Tools for Sustainability

2013 Groundwater Foundation Conference a Success
By Cindy Kreifels, The Groundwater Foundation

Where is Howey-in-the-Hills, Florida anyway? Yes, that was the location for The Groundwater Foundation’s 2013 National Conference. Conference participants now know that it is located just 45 minutes northwest of the Orlando Airport in a very scenic part of Florida. And the Mission Inn Resort is something conference participants are still talking about – scenic, beautiful, great service, good food. All ingredients for a great conference – and it was!

As always, it was the speakers and the participants who made the conference a success. The conference began on October 15th with two interactive workshops that afternoon. The Groundwater Guardian workshop had people from all over the United States, France, and Indonesia sharing efforts happening in their community. It was a one hour workshop and participants were wishing for more time to share and learn from one another, which is exactly what the Groundwater Guardian program is all about. To learn more about Groundwater Guardian, visit http://www.groundwater.org/action/community/guardian.html.

Sustainability, continued on page 4
Resources Available for Private Well Owners

The National Ground Water Association (NGWA) invites household well owners to take advantage of a new hotline, a monthly tip sheet, and other training and technical assistance tools.

The goal of the U.S. Environmental Protection Agency-funded cooperative agreement with NGWA is to increase the knowledge of private well owners in the 50 states, territories, and tribal lands so they can act in ways that reduce risks to their drinking water supplies.

The toll-free private water well owner hotline, 855-H2O-WELL (855-420-9355), is now active. Over the next year, NGWA also will develop and make available:

- A monthly e-mailed tip sheet for private water well owners, and state and local officials involved in private water well matters
- A series of Webinars also targeted to private water well owners and state and local officials involved in private water well-related matters
- A series of learn-at-your-own-pace online training modules about important water quality-related subjects including water testing and water treatment, groundwater protection, well maintenance, and well construction.

NGWA will promote the training and technical assistance tools by waging a year-round public awareness campaign and through its website dedicated to private well owners, www.WellOwner.org.

“All these training and technical assistance tools will be easily accessible through the Internet, free and available 24 hours a day,” said NGWA Public Awareness Director Cliff Treyens. “Even the Webinars will be recorded and uploaded for viewing at any time.”

Treyens said NGWA will be proactively contacting state and local officials as the new tools become available and inviting them to not only review and use the tools themselves, but also promote them to the public.

“Our shared goal is to help well owners know and take steps that will help reduce risks to their water supplies so that they have adequate, safe drinking water,” he said.

Wasting Food = Wasting Natural Resources

The waste of a staggering 1.3 billion tons of food per year is not only causing major economic losses but also wreaking significant harm on the natural resources that humanity relies upon to feed itself, says a new Food and Agriculture Organization of the United Nations (FAO) report released in September.

Food Wasteage Footprint: Impacts on Natural Resources is the first study to analyze the impacts of global food wastage from an environmental perspective, looking specifically at its consequences for the climate, water and land use, and biodiversity.

Each year, food that is produced but not eaten guzzles up a volume of water equivalent to the annual flow of Russia’s Volga River and is responsible for adding 3.3 billion tons of greenhouse gases to the planet’s atmosphere.

In addition to its environmental impacts, the direct economic consequences to producers of food wastage (excluding fish and seafood) run to the tune of $750 billion annually, FAO’s report estimates.

A separate analysis reports that one out of every four calories produced by the global agricultural system is being lost or wasted, posing a serious challenge to reduce hunger and meet the food needs of a rapidly-expanding global population.

The analysis, Reducing Food Loss and Waste, shows that more than half of the food lost and wasted in Europe, the United States, Canada, and Australia occurs close to the fork, at the consumption stage. By contrast, in developing countries, about two-thirds of the food lost and wasted occurs close to the farm, after harvest and storage.

The report was produced by the World Resources Institute (WRI) and the United Nations Environment Programme (UNEP), and draws on research from the FAO.

