



# Illinois Groundwater Association

## 2022 Newsletter - *Recharged*

Advancing Groundwater Knowledge Since 1983

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## IGA News:

### *From the Chair*

Greetings IGA members. It has been four years since our last published newsletter. Many changes have taken place over that time. This 31<sup>st</sup> volume sets out to *recharge* the Association on our progress since 2018, and *specifically yield* fresh goals for the future.

Our executive officers have brought strength to the Association these last few years. Past newsletters have been a platform to accredit the board's work, so we have some catching up to do. The following section includes a time line of board members, and key achievements made since 2018.



Likely the biggest challenge the Association faced during the newsletter hiatus was rethinking meeting planning due to SARS-CoV-2. In 2020, the Association evolved *how* we advance groundwater knowledge, by hosting our first virtual meeting. The board's democratic decision to meet remotely during a pandemic helped avoid risks to members' health, while also discovering a valuable option for increasing membership access to future meetings. The success of our first online meeting lead to more online meetings, as well as the Association's first hybrid event in the Fall of 2021. Returning to an in-person meeting took place without any negative impacts to member health, thanks to careful planning by the board and the staff at Southern Illinois University (SIU).

Although I will only be Chair for one year, my aspirations for the Association reach beyond. A few of these aims include, diversifying membership, forging outreach opportunities, and renovating our website. These goals harken back to when I first became a member in 2016. Within only a few years I had attended meetings, achieved a research grant, became an elected officer, and volunteered to help plan meetings with the other supportive board members. I hold great value for that welcoming path into the IGA community, which stands to represent the sort of opportunity I'll strive to maintain in the Association's future.

Thank you members, for this opportunity to lead and support our common goal of advancing groundwater knowledge in Illinois. By working together, I'm confident we can continue to meet that goal, and *recharge* the IGA. Please, [contact me](#) if you have any questions or suggestions.

Sincerely,

Joe Krienert



## Changing of the Board

Transitions of board officers from 2018 to 2022 are shown below. A few important contributions by the board have been made these last four years, including but not limited to:

- Realization of our new IGA logo, during Amy Gahala's time as Chair.
- An Illinois Groundwater Expo in Spring 2019, jointly organized by the IGA and Illinois Association of Groundwater Professionals ([IAGP](#)).
- A Fall 2019 field trip to superfund cleanup sites in Calumet City during George Roadcap's time as Chair.
- Adding the virtual attendance option for meetings, during Chris Greer's time as Chair.
- The first hybrid meeting at SIU overseen by Chair Chris Greer and Vice-Chair Joe Krienert in Fall 2021.

Year	Chair	Vice-Chair	2 <sup>nd</sup> Year Director	1 <sup>st</sup> Year Director	Secretary (S) & Treasurer (T)	Editor	Webmaster	Student Director
2022	Joe Krienert Southern Illinois University, & ISGS	Vacant	Vacant	Megan R.M. Brown, Northern Illinois University	Eric Peterson (S) Illinois State University Steve Bennett, (T) Western Illinois University	Vacant	Eric Peterson, Illinois State University	Vacant
2021	Chris Greer, Fermi	Joe Krienert Southern Illinois University, & ISGS	David Kulczycki, Jacob & Hefner Associates, INC.	Kamila Krupiarz, Startek	Eric Peterson (S) Illinois State University Steve Bennett, (T) Western Illinois University	Vacant	Eric Peterson, Illinois State University	Vacant
2020	Chris Greer, Fermi	Joe Krienert Southern Illinois University, & ISGS	Vacant	Vacant	Eric Peterson (S) Illinois State University Steve Bennett, (T) Western Illinois University	Vacant	Eric Peterson, Illinois State University	Vacant
2019	George Roadcap, Illinois State Water Survey	Sammy Mallow, Northern Illinois University	Chris Greer, Fermi	Joe Krienert Southern Illinois University	Eric Peterson (S) Illinois State University Steve Bennett, (T) Western Illinois University	Vacant	Eric Peterson, Illinois State University	Christine Salinas, Illinois State University
2018	Amy Gahala, USGS	George Roadcap, Illinois State Water Survey	Sammy Mallow, Northern Illinois University	Chris Greer, Fermi	Eric Peterson (S) Illinois State University Steve Bennett, (T) Western Illinois University	Vacant	Eric Peterson, Illinois State University	Vacant

TIMESERIES OF THE IGA EXECUTIVE BOARD FROM 2018 TO 2022.

