ON THE ROCKS

A Newsletter of the Michigan Basin Geological Society

2020-2021 Edition 5 *www.mbgs.org* *February 2021*

ANNOUNCEMENTS

MBGS Membership Meeting, February 10th, 7:00PM: John Esch, Michigan Department of Environment, Great Lakes & Energy, Oil, Gas & Mineral Division, will present "Ice-Walled Lake Plain Distribution in Michigan".
This is a virtual meeting. Please RSVP to Jennifer Trout at jennifer.l.trout@wmich.edu
Join Zoom Meeting: https://zoom.us/j/2692904048?pwd=Szg2dmNuSHVSQ3U2cGFZeWhKM1RtZz09
Meeting ID: 269 290 4048 Passcode: Y0Jciw
Dial by your location
+1 312 626 6799 US (Chicago)
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Meeting ID: 269 290 4048 Phone Passcode: 879143

Volunteer Opportunity: MBGS is in search of a Secretary for the 2020-2021 year. If interested, please contact any one of our executive members.

OTHER NEWS

ONE SEAT AVAILABLE FOR GRAND CANYON RAFTING TRIP

MBGS Field Excursion Spring 2021 – Geological Excursion by raft on the Colorado through the Grand Canyon. ONE SEAT AVAILABLE. Trip goes from Friday, May 14th through May 20th, 2021. Sign up by emailing Mark Wollensak @ wollensak@att.net. A non-refundable (but transferrable) payment of $3,900 is required ASAP to guarantee your seat on the raft. Details of the trip are included in flyer.

LED FIELD LENS AND MBGS LANYARD

The Michigan Basin Geological Society is offering geological field hand lens and lanyards. 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 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. Please contact Mark Wollensak at wollensak@att.net to order.

February 2021 MBGS Membership Meeting (Free)

When: February 10th, 7:00 PM, 2020 (virtual)

Presentation: Ice-Walled Lake Plain Distribution in Michigan

Presenter: John Esch, Michigan Department of Environment, Great Lakes & Energy, Oil, Gas & Mineral Division

RSVP: Jennifer Trout at jennifer.l.trout@wmich.edu

Join Zoom Meeting

https://zoom.us/j/2692904048?pwd=Szg2dmNuSHVSQ3U2cGFZeWhKM1RtZz09

Meeting ID: 269 290 4048 **Passcode:** Y0Jciw

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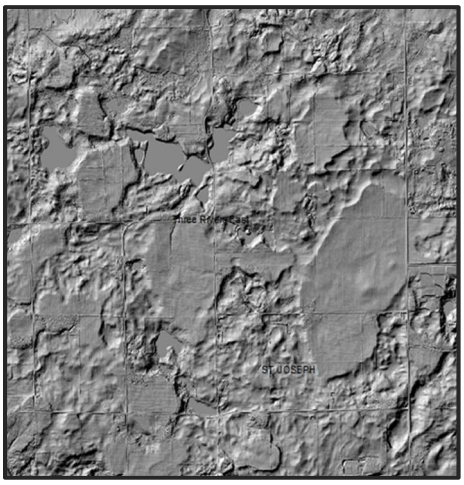
Abstract

Before the availability of LiDAR in Michigan, Ice-Walled Lake Plains (IWLP) were rarely recognized. IWLPs in Michigan are generally subtle and typically not distinguishable on 7.5 minute topographic maps, aerial photos or county soils surveys. They are often unrecognizable even when standing in the middle of one. Recent surficial geological mapping and the availability of LiDAR has made their identification possible. These supraglacial ice stagnation features appear as relatively flat to slightly bowl shaped plateaus slightly elevated above the surrounding morainal uplands. They have steeper outward facing ice-contact slopes down to the surrounding land surface. Most occur on hummocky uplands, end moraines, with some on till plains. They are not found in outwash plains, glacial drainage-ways or lowlands.



They most commonly occur in clusters but occasionally are seen as a single isolated IWLP. Some are clearly distinct features and others appear as a compound IWLP made up of a number of coalesced IWLPs or as smaller satellite IWLPs within larger one. They come in a wide variety of sizes, averaging 43 acres (17.3 hectares) and shapes but are commonly rounded. They are thought to have formed as short-lived lakes in depressions on a stagnating ice surface, where generally fine grained materials are deposited from the surrounding higher stagnating ice. Overtime as the glacier melts and as more sediment is deposited in the lake, eventually the lake sediments are deposited on the land surface resulting the elevated low relief plateaus above the surrounding land surface.