According to the study, the world will need about 60 percent more food calories in 2050 compared to 2006 if global demand continues on its current trajectory. Halving current rates of food loss and waste, say the authors, would reduce this gap by a fifth. This would also result in major savings in water use, energy, pesticides and fertilizers, and would be a boost for global food security.

“Beyond all the environmental benefits, reducing food loss and waste will save money for people and companies,” said Craig Hanson, Director of WRI’s People & Ecosystems Program and co-author of the study.

“It is an extraordinary fact that in the 21st century, close to 25 per cent of all the calories linked with growing and producing food are lost or wasted between the farm and the fork-food that could feed the hungry, food that has required energy, water and soils in a world of increasing natural resource scarcities and environmental concerns including climate change,” said Achim Steiner, UN Under-Secretary General and UNEP Executive Director.

The study discusses simple, low-cost solutions for reducing food waste that are paying dividends. Replicating and expanding these initiatives could significantly reduce the 1.3 billion tons of food lost or discarded worldwide every year, and make major improvements to global resource efficiency. The report shows, for example, that water used to produce lost or wasted food around the world each year could fill 70 million Olympic-sized swimming pools, while the amount of cropland used to produce wasted food is equivalent to the size of Mexico. Some 28 million tons of fertilizer are used annually to grow this lost and wasted food. The inefficient use of fertilizers is linked to the growth of “dead” coastal zones around the globe and to climate change.

To find more information on these studies, visit www.unep.org.
You’re Only Using it Once?
Water Reuse Could be the Solution to Water Shortages
By Greg Reyneke, CWS-VI, Red Fox Advisors

A focus on international water quality and resource management issues brings a stark reminder to those of us who live in developed countries where clean, safe, clear water flows effortlessly from municipal supplies at the turn of a tap. We have a finite amount of water on this planet and most of it is entirely unfit for human consumption. A seemingly limitless supply of clean municipal water is a testament to the hard-working men and women involved in capture, storage, purification and distribution of water to homes, business and industry. They keep this precious resource flowing without fuss or fanfare and we seem to have an infinite supply, limited only by how often we leave the faucet running.

The truth, of course, is starkly different. We have barely enough for our needs, we’re wasting what we do have and many people around the world don’t have any at all. The solution to water shortages is simple: water reuse.

Water reuse is the capture, storage, treatment and repurposing of wastewater. Since much of our water usage leaves relatively clean waste, it is sensible to take the water and repurpose it for use in other applications. Naturally, the ‘ick’ factor comes into play when people hear terms like toilet-to-tap, or ‘recycled’ water, but that is really a naive and foolish outlook on a legitimate water, but that is really a naïve and sensible way to safely reuse greywater for residential and industrial applications. Naturally, one must always remember that recovered greywater is still greywater, not drinking water, and should only be used where it is clearly marked as non-potable water. It should also never be used where it could aerosolize and expose humans to airborne contaminants.

Landscape irrigation with greywater should be reserved for drip-style applications where the water emitter is covered by soil or mulching material (see Figure 2).

Toilet-to-tap is the recovery of ‘black water’ (water with a very high BOD and often containing fecal matter). There has been significant resistance to implementation of this practice, mainly due to misconception about how the technology works. Current best practices include progressive pretreatment stages and final barrier technologies like ultraviolet radiation, in addition to germicidal UV radiation and oxidation to ensure removal of pathogens, as well as significant reduction of complex organics like pharmaceuticals.

Current technology ensures that this recovered water is cleaner and safer than many municipal supplies in use today. Nations like Singapore are currently leading in large-scale implementation of recovered water (they call it NEWater) where over 15 percent of their municipal water is recovered black water. In the US, California and New Mexico have allowed pilot plants where recovered water is either blended with existing municipal water or pumped back into aquifers to help maintain normal groundwater levels.

I know, you’re probably sitting there grimacing as you read about recycled water, but don’t forget: the hydrologic cycle is nature’s own recycling mechanism. Your water today is in your future. It’s a good point. Recovered and repurposed water is in your future. It’s a good thing—get used to it.

