

Geologically Speaking

A large quarry with a massive rock formation in the foreground and two cars parked in the distance. The rock face is layered and shows signs of excavation. The foreground is filled with broken rock fragments and a large, jagged rock formation. Two cars are parked on a dirt road in the middle ground, and a person is visible near them. The sky is clear and blue.

A Michigan Section AAPG Publication

Inside This Issue:

Michigan Section's Mozola Scholarship Award!
Geology in Michigan: Fossil Hunting on the Stonington Peninsula
Regulatory Roundup List of House and Senate Bills

THE MERIT ADVANTAGE

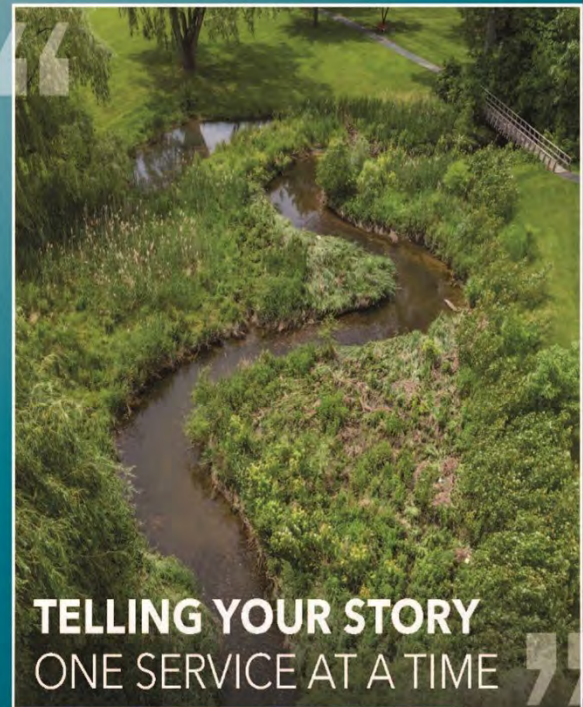
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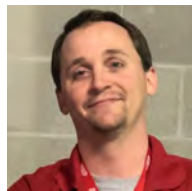
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Front Cover: The Sylvania Minerals Quarry Pit No. 58-013 in South Rockwood, Michigan. The quarry mines rock (primarily dolomite and sandstone) from the Sylvania Sandstone downward through the Put In Bay Dolomite. Photo by Sara Pearson. The photo was taken in September 2024.

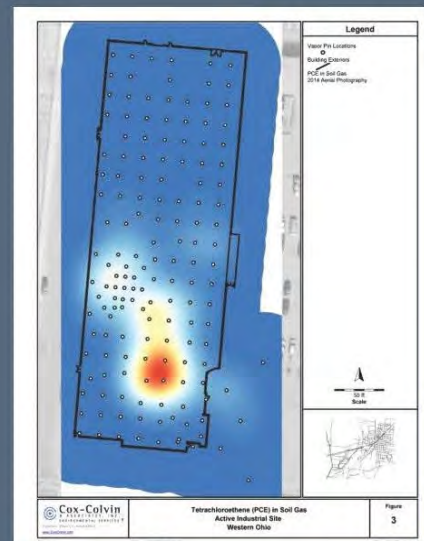
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Geology Crossword #18 Solution

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Across

1. Michigan state gem
7. February birthstone
9. November birthstone
10. Very black
13. Twinned varieties are "fairy crosses"
14. "Watermellon" is a variety
15. Common semiprecious stone
21. "Cinnamon Stone"
22. Chronicles by Roger Zelazney
23. Not the stone of a barrel maker
24. Most prized when on fire
26. Commonly a double pyramid shape
27. Rare, iridescent shell material
28. "Cat's Eye" varieties are prized

Down

1. Not a fruit
2. Bluish mineral, two words
3. Often an impurity in quartz
4. Element 73
5. Popular green stone from Columbia
6. Fowlerite is a variety
8. December birthstone
11. July birthstone
12. The rarest of these are black
14. Also Zoisite
16. Glass ejected from meteorite impact
17. August birthstone
18. Not of ET origin
19. They are forever
20. The rarest blues are from Kashmir
21. An increasingly rare gas
25. Popular Be,Al,Si stone

From the President's Desk

I have a notepad on my desk and on each page, it has the phrase "Empowered women, Empower women". I like the saying and it is true for all people. Empowering others begins with feeling empowered yourself. When we are given the tools, confidence, and opportunities to succeed, we are more likely to support and uplift others. We contribute to a more inclusive society where everyone can succeed.

In the early days of my career, I faced a significant challenge that tested my resilience and determination. I had just taken on a new role in a fast-paced industry, and the learning curve was steep. One particular project required me to lead a team through a complex transition, and despite our best efforts, we encountered numerous setbacks.

There was a moment when everything seemed to be going wrong. Deadlines were looming, and the pressure was immense. I remember one late night, sitting in my office, feeling overwhelmed and questioning whether I was the right person for the job.

But then I recalled a piece of advice from a mentor. "In every challenge lies an opportunity." I decided to shift my perspective and view each setback as a learning experience. I reached out to my team, encouraged open communication, and together we brainstormed innovative solutions. In fact, one of my team members approached me with a suggestion for process improvement. At first, I was hesitant because it was not the way I was used to doing the work. Have you ever been told, "that's not how we do it here". I didn't want to be that person, so I decided to trust their expertise and give them an opportunity to lead that aspect of the project. To my surprise, not only did they excel, but their innovative ideas also significantly enhanced our overall efficiency.

