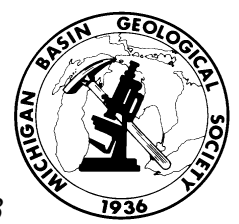


# ON THE ROCKS

A Newsletter of the Michigan Basin Geological Society



2022-2023 Edition 6

[www.mbgs.org](http://www.mbgs.org)

February 2023

## **ANNOUNCEMENTS**

**MBGS Membership Meeting, February 8<sup>th</sup>, 2023, 7:00PM:** Chanse Ford, Ph.D., US Geological Survey's Upper Midwest Water Science Center, will present "Seismic Hydrologic Changes Resulting from Altered Snowmelt Dynamics in Michigan and the Eastern US".

## **Join Zoom Meeting**

<https://us06web.zoom.us/j/89053576903?pwd=T1NtM2tSaGxTN3pWdER1QitEbXpsUT09>

**Meeting ID:** 890 5357 6903

**Passcode:** 100966

One tap mobile

+16469313860,,89053576903#,,,,\*100966# US

## **Opportunity for Presenters**

MBGS is seeking volunteers to present topics related to Michigan geology for our 2022-2023 membership meetings. If interested, please contact Andrea Muñoz-Hernandez at [munozhernandez@michigan.gov](mailto:munozhernandez@michigan.gov) or at (517) 599-7525.

## **Core Display Educational Tool Available to Members**

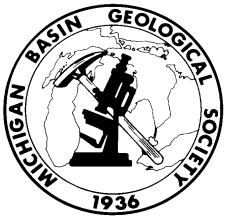
MBGS has a core display available for use that visually demonstrates permeability/porosity. There are educational posters available for use with the core display. Contact any of the officers to reserve this great educational tool.



## **LED Field Lens and MBGS Lanyard**

The Michigan Basin Geological Society is offering to its members and non-members this geological field hand lens and lanyard (photo attached). The field hand lens is a large 21mm lens with a 20X magnification. A pair of white LEDs provides illumination for all those darkened close-up viewing of rocks, minerals and fossils. A case is provided for the field lens with a key to remove the batteries. Batteries are included. The green lanyard has MICHIGAN BASIN GEOLOGICAL SOCIETY printed on one side of the unfussy 1" wide webbing. This lanyard is designed with a breakaway buckle clip and detachable keychain for versatile use and comfortable wearing. MBGS is offering the Lanyard/LED Hand Lens and Case combo for \$15 each and the Lanyard alone for \$5 each if picked up at a meeting or field trip. If you request to have your purchase mailed, standard costs for mailing container and postage will apply. *If you purchase one of the combos and you are in need of battery replacement, MBGS will provide replacement batteries at no additional cost. You must bring your MBGS LED field lens and lanyard to a monthly meeting or field trip. We will replace and dispose of the old batteries.* Please contact John Yellich @ [john.a.yellich@wmich.edu](mailto:john.a.yellich@wmich.edu) or Jen Trout @ [jennifer.l.trout@wmich.edu](mailto:jennifer.l.trout@wmich.edu) to order.





## **February 2023 MBGS Virtual Membership Meeting**

**Presentation:** Seismic Hydrologic Changes Resulting from Altered Snowmelt Dynamics in Michigan and the Eastern US

**Presenter:** Chanse Ford, Ph.D., US Geological Survey's Upper Midwest Water Science Center

**When:** February 8<sup>th</sup>, 2023, 7:00 PM

**Join Zoom Meeting:**

<https://us06web.zoom.us/j/89053576903?pwd=T1NtM2tSaGxTN3pWdER1QitEbXpsUT09>

**Meeting ID:** 890 5357 6903

**Passcode:** 100966

One tap mobile

+16469313860,,89053576903#,,,,\*100966# US

### **Abstract: Seismic Hydrologic Changes Resulting from Altered Snowmelt Dynamics in Michigan and the Eastern US**

Warming winter temperatures have altered snowmelt dynamics in the Great Lakes and Eastern United States. While most research into warming impacts on snowmelt focus on alpine settings where snowmelt constitutes a larger portion of the overall water budget, significant changes to snowmelt in non-alpine, temperate settings have occurred in response to the warmer winter and spring temperatures. Parts of the Great Lakes Basin receive upwards of half a meter of water in the form of snow every year. Understanding the warming effects on snow is critical to managing one of the largest reservoirs of fresh water on the planet.