We currently have several vacant officer positions (cyan highlights). Normally, our Vice-Chair and 2<sup>nd</sup> Year Directors are democratically chosen as 1<sup>st</sup> Year Directors, and climb through the board ranks. However, the board also recognizes that our Association's goals could be better achieved with the help of a more complete roster.

The board is actively considering a special committee pursuant to [Article 6 of our constitution](#), to see what options the Association has for fulfilling these vacant roles. Other board positions that are immediately available include Student Director and Editor. More information on these roles is available on [our website](#), but please don't hesitate to reach out to any active [board member](#) for more information.

## ***Recent Meetings***

### Fall of 2018 to Fall of 2019:

In 2018 and 2019, we had several interesting field trips and meetings across northern Illinois. The two exciting excursions included a trek through unique agricultural terrains where the Mahomet Aquifer is exposed, and surveying remediation legacies across suburbs of Chicago. Topics presented at the meetings were also diverse, including perspectives on environmental site characterization in Chicago (Paul Gruca), innovative groundwater forecasting in the National Water Model (Joe Krienert), understanding sequence stratigraphy of complex glacial terrains (Dan Korth), and more.

### Spring of 2020 to Spring of 2021:

Most of us likely remember conferences and IGA meetings like those of 2018 or 2019, before the abrupt changes caused by the COVID-19 pandemic. Whether it was the subtle conversations when gathering refreshments, or asking questions amidst a richly engaging peer environment, or just shaking hands and trading a business card. All these examples (and more), were swiftly disrupted by early 2020.

By late February 2020, the board unanimously voted to cancel our Spring meeting. This decision was for the health and safety of our members. It wasn't until that Fall of 2020, that the board and membership were able to reconvene during our first virtual meeting. There were a few technical difficulties, but the challenges this new meeting format posed, also offered great discovery. With virtual meetings a viable asset, we can now increase accessibility when members' schedules limit travel time across the state.

These online meetings did not sacrifice the merit of content! Though getting difficult to get as high a number of presenters, those that did present shared excitement for the opportunity to commune, by whatever means, and discuss our discipline. Some of the online talks during our first virtual meetings included a statewide cover-collapse sinkhole database for Illinois (Sam Panno), bedrock groundwater response and management at the NuMI Fermilab experiment (Chris Greer), using riverbank filtration to establish sustainable shallow alluvial groundwater (Allen Wehrmann), or using environmental isotopes to understand the hydrology of prairie aquitards (Jim Hendry).

### Fall of 2021:

After much deliberation, and extensive planning, we were finally able to return to an in-person meeting in the Fall of 2021! This hybrid event with in-person and virtual attendance, *recharged* our sense of hope that with enough preparations, we could safely hold a conference akin to those so cherished in years past. This event was hosted by the Southern Illinois University (SIU) Carbondale Student Center. This meeting was largely made possible thanks to the Student Center's helpful staff who orchestrated audio visual resources for the complex hybrid format and important pandemic protocols to assure the safety of all those attending. The meeting was (fittingly) held in the Mississippi Room, one of the many regional River themed conference spaces offered by the Student Center.



SOUTHERN ILLINOIS UNIVERSITY STUDENT CENTER MAIN ENTRANCE.

Several diverse in-person and virtual presentations made for a fascinating relay of groundwater knowledge. Topics covered a broad scale of interests, from microplastics to microorganisms to modeling macro processes.