In the end, not only did we successfully complete the project, but the experience taught me the importance of empowering others. By trusting my team and giving them room to take ownership of their work, we were able to achieve far more together than I could have alone. Empowering others not only boosts their confidence and skills but also fosters a collaborative and motivated team environment. It's a lesson that has stayed with me throughout my career and one that I strive to impart to others.

Empowerment and engagement are both important concepts in leadership and organizational behavior. Empowering employees can lead to greater engagement,

and engaged employees are more likely to feel empowered. It has been interesting throughout my career to see how each generation values these concepts. I recently read a report that suggested these differences vary significantly across different generations because they are influenced by factors such as work values, technological familiarity, and career expectations. Reverse mentorship is a fantastic way to help bridge the gap between generations. This enables the younger generations to teach their tech-savvy skills and fresh perspectives. As I mentioned in an earlier newsletter, AIPG has a great mentorship program that allows for traditional mentorship to share experience and knowledge but is also a wonderful opportunity for reverse mentorship for some of us fossils.

With that, I will close by encouraging you all to empower someone today. Give someone an opportunity to develop and grow. It will boost their confidence and morale, enhance creativity and innovations and build trust and collaboration. Empowering others is not just about delegating tasks: it's about creating an environment where people feel supported, trusted, and capable of making meaningful contributions. This can lead to more innovation, success and engagement!

I hope you all have a wonderful Fall, and I look forward to seeing all of you at our annual meeting in December!

Amy

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- Peer-Reviewed
- Letters to the Editor

Please submit your draft article to the Editor, Adam Heft at: adam.heft@wsp.com. Technical requirements may be found on the AIPG website.



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Secretary's Report

The Michigan section AIPG Executive Committee meets monthly on the first Friday with a few deviations due to schedules. During the monthly one-hour meetings, Executive Committee board members have discussed and planned various topics, highlighted by month below:

August 6, 2024

The executive committee had a quorum for this meeting. The meeting minutes from the June 14th virtual meeting were approved. Since there was no quorum for July, the meeting was cancelled and rescheduled. Early Career Professional Sienna Meekhof and incoming Early Career Professional Garrett Link will collaborate on doing a student network event right around school starting. Sienna will be helping Garrett with transitioning into the ECP position. Section finances were discussed by Jason Lagowski and all accounts are in good standing. Discussion was held about prior pending balances and needing receipts for reimbursement. Section Editor Adam Heft discussed the date for the release of the newsletter. Vice President Ashley Miller will review report for Section for the National Meetings.

Old business included discussing Section website and having it current along with any information Jason will work on. Target date end of Q3. The joint meeting with MAEP will be at Walden woods on September 19th. Also discussed, Golf outing that will be happening next month, 55 golfers registered thus far. A last chance email will be sent out to help out with getting some last-minute golfers.

Section Website Reminders

The Michigan Section has created a database of geologic photographs on our website. Please submit photographs that you are willing to share to Adam Heft at adam.heft@wsp.com. Don't forget to include your name and a short explanation of what the photograph depicts. The photographs will be uploaded to the website periodically.

If you have suggestions on other items that should be included on the History page, please let a member of the Section Executive Committee know.

Potentially the last year for the golf outing, Kalan wants to stepdown as event chairman. Discussion was held for new business about when the MAEP annual meeting is and not having it at the same facility (would like to alternate years). Once the date is given for the MAEP annual meeting, the date can be set for the AIPG annual meeting. Ashton called MSU-Kellogg Center/Conference in Lansing, The Kensington Hotel in Ann Arbor, Crystal Gardens in Howell for pricing for annual

I Want To Publish Your Articles!



Hey everyone, I would like to encourage you to submit your articles for publication! As the Michigan Section Editor, and also the 2021-24 National Editor, I am working to put together two top-quality publications for our members. This is not a one person job. This is where you come in. I welcome your technical articles, case

studies, opinion pieces, mini field guides, and letters to the Editor.

The guidelines are pretty simple for articles for *Geologically Speaking*. All submissions must be professional and may not violate the AIPG code of ethics. They also may not have been submitted for publication elsewhere.

While most submissions will be accepted, we do not accept articles that are a sales pitch for a product or company.

The deadline for submitting articles for *TPG* is two months before the start of the quarter for which the *TPG* edition is published. Thus, February 1 is the deadline for the Apr/May/June edition.

Please submit your articles of no more than 3,200 words in MS Word format directly to me or to Dorothy Combs at National Headquarters at aipg@aipg.org. All graphics (photos, figures, or tables) should be submitted in .jpg, .tiff or other standard format at 300 dpi. Please ensure your graphics are clean and easy to read to make things easier for the editorial staff. Complete information on submitting an article may be found on National's website at: <https://aipg.org/page/TPGInformation>.

meeting venues she is waiting on a response back. Section field trip to Sylvania Mineral quarry in South Rockwood, 15 people maximum; all need to have PPE, will be September 14th, 2024. Michigan swept the student section awards 1st: WMU and Runners-up: EMU and Wayne State.

