Wisconsin Ground Water Association Newsletter

WGWA

President's Message

Our Annual WGWA Conference was held this year as a special technical symposium honoring the contributions of Dr. Doug Cherkauer (UW-Milwaukee) and Dr. Mary Anderson (UW-Madison) to the understanding and science of the hydrogeology of Wisconsin. The event was held on April 27th at the Holiday Inn Pewaukee and was an overwhelming success. We may have set a record for attendance at a WGWA-hosted event, with over 110 registered participants.

Mr. Peter Annin, environmental journalist and Managing Director of the University of Norte Dame Environmental Change Initiative, opened the meeting with an update on his book "Great Lakes Water Wars." While Mr. Annin was identified as our keynote speaker, the outstanding quality of all of the presentations from the invited speakers (Dr. Jean Bahr, Dr. Ken Bradbury, Dr. Doug Carlson, Daniel Feinstein, Robert Graziano, Dr. Tim Grundl, Dr. Dave Hart, Dr. Randy Hunt, Dr. John Jansen and Dr. Maureen Muldoon) made it seem like we had one keynote after another! The only failure at the meeting (if it can be called that) was my own failure to keep to the schedule for the first half of the meeting. I had a very hard time cutting any of the presenters short, as they were just enthralling to listen to. Luckily, Jim Drought did a much better job keeping us on track for the second half of the meeting. Thankfully, I don't recall any complaints about the meeting going too long, and we had a very good attendance at the reception after the meeting, and many of our guests lingered over good conversation, food, and refreshments well into the night.

Former students of Dr. Cherkauer (Dennis Lawton and Daniel Hall) and Dr. Anderson (Kallina Dunkle and Bob Karnauskas) presented them with gifts at the conclusion of the technical session. The gifts were purchased with WGWA funds (which your membership helped support) from the archive collection at the Wisconsin Geological and Natural History Survey. We received gracious thanks from both Dr. Anderson and Dr. Cherkauer after the meeting, and it sounds like both of them had a very good time.

Looking for a simple hydrology or hydrogeological spreadsheet. The Nevada office of the USGS might have it **<Read More>**

Increases in world-wide agricultural production comes at a price in energy usage and water depletions. Learn more from a recent article by National Geographic **<Read More>**

Waukesha water-supply issues remain in the news **<Read More>**

Selected Ground Water-Related Conferences and Meetings (June – December 2012)

October 1-3. 57th Midwest Ground Water Conference: Ground Water Opportunities and Conflicts in the 21st Century—Economy to Ecology, Brooklyn Center, MN

http://www.mwgwc.org/

Selected Ground Water-Related Courses and Online Seminars (July– December 2012)

As is generally the case with these types of events, it took the combined efforts of many people to make it a success. The event coordinators, Jim Drought and myself, would like to thank the following for their contributions: Daniel Feinstein, who was absolutely instrumental throughout the planning process from the initial selection of speakers down to the final details; Rebecca Caudill, our Treasurer, who took care of all the registration-related correspondence and kept us on budget, and also produced the CDs and printed the attendee booklets; Betty Socha, our Secretary, who produced the bound copies of the full proceedings for Dr. Anderson and Dr. Cherkauer, and helped with registration; Michael Raimonde, WGWA Board Member and Past President, our AV coordinator at the meeting; and Kallina Dunkle and Anna Fehling, Board Members, greeters, and support throughout the planning process.

We would also like to thank our sponsors, without which the event would not have been fiscally possible: The Shaw Group, Saga Environmental and Engineering, Inc., Natural Resource Technology, Inc., Foth Infrastructure and Environment, SCS BT2, KPRG, and Northern Lake Services, Inc.

For those of you that were not able to attend this event, the presentations have all been posted on the WGWA web page by our Web Coordinator, Aaron Schneider, for review.

If you would like to be a part of the process next year (no experience required!) please contact me at prichardson@saga-ee.com or 920-674-3411 and I will put you on my list!

~Paula Richardson, WGWA President

Paula Richardson,

Daniel Hall,

Dennis Lawton,

Dr. Doug Cherkauer

Bob Karnauskas,

Paula Richardson,

Kallina Dunkle,

Dr. Mary Anderson

EPA Ground Water-Related On-Line Courses (July– December 2012) (free, see www.clu-in.org)

July 19. Green & Sustainable Remediation (ITRC seminar).
<Read More>

July 24. Integrated DNAPL Strategy (ITRC seminar)
<Read More>

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WDNR Updating and Revising NR 700 Series