This study combines statistical analysis of historical observational snow and hydrologic data with numerical modeling techniques to simulate changes to surface and groundwater fluxes in Michigan. Observational data of snowfall, snow depths and stream discharge from 1960-2020 are analyzed across the Eastern United States. The results of these analyses then inform the simulations of snowmelt, surface flows and groundwater fluxes in Michigan from 2000-2020 using the Landscape Hydrology Model. The results show increased warming in winter months in recent decades, leading to decreased total snowmelt, earlier melting of the snowpack with periodic melts occurring throughout the season. These changes to snowmelt have resulted in decreased and earlier spring peak streamflow, higher winter streamflow and increased shallow groundwater net recharge.

### **Biographical Sketch: Chanse Ford, Ph.D.**

Chanse Ford (Ph.D., Michigan State University, 2022) is a Physical Scientist with the US Geological Survey's Upper Midwest Water Science Center (UMid) in Lansing, MI. Chanse is part of the Groundwater and Watershed Modeling team at UMid where he applies numerical modeling techniques to simulate regional groundwater fluxes. Chanse received his Ph.D. in Geological Sciences and Environmental and Public Policy from Michigan State University in 2022, where he worked in the MSU Hydrogeology Lab researching changes to snowmelt hydrology in Michigan and the Eastern US. Prior to his time at MSU Chanse received his Master of Science in Geosciences at Western Michigan University (2016) studying the contributions of rain and snow to shallow groundwater recharge and the contribution of groundwater discharge to streamflow at the headwaters of the White River in Manistee National Forest, MI using stable isotopes of oxygen and hydrogen. Before that he received his Bachelor of Science in Geology from the University of Southern Indiana (2014) where he studied groundwater contributions to streamflow in the White River through the deployment of seepage meters and other physical flow observation techniques.

## REFERENCES

*We are providing links for your reference. Please visit these sites to learn more about specific events and happenings. If you have an event to share, let us know!*



American Institute of Professional Geologist – Michigan Section – <http://mi.aipg.org/newsletters.htm>

Central Michigan Lapidary and Mineral Society - <http://www.michrocks.org/>

Eastern Section AAPG - <https://www.esaapg.org/>

EGLE Calendar of Events - [Calendar \(michigan.gov\)](Calendar (michigan.gov))

Flint Rock and Gem - <https://flintrockandgem.org/events>

Michigan Association of Environmental Professionals - <https://www.maep.org/>

Michigan Basin Geological Society – <www.mbgs.org>

Michigan Clean Water Corps - <https://micorps.net/about/>

Michigan Mineralogical Society - <https://www.michmin.org/>

Midwest Mineralogical and Lapidary Society - <http://www.mmls.us/>

Rock Clubs in USA - [All Mineral, Rock, Gem Shows, GeoSites, Rock Clubs in USA \(rockandmineralshows.com\)](All Mineral, Rock, Gem Shows, GeoSites, Rock Clubs in USA (rockandmineralshows.com))

Society of Petroleum Engineers - <https://www.spe.org/events/calendar/>

## EVENTS

**February 8, 2023:** SARA Title III Tier Two in Person Workshop – Lansing, [2023 SARA Title III Tier Two Workshop - Lansing \(In-Person\) \(michigan.gov\)](2023 SARA Title III Tier Two Workshop - Lansing (In-Person) (michigan.gov))

**April 11-12, 2023:** EGLE MI Healthy Climate Conference, [MI Healthy Climate Conference - Michigan Department of Environment, Great Lakes, and Energy \(idloom.events\)](MI Healthy Climate Conference - Michigan Department of Environment, Great Lakes, and Energy (idloom.events))

**June 21-22, 2023:** Michigan Environmental Justice Conference [Michigan Environmental Justice Conference - Michigan Department of Environment, Great Lakes, and Energy \(idloom.events\)](Michigan Environmental Justice Conference - Michigan Department of Environment, Great Lakes, and Energy (idloom.events))