September 13, 2024

The executive meeting had a quorum for this meeting. The meeting minutes from the August 6th virtual meeting were approved. Crystal Gardens in Howell, MI was secured for the annual meeting on December 5th, 2024. The contract for Weber's for next year's annual meeting has been written, just needs signature and deposit. Early Career Professional Garrett Link reported he was able to get the award to WMU, two students were there. Garrett will have the first meeting with chapters today at 5pm. Kalan offered feedback about letting student chapters know about deadlines, Mozola scholarship, what chapter of the year means, and what opportunities are available to get them ready for the year. Garrett will ensure that the undergraduates keep their information current with headquarters. Jason Lagowski discussed section finances and both accounts are in good standing. Discussion was held about receipts and reimbursement. Section Editor Adam Heft discussed *Geologically Speaking*, sent an email to

have articles in by October 1st. Also discussed, needing to advertise for the annual meeting, promoting secretary and ECP position before the annual meeting. The section field trip for Sylvania Mineral quarry in South Rockwood was sold out, will be this Saturday 9/14/2024.

Old business included discussing the section website keeping it current along with information, Jason will work on. The joint meeting with the MAEP will be at Walden woods next week on September 19th, low on numbers. Email was sent for last call registration to boost numbers. The annual golf outing was held, 80 golfers registered, it raised \$3000 in fundraising, Hans-Matthews executive sponsor. Some volunteers discussed forming a committee for the golf outing, to keep it going. Kalan will offer guidance if asked. There was a discussion of new business the MAEOE we have a line item in the budget for it, we will continue supporting them Jason Lagowski will correspond. Dave Adler emailed about member sustainability thoughts around student membership and transitioning into full membership. "Is there a way for them to transition successfully?" Discussion will be held at the next executive committee meeting about National's reporting that numbers for students are extremely low.

Member in the News!

Christopher A. Gellasch (Eastern Michigan University): Dr. Christopher Gellasch has performed substantial and exemplary service to GSA and to the training and mentoring of youth and young and early career geoscientists. Through his volunteer efforts and his professional accomplishments, Dr. Gellasch has shown himself to be an exemplary representative of the geoscience community. — Christopher P. Carlson

Society Fellowship is an honor bestowed on the best of our profession by election at the spring GSA Council meeting. GSA members are nominated by other GSA members in recognition of a sustained record of distinguished contributions to the geosciences and the Geological Society of America through such avenues as publications, applied research, teaching, administration of geological programs, contributing to the public awareness of geology, leadership of professional

organizations, and taking on editorial, bibliographic, and library responsibilities.



Chris Gellasch (left), receiving his award of GSA Society Fellowship from GSA President Chuck Bailey.



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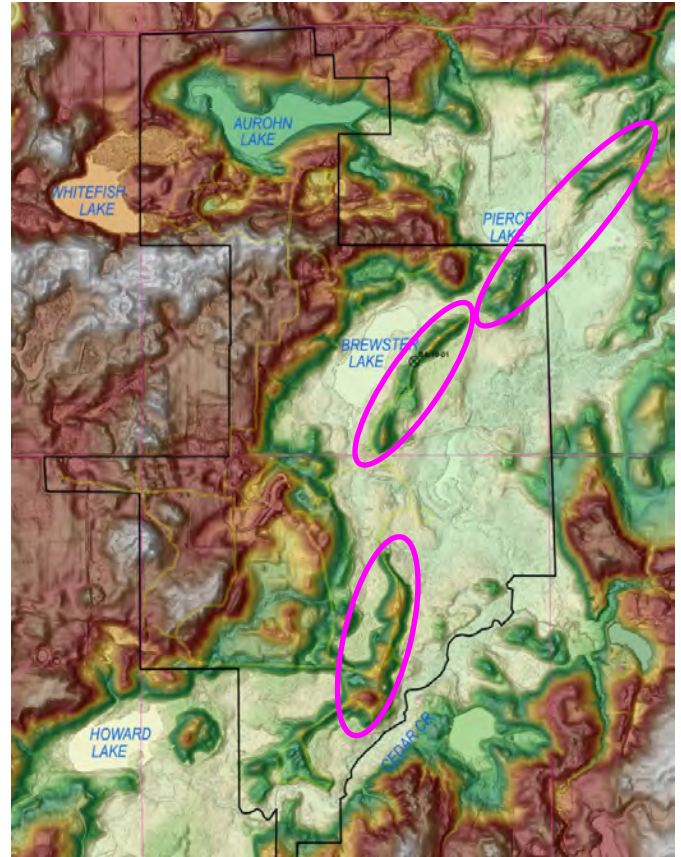
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Where in Michigan?

The August 2024 edition of *Geologically Speaking* featured a photograph of the Douglas Houghton Falls (or Houghton-Douglas, depending on who you ask), which is between Laurium and Lake Linden. The bedrock is the Precambrian aged Portage Lake Volcanics. **Grace Griffin** correctly identified the photograph and gets choice of swag!

This edition of *Geologically Speaking* features a new image **at right** - not the photo on the cover page. The first person to correctly identify what the circled parts of the photograph depict (feature name, location, and how it was formed) will win AIPG swag! Submit your entry via email to the editor; only one per person per issue please.

Don't forget to check out the feature article "Geology in Michigan" in this issue (as well as the last several editions) that presents a geologic feature of interest as a mini field guide. One of the best parts about being a geologist is field trips, and we are hoping that in your travels around the state or country you include these featured spots as a stop. Why not incorporate them into a family vacation or bring friends who may not be geologists and share these locations that make Michigan unique? We hope you enjoy reading about it, and more importantly, go see it in person! We invite you to share unique geologic features that you know about and submit a "mini field guide" to share with our members in future editions.



Invitation to Our Members!

Do you have a case study to share?

The Michigan Section AIPG promotes knowledge sharing and would like to feature case studies from projects where others may benefit from successes as well as lessons learned. We feel as professionals that learning from each other is a great opportunity that AIPG offers our members. AIPG offers connection with other professionals and their experiences in the work we do every day. This case study represents what we would like to offer more to our members, not only as a way to solve problems, but unify us as professional geologists. Additionally, do you have a suggestion for other types of information to share that would be of interest to our membership?