The Wisconsin DNR has proposed a comprehensive update and revision to several sections of NR 700. The WDNR requested permission to conduct public hearings from the Natural Resources Board in January 2012. The public hearings were completed in May 2012. As outlined in a memorandum from DNR Secretary Cathy Stepp, the proposed changes affect nearly every section of the regulations as follows:

- Modifying many of the rules by removing the references to deed restrictions which were replaced with passage of Wisconsin Act 418 in June 2006,
- Removal of the simple site process which was originally included to provide responsible parties with the ability to self certify closure as this option has not been used in many years,
- Eliminating ch. NR 710 because the statutory provision to inventory sites was repealed and use of the existing hazard ranking system is no longer needed to evaluate sites,
- Consolidating the sections in ch. NR 718 on management of contaminated soil in order to make the requirements consistent and more readily understandable,
- Revising NR 720 to account for updated methodology developed by U.S. EPA for calculating site specific soil cleanup standards,
- Revising NR 722 to require an evaluation of sustainability for the selected remedy,
- Simplifying the case closure requirements by splitting NR 726 into 3 separate rules as the current rule is lengthy and complicated,
- Adding provisions to NR 726 and several other rules clarifying that the vapor intrusion pathway needs to be assessed and adequately addressed, if necessary,
- Removing many of the provisions in NR 746 dealing with the cleanup of petroleum contaminated sites as they are either technically unsound or are seldom used, and
- Increasing the fees in NR 749 to account for increased costs since the rule was originally promulgated in 1998.

The proposed rule changes can be found on the DNR web site. You can access all the draft rule revisions at:

http://dnr.wi.gov/topic/Brownfields/Laws.html

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Get Yourself Published

We are looking for articles for future editions of the WGWA newsletter. Articles should be 1 to 8 pages in length and can include photographs and graphics. Articles should be generally technical in nature focusing on groundwater or environmental topics, but non-commercial or political.

Flooding Mitigation for the Clark Creek Watershed

Anna Fehling and Steve Gaffield, Montgomery Associates

Many people in southern Wisconsin were affected by the extensive, heavy rains that caused widespread flooding in June 2008. One community near Baraboo, Wisconsin suffered massive flooding and sedimentation along Clark Creek during this period, and Montgomery Associates: *Resource Solutions* has been working with the Sauk County Conservation, Planning, and Zoning Department to reduce the risk of damage in future large floods on Clark Creek.

Clark Creek experienced two large floods on June 8 and 12, 2008. The second flood was especially damaging, inundating homes, destroying several highway and driveway crossings, and depositing 2 feet or more of sand over an extensive area of private property and State Highway 113. The June 8 flood was driven by 6-9 inches of rain over the Baraboo Hills. Although the rainfall on June 12 was smaller (4-6 inches), the soil was saturated, and the resulting flood was even larger, exceeding the 100-year event. Although these events were very unusual, climate change projections suggest intense rain events will become more common in coming decades.

Above: State Highway 113 flood damages in June 2008

The June 2008 events were only the latest in a series of damaging floods during the past 20 years. Clark Creek has a unique watershed that contributed to the intensity of these flood events. The 4.4-square-mile watershed extends from the bluffs of Devil's Lake State Park down to the Baraboo River floodplain. The upper portions of the watershed are underlain by relatively impermeable quartzite bedrock covered by a thin soil layer, with groundwater within a few feet of the land surface in many locations. These natural factors contribute to rapid runoff generation during heavy rains.

Above: Sandy bluffs and cobble bars in Clark Creek channel

The main channel of Clark Creek plunges 400 feet down the bluffs in 2 miles, cutting through easily erodible sandy glacial lake and till deposits. Powerful floods have formed cobble and boulder bars in the channel, cut into sandy bluffs tens of feet high, and toppled many trees that have caused debris jams downstream. On June 12, a large debris jam clogged a State Highway 113 culvert, diverting floodwaters out of the channel and through an adjacent farmstead.

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Montgomery Associates reconstructed the flood events of June 2008 through geomorphic inspection of channel, compilation of property damages, and estimation of flood discharge through hydrologic modeling of watershed runoff and hydraulic modeling of flood levels in the Clark Creek channel. This information was used to evaluate options to reduce damages during future large floods. Local residents and county, state and federal agency staff have suggested many options to reduce flood impacts, including: relocating houses and/or State Highway 113; enlarging roadway culverts; stabilizing the stream channel; constructing flood diversion channels; and constructing a flood storage dam.

Below: State Highway 113 culvert debris jam

Many options proved to be infeasible. The hydraulic analysis demonstrated that enlarging culverts and creating sediment traps would not significantly reduce flood elevations and sediment transport during extreme events. Stabilizing the stream channel to prevent further erosion is also infeasible due to the extreme power of large floods on Clark Creek. A large dam could effectively reduce flood discharge, but the environmental challenges, cost and liability make it an unattractive option. Moving the highway would be extremely expensive, and it would not address most private property damages.