## ONLINE RESOURCES

- **American Geoscience Institute – Interactive Michigan Geology Maps:** <Interactive map of the geology of Michigan | American Geosciences Institute>
- **Digital Geology Library Overview:** [https://www.michigan.gov/documents/deq/GIMDL-Catalog-2010-01-20\\_307979\\_7.pdf](https://www.michigan.gov/documents/deq/GIMDL-Catalog-2010-01-20_307979_7.pdf)
- **GeoWebFace:** [GeoWebFace \(michigan.gov\)](GeoWebFace (michigan.gov))
- **Digital Geology Library Mining Overview:** [https://www.michigan.gov/documents/deq/GIMDL-Catalog-2013\\_06\\_22\\_mining\\_425595\\_7.pdf](https://www.michigan.gov/documents/deq/GIMDL-Catalog-2013_06_22_mining_425595_7.pdf)
- **Michigan Geological Survey:** [Michigan Geological Survey | Western Michigan University \(wmich.edu\)](Michigan Geological Survey | Western Michigan University (wmich.edu))
- **USGS Michigan Geological Map Data:** [Michigan geologic map data \(usgs.gov\)](Michigan geologic map data (usgs.gov))
- **CMU, Clarke Historical Library, Michigan Geology:** [https://www.cmich.edu/library/clarke/ResearchResources/Michigan\\_Material\\_Statewide/Michigan\\_Oil\\_and\\_Gas\\_Industry/History\\_of\\_Michigan\\_Oil\\_and\\_Gas/Pages/Michigan-Geology.aspx](https://www.cmich.edu/library/clarke/ResearchResources/Michigan_Material_Statewide/Michigan_Oil_and_Gas_Industry/History_of_Michigan_Oil_and_Gas/Pages/Michigan-Geology.aspx)

# MICHIGAN BASIN GEOLOGICAL SOCIETY OFFICERS 2022-2023

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**PUBLICATIONS:** [Open](#)

**ELECTRONIC PUBLICATIONS:** Please contact an officer for information

**WEBMASTER: JOHN ESCH**, [eschj@michigan.gov](mailto:eschj@michigan.gov)

# MBGS PUBLICATIONS

<http://www.mbgs.org/publications.html>

**Historical publications now available on USB Flash Drives". Each USB Flash Drive is 8GB**

Prices include postage, handling and any applicable sales tax.  
Orders for publications should be prepaid in U.S. Funds and addressed to:

MBGS — Publications  
P.O. Box 14044  
Lansing, MI 48901-4044

## **Historical CD #1: Nine out-of-print publications from 1949 through 1965 and 1998, 2000, \$15**

- The Stratigraphy of Manitoulin Island, Ontario, Canada, June 19-20, 1954
- The Devonian and Silurian Rocks of Parts of Ontario, Canada and Western New York, June 22-23, 1951
- The Traverse Group of the Northern Part of the Southern Peninsula of Michigan, June 16-17, 1949
- The Devonian Strata of the London-Sarnia Area, Southwestern Ontario, Compiled by Erwin C. Stumm, Lewis B. Kellum and Jean Davies Wright, June 9-10, 1956
- The Ordovician Rocks of the Escanaba-Stonington Area, Led by R. C. Hussey, June 2-3, 1950
- The Niagara Escarpment of Peninsular Ontario, Canada, June 18-19, 1955
- Lower Paleozoic and Pleistocene Stratigraphy Across Central Wisconsin, Compiled by C. E. Prouty, Led by L. M. Cline, J. L. Hough and R. F. Black, 1960
- Classic Silurian Reefs of the Chicago Area, by Donald G. Mikulic and Joanne Kluessendorf, June 27, 1998
- Geology of Central Ontario, Canada, 1965

## **Historical CD #2: Four out-of-print publications from 1947, 1959, 1983 and 1991, 2001, \$15**

- Copper Country Field Trip, Michigan, June 20-22, 1947
- Geology of Mackinac Island and Lower and Middle Devonian, South of the Straits of Mackinac, June 12-14, 1959
- Tectonics, Structure and Karst in Northern Lower Michigan, August 1983
- Geology of the Pictured Rocks, Upper Peninsula, Michigan, July 11-13, 1991