Please send your case studies and suggestions for future publication in upcoming editions of *Geologically Speaking* to the Editor.

Update Your Information!

Please be sure that you continue to receive the Section's *Geologically Speaking* publication and other announcements. Submit an updated e-mail address to Adam Heft at adam.heft@wsp.com. If you move or change places of employment, don't forget to send your new contact information to both the Section and to National. If you are not receiving announcements directly from the Editor, it is because your email address is not up to date with the Michigan Section or because your IT group may classify it as junk or a bulk sending.

Please help the Editor by making sure that your email address doesn't bounce when the next announcement is sent. And be sure to cc Dorothy Combs, National AIPG Membership Director at aipg@aipg.org when you update your contact information. Thank you!

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Minerals for Sale!

Long-time Michigan mineral collector and dealer, Bill Micols, is selling his lifetime collection of material. Bill is in Milford. For additional details, please see the full-page flyer on the following page.

Support our Sponsors!

The Section Executive Committee would like to remind its members to support the companies advertising in this publication. Consider working with these companies, and when you speak with their representatives, let them know that you saw their ad in the Michigan Section AIPG publication *Geologically Speaking*.

Interesting Geology Links

The Editor has received links to various interesting geology-related sites. Some of the more interesting links are included here. If you have any links to geology-related sites that you would like to share, please forward them (with a citation, if applicable) to the Editor.

Top 10 natural disasters caught on camera: <https://www.youtube.com/watch?v=scRUGRreKmY>.

Geology Professor Shawn Willsey YouTube Channel: <https://www.youtube.com/@shawnwillsey>.

The AIPG YouTube Channel: <https://www.youtube.com/channel/UCZJVHi1yAPLJe1AksLOV3pA>.

Michigan Geological Survey (MGS) and resources from the Michigan Geological Repository for Research and Education (MGRRE) YouTube Channel. <https://www.youtube.com/@michigangeologicalsurvey/videos>.

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Geology in Michigan – Field Guide to Fossil Collecting on the Stonington Peninsula in Delta County, Michigan

By Dave Adler, CPG-11377

Editor's Note: This article originally appeared in the Q3 2021 Edition of Geologically Speaking...

FIGURE 1 | REGIONAL MAP

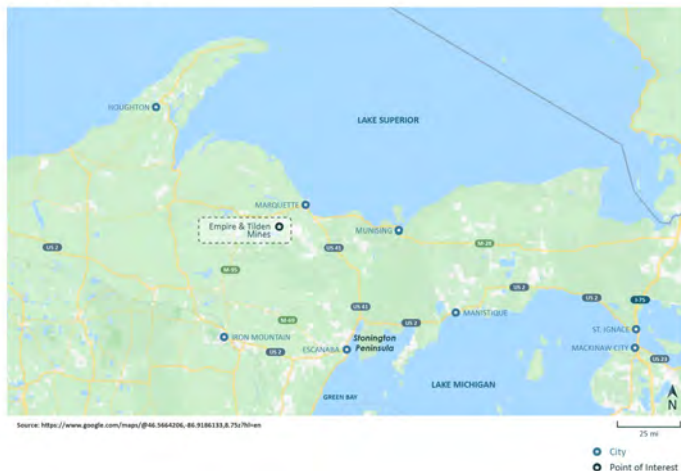
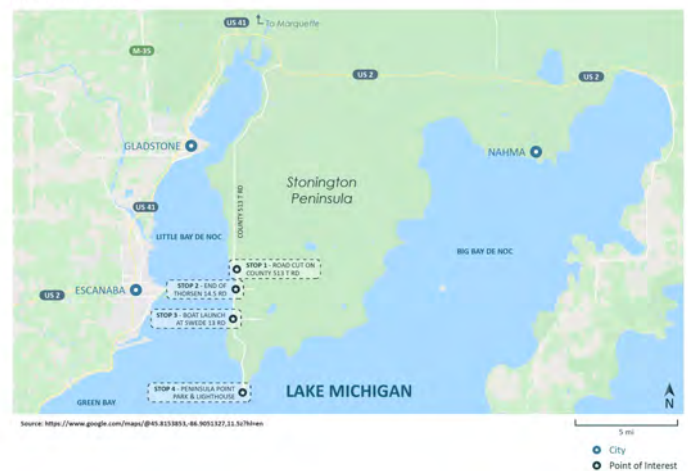


FIGURE 2 | AREA MAP



Directions

The Stonington Peninsula juts out into the north shore of Lake Michigan just south of the City of Rapid River in Delta County in the south-central portion of Michigan's Upper Peninsula (Figure 1). It is most easily accessed via US Highway 2 (US-2), the primary paved road that runs east-west along the south side of the Upper Peninsula. The four stops described in this article are accessed from County 513 T Road, the paved two-lane road that traverses the west side of the Stonington Peninsula from north to south. County 513 T Road (CO 513) can be accessed from US-2 approximately 2.5 miles east of Rapid River (Figure 2).

From Marquette, take US-41 south for approximately 50 miles to US-2 in Rapid River. Proceed east on US-2 approximately 2.5 miles to the intersection of CO 513 and US-2. Turn right (south) onto CO 513 and proceed southward along the west side of the Stonington Peninsula to the four stops described separately below.