- “Transport of Polyethylene Microplastic Spheres in a Sandy Aquifer” by Alyssa Graveline (Northern Illinois University MSc)
- “Natural Nitrate Removal in Shallow Subsurface Stream Flows” by Abigail Heath (Ph.D Candidate, and MSc at Illinois State University)
- “Touring the Henry Aquifers Formation and Future in Gallatin County, Illinois” by Joe Krienert (MSc, Ph.D Candidate)
- “Exploring Hydrogeologic Interactions using The Analytic Element Method and a Nearly Exact, Open-Source Framework” by David R. Steward (PhD, PE, PG, F.ASCE)
- “The Mysterious World of Groundwater Microbiomes: Exploring Their Unique Traits and Newfound Efficacy In Helping Sequester Carbon from Our Atmosphere and Avert Global Climate Change.” By Scott D. Hamilton-Brehm (Ph.D.).

All presenters received our classic certificates of appreciation, in addition to a new IGA mug and sample bag of coffee locally roasted in Carbondale. There was even enough time to include a few fun groundwater science themed quizzes!

After the meeting adjourned, we broke for lunch in the Student Center café, then ventured to Gallatin County for our field trip of the Saline Valley Conservancy District (SVCD). The SVCD is both a municipal groundwater supplier, as well as a conservation agency for the three forks of the Saline River (North, Middle, and South). We arrived at their water treatment plant for a tour of infrastructure carried out by the General Manager Alison Powles, and Plant Superintendent Ross Duncan. The tour was welcoming, and many fascinating topics were discussed. The SVCD currently serves nearly three-million gallons of treated water per day to over 30,000 persons in Saline, Gallatin, Hardin, Hamilton, Pope, Johnson, Williamson, and White Counties. We concluded the field trip by visiting the SVCDs groundwater well fields that source water from the Henry Formation, a glaciofluvial deposit buried along an alluvial valley of the ancient Ohio River.



VIEW OF THE MEETING ROOM, DURING ONLINE GUEST LECTURER DAVID STEWARD'S PRESENTATION ON ANALYTICAL ELEMENT MODELING OF SURFACE WATER AND GROUNDWATER SYSTEMS.



THE SVCD SUPERINTENDENT ROSS DUNCAN (FAR RIGHT) DESCRIBES THEIR WATER TREATMENT METHODS FROM A GANTRY OVERLOOKING THE PLANT'S MAIN CLARIFIERS.



A SUPERB SUNSET VIEW SILHOUETTED BY ONE OF THE SVCD'S NEWLY CONSTRUCTED MUNICIPAL WATER SUPPLY GROUNDWATER WELLS.



### ***Meetings Ahead and Membership Dues***

#### Spring and Fall Meetings in 2022:

[The IGA will be hosting a virtual Spring meeting on Earth Day, April 22<sup>nd</sup>](#). This iconic date also supports this meetings general theme: methods and insights of sustainable groundwater management. We currently have a variety of presentations in the works, including:

- Two student grant projects on tracer testing of groundwater in saturated buffers.
- An inside look at shallow groundwater monitoring at the Fermilab particle physics lab.
- Environmental management projects overseen by staff at the Illinois State Water Survey.

We've also begun planning our Fall 2022 meeting. We're striving for another hybrid event, with the in-person component likely to be at a university in northern Illinois. The tentative date for this event is late September or early October. Scheduling updates will be shared as soon as possible. Please contact [any member of the board](#) if you have questions about presenting, or registering for these upcoming meetings.

#### Membership Dues:

Are you up to date on your membership dues? Please reach out to our [Secretary Eric Peterson](#) to find out! Our annual dues are one important source revenue that supports student research grants, and our biannual meetings. We currently offer [payment of membership](#) dues in two tiers:

1. \$25 (professional), \$5 (student) by cash/check for Jan. 1<sup>st</sup> - Dec. 31<sup>st</sup> of the year when dues are paid.
2. \$26 (professional) \$6 (student) by PayPal for year following time of payment, with optional auto-pay.