## **Historical CD #3: Six out-of-print publications from 1948, 1952, 1990 - 1995, 2001, \$15**

- Pleistocene and Early Paleozoic of the Eastern Part of the Northern Peninsula of Michigan, June 18-21, 1948
- Stratigraphy and Structure of the Devonian Rocks in Southeastern MI and Northwestern OH, June 20-21, 1952
- Lower Ordovician and Upper Cambrian of Wisconsin, May 10-12, 1990
- Guidebook to the Precambrian Geology and Metallogeny of the Central Upper Peninsula of Michigan September 12-13, 1991

## **Historical CD #4: Six out-of-print publications from 1957, 1958, 1961, 1967, 1968 and 1970, 2004, \$15**

- Silurian Rocks of the Northern Peninsula of Michigan, 1957
- Cambrian Geology of Parts of Dickinson and Iron Counties, Michigan, June 1958
- Geologic Features of Parts of Houghton, Keweenaw, Baraga and Ontonagon Counties, Michigan, May 19-21, 1961
- Correlation Problems of the Cambrian and Ordovician Outcrops Areas, Northern Peninsula of Michigan 1967
- The Geology of Manitoulin Island, June 1968
- Devonian Strata of Alpena and Presque Isle Counties, Michigan 1970

## **Historical CD #5: Five out-of-print publications from 1971, 1989, 2001, and Oil & Gas Fields Vol. 1 & 2, 1969 & 1992, 2006, \$50**

- Oil & Gas Fields Symposium, Volume 1, April 1969, 200 pp., maps, illus., second printing with updates
- Oil & Gas Fields Manual of the Michigan Basin, Volume 2, 1992, 520 pp., maps, illus.
- Glacial Geology of Southwestern Michigan, 1989, 53 pp. by A. Kehew, L. J. Schmaltz, and W. T. Straw
- Geology of the Lake Erie Islands and Adjacent Shores, 1971, 65pp., maps, illus. by Jane L. Forsyth
- Glacial Geology of Southwestern Michigan, Landforms of the Lake Michigan Lobe, Southwestern Michigan, 2001, AAPG Eastern Section Meeting Field Trip, 32 pp., maps, illus. by A Kehew and A. Kozlowski

**Historical CD #6: Six out-of-print publications from 1946, 1953, 1963, 1966, 1978 & 1987 plus the Richfield Challenge, 1952 & Tom Knapp's MS Thesis, 2007 \$15.**

- Guidebook for Ordovician Stratigraphy of the Cincinnati, Ohio and Richmond, Indiana Areas, June 12, 13, 1953 by W. H. Shideler and B. T. Sandefur
- Guidebook for Ontario Geological Excursion to Kettle Point – Owen Sound- Waubaushene, June 21, 22, 23 1946 by W. A. Roliff, C.S. Evans and J.F. Caley
- Guidebook for the Stratigraphy of the Silurian Rocks in Western Ohio, May 31- June 2, 1963 by C. H. Summerson, Jane L. Forsyth, Karl V. Hoover and J. R. Ulteig
- Guidebook for Cambrian Stratigraphy in Western Wisconsin, May 21, 22, 1966 by Merideth E. Ostrom
- Geology of the Manitoulin Area, Special Papers #3, September 29, 30 and October 1, 1978 by J. T. Sanford and R. E. Mosher
- Middle Devonian Cratonic Carbonates and Shales in Southwestern Ontario, November 14, 1987 by Bruce Wilkinson
- The Richfield Challenge, A Review of the Richfield Developments in Michigan, 1952 by Gordon H. Hautan
- A Theory of Rogers City and Dundee Relationships in Central Michigan, Masters Thesis, 1947 by Tom Knapp

**Historical CD #7: Field Guidebooks from 1962, 1969, 1977, 1980, 1985 & 1988, \$15**

- Silurian Rocks of the Southern Lake Michigan Area, 1962, James H. Fisher, Chairman, MBGS Annual Field Conference
- Studies of the Precambrian of the Michigan Basin, by Harold B. Stonehouse, 1969
- The Geology of the Marquette District: a Field Guide By F. W. Cambay, 1977
- Ordovician and Silurian Geology of the N. Peninsula of Michigan, 1980, R.B. Votaw, 40 pp., illus., maps
- Special Paper #4: Ordovician and Silurian Rocks of the Michigan Basin and its Margins, 1985 K.R. Cercone and J.M. Budai (eds.), 96 pp., illus.
- Upper Keweenaw Rift-Fill Sequence, Mid-Continent Rift System, Michigan, 1988, P.A. Daniels and R.D. Elmore, M.S. Wollensak, ed., 150 pp., illus., maps