From St. Ignace on the north side of the Mackinac Bridge, take US-2 west for approximately 125 miles to the intersection of US-2 and CO 513 (approximately 2.5 miles east of Rapid River). Turn left onto CO 513 and proceed south towards Stops 1-4. From the west, take

US-2 eastward through Rapid River. Turn right (south) onto CO 513 and proceed southward toward Stops 1-4.

Introduction

The Stonington Peninsula is a quiet, lightly populated and mostly rural area of the south-central Upper Peninsula. It is surrounded on three sides by the waters of Lake Michigan - Little Bay De Noc on the west side, Big Bay de Noc on the east side, and Green Bay on the south side. CO 513 is the primary paved road allowing access along the west side of the Stonington Peninsula where there are bedrock cliffs that overlook Little Bay De Noc and the cities of Escanaba and Gladstone. The area has a rich history related to the Upper Peninsula's logging and iron mining industries. If you drive along CO 513 near dusk, you're likely to see hundreds of white tail deer in the fields on the east side of the road. If you travel all the way to the south end of CO 513 to Peninsula Point (Stop 4), you'll find a public park with a picnic grounds and a historic lighthouse. Monarch butterflies have been known to congregate here in the thousands in the fall where they rest for a short time during their migration to Mexico, a journey of nearly 2,000 miles. Over 200 bird species have been observed at Peninsula Point.

Bedrock of the Ordovician Bill's Creek Formation and

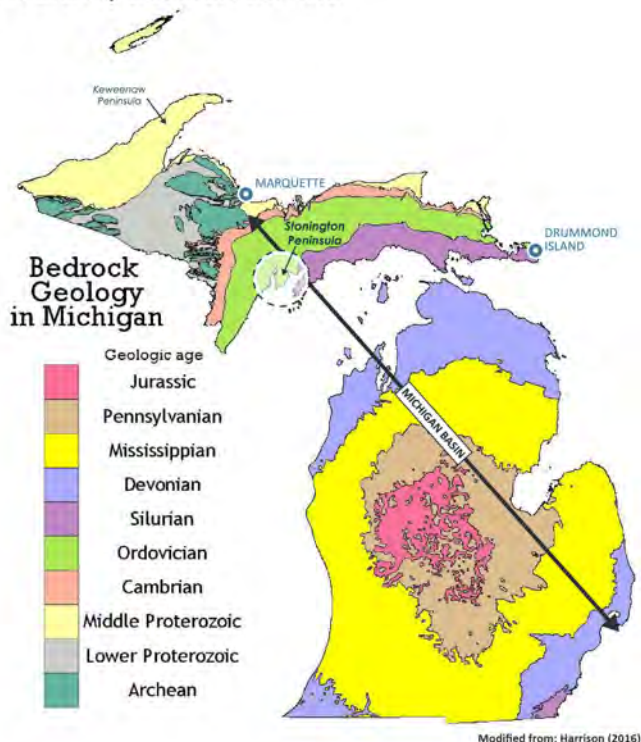
the overlying Stonington Formation is exposed at several locations on the west side of the Stonington Peninsula. The Bill's Creek Shale and the Stonington Limestone are highly fossiliferous and yield numerous Ordovician invertebrate fossils. The Bill's Creek Shale is especially rich in fossils and tends to weather easily, allowing for great fossil collecting on the beaches of Little Bay De Noc and other areas where bedrock is exposed, including the cliffs along the west side of the Stonington Peninsula.

This field guide describes four stops where the Bill's Creek Shale and the Stonington Limestone can be observed and where fossils can be readily found and collected. It's a great place to introduce children to the fascinating wonders of geology and the history of life on earth. As always, discretion, attention to safety (your personal safety and the safety of those around you), and respect for private property are encouraged. Have fun and enjoy!

Geologic Setting

The Stonington Peninsula is located on the northwest side of the Michigan Basin geomorphic province. The regional geologic setting is depicted on Figure 3. The flanking rocks to the northwest include Archean, Lower Proterozoic, and Middle Proterozoic rocks along the southern margin of the Canadian Shield. The Middle Proterozoic (Huronian/Animikian) rocks include the economically significant iron ore deposits of Michigan's three iron ranges - the Marquette Iron Range (Negaunee Iron Formation), the Menominee Iron Range (Vulcan Iron Formation) and the Gogebic Iron Range (Ironwood Iron Formation). The extensive native copper deposits of the Lake Superior Copper District (the Late Precambrian Portage Lake Lava Series and the Nonesuch Shale) are also located off the northwest flank of the Michigan Basin. From approximately 1880-1910, the Lake Superior Copper District supplied much of the country's industrial copper supply. Iron ore is still being mined on the Marquette Range.

FIGURE 3 | GEOLOGIC SETTING



The Michigan Basin is a bowl-shaped intracratonic crustal depression that contains several thousand feet of sedimentary rocks deposited during the Paleozoic era. These sedimentary rocks overlie older Precambrian age crystalline basement rocks. The maximum thickness of accumulated Paleozoic sedimentary rocks in the Michigan Basin is approximately 15,000 feet in the Midland area near the center of Michigan's Lower Peninsula. The Paleozoic sedimentary rocks include dolomite, limestone, shale and sandstone. Dolomites and limestones are the primary Paleozoic lithologies of the Michigan Basin.

Formation of the Michigan Basin began in the early Cambrian by erosion of ancient highlands formed during the Cambrian-Penokean Orogeny, followed by subsequent deposition. Later effects of the Appalachian orogeny may have caused the structural deformation and downward movement in what had been a relatively stable continental interior. As a result, several intracratonic structural basins developed in the central lowland areas of North America creating domes and arches. The Michigan Basin is bounded on the north by the Canadian Shield, on the west by the Wisconsin Arch and Wisconsin Dome, on the east and southeast by the Algonquin Arch and the Findlay Arch, and by the Kankakee Arch to the south in northern Illinois and Indiana (Michigan Department of Transportation, 2008).

