



Illinois Groundwater Association

# Spring 2012 Newsletter

Advancing Groundwater Knowledge Since 1983

Volume 28, Number 1  
March 2012

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## From The Chair

A few years ago, Chair Lenczewski predicted “2009 is going to be a rough year.” The following year, Chair Kroll affirmed that indeed 2009 was a rough year for the environmental and engineering industry. From conversations with industry professionals and former students, 2010 and most of 2011 were not much better, but the market appears to be improving. Being in academia, I am somewhat shielded from the private sector and the ebb and flow of consulting contracts. I weigh the strength of the market on the number of job announcements sent to the department looking for prospective employees. From 2009 to 2011, the department typically received two to three announcements a semester. This past January, the department received announcement from five companies, with some companies advertising for multiple positions. It would appear the market is turning.



Additional positive news comes from the Illinois Governor’s Office. In his State of the State address, Governor Quinn emphasized the need for clean water, stating “Clean Water is the lifeblood of our people and communities.” Prominence is placed on clean water with the Illinois Jobs Agenda for 2012, which calls for the cleaning up of environmental threats within the state. Additional emphasis was made through his call to “...invest in our Clean Water Initiative.” A focus on water issues by the Governor and State should lead to a stronger year for the consulting industry. While I am not an economist, I will “predict” that 2012 will be a positive year.

Having a positive attitude does not mean we can rest, but rather we need to be proactive. In an effort to continue to provide services to our members, the Illinois Groundwater Association (IGA) website (<http://www.illinoisgroundwater.org/>) will soon be updated to include a link for Continuing Education Opportunities.

The IGA Executive Committee (EC) has finished planning the Spring meeting. Details of the Spring meeting are included in the newsletter. The EC is also busy planning the Fall Meeting. For the Fall Meeting, a themed meeting focusing on consultant topics is being planned to be held in the Chicago suburbs area. If you have a noteworthy project and are interested

## From The Chair (continued)

in presenting I would encourage you to contact Joyce Day ([JDay@pdarea.com](mailto:JDay@pdarea.com)) or me ([ewpeter@ilstu.edu](mailto:ewpeter@ilstu.edu)). We are also working with Midwest Geosciences to deliver a free educational webinar at our Fall meeting. More details will follow in the next newsletter.

Finally, I would like to reaffirm the stand Past Chair Wallin made last year: "We truly value our members and we encourage persons to spread the word about our organization in an effort to recruit new members." If anyone has suggestions on ways the Executive Committee can improve the organization please contact any one of the committee members.

Your comments are always welcome and encouraged! As a reminder, IGA has also started a Facebook page, so please like us on Facebook (<http://www.facebook.com/pages/Illinois-Groundwater-Association/190934634254917>) to hear more about our upcoming events and to provide input to the EC directly.

In closing, please join us for the Spring Meeting at the I-Hotel and Conference Center in Champaign on Tuesday, April 3<sup>rd</sup>. I look forward to seeing you there!

Sincerely,  
Eric W. Peterson  
*2012 Illinois Groundwater Association Chair*

## 2012 Spring Meeting at Champaign-Urbana

The Spring 2012 meeting will be held at a new venue – the "I Hotel" and Convention Center (<http://stayatthei.com/>) at the University of Illinois campus in Champaign-Urbana. Each year the IGA has a meeting in central Illinois and one in northern Illinois, and our Spring 2012 meeting will be held in central Illinois in



"I-Hotel" and Convention Center



COURTESY: UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN  
Champaign-Urbana Campus

Campaign-Urbana (<http://illinois.edu>). We recognize that Illinois is a big state, and having meetings that are geographically spread out will allow more members and guests to attend.

The Champaign Urbana University of Illinois has over 40,000 students and has many nationally-ranked

programs. Holding our meetings at a major university is always a plus since this gives the IGA the opportunity to have more students attend our meetings. And the University of Illinois Champaign-Urbana has the added bonus of being the home of the Illinois State Geological Survey and the Illinois State Water Survey (now part of the Prairie Research Institute <http://www.inrs.illinois.edu/>), whose staff has shown consistent leadership in the IGA and promoting groundwater science and groundwater-related education. We welcome

our colleagues from all of the state surveys.

The IGA Spring 2012 registration information is on page 9 and the draft agenda is on page 10 of this newsletter.

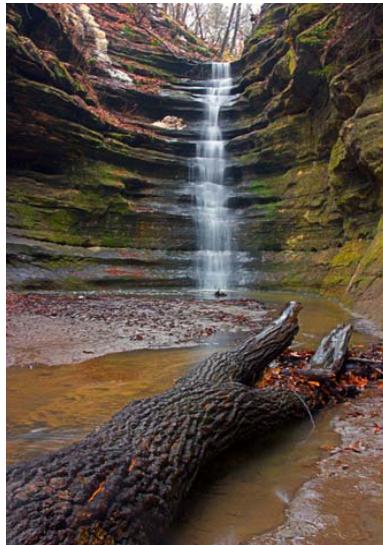


Home of the ISGS

## Fall 2011 IGA Meeting at Starved Rock State Park

The IGA has a number of meeting locations we come back to every few years. One of our long-time favorites is the idyllic Starved Rock State Park (<http://www.starvedrockstatepark.org/>). This scenic gem boasts sculpted bedrock, waterfalls, isolated glens, vast woodlands, hiking trails and wonderful accommodations at the 1930s-era log-and-stone Starved Rock Lodge (<http://www.Starvedrocklodge.com/>). If you've never had the time to visit Starved Rock or if it's been a while since your last visit (such as the fall 2011 IGA meeting) then take a day trip to this Illinois gem!

The IGA held its Fall 2011 Association meeting on Wednesday, October 26th at Starved Rock State Park in Utica. The first half of the meeting was



devoted to presentations on topics ranging from the use of stable isotopes to track ground water pathways from wetlands to a brief introduction to monitored natural attenuation. The

presentations highlighted the different projects being conducted throughout the state and provided research highlights from Student Grant Award Winners.

The second half of the meeting focused on the state of Geologist Licensing and the role of Professional Geologist. Bill Dixon presented an overview of the geologist licensing in the US and Illinois. His presentation was followed by a panel discussion in which Bill Dixon, Joyce Day, and Danielle Wallin answered questions and provided insight about their roles as PGs. The discussion was educational and insightful, addressing many questions. As expected, the accommodations and the service were first rate. We will certainly be coming back!