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About the author: Greg Reyneke is Managing Partner at Red Fox Advisors, a multidisciplinary research, development and consulting company with a strong emphasis on water, air, microbiology and energy projects. He also serves as an advisor to the ProFlow Dealer Network, a Pentair Platinum Partner and is a member of the WCC&P Technical Review Committee.
The second workshop on environmental education was very well attended. Participants ranged from local middle school students to water professionals, who each learned more about groundwater through the use of an Awesome Aquifer modeling kit (which they were able to take home with them). Comments from participants ranged from “I plan to incorporate it into my community” to “The education tools were simple, easily understood by children.”

That evening, when Lake County Commissioner Sean Parks entertained conference participants at dinner, the trivia about the local area and its groundwater wasn’t nearly as simple! It is certain that we all know more about water in Lake County than we did before.

Throughout the conference, engineers, utility managers, educators, business leaders, citizens, local, county, and state leaders, students, attorneys, and city planners communicated with one another sharing thoughts, ideas, and potential solutions to groundwater sustainability issues. Networking has always played a huge part in the success of this conference and this year was no exception.

We were all looking for ways to ensure clean, sustainable groundwater for future generations and while every answer was surely not discussed, participants went home feeling like they had new tools and the knowledge to implement projects or programs in their community to accomplish this goal. It was gratifying to see people learning so much from one another.

“To be effective, groundwater management must consider environmental, social, and economic needs,” said John Jansen, the National Ground Water Association’s McEllhiney speaker. What are the tradeoffs between using the groundwater and the changes to the environment? It is impossible to use a natural resource without impacting it. The best we can do is understand the impacts, minimize the impacts we can, and manage the impacts we can’t minimize. Jansen pointed out the importance of having good data stating, “You can’t manage what you don’t measure.”

The Central Florida Water Initiative (CFWI) is doing just that, according to Tom Bartol of the St. Johns River Water Management District. CFWI is made up of several counties, parts of three water districts, and many local governments. The goal of the CFWI is to work together to develop the first ever regional water supply plan to ensure protection of water resources and related natural systems. The first step was to develop one shared groundwater model of the area so that everyone was working with
the same information. Bartol shared many of the aspects of the initiative, stating that collaboration can be more painful but in the end you come out with a better product.

Collaboration was a common theme throughout the conference, which was modeled by unique programs like the Michigan ByProduct Synergy Initiative, Groundwater Education through Water Evaluation and Testing (GET WET), Aquifer Watch, and the FARMS program. Other common themes when working towards groundwater sustainability were the many challenges faced, such as political and regulatory environments, funding needs, and the vast number of needs for good clean water. As presenters considered the question of “What is Needed?” many spoke of thinking outside the box to develop solutions to needs. Common needs included creative partnerships, alternative water supplies, conservation efforts, engagement of policy makers and the public, and over and over again we heard that “Education is Key.”

As Jane Griffin, President of The Groundwater Foundation pointed out, “We rely on groundwater but it also relies on us to protect and conserve it.” And during the Groundwater Guardian and Groundwater Guardian Green Site Celebration Luncheon, Cathy Lotzer from Marshfield, Wisconsin Utilities stressed that there is power in one or two. She shared several quotes that emphasized that point, like from Helen Keller, who said “I am only one; but still I am one. I cannot do everything, but still I can do something; I will not refuse to do something I can do,” and Mahatma Gandhi: “In a gentle way, you can shake the world.”

So what does all this mean? First and foremost, it means we have work to do in order to be proactive in sustaining our groundwater resources. We need to continue to work towards groundwater sustainability, develop new collaborations, and think about regional or national collaborations, and most of all educate and re-educate as needed! As Christine Spitzley from Tri-County Regional Planning Commission in Lansing, Michigan said, “We are the champions of the resource and we must give groundwater a voice!” John Jansen echoed this sentiment, saying, “You are a vital and integral resource for groundwater’s future!” Yes, we have a lot of work ahead of us. Let’s get going.