Shallow seas covered most of the Michigan Basin during the Ordovician and Silurian. The rocks deposited during this time were mostly chemical precipitates and evaporites. During the middle and late Silurian, significant halite deposits were formed within the Silurian age Salina Formation, a relatively thick sequence of evaporite and carbonate rocks. The Salina is an important source of rock salt, especially in southeast Michigan (Detroit/Windsor, Ontario area) and has also produced oil and gas.

As shown on Figure 3, the Ordovician rocks of the Michigan Basin occur in an east-west trending arc-shaped belt extending from the Stonington Peninsula eastward across the Upper Peninsula (UP) to Drummond Island at the eastern edge of the UP. The Ordovician rocks dip gently to the south and east towards the interior of the basin. These rocks are primarily fine-grained carbonates and shales. According to LaRowe (2000), the paleolatitude of the Great Lakes region in the Late Ordovician was approximately 20 degrees south, thereby providing environmental conditions suitable for carbonate deposition.

Late Ordovician age marine bedrock of the Richmond Group underlies the Stonington Peninsula (Dorr and Eschman, 1970). The Richmond Group includes, in ascending order (from oldest to youngest), the Bill's Creek Shale, the Stonington Formation, and the Big Hill Formation. Both the Bill's Creek and Stonington Formations are exposed at several locations along the west side of the Stonington Peninsula, and offer some excellent opportunities to observe the Ordovician lithologies and their rich assemblages of well-preserved Ordovician invertebrate fauna.

The Bills' Creek Shale has been described in the published literature as:



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- Thin-bedded gray to brown soft shale with occasional layers of hard shale. The shale becomes bluish when weathered. Thin layers of argillaceous, fine-grained limestone are interbedded with the shale. The shale and limestone grade into each other laterally. A total thickness of 245 feet has been observed in the Cleveland-Cliffs core from a location 32 miles northeast of Escanaba. (LaRowe, 2000). LaRowe (2000) goes on to state that the deposition of the Bill's Creek Shale was likely in relatively deep water, as shown by both the lithology and the fauna.
- Thin bedded brown shale with occasional layers six inches thick. The shale turns a light bluish color when weathered. Alternating interbeds of argillaceous limestone occur in the shale towards the top of the section. The alternating interbeds are especially well exposed near the top of the section in exposures on the west side of the Stonington Peninsula (Hussey, 1952).

The Stonington Formation conformably overlies the Bill's Creek Shale and consists of the Bay De Noc Member overlain by the Ogontz Member. The Bay De Noc member has been described as shaly limestone by Dorr and Eschman (1970), and as mudstone and argillaceous limestone by Lamsdell et al (2016). The Ogontz member has been described as limestone with layers of chert nodules (Lamsdell et al, 2016) and as cherty limestone by Dorr and Eschman (1970).

According to LaRowe (2000), the Bay De Noc Member of the Stonington Formation is mostly tan to grey argillaceous limestone with interbedded shale and occasional mudstone, similar to the underlying Bill's Creek beds. The type section for the Stonington Formation is in the shoreline cliffs on the west side of the Stonington Peninsula where the exposed section is approximately 25 feet thick. This location is near Stop 1 described below. The total thickness of the Stonington Formation is approximately 150 feet, as observed in the above noted Cleveland-Cliffs core (LaRowe, 2000).

According to Wicander and Playford (2008), palaeontologic-palynologic and sedimentologic evidence indicates that the Bill's Creek Shale was deposited in a near-shore, low energy marine environment. The Bay De Noc Member of the Stonington Limestone was also deposited in a low energy marine environment, although in a more off-shore, somewhat deeper water setting.

Pleistocene age glacial drift sediments overlie the bedrock throughout most of the Michigan Basin. The exposed glacial features are the result of advancing and retreating continental glaciers during the Wisconsin glacial stage of the Pleistocene epoch (approximately 35,000 to 10,000 years before present). The glacial drift in Michigan's Lower Peninsula, where there are few bedrock exposures, tends to be relatively thick, on the order of several hundred feet thick in some areas. The glacial drift in the UP is generally thinner, and bedrock exposures are much more common.

The glacial drift on the Stonington Peninsula has been described by Jerome (2006) as lake plain sediments along the northern half of the west side of the peninsula, and as bedrock-controlled ground moraine deposits on most of the remainder of the peninsula. Western Michigan

University (1981) describes the glacial drift as lakebed sands along the sides of the Stonington Peninsula, with rock at or near the surface on the majority of the peninsula. Apple and Reeves (2007) describe the glacial sediments in Delta County as till, outwash and lacustrine with a thickness ranging from 0-200 feet. The glacial cover on the Stonington Peninsula is generally thin (0-50 feet thick) to very thin (less than 10 feet thick), especially along the west side of the peninsula where the Bills Creek Shale and the Stonington Limestone are exposed in coastline cliffs, a roadcut along CO 513 (Stop 1), and at some of the beach areas.

The Bill's Creek Shale is prolific in Ordovician marine invertebrate fossils. Its fossil assemblage includes arthropods, ostracods, conodonts, brachiopods, trilobites, bryozoans, pelecypods, and graptolites. Kesling and Hussey (1953) describe the abundance of ostracod fossils at a location on the west side of the Stonington Peninsula as containing fifteen specimens of a particular quadrilobate species in one square inch of exposed rock surface.