**OTHER SPECIAL OFFERS**

- **Historical CD Set - # 1 – 7 (detailed above) for a special purchase price of \$95**
- **NE Lower Peninsula Geological Field Conf., 2004, T. Black, M. Wollensak, On CD \$10**
- **Stratigraphic Lexicon for Michigan, 2001, prepared by MBGS and published by DEQ, \$4**
- **Robert E. Mosher Geological Studies** A lifetime of geological research on Silurian Rocks with John T. Sanford. The disks are organized chronologically and include field work in North America and Europe. 2007, 2 CDs \$35.





# The 2023 Friends of the Pleistocene Field Conference – Midwest cell

Roscommon, Michigan

May 19-21, 2023



**Trip Leader:** Randy Schaetzl, Department of Geography, Environment, and Spatial Sciences, Michigan State University  
[soils@msu.edu](mailto:soils@msu.edu) (517) 648-0207

**Trip co-leaders (alphabetical):** Alan Arbogast, Chris Baish, Brandon Curry, Kevin Kincare, Ken Lepper, Tom Lowell, Catherine Yansa

The 2023 FOP conference will be held at the Ralph A. MacMullen (RAM) Conference Center, 104 Conservation Drive, Roscommon, Michigan. ([MacMullenCenter@Michigan.gov](mailto:MacMullenCenter@Michigan.gov)) All registrants must lodge at the RAM Center, on the shore of beautiful Higgins Lake (exceptions can be requested – contact Randy Schaetzl). Registration fees cover lodging, all meals except Friday dinner, refreshments, and busing. Early registrants will be afforded single-occupancy rooms at the RAM Center. Later registrants risk being placed in double-occupancy rooms. Conference participation is limited to 64 persons.

## Tentative schedule:

Friday, May 19

4:00 pm. Arrival and check-in.

5:30 pm: Ice-breaker begins. (Dinner is on your own; we will provide a list of restaurants in nearby cities (Roscommon, Houghton Lake, Grayling.) Expect good conversation around the RAM Center’s fire pits, right on the Higgins Lake shore.

Saturday, May 20

7:00 am: breakfast.

8:15 am: “Trip overview” presentation in the RAM Center theater. Bus departs at 8:45 sharp.

6:00 pm: arrival back at the RAM Center, and refreshments.

7:30 pm: banquet.

Sunday, May 21

7:15 am: breakfast. Bus and car caravan depart at 8:30 sharp.

2:00 pm: expected return to the RAM Center, and final departure.

## IMPORTANT DATES

Feb 1 – Registration opens. Registration fees are due at the time of registration.

April 15 – Last day to withdraw for full refund. (Later withdrawals receive half of their fees back.)

Please contact Randy Schaetzl with questions [soils@msu.edu](mailto:soils@msu.edu) (517) 648-0207

## State of Michigan Webinars

**February 21, 2023; 4:30 - 6:00 PM**

[Charting Michigan's Course Toward Carbon Neutrality, Clean Energy, and Sustainability](#) Join EGLE's Sustainability Unit as they share the EGLE programs that work toward meeting the goals of the [Michigan Healthy Climate Plan](#). Learn how the programs EGLE funds catalyze energy transitions, sustainable development, and resilience in communities across the state.

**March 15, 2023; 4:30 - 6:00 PM**

[What Makes EGLE Spatial? How to ask and answer environmental questions with EGLE's Maps and Data Portal](#) Geographic data helps tell a story and create intelligence about the world around us. Join EGLE's Lead Geographic Information Systems (GIS) Analyst to discover how EGLE develops innovative geospatial solutions that analyze and visualize data to inform decisions, streamline workflows, increase productivity, and tell our story in every EGLE Division. Learn how you can access Michigan data from EGLE's Maps and Data portal that will bring environmental issues to life for your students, and how your students can collect, visualize, and analyze data of their own!

## State of Michigan Opportunities

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for an Environmental Engineer 9-P11 position within the Water Resources Division. This position is located at the Bay City District Office, 401 Ketchum St., Bay City, MI. Interested applicants must apply through NEOGOV. Interested applicants must apply through NEOGOV.