## 2011 IGA Student Grant Winners



The IGA is honored to provide grants to assist students in their groundwater-related research. In fact, academic stewardship is one of the primary goals of the IGA, and providing financial support to worthy students is a key element of our outreach. As noted in the following article, we dispense up to two \$500 grants in the spring and fall of each year. Each grant request is reviewed by members of the IGA board and our long-time (and much appreciated) IGA student grants coordinator Edward Mehnert.

The IGA was pleased to present two for student grants in 2011, dispensing a total of \$1,000. We are pleased to acknowledge those who are awarded grants along with their research titles and what the grant money will be used for at our web site: <http://www.illinoisgroundwater.org/sgrants.html>.

The 2011 IGA grant awardees are:

- Laura Hanna – M.S. student at Illinois State University: *Quantifying Hormone Removal from Groundwater Seepage Out of a Constructed Wetland Receiving Wastewater Effluent*
- Ryan Cox – M.S. student at Southern Illinois University: *A Model of Groundwater Contaminant Transport in the Henry Formation Alluvial Aquifer, Gallatin County, Illinois*

The IGA Board of Directors congratulates each of our 2011 grant winners. We are looking forward to their presentations at upcoming IGA meetings.

## Spring 2012 IGA Student Grants

A primary goal of the Illinois Groundwater Association is to foster groundwater scholarship. One way we support this effort is through our Student Research Grant Program (<http://illinoisgroundwater.org/grants.html>), and the IGA has granted over \$17,000 in direct financial support to deserving students since 1987.

Student grant applications are accepted in the spring and fall of each year, and for 2012 we anticipate awarding four grants worth a maximum of \$500 each. The 2012 spring and fall application deadlines are April 22 and November 12, respectively.

Any undergraduate or graduate student registered for full- or part-time study at an accredited college or university in Illinois is eligible to apply. Notifications have been sent to many eligible institutions, and we encourage

students to submit their applications as early as possible. The application form and guidelines can be obtained from the student grants section of the web site or from:

Edward Mehnert  
IGA Grants Coordinator  
Illinois State Geological Survey  
615 East Peabody Drive  
Champaign, IL 61820  
217/244-2765 Fax 217/244-2785  
[mehnert@isgs.illinois.edu](mailto:mehnert@isgs.illinois.edu)

Benefits of the IGA student grants go well beyond monetary support for research. As part of the grant conditions, students present their findings at an IGA meeting - a great opportunity to improve professional presentation skills in front of a supportive and interested audience. Overall, involvement in the IGA gives students a chance to network with groundwater professionals in academia, government, and industry, learn about relevant



Student grants help prepare the next generation

issues, improve their resume, and hone communication skills.

## IGA Student Grant Summary

As noted above, one of the IGA's primary purposes is supporting students in groundwater-related sciences. Below is a summary of the grants the IGA student grant program.

Grants have been given from 1987 to date:

- Number of IGA grants awarded – 51
- Number of grants awarded per year – zero to 6, with an average of 2 per year
- Number of different universities or colleges of students that have received grants - 8
- Maximum grant size - \$500
- Average grant amount - ~\$350
- Grant award size since 2006 - \$500
- Total amount awarded since 1987 - \$17,495

## Support IGA with Your Membership Dues

Membership in the IGA is open to anyone interested in the groundwater resources of Illinois and dues help the IGA meet its educational and charitable mission. Professional member dues are \$25, and student membership is \$5 per year. With your membership dues you support the IGA. We offer several convenient ways to pay: cash, check or now pay online (<http://illinoisgroundwater.org/join.html>) with a credit card or PayPal account.

We encourage you to pay online because it is the quickest and simplest way to help the IGA. Using this payment method also gives you the choice of selecting a recurring or single-year subscription. Never worry about forgetting to pay your dues again!

If you prefer to pay by cash or check, please complete the membership form (<http://illinoisgroundwater.org/forms/Membership%20Form.pdf>) on the web site or use the form below. **Please make checks payable to the Illinois Groundwater Association.** Cash or check memberships expire on December 31<sup>st</sup> of each year. Online memberships expire 12 months from the date of payment.

COST		
Renew Membership	\$25	Name: _____
New Membership	\$25	Position: _____
Student	\$5	Employer: _____
		Address: _____
		Phone: _____ Fax: _____
		E-mail: _____

**Clip this form and send with payment to:**

Steve Bennett, IGA Treasurer  
Department of Geology  
Western Illinois University  
1 University Circle  
Macomb, IL 61455  
[SW-Bennett1@wiu.edu](mailto:SW-Bennett1@wiu.edu)

**Direct membership inquiries to:**

Diane Lamb  
[dianemlamb@gmail.com](mailto:dianemlamb@gmail.com)

## IGA Meetings – Get Your CEUs Here

Continuing education units (CEUs) are required for many Illinois professionals. The IGA Spring 2012 program has been approved by the Illinois Department of Public Health as meeting the annual three-hour training requirements for local health department water program personnel as specified in the Local Health Department Grant Protection Rules, Section 615.320 (c) 2. Interested Sanitarians can attend the meeting and have an IGA officer sign their program to show attendance.

The IGA has also has approval from the Illinois Environmental Protection Agency,

Bureau of Water, Division of Public Water Supplies/Operator Certification to provide CEUs for drinking water operators.

Other professions also can use the IGA's meetings for CEUs. For instance, Illinois Professional Engineers (PEs) can attend IGA meetings for CEUs.

Some educational programs require that our meeting agenda be preapproved. Be sure to ask an IGA officer in advance if your educational program is included. If it isn't, we'll work with you to meet your educational needs!

## Groundwater Science Awards

The IGA Groundwater Science Awards Program recognizes Illinoisans who have made outstanding contributions to groundwater science in the spirit of the *Illinois Groundwater Protection Act*. For the purposes of these awards, groundwater science is broadly defined to include research, education, consulting service, water well construction, or public service as related to the scientific management, protection, and/or utilization of groundwater.