Historical Note

According to Hussey (1926), the first known observations of the Ordovician rocks exposed on the west side of the Stonington Peninsula were made by Dr. Douglas Houghton in 1837. Dr. Houghton examined the rocks exposed along the east shore of Little Bay De Noc (the west side of the Stonington Peninsula) from Peninsula Point at the southern tip of the peninsula (Stop 4 described below) northward for approximately seven miles. He was the first to describe the argillaceous (Bay De Noc) member and the overlying cherty (Ogontz) Member of what would later be named as the Stonington Formation.

Douglas Houghton was a botanist, naturalist, geologist, and physician. He was elected mayor of Detroit in 1842. The diminutive Dr. Houghton (also referred to as the "Little Doctor") was the first Professor of Geology, Mineralogy, and Chemistry at the University of Michigan and the first State Geologist after Michigan achieved statehood in 1837. Dr. Houghton was a member of Henry Rowe Schoolcraft's 1831 and 1832 expeditions to the Lake Superior and upper Mississippi valley regions where they observed the native copper deposits of the Keweenaw Peninsula that would later become the object of America's first mining rush. Dr. Houghton's later geologic reconnaissance of the Keweenaw copper deposits and his subsequent reports are largely responsible for the copper rush in the western UP that began in 1843, several years before the California gold rush. Douglas Houghton drowned in a Lake Superior storm in October 1845 at the age of 36. His many accomplishments in those 36 years would suggest a much longer lifetime.

Stop 1: Roadcut on the East Side of CO 513 at the Entrance to Lakewood Cemetery

Latitude: 45°45'45"N; Longitude: 86°58'34"W

Section 23, T39N, R22W, Delta County

Directions

FIGURE 4 | STOP 1 - ROADCUT ON COUNTY 513 T RD



From the intersection of US 2 and CO 513, travel south on CO 513 for approximately 11 miles. Shortly after you pass the intersection of CO 513 and School 16 Rd./Caps 16 Ln., you'll see a prominent roadcut to your left on the east side of CO 513 (Figure 4). Towards the south end of the roadcut you'll see a sign for Lakewood Cemetery and the cemetery access road. You'll also see a blue and white sign with the address 5991 CO 513 T Rd. (Figure 5). On some maps the cemetery access road is called Hemlock Dr., although there's no sign there bear-



Figure 5: Entrance to Lakewood Cemetery on CO 513 T Road. Photo by Dave Adler.

ing that name. If you come to the intersection of CO 513 and Idlewood 15.5 Ln., you've gone just a little too far south.

Geology

Park on the side of the road at the entrance to the cemetery. The roadcut is about 20 feet high and extends along the east side of CO 513 for approximately 600 feet or so. See Figures 6 and 7. The gray, soft and weathered shale and argillaceous limestone layers that comprise most of the roadcut at this location are the uppermost beds of the Bill's Creek Shale. The Bill's Creek beds weather easily forming a talus slope draping some of the roadcut. These rocks are rich in invertebrate marine fos-



Figure 6: Roadcut Along CO 513 Looking North. Note Gray Bill's Creek Shale Overlain by Tan Stonington Limestone. The Entrance to Lakewood Cemetery is in Middle Left of Photo. Photo by Dave Adler.

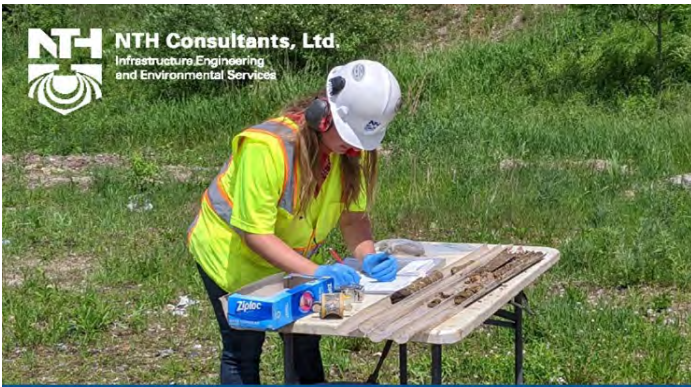


Figure 7: Roadcut Along CO 513 Looking East. Note Gray Bill's Creek Shale Overlain by Tan Stonington Limestone. Photo by Dave Adler.



Figure 8: Hand Size Specimen of Fossiliferous Bill's Creek Shale. Photos that are easily collected by hand.

A good example of a hand size specimen with some



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well-preserved fossils is shown in Figure 8. The well-formed Pelecypods that can be seen in this specimen have been identified by Hussey (1952) as *Cleidophorus noquettensis*. According to Hussey (1952) when referring to the uppermost beds of the Bill's Creek Shale on the west side of the Stonington Peninsula: "Great numbers of small pelecypods belonging to the genus *Cleidophorus* occur in the limestone layers and in the shaly partings between the layers". Hand size and larger specimens that are laden with fossils can be easily found and collected here.

As you look towards the uppermost portion of the roadcut, you'll see the rock layers change color from gray to light tan and become more competent and less weathered. These tan beds are the basal portion of the Bay De Noc member of the Stonington Formation that overlies the Bill's Creek Shale.