[Job Posting](#)

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for an Environmental Quality Analyst 9-P11 position within the Water Resources Division. This position is located at the Marquette District Office, 1504 W. Washington St., Marquette, MI. Interested applicants must apply through NEOGOV.

[Job Posting](#)

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for (2) Environmental Quality Analyst 9-P11 positions within the Water Resources Division. The location of these positions will be determined based on the selected candidates. Interested applicants must apply through NEOGOV.

[Job Posting](#)

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for an Environmental Engineer 9-P11 / Licensed 12 position within the Drinking Water & Environmental Health Division (DWEHD). This position is located at the Kalamazoo District Office, 7953 Adobe Rd, Kalamazoo, MI. The position is open to all qualified applicants. Interested applicants must apply through NEOGOV.

[Job Posting](#)

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for an Environmental Engineer 9-P11 / Licensed 12 position within the Drinking Water & Environmental Health Division (DWEHD). This position is located at the Kalamazoo District Office, 7953 Adobe Rd, Kalamazoo, MI. The position is open to all qualified applicants. Interested applicants must apply through NEOGOV.

[Job Posting](#)





# SILENT MINERAL AUCTION

**Saturday**

**Student Center**

**February 18, 2023**

**Ballroom**

**5:00 - 8:00 pm**

**Second Floor**

Proceeds go to  
WSU's chapter of AIPG

**Tickets are \$5 at the door**

5221 Gullen Mall, Detroit, Michigan 48202

Parking in Structure #2 or on Anthony Wayne Drive

## ***Retired professionals' skills advance environmental goals***

### ***EGLE-backed RETAP to become RESTART Program @ LTU, serving schools, small to midsize businesses, and more***

New help is available at no charge to a wide range of Michigan organizations looking to reduce waste and improve sustainability and energy efficiency.

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) and Lawrence Technological University in Southfield, Michigan, have partnered to launch the [RESTART Program @ LTU](#). RESTART stands for Retired Engineers, Scientists, Technicians, Administrators, Researchers, and Teachers. The program had been established in the Natural Resources and Environmental Protection Act in 1994 as the Retired Engineers Technical Assistance Program (RETAP).

Under EGLE's guidance, RESTART offers free onsite energy efficiency and sustainability technical assistance and assessments to small and medium-sized commercial businesses headquartered in Michigan with 500 or fewer employees, and public entities including K-12 schools, municipalities, and not-for-profits. The program is now [accepting applications](#). Supported through a \$2.86 million RETAP contract, RESTART also will advance EGLE's energy, sustainability, and climate programs.

The university is recruiting retired professionals to add to a RESTART talent pool expected to number about 20 at any given time. "Michigan's retired professionals bring tremendous skill sets to the table," said Elizabeth Browne, director of EGLE's Materials Management Division. "We're eager to see the state's businesses and public organizations benefit from their experience and expertise."

RESTART's aim is to create and retain jobs, improve marketplace competitiveness, and help Michigan's manufacturing and commercial sectors toward a low-carbon future in line with goals in the [MI Healthy Climate Plan](#). Its business objective is to offer bang for its buck, producing big savings for clients when compared with program expenditures. Offerings include:

- Technical assistance that incorporates advanced, innovative, or expert energy and sustainability systems.
- Approaches and software tools to maximize energy efficiency, reduce energy consumption, promote sustainable manufacturing, and reduce operational costs and environmental impacts.
- Help implementing projects that result from a RESTART assessment, internal assessment, or third-party assessment, serving as an owner representative.
- Special added services for nominal fees.

"EGLE's commitment to the RESTART program is significant in positioning the state of Michigan to be a leader in decarbonizing our businesses and public sector," said LTU President Tarek Sobh. "LTU is grateful to be administering this program with retired engineers, technicians, teachers, and students to have a lasting impact on our environment."

In addition to EGLE, RESTART's [partnering organizations](#) include the Michigan Economic Development Corp., the Michigan Chamber of Commerce, and many others.

### **RESTART internships**

Teaming up with Michigan universities and colleges that have accredited undergraduate programs in chemical, civil, electrical, mechanical, or manufacturing engineering, RESTART is [accepting college students' applications](#) for three-month summer internships. Interns must be juniors or seniors in engineering programs and will be selected through competitive interviews.