Proceedings for the conference are available on the Groundwater Foundation’s website, http://www.groundwater.org/get-informed/opportunities/conference.html. Funding for the conference was provided by Senninger Irrigation, Inc., Southern Nevada Water Authority, Valmont Irrigation, Marshfield Utilities, and Lake County Board of County Commissioners, Lake County, Florida.

Students Present Original Research

Three students from the Oxbridge Academy of the Palm Beaches in West Palm Beach, Florida presented poster sessions of their original research and were able to interact with groundwater professionals attending the conference.

“It was truly an amazing experience being able to listen to and interact with professionals and be able to make connections with our previous year’s studies. My conversations with professionals were very captivating and I was surprised by the level of sophistication within the conversation I was able to attain with them. A few attendees had amazing experiences to share. I learned a lot from the professional setting and atmosphere. It was a great experience and I am glad I was able to attend.”

– Daniel Hutton

“The conference was informative and inspiring. I found the different methods and strategies ingenious for their design purpose. Additionally, I found the speakers to be inspiring, because of their dedication to informing the general public about the dangers of water quality in specific areas. I would attend another National Groundwater Foundation Conference, if the opportunity arises.”

– Corey Beckford

“Having the ability to attend a conference to present my high school research is an honor. I felt that I benefited greatly because I had the time to independently speak with professionals about my findings and their theories. The presentations given by these same experts helped advance my ideas and theories. Hearing about current groundwater issues allowed me to analyze my research with different perspectives. I would like to sincerely thank you for taking an interest in what I am doing and allowing me to go to this conference. I understand that as a future environmentalist it is my duty to educate the public on issues that may potentially affect them. I hope to see many of those I encountered in the near-future and see how we all progress in changing our world one environment at a time.”

– Isabella Bergonzoli
Skip the Salt
Making Strides to Reduce Salt Use in Wellhead Protection Areas
By Jeffrey M. Marts, Emery & Garrett Groundwater Investigations, LLC

Over the past several decades, the application of salt (sodium chloride or NaCl) for winter maintenance of parking lots and roadways has increased dramatically in rapidly developing areas of southern New Hampshire. After seeing steady increases of sodium and chloride levels in several of its Production Wells, the Merrimack Village Water District (MVD), a Groundwater Guardian Community since 1999, began investigating salt use within its three wellhead protection areas. Furthermore, the MVD decided to develop a plan that would reduce the impacts of sodium and chloride on groundwater quality within their water service district.

Sodium and chloride are problematic contaminants because they readily dissolve in water and do not degrade in the environment. Stormwater treatment facilities are ineffective at removing sodium chloride; dissolved salt can readily pass from a treated surface to the soil or wetland, where it can then infiltrate into the underlying aquifer.

Deicing agents can impart a salty taste to drinking water and, for that reason, the New Hampshire Department of Environmental Services (NHDES) adopted a Secondary Maximum Contaminant Level (SMCL) for chloride of 250 mg/l and 100-250 mg/l for sodium. The U.S. Environmental Protection Agency established a Drinking Water Advisory for sodium between 30 mg/l and 60 mg/l, based on taste thresholds. A Health Guidance Level for sodium between 30 mg/l and 60 mg/l, based on taste

EGGI evaluated the salt load in each of the three WHPAs from roadways, parking lots, driveways, residential septic systems, and atmospheric. Total annual salt loading in each ranged from 408 to 522 tons and ranged from 0.29 to 1.55 tons of salt per acre per year, depending on the type and degree of development present within each WHPA. By far, the major contributors of salt to each WHPA were roads and parking lots. Salt from roads and parking lots contributed to over 90% of the total salt load in each WHPA, with driveways, septic, and atmospheric sources contributing less than 6%.