The program was originally co-sponsored by the Illinois Groundwater Protection Education Program developed under the Illinois Groundwater Protection Act, but is now managed by the IGA. The IGA has presented two types of awards starting in 1993, and the list of honorees reads as an who's-who of Illinois groundwater professionals (<http://www.illinoisgroundwater.org/gwawards.html>). The *Achievement Award* recognizes singular and life-long contributions to groundwater science, and the *Public Information/Education Award* is given to people or organizations that have fostered groundwater-related education in Illinois. IGA members and interested parties are welcome to recommend people, programs, or organizations for a Groundwater Science Award. Recipients are honored at one of the semi-annual IGA meetings.

### Groundwater Science Awards for 2012

The IGA is pleased to announce the recipients of two Groundwater Science awards for 2012. **Mr. Allen Wehrmann** of the Illinois State Water Survey has been selected to receive the *2012 Illinois Groundwater Science Achievement Award* for his scholarship and long service to the Illinois groundwater community. **Ms. Beverly Herzog** of the Illinois State Geological Survey will be awarded the *2012 Illinois Groundwater Education Award* for her leadership in the study and management of groundwater while striving to educate decision makers, the groundwater community, and the public on groundwater resource issues.

Mr. Wehrmann and Ms. Herzog will be honored for their achievements during the Spring 2012 IGA meeting on April 3rd in Urbana-Champaign. A summary of the accomplishments of Mr. Wehrmann and Ms. Herzog are below. Please join us in recognizing Mr. Wehrmann and Ms. Herzog!

#### **Mr. Allen Wehrmann, P.E., P.H. (GW), D. WRE**

Allen Wehrmann began his professional career at the Illinois State Water Survey in 1977. His 34 years at the Survey were directed toward a wide variety of groundwater resource development and contamination investigations across Illinois. During the early to mid-1990s, Al was involved with developing groundwater-related criteria for the siting of a low-level radioactive waste disposal facility in Illinois. This work, in cooperation with the State Geological Survey, lead to being awarded the 1991 John C. Frye Memorial Award in Environmental Geology from the Geological Society of

## Groundwater Science Awards (continued)

### Mr. Allen Wehrmann, P.E., P.H. (GW), D. WRE (continued)

America for the best paper in the field of environmental geology published by a state geological survey or by the GSA (**Geologic and Hydrologic Factors for Siting Hazardous or Low-Level Radioactive Waste Disposal Facilities** by R.C. Berg, H.A. Wehrmann, and J.M. Shafer, Illinois State Geological Survey Circular 546). While with the Water Survey, Al authored or co-authored over 30 state reports, nine peer-reviewed papers, and one book chapter. Most recently, Al led a multi-agency cooperative effort on the development of an Illinois-Indiana Mahomet Aquifer ground-water monitoring network.

In 1997-98, he served on a governor-appointed task force to examine mine blasting impacts on landfills and wells. In 2002, Allen was named Head of the Water Survey's Groundwater Section, now called the Center for Groundwater Science, where he oversaw the research, data collection, and public service activities of the Center's scientists, engineers, and technical support staff. Principal activities included major staff efforts to assess long-term groundwater availability in Illinois with a particular emphasis on northeast and east-central Illinois.

Allen is a past-member of the IEPA Source Water Protection Technical Advisory Committee, the Intergovernmental Coordinating Committee on Groundwater (ICCG), the Pesticide Subcommittee to the ICCG, and the IEPA Right-to-Know Committee. Al is a former Technical Advisor to the Mahomet Aquifer Consortium, past member of the IDNR Integrated Water Quantity Planning & Management Committee and the State Water Plan Task Force, and is a past-chair of the Illinois Groundwater Association (1990). Al was co-chair (with Beverly Herzog) of the 50<sup>th</sup> Midwest Ground Water Conference held in Urbana in 2005 and was a conference co-coordinator for the NGWA Theis Conference on Ground Water and Climate Change held in Boulder, CO in 2009.

Al earned a B.S. in Civil Engineering from Iowa State University, is a member of Chi Epsilon (honorary Civil Engineering fraternity), the Association of Ground Water Scientists and Engineers, the American Institute of Hydrology, and the Illinois Groundwater Association. He has been a registered Professional Engineer in Illinois since 1982, was certified as a Professional Groundwater Hydrologist by the American Institute of Hydrology in 1991 and was awarded status as a Diplomate, Water Resources Engineer by the American Academy of Water Resources Engineers in 2007.

## Groundwater Science Awards (continued)

### Ms. Beverly Herzog

Beverly L. Herzog retired as a senior hydrogeologist and Assistant to the Director for Environmental Initiatives at the Illinois State Geological Survey (ISGS) in 2010, after thirty years of service. She spent 17 years in the Groundwater Section, the last seven as its head, and eight years as the Director of the Environmental Geoscience Center before assuming her final position. Prior to joining the ISGS, Herzog worked for Donahue and Associates and Camp, Dresser and McKee. Herzog has a B.S. in geology from the University of Wisconsin-Oshkosh and an M.S. in hydrology from Stanford University. She is founding member of the Illinois Groundwater Association and served as its chair in 1993. Her more than 30 years of experience include projects on various aspects of ground water science, including monitoring, modeling, waste disposal, hydraulic properties and water resources assessments. She has co-authored approximately 60 publications related to ground water, two of which have won national awards. These include the Best Paper Award from *Ground Water Monitoring Review* in 1988 for "Changes in Volatile Organic Chemical Concentrations after Purging Slowly Recovering Wells" and the 1997 John C. Frye Memorial Award in Environmental Geology for the Geological Society of America for "The Great Flood of 1993: Geologic Perspectives of the Flooding Along the Mississippi River and Its Tributaries in Illinois." The ISGS presented her its Distinguished Achievement Award in 1989 for her "outstanding achievements in hydrogeology and ground water monitoring."

Herzog has been an active member of NGWA for more than 30 years, including serving on the board of directors, as chair of the Science and Engineering Division, and as chair of the NGWA Government Affairs Committee. She is a Certified Ground Water Professional (CGWP), a Certified Professional Geologist, and a Licensed Professional Geologist in the state of Illinois. She served on the editorial board of *Ground Water* from 1986-1990, the editorial board of *Ground Water Monitoring Review* from 1989-1997, and has served on or chaired numerous committees, subcommittees and task forces for NGWA. She also co-taught the short course "Fundamentals of Contamination Investigations" for the NGWA in 1992. In 2010, she received the Keith E. Anderson Award for service to NGWA. In 2011, she received the Robert Storm Interdivisional Cooperation Award for promoting collaboration, enhancing cooperation, and fostering community among all groundwater professionals, and to advancing the mutual interests of all those interested in communicating the importance of the Earth's water resources. She continues her NGWA involvement on a Government Affairs Task Force and on the Certification Subcommittee.