Several promising options were identified, however, and Sauk County is working to implement them. One low-tech option that is underway is management of the riparian forest to reduce the amount of woody debris in the channel to avoid damaging log jams. Flood proofing and/or purchase of the most at-risk properties are being considered. Montgomery Associates and Sauk County are also evaluating the potential of distributed flood storage basins in the headwaters of Clark Creek to reduce peak flood discharge. These storage areas would be created with low berms and outlets to pass low flows but provide appreciable storage during large floods. They could be located in areas that are currently working agricultural fields that are slated for transition to natural land management in the State Park. These areas could be managed for native vegetation to create additional natural habitat as well as reducing flood risk for the downstream community.

Above: Woody debris in Clark Creek

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NEW 'WISCONSIN LEDGE' VITICULTURAL AREA 12th LARGEST IN U.S.

GREENLEAF, WI – March 19 brought seven years of planning, persistence and focus to fruition for Trout Springs Winery owner Steve DeBaker and associates. Their collective vision: to literally put approximately 3,800 miles of East, East Central and Northeast Wisconsin on the map as a major wine growing region.

This vast area, now known as the 'Wisconsin Ledge,' is part of the Niagara escarpment corridor which contains unique underlying geology, soils and climate conditions making it especially conducive to grape growing and wine production. More than two years after DeBaker initially applied to the federal government for an American Viticultural Area (AVA) designation, news finally arrived and regional wineries will now be able to label their products as 'Wisconsin Ledge' beginning on April 23, 2012.

DeBaker explained, "We are now branding a huge area same as any other great grape growing region in the world -- Napa Valley, Finger Lakes, Beamsville Bench…Wisconsin Ledge. Our area is not just a place to visit; it is a destination spot to spend time exploring the many unique opportunities we have to offer in this special region."

"By making wise land use decisions, using sustainable value-added farming, we complement the scenic landscape of the Niagara escarpment corridor rather than exploiting the natural benefits this area offers. Enhancing the Wisconsin Ledge with picturesque vineyards on rolling hillsides should attract agri-tourism second to none, and with all the unique flora and fauna associated with the Niagara escarpment, our region will become a major stopping place for people to experience now and for many generations to come."

Others who shared DeBaker's vision include Eric Fowle, Executive Director of the East Central Wisconsin Regional Planning Commission and Founding Co-Chair of the Niagara Escarpment Resource Network (NERN), and Jim Kettler, Executive Director of the Lakeshore Natural Resource Partnership (LNRP), as well as other area grape growers and wine producers.

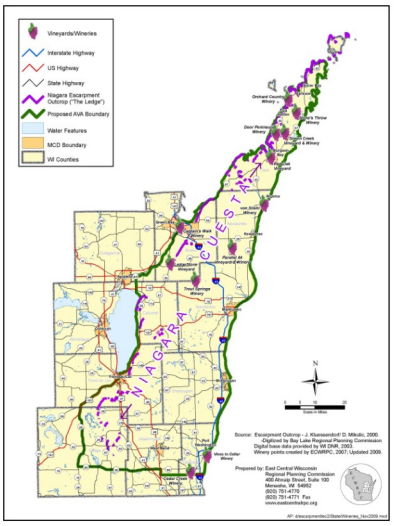
Fowle said, "The Niagara escarpment corridor and its unique geology are the main reasons for the existence of the Wisconsin Ledge AVA. This designation will help increase the economic productivity of our region's lands and improve the long-term viability of a Niagara escarpment geo-tourism program which NERN, LNRP and our partners continue to develop."

"The AVA also illustrates one more 'value' associated with the escarpment landscape, that being its use to produce local food. The AVA designation will surely add to the unique sense of place that the escarpment provides, as well as serving to promote additional land stewardship."

Jim Kettler, executive director of LNRP, added, "We believe strongly in promoting and developing partnerships and programs to enhance the lakeshore region's quality of life and sustainability. We have worked with Steve and Eric over the years and are so pleased to finally see this designation."

The new AVA contains nearly 320 acres of vineyards with an additional 70 acres of vineyards projected in the next two years. The Wisconsin Ledge AVA lies in Door, Kewaunee, Manitowoc, Sheboygan, Ozaukee, Washington, Dodge, Fond du Lac, Calumet, Outagamie and Brown Counties. It also ranks 16th in the nation for number of wineries in the state with 15 bonded wineries to date within the new AVA.

Trout Springs Winery owner at his vineyard in Greenleaf, WI



Winery Map of Northeastern Wisconsin

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