The IWLPs were digitized from LiDAR DEMs, hillshades, shaded relief, and slope maps and using machine learning. Hand augered borings, coring and road cuts reveal textures widely ranging from clay to fine sand to coarse sand. The Saginaw Lobe has significantly more IWLPs than the Lake Michigan and Huron Erie Lobes. Certain moraines or portions of moraines have IWLPs while others have none. They can be cored to find organic material and OSL samples collected for age dating. Since IWLPs often occur on morainal ridges, the dates can be used as a minimum age for an ice advance. Because they occur in a distinct depositional environment, mapping their distribution assists in interpreting the glacial history of an area and in differentiating subtle moraines and ice margins from others.

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- Esch, Gerrit, Self, Laingsburg, MI 48848
- Yellich, John A., Michigan Geological Survey, Western Michigan University, Kalamazoo, MI 49008

Biography

John grew up in the Grand Ledge Michigan area and received his BS in geology from Central Michigan University in 1984. He started out his career in 1984 as a geologist with Aangstrom Precision Corporation. He led a geophysical survey crew for one year and later worked as a “computer geologist” mapping the structure and isopach maps of every Paleozoic formation in the Lower Peninsula of Michigan. John constructed the first ever comprehensive glacial drift isopach and bedrock topography maps of the Lower Peninsula of Michigan as well as assisting in mapping the major faults in the basin. In 1990, John left the oil patch and took a job with the DNR (later DEQ/EGLE) conducting hydrogeologic investigations at contamination sites across the state. From 1998-2006 he has been a project geologist (geodog) on 12 Superfund sites here in Michigan. Since 2006 he has been with the Office of Geological Survey/Oil, Gas & Minerals Division. John also conducts geological mapping for the Michigan Geological Survey. John’s interests include studying the bedrock surface and structural geology of the Michigan Basin, use of unconventional geophysical techniques, groundwater surface water interactions, and the use of GIS and 3D visualization techniques to help understand subsurface geology. He formerly chaired the EGLE GIS Committee. He is a volunteer with Lifewater International in which he trains people overseas in groundwater exploration, shallow well drilling and hand pump repair.

EVENTS

Many organizations have switched to virtual platforms or have cancelled events. 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 - https://www.michigan.gov/egle/0,9429,7-135-3308_3333---,00.html
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/
Mid-Michigan Rock Club - http://www.midmichrockclub.com/?Page=1
Midwest Mineralogical and Lapidary Society - http://www.mmls.us/
Society of Petroleum Engineers - https://www.spe.org/events/calendar/

Event Schedule

Michigan Basin Geological Society Monthly Meeting – 2nd Wednesday of each month

June 14-16, 2021: Annual Environmental Risk Management Workshop: "The Data Tell the Story" at the Ralph A. MacMullan Conference Center, Roscommon, Michigan.

ONLINE RESOURCES

- **Michigan Geology Maps Available:** https://www.michigan.gov/deq/0,4561,7-135-3304-116670--,00.html
- **Digital Geology Library Overview:** https://www.michigan.gov/documents/deq/GIMDL-Catalog-2010-01-20_307979_7.pdf
- **GeoWebFace:** https://www.michigan.gov/deq/0,4561,7-135-3311_60700---,00.html
- **Digital Geology Library Mining Overview:** https://www.michigan.gov/documents/deq/GIMDL-Catalog-2013_06_22_mining_425595_7.pdf
- **Michigan Geological Survey:** https://wmich.edu/geologysurvey
- **USGS Michigan Geological Map Data**: https://mrdata.usgs.gov/geology/state/state.php?state=MI
- **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

MICHIGAN BASIN GEOLOGICAL SOCIETY OFFICERS
2020-2021

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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. Cambray, 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 Keweenawan 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.

www.mbgs.org

JOB POSTINGS

Michigan Department of Natural Resources

The DNR is currently hiring for a 2021 conservation officer academy. Interested candidates should review the hiring process or contact a recruiter. Conservation officers (COs) are responsible for enforcing laws and regulations under the jurisdiction of the Michigan Department of Natural Resources. Stationed in nearly every county of the state, these fully licensed peace officers enforce laws related to fish and wildlife, state parks, trails and forests, and outdoor recreation activities such as off-road vehicle use, snowmobiling and boating. They are also first responders to a variety of natural disasters and emergencies.

Michigan Department of Environment, Great Lakes and Energy

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for a Geologist 9-P11 position within the Oil, Gas, and Minerals Division (OGMD). This position is located at Constitution Hall, 525 West Allegan Street, Lansing, Michigan. This position is open to all and interested applicants must apply through NEOGOV. Posting is closing February 8, 2021. If you are interested in obtaining more information or applying for the position, click on the link below.