### ***Continuing Education Unit (CEU) Opportunities***

CEUs are required for many Illinois professionals. IGA meetings are typically pre-approved to provide up to three credits per meeting for the following vocations:

- Licensed environmental health practitioners, and sanitation engineers
- Local health department water program personnel (IDPH – Local Health Department Grant Protection Rules, Section 615.320(c)2
- Professional engineers and geologists

The Association strives to improve how we serve members, and CEUs are one outlet for that goal! If you don't see your profession or certification listed above, please reach out to our [Secretary Eric Peterson](#).

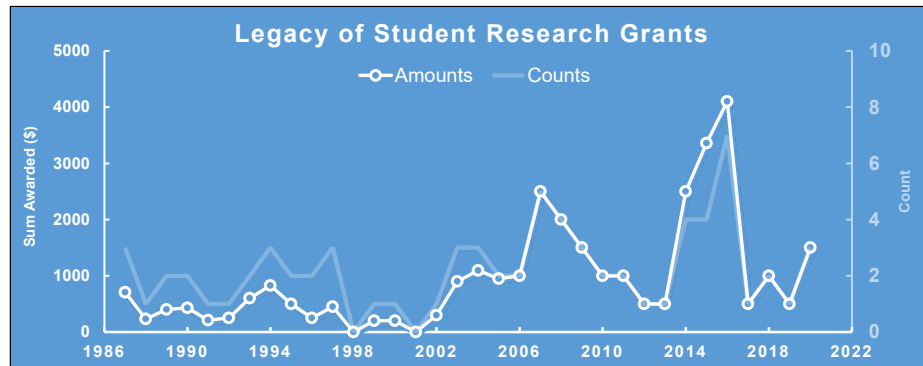
If you do see your profession listed above, and seek to receive these credits for past or pending meetings, contact Eric for approval signature on your associated forms. If you have any further questions about CEUs, don't hesitate to contact Eric or navigate to our [websites CEU page](#) for more information, updated as frequently as possible.



### Student Grants

#### Grant History:

The Association began offering the research grants to graduate students across Illinois in 1987. Over the 45 years since, only 3 years have passed with no grants awarded. Clearly this advocates the Association upholding our mission statement, "Advancing Groundwater Knowledge". The neighboring plot shows trends in grants awarded each year. There have been two sizable pulses of grants awarded, occurring around 2007 and 2015.



RECORD OF STUDENT RESEARCH GRANT TRENDS SINCE THE FIRST DISBURSMENT IN 1987.

#### Recent Grants from 2018-2020:

The adjacent table shows some of the grants that were awarded during our newsletter hiatus these past four years. All of these students have shared excerpts of their work at our meetings, which has proved to be an important staple of discussion and interest for our biannual events. Hopefully, the average number of grants disbursed over time will increase in the years to come. This will help continue to enhance meeting content, and spark the curiosities of other graduate students considering applying for grant support.

Year	Awardee	Title	Use
Spring 2020	Alyssa Graveline, M.S. student, Northern Illinois University	Transport of Polystyrene and Polyethylene Fine Micro & Nano-Plastic Granules in Henry & Peoria Formation at Esmond, IL Well Field	lab analyses and field sampling costs
Spring 2020	Abigail Heath, M.S. student, Illinois State University	Natural Nitrate Removal in Shallow Subsurface Stream Flow s	lab analyses and field sampling costs
Spring 2019	Patience Bosompemaa, M.S. student, Illinois State University	Nitrate Transport in the Unsaturated Zone	lab analyses and field sampling costs
Fall 2018	Joe Krienert, Ph.D. student, Southern Illinois University Carbondale	The Fate of Nitrogen in Ground and Surface Waters of Floodplain Wetlands - A Middle Mississippi River Case Study	lab analyses and field sampling costs
Spring 2018	Andrew Oberhelman, M.S. student, Illinois State University	Chloride dynamics in an urban-agricultural stream	field sampling and lab analyses costs

RECENT IGA GRANTS DISBURSED TO STUDENTS ACROSS THE STATE.

