platform with members of the gallery seated slightly lower. The style presented by Wolf, however, removed that power dynamic and placed opponents and proponents on an even footing, moving the perception of the hearing away from "Us against You" to encouraging dialogue.

Both Kvols and Bonita Lederer, Nebraska Cattlemen's Association, are working to incorporate this dialogue-centric style of hearing into their internal

communication. Lederer believes that an important next step for the Association is to include outreach articles in their news publication, and begin introducing NRDs and other regulatory agencies outside times of crisis. Preemptively establishing trust between the members the public and those regulating WHP or groundwater management areas is a vital step in creating an environment where everyone works together to combat nitrate contamination. Lederer and Kvols, who represent the interests and experience of producers and farmers, returned to their organizations with a clear, unified message of

groundwater protection.

Developing a statewide effort to reduce nitrates in groundwater first requires the establishment of trust and credibility in the message and the messenger. While many communities struggle with fear, doubt, and denial, it is possible to reframe the message into education and voluntary cooperation where scientists, decision-makers, and farmers can learn from each other and create an integrated groundwater management model.

For more information about the risk management workshop series, please visit www.deq.state.ne.us. ♦

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10 Years of Collaborative Source Water Protection

Source Water Collaborative Began in 2006

2016 marked the Source Water Collaborative's 10th year. In 2006, 14 national organizations including the Groundwater Foundation, concerned about the implications of shifting landscapes and quickly expanding developments on the safety and sustainability of drinking water supplies, gathered to discuss how together they could help make source water protection an integral part of land use and development decisions. The meeting objective was simple: define a broad agenda to guide their collective efforts and bring new energy and awareness to source water protection. What started as an opportunity to converse, build shared understanding, and improve coordination quickly grew into something more. New source water assessments, years in the making, had recently been completed for over 160,000 public water systems. Attendees realized they were faced with an opportunity, that by acting together now, they could protect sources of drinking water for generations to come.



and participation at high-profile national conferences have greatly expanded the Collaborative's reach and impact.

Central to this success has been a readiness to adapt. Challenges to securing clean drinking water are becoming more complex and more interdependent across sectors and geographies. Aging infrastructure, increasing water demand, extreme weather, emerging contaminants, and rapidly developing landscapes are taxing capacities and driving up the cost of water treatment, underscoring our dependence on a secure water supply and the urgency of source water protection. As challenges emerge and shift, we will continue to be open to working in new ways, taking advantage of new technologies to reframe problems and crowdsource solutions, as it has in this year's Reinforce the Source Innovation Challenge.

While the last ten years have been marked by change, the core principle that defined those early meetings — that by working together and combining their strengths, resources, and will to action, this diverse set of member organizations would be able to realize far greater successes than by working alone — still provides the foundation of the Collaborative's approach and success today.

Current members include: American Planning Association, American Rivers, American Water Works Association, Association of Clean Water Administrators, Association of Metropolitan Water Agencies, Association of State and Territorial Health Officials, Association of State Drinking Water Administrators, Clean Water Action, Clean Water Fund, Environmental Finance Center Network, Ground Water Protection Council, Groundwater Foundation, National Association of Conservation Districts, National Association of Counties, National Environmental Services Center, National Ground Water Association, National Rural Water Association, North American Lake Management Society, River Network, Rural Community Assistance Partnership, Smart Growth America, Trust for Public Land, U.S. Department of Agriculture - Farm Service Agency, USDA-NRCS, U.S. Environmental Protection Agency, U.S. Forest Service (Northeastern Area), U.S. Geological Survey, and the Water Systems Council. Find out more at www.sourcewatercollaborative.org.