Geologist 9-P11

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) is currently recruiting for a Geologist 9-P11 position within the Materials Management Division (MMD). This position is located at Constitution Hall, 525 West Allegan Street, Lansing, Michigan. This position is open to all and interested applicants must apply through NEOGOV. Posting is closing February 8, 2021. If you are interested in obtaining more information or applying for the position, click on the link below.

Geologist 9-P11

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Nonpoint Source (NPS) Program is looking for an Environmental Engineer Licensed Specialist. This is an excellent opportunity for a new senior engineer to continue advancing the Program's efforts to restore impaired waters and protect high quality waters.The NPS Program is looking for applicants with experience implementing best management practices to reduce or eliminate nonpoint source pollution. The Program is especially interested in applicants with experience implementing storm water best management practices as well as stream restoration projects that employ natural channel designs.

Environmental Engineer Licensed Specialist 13 | Job Details tab | Career Pages (governmentjobs.com)

Golder Associates

Golder has a new posting up for an entry level hydrogeologist/geologist to join the Lansing, MI office, please see below:

Job Description - Graduate Hydrogeologist (21000452) (taleo.net)

Antea Group

Environmental Project Manager

Antea Group is seeking an Environmental Project Manager in our Novi, MI office. This position is structured for someone with MI-based environmental remediation and compliance experience (Part 201 and Part 213 investigation and remediation support).

Education and Training

- A minimum requirement of a degree in Geology, Engineering, Environmental Science, or related scientific field;
- 5 to 7 years of environmental consulting experience;
- Professional certification in a related field (PE, CPG, PG, LEP, LSP, CHMM), a plus;
- OSHA 10 or OSHA 30 Construction Safety certification, a plus; and
- 40-Hour HAZWOPER training is required.

Desired Experience

- Proven track record of strong project management performance in environmental consulting or related field
- Staff direct report experience including all facets of team building, HR management, performance evaluations, and junior staff mentoring/training
- Experience in environmental remediation, compliance, and due diligence
- Experience in petroleum, refinery, terminal and pipelines, railroad, and UST projects, including up to date investigation and remediation technical approaches in Michigan
- Experience in pushing projects through regulatory programs and negotiating closure with regulators
- Multi-state regulatory experience with skills advancing projects from new release through final regulatory closure, including use of applicable risk-based closure standards
- Sub-contractor coordination including bid spec development, contracting and insurance/safety review, project award and field supervision

Apply Online Here: https://workforcenow.adp.com/mascsr/default/mdf/recruitment/recruitment.html?cid=b5362f12-1ec2-4e66-90bf-9583d4a94928&ccId=19000101_000001&jobId=398959&lang=en_US&source=CC4

Mid-Level Environmental Geologist, Scientists or Engineer

Antea Group is seeking an Environmental Professional role in our Novi, MI office. This individual will support projects across multiple practice areas throughout the organization including, but not limited to, investigation and remediation of impacted sites, environmental compliance, due diligence, permitting and auditing, risk assessment, and environmental health and safety.

Education and Training

- Minimum of a bachelor's degree in Geology, Environmental Science, Environmental Engineering or relevant field;
- 3 to 5 years of related environmental experience;
- Ability to drive project closure strategies and lead day to day activities for multiple project teams;
- Responsible for executing scope and maintaining schedule and budget goals;
- Ability to work independently with minimal supervision simultaneously for multiple project teams;
- Demonstrated organizational and communication skills, particularly proficiency in technical writing;
- Strong data collection, evaluation, and technical writing skills;
- Experience in one or more areas; drilling, environmental media sample collection, evaluation and implementation of remedial technologies, groundwater modeling, risk/impact assessments, environmental compliance programs, environmental permitting, and due diligence, air modeling, industrial hygiene;
- Knowledge of Michigan related rules and regulations, specific to Part 201 and 213 environmental releases;
- Knowledge of industry regulations (e.g., technical guidance/requirements, RCRA, CERCLA, OSHA, etc.);
- Professional certification in a related field (PE, PG, etc.) a plus;
- 40-Hour HAZWOPER training is required;
- Valid driver's license and safe driving record;
- Ability to successfully pass a company paid physical examination and drug screen.

Apply Online Here: https://workforcenow.adp.com/mascsr/default/mdf/recruitment/recruitment.html?cid=b5362f12-1ec2-4e66-90bf-9583d4a94928&ccId=19000101_000001&jobId=399178&lang=en_US&source=CC4