Since the vast majority of the salt load affecting the salinity of the MVD aquifers is coming from winter maintenance of roads and parking lots, these sources were the major focus of the sodium chloride mitigation plan developed by EGGI. In Merrimack, roads are maintained by state, local, and private entities, while parking lots within the WHPAs are primarily privately maintained. Successful implementation of the mitigation plan is, therefore, dependent upon the participation of numerous stakeholders including, but not limited to, the MVD, the Town of Merrimack Public Works, the New Hampshire Department of Transportation, the Merrimack Planning Board, a variety of private property owners and maintenance contractors, as well as the public at large.

Several aspects of the mitigation plan are currently being implemented. The Merrimack Planning Board has conditionally approved several developments within sensitive areas of the WHPAs with strong, enforceable, no-salt use conditions. One innovative developer agreed to install heated sidewalks in high-pedestrian traffic areas to maintain public safety during the winter months while eliminating the need to use chemical deicers. Several road segments have been designated low or no-salt use, and both local and state agencies are implementing alternative salt application measures, such as using liquid brine, to reduce salt use on roads. The MVD is performing public outreach and encouraging public education, as well as promoting formal voluntary education of property managers and parking lot maintenance contractors. Plans are underway to continue to characterize the salt levels using automated conductivity dataloggers to determine the effectiveness of mitigation measures.

The MVD’s goal is to reduce salt use within each WHPA to stabilize salinity levels in all of the Production Wells and to eventually bring the salt levels back down to within state and federal guidelines. The MVD recognized that the status quo of ever increasing salt use was not sustainable from the standpoint of maintaining fresh groundwater sources and has taken decisive actions to protect water quality for future generations.

The Aquifer Fall 2013
Support from Groundwater Guardian Affiliate Allows Local Groundwater Education

By Marge Cook, Desert Hot Springs, California Groundwater Guardians

The Mission Springs Water District in Desert Hot Springs, California has grown from one square mile in 1953 to 135 square miles encompassing the City of Desert Hot Springs (DHS), a portion of Palm Springs and county areas from the Desert Edge Community to Whitewater serving a population of over 30,000. It has focused on protecting its award-winning groundwater resources – both the world renowned hot mineral water as well as the gold-medal drinking water – by seeking funds to expand the centralized wastewater treatment system and to remove septic tanks that overlie groundwater. The efforts of the Mission Springs Water District’s 60th Anniversary, the stewardship of local water resources, promoting the water identity of the community and through support of local service agencies and schools.”

Echoing The Groundwater Foundation’s mission to educate people and inspire action to ensure sustainable clean groundwater for future generations, the community of DHS became a Groundwater Guardian Community in 1995 through the combined efforts the City of DHS, the DHS Chamber of Commerce and Mission Springs Water District including Nancy Wright, MSWD Board of Directors and a former Director for The Groundwater Foundation. In 1997, MSWD became a Groundwater Guardian Affiliate followed by DHS High School as the nation’s first Groundwater Guardian Campus in 2000, and later the Desert Springs Middle School Groundwater Guardian Campus in 2005.

Mission Springs Water District provides funding, office space, and other support for the DHS teams’ Groundwater Guardian activities.

Among the community’s past and current Groundwater Guardian activities are the Mission Creek Preserve Field Trip Program in collaboration with The Wildlands Conservancy. The project was initiated in 2007 for DHS 4th-7th graders as well as high school science and social studies students, involving over 5,000 students. The Newspapers in Education “Groundwater & You” program features an eight-page supplement for the classroom. It was initiated in 2004 and reaches over 1,500 DHS high school and middle school students annually. The team has held overnight weekend educational experiences at Mission Creek Preserve, implemented an “Art in Public Places” Program involving DHS High School students who designed and produced both a water-related ceramic tile bench for a local museum and a ceramic tile wall for DHS Alternative Education Center on water resources.