## Spring 2012 IGA Meeting Registration

Please return a form for each person attending. Registration includes a continental breakfast, a catered lunch and afternoon refreshments. **If you aren't a member yet, become one and save up to \$45 on meeting registrations this year!** Send this information to Steve Bennett ([SW-Bennett1@wiu.edu](mailto:SW-Bennett1@wiu.edu)) IGA Treasurer, by Wednesday March 28th by mail or e-mail (see information below) to qualify for early registration. Make checks payable to the Illinois Groundwater Association if registering by mail, or pay at the conference if registering by email or fax. For faster and simpler registration, register online now at [www.IllinoisGroundwater.org](http://www.IllinoisGroundwater.org).

<b><i>Early Registration (at or before 3/28/2012)</i></b>	
Member:	\$65.00
Non-Member:	\$100.00
Student:	\$20.00
<b><i>Late Registration (after 3/28/2012)</i></b>	
Late Member:	\$75.00
Late Non-Member:	\$110.00
Late-Student:	\$20.00

### Contact Information

Name: \_\_\_\_\_  
 Position: \_\_\_\_\_  
 Employer: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_

## IGA Membership

Membership in the IGA is open to anyone interested in the groundwater resources of Illinois and dues help the IGA meet its educational and charitable mission. Professional member dues are \$25, and student membership is \$5 per year. We offer several convenient ways to pay: cash, check or now online (<http://illinoisgroundwater.org/join.html>) with a credit card or PayPal account.

<b><i>Membership Dues</i></b>	
(Re)new:	\$25.00
Student:	\$5.00
Send registrations and memberships to:	
Steve Bennett, IGA Treasurer Department of Geology Western Illinois University 1 University Circle Macomb, IL 61455 <a href="mailto:SW-Bennett1@wiu.edu">SW-Bennett1@wiu.edu</a> 309/298-1256	

### Contact Information

(if same as above, check here

Name: \_\_\_\_\_  
 Position: \_\_\_\_\_  
 Employer: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_

**Provisional Agenda  
Illinois Groundwater Association  
2012 Spring Meeting**

**April 3, 2012  
I-Hotel, Champaign-Urbana, Illinois**

- 8:30 – 9:00 Registration
- 9:00 – 9:15 Opening Remarks, Eric Peterson, IGA Chair
- 9:15 – 9:45 **Karel Waska**, *Northern Illinois University*, Effect of Permeable Reactive Barriers on the Remediation of Hyperalkaline Groundwater
- 9:45 – 10:15 **Dr. Melissa Lenczewski**, *Northern Illinois University and National Ground Water Committee Member*, Government Affairs Update/National Ground Water Association Fly-in Report
- 10:15 – 10:45 Break
- 10:45 – 11:15 **Dr. Tom Holm**, *Illinois State Water Survey*, Groundwater Heat Pumps
- 11:15 – 11:45 **Dr. Charles Werth**, *University of Illinois*, A Pore Scale Evaluation of Mixing Limitations in Groundwater that Hinder Mineral Sequestration of Uranium
- 11:45 – 1:00 Lunch & IGA Executive Committee Meeting
- 1:00 – 1:30 Awards and Open Mic
- 1:30 – 2:00 **Dr. Yu-Feng Lin**, *Illinois State Water Survey*, Visualizing the Groundwater Resources Management Decision
- 2:00 – 2:15 Break
- 2:15 – 2:45 **Dr. Craig Bethke**, *University of Illinois*, Chemical Energy and Microbial Activity in the Mahomet Aquifer of Central Illinois
- 2:45 – 3:15 **Don Keefer, L.P.G.**, *Illinois State Geological Survey*, Development of a Visualization and Analysis Tool for Reservoir Modeling and Fluid-Flow Simulation
- 3:15 – ? Adjourn, **Optional Tour of the Earth Systems Visualization Laboratory** – Don Keefer, *Illinois State Geological Survey* (transportation provided)

## Feature Article

### The State of Water in McHenry County

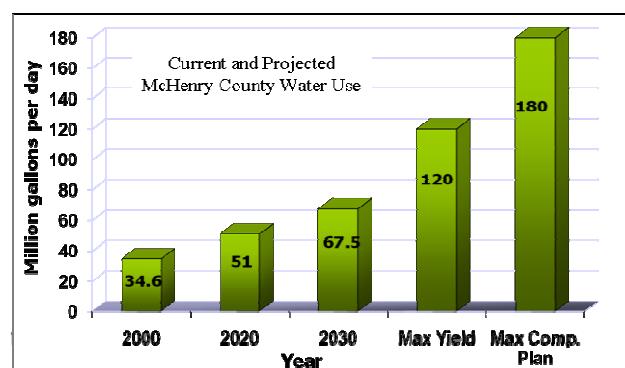
August 16, 2011  
Cassandra McKinney, McHenry County Water Resources Manager

McHenry County is an exciting, diverse and beautiful county known for its rural character, year-round recreational activities, abundant conservation lands and the Fox River. These tremendous resources, however, do not indicate an endless supply of water. McHenry County is solely dependent on **groundwater** for all of its drinking water needs and this resource is finite.

The groundwater resources of McHenry County are found primarily within two zones of geologic material underlying the county: 1) shallow aquifers composed of sand and gravel deposits within glacial drift, coupled with dolomitic material in the shallow bedrock immediately underlying the glacial drift, and 2) deep bedrock aquifers or Cambrian-Ordovician aquifer composed of sandstone and dolomite units. While seemingly abundant, the ability of these sources to meet the county's projected water demand is uncertain as highlighted with completion of a multi-year water resources study titled the Groundwater Resources Management Plan (GRMP) in November, 2006.

The GRMP concluded that there are several aspects of groundwater concerns in McHenry County. First, is the primary impact of increased groundwater pumping on the existing water supply. Second is the potential for groundwater contamination that grows proportionally with population increases and the increased business activity in the area. This threat includes spilling of hazardous materials on the surface and increased discharge of fully or partially treated wastewater and wastewater treatment residuals. Finally, a less evident, but nevertheless important aspect of groundwater use, is the potential impact on natural wetlands, fens, streams and lakes. These natural areas are dependent on groundwater discharges to the surface, and excessive pumping may reduce or eliminate these flows.