GREAT LAKES  
**Water Infrastructure**  
CONFERENCE

You are invited to [submit a proposal](#) to present at the Great Lakes Water Infrastructure Conference being held September 19-21, 2023 in Kalamazoo, Michigan.

This conference, hosted by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), will feature an evening exhibitor reception on September 19, followed by two full days of sessions. The target audience includes local drinking water and wastewater administrators and professional staff, planning officials, consultants, federal, state, and local governments, policy makers, and anyone in the Great Lakes region interested in this important water infrastructure work.

Communities nationwide are facing critical water infrastructure needs. The pipes, pumps, wires, and technology that are the unseen backbone of modern life are aging and in need of rehabilitation, replacement, and fortification. The 2023 Great Lakes Water Infrastructure Conference will focus on putting solutions into place to improve water quality and public health while transforming the communities of the Great Lakes Basin. To that end, EGLE is accepting proposals for sessions under the following topics:

- **System Operations and Management**
- **Emerging Technology and Innovation**
- **The Water and Wastewater Workforce**
- **Funding and Finance**

**Abstract submission deadline is February 28, 2023.**

Authors of accepted abstracts will be notified by April 2023. Presenters will receive a discounted rate to attend the full conference.

**Submit  
Abstract**

**[Michigan.gov/EGLEvents](https://www.michigan.gov/EGLEvents)**

**PROGRAM QUESTIONS:**

Matt Tomlinson: [TomlinsonM@Michigan.gov](mailto:TomlinsonM@Michigan.gov)

**SUBMISSION PROCESS QUESTIONS:**

Alana Berthold: [BertholdA@Michigan.gov](mailto:BertholdA@Michigan.gov)

Joel Roseberry: [RoseberryJ@Michigan.gov](mailto:RoseberryJ@Michigan.gov)

Michigan Section  
American Institute of Professional Geologists  
**MEETING ANNOUNCEMENT**

**March 9, 2023**

**MULTI-INCREMENT SAMPLING: THE PREFERRED CHOICE OF SUCCESSFULLY CHARACTERIZING  
SOURCE AREAS**

Featured Speaker

[Charles Ramsey, EnviroStat, Inc.](#)

**Location:** Schoolcraft College VistaTech Center, DiPonio Room, 18600 Haggerty Road, Livonia, MI

**Cost:** Students Free, Members \$35.00, Non-members \$55.00. **Registration is payable electronically via Eventbrite (see link below) or at the door by cash or check; however, prepayment is preferred and speeds up the check-in process at the door. Please note: Cancellations made within 48 hours of the meeting registration deadline and/or "No Shows" will not be refunded the registration fee.**

**Dinner:** Buffet style dinner: Pasta Italiano, cheese tortellini, penne, Italian meatballs, parmesan alfredo, tomato basil sauce, Bolognese sauce, seasonal vegetables, garlic bread, Caesar salad, garden salad, cookies.

**Time:** Cash Bar 5:00-6:30 PM, Dinner 6:30 PM, and Speaker 7:30-9:00 PM

**RSVP:** On the Eventbrite website **no later than 3 pm March 2, 2022** at:

[Register Here](#)



**Abstract:** Multi-Increment Sampling® (MIS) is a sampling methodology utilized when an accurate estimate of contaminant concentration is critical. The results are reproducible and demonstrably representative of the pre-determined decision unit. Because the heterogeneity of the environmental media is significant, MIS is the most practical approach to get a true estimate of the contaminate mass/concentration. When comparing MIS to discrete sampling approaches, which inherently includes the lack of viable reproducibility, coupled with the potential risks and costs discrete incurs, MIS should be the option implemented.

**Speaker Bio:** Charles Ramsey is the founder and President of EnviroStat, Inc., a company that provides training in sampling and laboratory subsampling for defensible environmental decisions to federal and state agencies as well as private companies. He has a BA in Chemistry from the University of Denver and a MS in Environmental Science from the Colorado School of Mines. Mr. Ramsey has 25 years sampling experience including seven years with the National Enforcement Investigations Center (NEIC) of the USEPA. While with the EPA, he provided sampling and statistical expertise on all major environmental regulations. Mr. Ramsey is involved with the development of guidance documents for sampling and statistics and is the developer of the MULTI INCREMENT® sampling methodology.