The efforts of the community to educate people about the importance of groundwater would not have been possible without Mission Springs Water District, who has been a dedicated partner and champion of our efforts. As a result of their support, we have been able to continue to further The Groundwater Foundation’s mission to educate people and inspire action to ensure sustainable clean groundwater for future generations in Desert Hot Springs, California.
Ron Bishop has been a prominent figure in Nebraska’s water world – and because of his lifetime dedication to protecting and conserving groundwater he has been selected to receive The Groundwater Foundation’s 2013 Maurice Kremer Groundwater Achievement Award. Bishop will receive his award on November 25, 2013 at the Nebraska Water Resources Association and Nebraska State Irrigation Association joint convention in Kearney, Nebraska.

The Kremer Award was established in 1985 to recognize Nebraskans who have made a substantive contribution to the conservation and protection of Nebraska’s groundwater, as Nebraska is the home state of The Groundwater Foundation. The award was named after former Nebraska State 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.”

“[Ron Bishop] was an excellent sounding board during those times when I was developing groundwater management and protection guides for the Natural Resources Districts,” said Kremer selection committee member Bob Kuzelka. “He brought his NRD board into a progressive approach to groundwater management at a very early stage.”

Ron Bishop was the general manager of the Central Platte Natural Resources District (CPNRD) since the formation of NRDs in 1972, and has played a critical role in helping to develop the NRD structure and promoting the importance of natural resources conservation. He has written and testified on water and conservation Legislative bills in Nebraska and in Washington D.C. Nationally, he was one of the founding members of the Ground Water Management Districts Association (GMDA) in the 1980’s, serving as president from 1989-2002. He also served on the National Water Resources Association board representing groundwater since 1990.

In Nebraska, Ron truly has exemplified a career and life dedicated to conserving and managing Nebraska’s natural resources, working with the NRD Board of Directors in local, state and national conservation projects. He has served on the Nebraska Water Resources Association for over 30 years and received the George W. Norris Award for distinguished public service in 1985. During Ron’s tenure as general manager, the CPNRD has been innovative and accomplished many milestones to protect and conserve natural resources. This includes efforts such as implementing Nebraska’s first Water Banking Program which provides water for new and future uses and maintains economic sustainability in rural economies. First NRD to implement a Prescribed Fire Program for area landowners to manage rangelands, restore grasslands and control invasive species. First NRD to help irrigation districts convert surface water irrigation to groundwater irrigation, increasing efficiency by irrigating the same number of acres and returning excess water to the Platte River. Excess flows will help bring the over-appropriated area of the CPNRD back to a fully appropriated & used as part of the responsibility to the Platte River Recovery Implementation Plan.

The Kremer Award is chosen by a selection committee appointed by The Groundwater Foundation Board of Directors. Selection committee members include Jim Goeke, University of Nebraska; Jane Griffin, President of The Groundwater Foundation; Don Kraus, Central Nebraska Public Power and Irrigation District; and Bob Kuzelka, University of Nebraska.

For more information about the Kremer Award and to see previous winner biographies, visit http://www.groundwater.org/action/recognition/kremer.html.

PAST KREMER AWARD WINNERS

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

The Groundwater Foundation is pleased to welcome Program Manager Amy Kessner to the staff. Amy is a native of Woodbury, Minnesota, and she recently graduated from the University of Nebraska – Lincoln with her Master’s Degree in Atmospheric Science. “She is sure to bring a new perspective to the Foundation’s work, and she has already proved to be a valuable asset,” said Jane Griffin, Groundwater Foundation President.

“I grew up in a very eco-friendly household where we were always recycling, planting trees, and conserving our well water. This lifestyle helped me to develop a passion for the environment that carried into my college studies. As a student, I studied air quality and quickly realized the importance of environmental education and outreach,” said Kessner. “This led me to The Groundwater Foundation, where I met a team of individuals striving to inspire action through groundwater education.”

Kessner will be coordinating several grants for the Foundation, including working with Girl Scouts and Science Olympiad. “Groundwater is a vital resource, necessary to sustain life, and I feel privileged to work every day towards a cleaner, healthier world by educating the community on the importance of protecting and conserving groundwater,” she said.

Kessner can be reached at akessner@groundwater.org or 402-434-2740 ext. 105.