Demographic projections of the Chicago Metropolitan Agency for Planning (CMAP) indicate that from 2000 to 2030, McHenry County's population is expected to grow by 190,000, and the number of households is projected to increase by approximately 65,700. These factors will contribute to growing demands upon McHenry County's water sources. Upon review by Baxter and Woodman, Inc, in the year 2000, water use in the county amounted to an annual average of

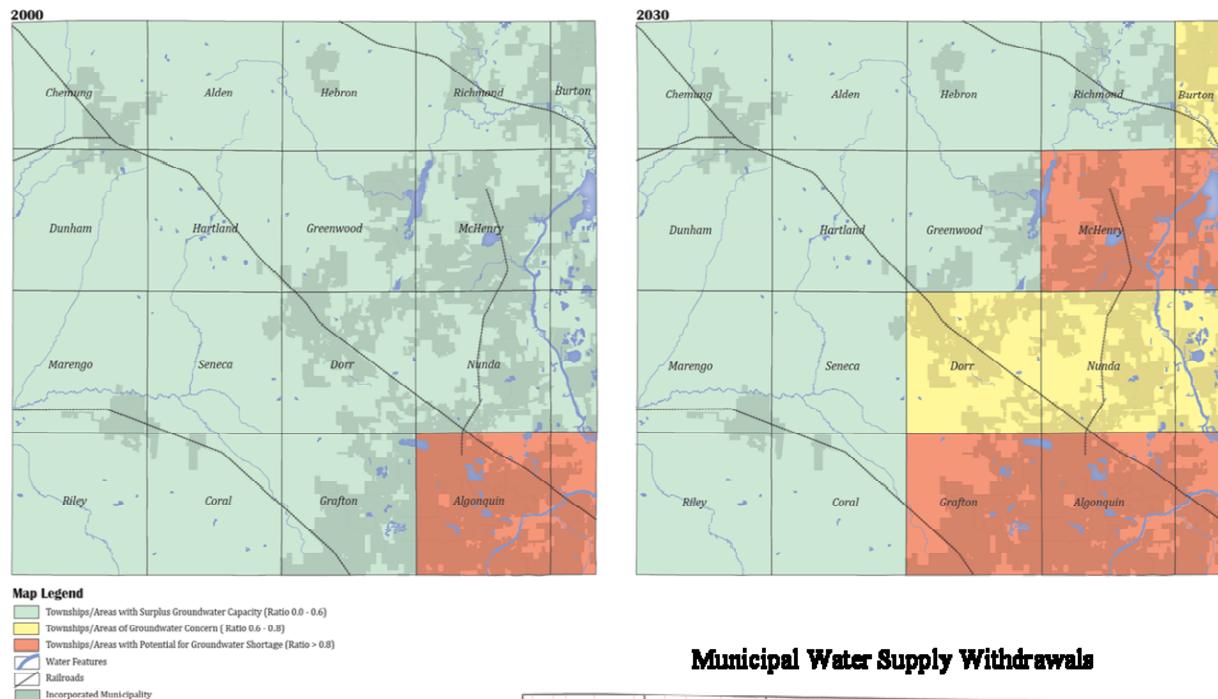


## Feature Article

### The State of Water in McHenry County (continued)

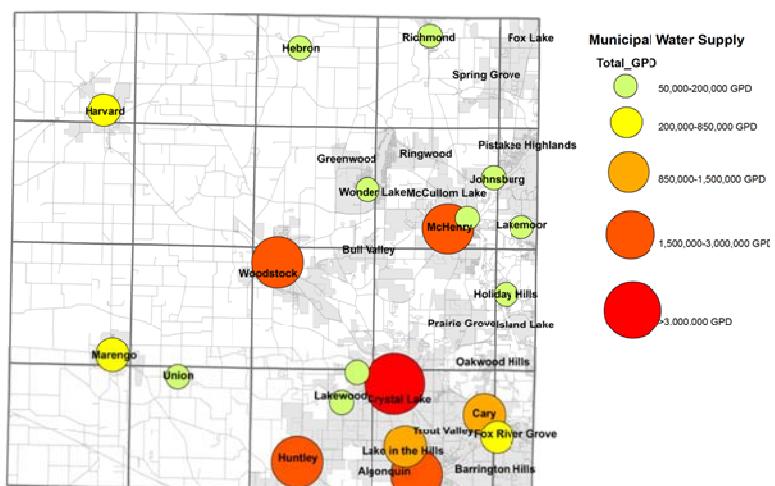
34.6 million gallons per day (mgd). Baseline forecasts indicate that average annual water use will grow to 51.0 mgd by 2020 and almost double to 67.5 mgd by 2030. The estimated sustainable yield of shallow and deep aquifers in McHenry County is estimated to be approximately 120 mgd. However, according to the GRMP and based on the comprehensive plans of each of the municipalities in the county, total water use in McHenry County could grow to as much as 160 to 180 mgd if these plans are fulfilled in the future. With a total potential yield of 120 mgd, the county will not be self-sustaining if it is developed to its full potential in the long-term.

#### **Groundwater Capacity**



Additionally, groundwater resources and groundwater withdrawals are not evenly distributed across the county. Therefore, while the total potential aquifer yield for the county as a whole appears to be capable of meeting the total water demand projected for 2030, the distribution of water supply does not necessarily coincide with the distribution of projected water usage. Groundwater is also an important

#### **Municipal Water Supply Withdrawals**



## Feature Article

### The State of Water in McHenry County (continued)

resource on a regional and national level. Every day in the United States we consume more than 90 billion gallons of groundwater and aquifers are the primary source of drinking water for more than half of the United States population<sup>1</sup>. According to the Illinois Environmental Protection Agency (IEPA), about 2.5 million people in Illinois are supplied via groundwater supplies; and groundwater removals account for 21 percent of the total water consumed by public water suppliers.

Traditionally, groundwater resource planning has been a top down process with little or no stakeholder involvement in many parts of the United States. However, in Illinois, with the absence of statutory authority, counties are unable to enforce groundwater ordinances in areas other than the unincorporated. Therefore, in 2007 the County Board had a strategic initiative to hire a Water Resources Manager to coordinate the development of a Groundwater Protection Action Plan utilizing a cooperative planning process.