#### Future Grants:

Awards given through the years are largely owed to member advocacy to students. For many students, this is their first grant writing opportunity. The practice of grant writing is challenging, but also rewarding in many ways. The obvious one being fiscal support, and an invaluable one being a chance to present the research at IGA meetings, where wonderful discussions and career opportunities can be forged with our skilled membership.

I strongly encourage everyone to remind students interested in Illinois groundwater, that our 2022 **graduate and public school grant applications are due April 22<sup>nd</sup> 2022**. Please help continue this relay of knowledge and support, by notifying any prospective students you know!



### Website Development

The board has been diligently working on *recharging* our new website ([www.Illinoisgroundwater.org](http://www.Illinoisgroundwater.org)), including updates to content and graphics. This effort remains open to members wanting to volunteer. Whether you have HTML experience, or a knack for document editing, any help is welcomed. If you're interested in contributing, please contact our [Secretary Eric Peterson](#), or our [Chair Joe Krienert](#) for more information.

### IGA Souvenirs

Looking for another great way to support the IGA? Well, hopefully you're thirsty. We recently ordered mugs with the Association's new logo that was updated a few years ago. We also have several mugs with the original (retired) logo, for those in search of an antique look. New mugs are \$10, and retired mugs are \$5 (see mug logos below). As an added bonus, each mug comes with a vintage IGA magnet! To purchase, please contact our [Secretary Eric Peterson](#), or our [Chair Joe Krienert](#) for more information.



IGA SOUVENIRS, INCLUDING CERAMIC MUGS (NEW LEFT, OLD RIGHT), VINTAGE MAGNETS, AND PORTABLE SPIGOT.



## Other News:

### ***Illinois State Water Survey (ISWS) Efforts to Enhance Water Supply Planning***

Chicago's population has rapidly grown over the last two centuries. This progression has in part, depended on a thirst for water supplied by the underlying Cambrian-Ordovician Aquifer System. Recent research suggests that this reservoirs current use may be unsustainable, and water shortages could arise as early as 2030.

Groundwater modeling can provide insights that help manage water scarcity, but model reliability requires minimizing ambiguity and uncertainty. A team of researchers at the ISWS is taking a novel approach at solving these challenges by implementing participatory groundwater modeling of the groundwater system utilized by many of Chicago's suburbs, in an effort to better sustain this resource long into the future.

You can learn more about this ISWS researchers at the following links.

*Lisa Sheppard's interview of project lead, Devin H. Mannix:*

[Scientist-community interaction is a boon for water supply planning](#)

*Original ISWS research article, published in the journal Geoforum:*

[Uncertain Waters: Participatory Groundwater Modeling in Chicago's Suburbs](#)

### ***Illinois Pollution Control Board (IPCB) to Hold Public Hearings on Groundwater Quality Rulemaking Proposals***

The IPCB recently shared news of the Illinois EPAs proposal to modernize groundwater quality regulations, and uphold the Illinois Groundwater Protection Act 415 ILCS 55/2(b) by amending the 35 Ill. Adm. Code 620. The proposal was accepted January 6<sup>th</sup>, 2022, and **two public hearings are currently scheduled for March 9<sup>th</sup> and April 4<sup>th</sup>, 2022**. For more information, please contact Vanessa Horton at 312-814-5053 or [vanessa.horton@illinois.gov](mailto:vanessa.horton@illinois.gov).

Information about the hearing are available at the following links.

General:

[IPCB news update for December 7<sup>th</sup>, 2021](#)

Detailed:

[Public hearing document R22-18 \(Rulemaking – Public Water Supplies\)](#)