Wild and Scenic Film Festival

Do you enjoy learning about environmental issues? Do you appreciate thought provoking documentaries? Then we have just the event for you!

On Wednesday, November 20, Lincoln business Threads-Footloose & Fancy along with Patagonia will be hosting a night of educational and inspirational environmental films at the Mary Riepma Ross Media Arts Center (313 N 13th Street) in Lincoln, Nebraska to benefit The Groundwater Foundation.

The Wild and Scenic Film Festival will start at 6:30 p.m. followed by appetizers and a raffle at Marz Bar (1140 O Street). Tickets are $10 and available at Threads-Footloose & Fancy located at 1219 P Street and at The Groundwater Foundation offices at 5561 S. 48th St. Suite 215, both in Lincoln, or by phone at 402-476-6119.

Your ticket gets you into the film festival and the after party at Marz, and puts your name in for a chance to win some great prizes from our sponsors Clif, Patagonia, Sierra Nevada Brewing Co., Mother Jones, Lied Lodge and Conference Center, and Black Hills Energy.

If you are unable to attend, don’t worry! You can still contribute by going to www.groundwater.org/filmfestivaldonation.html and making a donation.

We hope you can all join us for what promises to be an incredible evening!

Black Friday… Cyber Monday… #GivingTuesday

#GivingTuesday is a campaign to create a national day of giving at the start of the annual holiday season. It celebrates and encourages charitable activities that support nonprofit organizations.

The Groundwater Foundation is partnering with #GivingTuesday to raise funds to support motivational and inspirational education and community-based action programs that creatively involve individuals, communities, public and private entities in groundwater conservation and protection.

So how can you be involved? Give on December 3rd! Your donation will provide groundwater education and activities throughout the nation! Simply go to www.groundwater.org/givingtuesdaydonation.html to make a donation.

- A Donation of $25 helps a green space manager adopt groundwater-friendly turf management practices on their site, thereby improving water quality and benefiting the environment.
- A Donation of $250 provides support, motivation, resources, and recognition to communities of all types working to educate people about groundwater and protect local drinking water supplies.
- All gifts benefit The Groundwater Foundation’s programs and projects that provide tools, knowledge, and inspiration to help protect and conserve our precious groundwater supplies.

Spread the word! Tell your friends, family, and coworkers about #GivingTuesday and The Groundwater Foundation through social media outlets. Remember to add the hashtag #GivingTuesday to your posts!

Get informed and take action! Groundwater is a vital resource, and everyone benefits from a sustainable supply of clean groundwater. Learn the facts about how you can conserve water in your own life and share them with others – find more at www.groundwater.org.

A Donation of $25 brings an Awesome Aquifer groundwater modeling kit to a classroom, allowing students to learn about how groundwater moves and becomes contaminated in a hands-on way.

The Aquifer Fall 2013

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### Shipping and Handling Charge Table (continental U.S. only)

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Your contribution as a Groundwater Foundation member helps support the Foundation’s educational programs. You will also receive *The Aquifer*, a 10% discount on all Foundation Catalog products, and reduced registration fees to all Groundwater Foundation events. Visit www.groundwater.org for more information.

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</tr>
</thead>
<tbody>
<tr>
<td><strong>Rainmakers: A Photographic Story of Center Pivots</strong></td>
<td>$24.95</td>
</tr>
<tr>
<td>Center pivots are used world-wide to bring food to our tables, over 100 intriguing photos enable readers to view the beauty and marvel of this unique technology. Great gift idea.</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal:**

Groundwater Foundation members, don’t forget to subtract 10% from the subtotal for your member discount. Sorry, discount cannot be used on Foundation memberships (new or renewal).

**Shipping Charge:**

See table below at left. *Please call 402-434-2740 for orders shipped outside of the continental U.S.*

**Sales Tax:**

Nebraska residents only; please include appropriate sales tax for your area. Do not add sales tax to membership dues.

**Total Amount Enclosed:**