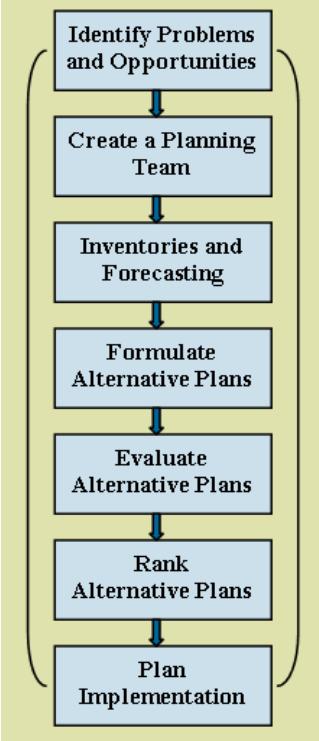
In July of 2007, the Groundwater Protection Task Force was assembled to develop a Water Resources Action Plan to protect and preserve the quality and quantity of groundwater in McHenry County for current and future generations, including the natural and built environments. The seven step integrated water resources planning process employed encouraged the involvement of local government leaders, regional partners, state and federal agencies, special interest groups, agriculturalists, business and industry, and citizens in the development of a county-wide groundwater protection action plan. People are more likely to support that which they help to create.

During the planning process it was also recognized that additional scientific data regarding the state of water in McHenry County was needed. Therefore, McHenry County Water Resources:

- Installed a “real-time” observation well and stream gauge network (multi-governmental partnership: USGS, USACE, ISGS, and McHenry County);
- is coordinating the development of a hydrologic flow model (ISWS); and
- is coordinating the development of a 3-Dimensional hydro-geological map (ISGS) to further support the Groundwater Protection Action Plan.

McHenry County continues to proactively reach out to its stakeholders to ensure that our water supply planning efforts are coordinated with and meet or exceed the goals of State, Regional and Sub-County water planning efforts and/or programs. Finally, the County continues to promote public awareness through community outreach, public presentations, and school-aged education programs.

#### **The Seven Step Water Resource Planning Process**



## Feature Article

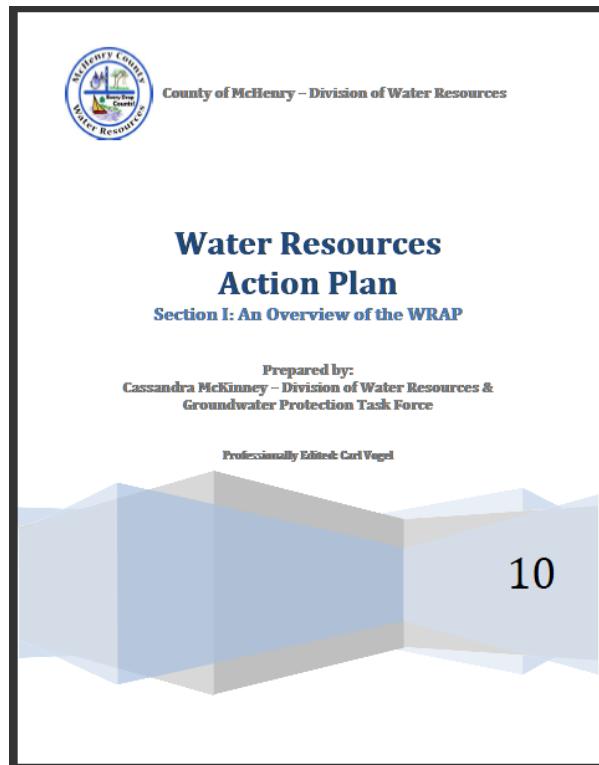
### The State of Water in McHenry County (continued)

The Water Resources Action Plan is a consolidation of the best available current information on local and regional water supply as well as best management practices from across the county, region, the United States, and Canada. It incorporates five sections:

1. An executive summary,
2. Detailed sections addressing the many components of Water Protection,
3. Detailed section on Water Conservation
4. A Community Outreach and Social Marketing Program containing Educational Brochures, Pamphlets, and more
5. A Section containing Appendices, Attachments, and a Bibliography.

To date, the Plan has been accepted by the McHenry County Board and seventeen municipalities in McHenry County. The Task Force continues to meet bi-monthly to discuss implementation strategies as well as to stay abreast on the most current water resource concerns.

The Groundwater Protection Task Force and the Water Resources Division of McHenry County invite you to share and use the information within the executive summary and the Water Resources Action Plan to proactively plan for the future of your community and your water supply. We also invite all stakeholders, including residents, business, and more to take part in the process of protecting our Water Resources to ensure the long-term sustainability of our beautiful County. The Plan is available at [www.mchenryh2o.com](http://www.mchenryh2o.com).



## Feature Article

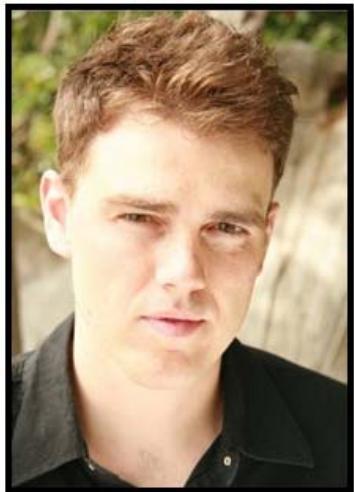
### Where Are They Now?

*Mark Campbell, Illinois State University MS Candidate, IGA Student Director*

My name is Mark Campbell and I am a MS candidate at the ISU hydrogeology program. I am also the 2012 IGA Student Director. I thought a fun idea would be a segment highlighting past recipients of IGA research grants to highlight "Where are they now?" I was able to find a few people, so if anyone has contact information please have them email me at [mtcamp@ilstu.edu](mailto:mtcamp@ilstu.edu).

#### **Ben Maas - 2009 IGA Grant Recipient**

Since leaving ISU after the completion of my Masters' degree, I started my PhD at LSU studying saline spring geochemistry in a carbonate (and karstic) system, in south central Oklahoma. Through the course of my research, I hope to gain a better understanding of how water travels along flow paths in the subsurface. Another goal of mine is to gain a better understanding of how to determine the source(s) of water flowing out of a spring



#### **Cole Bertsch - 2004 IGA Grant Recipient**

After graduating with a Masters from NEIU in 2005, I worked at a small environmental consulting firm in Elgin, IL as an environmental scientist then project manager, managing petroleum hydrocarbon contaminated site projects. Subsequently, a move to Vancouver, BC, Canada was made where I continued to progress in the environmental consulting field as a project hydrogeologist and project manager for a wide range of contaminated sites, assessing soil, soil gas, groundwater, surface water and sediment media. After a tenure at two consulting firms from 2005 to 2009, I started an environmental and geotechnical drilling company in 2009 (Blue Max Environmental Drilling Inc.). Initially specializing in soil gas and limited access drilling at contaminated sites, Blue Max has grown into a full service drilling company providing auger, air rotary, direct push and sonic drilling services for environmental

and geotechnical consulting firms. I am still active in contaminated hydrogeology consulting, acting as a freelance consultant to various small to mid-sized consulting companies, providing soil gas sampling and data interpretation, groundwater modeling and conceptual model development.

## Feature Article

### Where Are They Now? (continued)

#### Hridaya Bastola - 2009 IGA Grant Recipient

I currently work for ARCADIS-US as an Environmental Scientist in Portland, Oregon. My work as of now focuses on monitoring and remediation of contaminated sites in current and former service and bulk stations in Oregon and Washington.



#### Jessie Ackerman – 2009 IGA Grant Recipient

I am currently working for the Wetlands division of the Illinois State Geological Survey as a Wetland Geology Specialist. My main projects are monitoring the water quantity at wetlands in the western and northern part of the state as part of IDOT mitigation and working with the Illinois Tollway system by taking surface and groundwater samples at vegetated bioswales.



#### Jonathan Love - 2009 IGA Grant Recipient

I am currently working as a staff geologist for Cardno ERI in Billings Montana. My projects have focused on groundwater mitigation at former and active ExxonMobil refineries and terminals throughout the state. Our main project is located at the active Billings refinery where we have been installing large air sparge systems to help clean up groundwater before it discharges into the Yellowstone River.



## Groundwater Update

### National Ground Water Awareness Week

The US Environmental Protection Agency and its partners will celebrate the 2012 National Ground Water Awareness Week on March 11<sup>th</sup> to 17<sup>th</sup>. The purpose of promoting groundwater awareness is to highlight that more than 90 percent of all public drinking water systems rely on groundwater to supply the population with drinking water. Moreover, millions of Americans rely on groundwater from aquifers to supply their private wells. Providing a basic understanding of groundwater and aquifers is also an integral part of Ground Water Awareness Week; for instance, explaining that groundwater flows slowly through underground formations called aquifers, primarily through pore spaces between sand grains, gravel, and through cracks in rocks. These aquifers supply water for domestic use, agricultural development, and provide recharge to our lakes, streams, and rivers.



The US EPA provides links that can help the public learn to protect this vital resource at this link: <http://water.epa.gov/type/groundwater/awarenessweek.cfm>. Key among the suggestions at this link are:

- Annual Well Testing - If your family gets drinking water from a private well, do you know if your water is safe to drink? What health risks could you and your family face? Where can you go for help or advice? This Web site will help answer these questions: <http://water.epa.gov/drink/info/well/index.cfm>
- Groundwater Protection - The "Citizen's Guide to Ground Water Protection" encourages citizens to take an active and positive role in protecting their community's ground water supplies. <http://yosemite.epa.gov/water/owrcatalog.nsf/065ca07e299b464685256ce50075c11a/5ed2e3f3443c370685256b0600723239!Open Document>

### 2012 Naturally Illinois Expo on March 9th

The Prairie Research Institute, which is now the home of the Illinois scientific state surveys, is having its 2012 *Naturally Illinois Expo* event on March 9<sup>th</sup> and 10<sup>th</sup> (<http://www.inrs.illinois.edu/expo/attend.shtml>). During the Expo the Institute scientists open the doors to invite the public to experience the state's natural and cultural resources, and also the Institute's cutting-edge sustainable technologies. There will be 50 exhibits, demonstrations, and hands-on activities for the public, teachers, and students. Institute scientists will present their research and solutions to water, energy, ecosystem, mineral resource, natural hazards, climate, cultural resource, and technology issue. The Expo is funded by donations and is led by volunteers, so donate as you can and come join the educational fun!

## Groundwater Update

### Road Salt and Groundwater

Summarized from: <http://www.roadsbridges.com/winter-maintenance-engrained-mind>

Excessive use of road salt can degrade shallow water supplies. Data collected by the Illinois State Water Survey shows that chloride levels are increasing in shallow aquifers near Peoria, Illinois and McHenry County, Illinois. Chloride in groundwater is persistent since it does not degrade. To address this issue the Tazewell



County Health Department (TCHD) worked with McHenry County Department of Transportation, which had already established a similar training session, to launch a region-wide education initiative on proper road-salt application with the goal of decreasing the rise of chloride levels in shallow aquifers. The one-day seminar was attended by 90 representatives from municipalities and DOTs from across Illinois, and included best practices, new technologies and application techniques that may minimize chloride usage. The hands-on calibration portion of the clinic gave attendees an opportunity to visualize the techniques discussed. Initial feedback from Tazewell County is that salt trucks are now applying half the salt with desired road conditions, resulting in lower salt cost and less chloride contamination of shallow aquifers.

### Northwest Water Planning Alliance Established

The Chicago Metropolitan Agency for Planning (CMAP) Water 2050 report for Northeastern Illinois Regional Water Supply/Demand Plan (<http://www.cmap.illinois.gov/water-2050>) was

finalized in 2010. The plan is intended to ensure the availability of clean water for household, commercial, and other users through mid-century.

The Northwest Water Planning Alliance (NWPA)

was established in response to the CMAP 2050 report in September 2010 by approximately 80 water suppliers in a five-County region of northeastern Illinois. The Counties within the planning area rely on surface water and groundwater and are outside of the Lake Michigan water distribution system, and available information indicate that water use is or will exceed sustainable yield within this region.



NWPA's goal is to provide a sustainable water supply for the NWPA region in a manner that is both economically and environmentally sound (<http://www.nwpa.us/>). To achieve its goals the NWPA will work on education, policies that support CMAP Water 2050 Plan, establish reporting plans for the region, and develop a compendium of region-specific data to support water planning. The Counties being represented include Lake, McHenry, Kane, DeKalb and Kendall. The planning area has 1.4 million people. The NWPA is proactively sharing ideas and formulating plans to insure an adequate supply of water for the Northeastern Illinois region for future generations.

## Groundwater Update

### 200<sup>th</sup> Anniversary of the New Madrid Earthquake

Summarized from the ISGS:

<http://www.isgs.uiuc.edu/research/earthquake-hazards/200-anniversary.shtml>

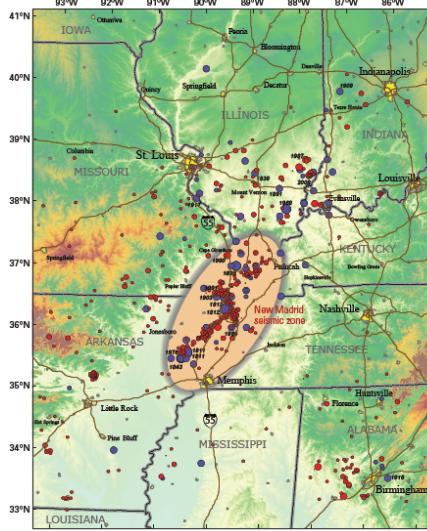
200 years ago, on December 16, 1811, many throughout the populated areas of the U.S. were awakened by violent shaking at about 2:15 am followed by another violent shaking about 8 am. This was the first of the three New Madrid faults to release energy estimated in the mid-7 magnitude. These 3 faults run from about Cairo, Illinois down to Marked Tree, Arkansas. Accounts of these earthquakes and aftershocks were made for months by Mr. Jared Brooks located in Louisville, Kentucky, 240 miles from the epicenters which were near New Madrid, Missouri.

In the following 5 weeks, 602 aftershocks were felt in Louisville, an average of 1 shake every 1½ hours with 6 of these estimated with magnitudes in the 6s. The second New Madrid fault released in the mid 7s magnitude on January 23, 1812 with 300 aftershocks in the following 2 weeks and the third New Madrid fault released the greatest amount of energy on February 7, 1812 with 970 aftershocks the following 6 weeks.

Researchers find evidence that major earthquakes occurred on the New Madrid faults not only 200 years ago, but also about 550, 1100 and 1700 years ago and there is some evidence for an even older event 2600 years ago. Historic damaging (low- to mid-6 magnitude) events have also occurred in the New Madrid seismic zone (NMSZ) in 1843 at the southern end and 1895 at the northern end just west of Cairo. There are about 100 to 200 earthquakes per year in the NMSZ that are mostly only detected by seismographic recording stations in the area.

### Great Lakes Mapping Coalition Annual Meeting Summary

The Great Lakes Geologic Mapping Coalition ([www.greatlakesgeology.org](http://www.greatlakesgeology.org)) held its annual Progress and Planning meeting at the I-Hotel and Conference Center on January 10-12, 2012. The Coalition includes the state geological surveys of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin and the U.S. Geological Survey. Illinois State Geological Survey geologists Mike Barnhardt and Don Keefer presented an update of three-dimensional geologic mapping efforts in McHenry County, which are being done by Jason Thomason, and in Lake County, which are being done by Steve Brown.



Source: <http://pubs.usgs.gov/fs/2009/3071/pdf/FS09-3071.pdf>

## Groundwater Update

### IEPA Regulatory Portal

*Summarized from the IEPA web site: <http://www.illinois.gov/PressReleases>ShowPressRelease.cfm?SubjectID=29&RecNum=9963>*

Governor Pat Quinn announced a new Illinois Environmental Protection Agency (EPA) online portal that will make the environmental permitting process more user-friendly by eliminating red tape for businesses in Illinois. It also increases transparency in the process by allowing applicants and other interested parties to track the progress of the Agency's decision-making process. The portal (<http://www.epa.state.il.us/permits/index.html>) is a result of Public Act 97-0094, which Governor Quinn signed last July. The purpose of the new portal is to reduce red tape, respond to the needs of Illinois businesses, and reduce cost and time. The features of the web portal ([epa.state.il.us](http://epa.state.il.us)) are:

- Application forms; many can be edited, saved and submitted electronically
- Application checklists, instructions and guidance
- Summary information on permitted projects
- An online permit tracking system that gives the status of a pending application

### CCDD Regulatory Update

*David Pyle, KPRG and Associates, Inc., Illinois-Indiana AIPG Section President*

The Illinois-Indiana Section of the American Institute of Professional Geologists (AIPG) has provided comment responses to the Public Act 96-1416 (clean construction or demolition debris (CCDD)), among other things, established interim requirements for certain fill operations until rules are finalized by the Illinois Pollution Control Board (IPCB). Public Act 96-1416 specifically directs that the final rules to implement this new Public Act are not limited by its interim provisions (See Sec. 22.51 (f) (2) and Sec. 22.51a. (d)(2)). This directive from the legislature allows the Illinois EPA to include Professional Geologists review/certifications in appropriate locations within 35 IAC Part 1100.

The Illinois-Indiana Section has reviewed the new Public Act and the Illinois EPA's draft rule, and provided a pre-testimony filing on October 6, 2011 to address certain sections of 35 IAC Part 1000 where Illinois Licensed Professional Geologists should be incorporated. As of February 2<sup>nd</sup>, 2012, the IPCB has now published its First Notice of the rule making process. In summary, their proposed rule is somewhat different than what IEPA had proposed as the Rule did not include groundwater monitoring for CCDD facilities. However, they did strengthen the soil testing and certification criteria. They provided an example as to their requirements, as follows; "the Board required soil certification to be based upon source site evaluation conducted in accordance with the ASTM standards"... and amended IEPA's source site owner or operator certification at to be based on ASTM Standard E1528-06 (re: Section 1100.205(a)(1)(A)), and the Licensed Professional Engineer (LPE) /Licensed Professional Geologist (LPG) certification to be based upon ASTM Standard E1527-05 (re: Section 1100.205(a)(1)(B)). In addition the Board's proposal requires that the soil certification requirements must now include analytical soil testing data to show compliance with the Maximum allowable concentrations (MAC's) when soil is from a potentially Impacted Property (PIP).

The IPCB has scheduled an additional hearing at 11:00 March 13, 2012. This hearing will provide the required forum for the Department of Commerce and Economic Opportunity to provide testimony regarding their "Non-response" to provide an evaluation of the economic impact of the proposed rule.