Stop 2: Fossil Beach at CO 513 and the End of Thorsen 14.5 Road

Latitude: 45°44'42"N; Longitude: 86°58'28"W

Section 25, T39N, R22W, Delta County

FIGURE 9 | STOP 2 - FOSSIL BEACH AT END OF THORSEN 14.5 RD



Directions



Figure 10: Landmark at the End of Thorsen 14.5 Rd. (Intersection of CO 513 and Thorsen 14.5 Rd.). View West towards Escanaba with Little Bay De Noc in the Background. Photo by Dave Adler.

From Stop 1 on CO 513, continue south on CO 513 for approximately 1.3 miles to the intersection of CO 513 and Thorsen 14.5 Rd. You'll see a green road sign that says "CO RD 513T Rd" on one side and "Thorsen 14.5 Rd (CRK-17)" on the other side. There will be a short dirt road extension of Thorsen 14.5 Rd. leading into a field to your right, to the west towards Little Bay De Noc (see Figures 9 and 10). Pull in to this dirt road. You can park in the field and continue walking down the short dirt road to a beach on Little Bay De Noc. It's a short and relatively easy walk down the dirt road to the beach. Alternatively, you may be able to drive down to the beach and park there, depending on local conditions at the time of your visit. Four-wheel drive is recommended if you drive down to the beach.

Geology



Figure 11: Fossil Beach Looking South Towards Stop 3. Note the Rock Cliffs Rising Above Little Bay De Noc in the Background. Photo by Dave Adler.

The beach along Little Bay De Noc in this area is a fossil hunter's paradise. The combined forces of gravity, erosion, and wave action have broken down the Bill's Creek Shale into gravel, cobble and small boulder sized pieces (see Figure 11). Wave action has partially polished many of the fossiliferous beach rocks, thereby en-



Figure 12: Brachiopods and Rugose Corals Collected at Stop 2. Photo by Dave Adler.

hancing their appearance. Many cobble and small boulder sized pieces suitable for cutting, slabbing, and making bookends or similar aesthetically pleasing objects can be found here. Individual fossil specimens from the Bill's Creek Shale can also be found here. Whole brachiopods and rugose corals that have been released from the shale and polished by wave action are especially abundant at Stop 2 and make nice collector's items (see Figure 12).

As you stand on the beach looking out to the west into Little Bay De Noc, turn to your left and look south down the coastline of the Stonington Peninsula. You'll see cliffs rising along the coastline to the south towards Stop 3. As shown on Figure 13, these cliffs offer excellent exposures of the gray Bill's Creek Shale and the overlying tan Stonington Limestone (Bay De Noc Member). You may be able to access the cliffs by walking south along the beach from Stop 2, depending on beach conditions and water levels in Little Bay De Noc at the time of your visit. Keep



Figure 13: Beach Cliffs along Little Bay De Noc South of Stop 2. Note Gray Bill's Creek Shale and Talus Piles Overlain by Overhanging Tan Stonington Limestone. View South Towards Stop 3. Photo by Dave Adler.

an eye out for fossils as you walk the beach. The cliffs can also be accessed by watercraft. It's an easy paddle from the beach at Stop 2 when wave and wind conditions are appropriate.

Stop 3: Public Boat Launch at Co 513 and Swede 13 Road

FIGURE 14 | STOP 3 - PUBLIC BOAT LAUNCH AT END OF SWEDE 13 RD



Latitude: 45°43'25"N; Longitude: 86°58'50"W

Section 35, T39N, R22W, Delta County

Directions

Stop 3 is a public boat launch at the intersection of CO 513 and Swede 13 Rd. There is a beach with outcrops and more great fossil hunting at this location. This is also an excellent place to observe the shoreline cliffs along the east side of Little Bay De Noc. From Stop 2, proceed south on CO 513 for approximately 1.6 miles to the inter-



Figure 15: View south of the Low-Lying Outcrops of the Gray Bay De Noc Member of the Stonington Limestone and the Cobble Beach at the Stop 3 Public Boat Launch. Photo by Dave Adler.

section of CO 513 and Swede 13 Rd. (see Figure 14). Turn right (west) into the boat launch area where there's free parking and a free public boat launch. You will see a circular drive area. Walk along the circular drive to a cobble beach on Little Bay De Noc where there are low lying outcrops of gray limestone (see Figure 15).

Geology

The gray limestone here is much harder, less weathered, and more massively bedded than the rocks exposed at Stop 2. Hussey (1926) attributed these gray limestone beds to the Bay De Noc Member of the Stonington Formation (equivalent to what is now considered the Bay De Noc Member of the Stonington Formation). He described the rock as gray, very fine-grained argillaceous limestone, non-crystalline and moderately hard that yields numerous fossilized specimens of the Ordovician pelecypods *Whiteavesia* (*Pholadimorpha*) *pholadiformis* and *Modiolopsis vailda*. Hussey (1926) gives a total thickness of the abundantly fossil bearing Bay De Noc Member in this area of about 28 feet.

The cobble beach just below the above noted low lying gray limestone outcrops is relatively small in area but yields what seems like an endless supply of cobble and boulder size specimens of hard, gray to tan limestone that has abundant and very well-defined fossilized bryozoan colonies, a striking example of which is shown on Figure 16. This is a great place for collecting fossils. The access is easy, you can park your vehicle nearby on the circular



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Figure 16: Tan Limestone Cobble with Bryozoans at the Stop 3 Cobble Beach. Photo by Dave Adler.

drive, and you don't have to carry your specimens very far.

If you walk clockwise around the circular drive from the cobble beach towards the boat launch and a wooden pier that sticks out into the water, look along the coastline to the north (back towards Stop 2). This is one of the best vantage points to observe the bedrock cliffs along the west side of the Stonington Peninsula. The cliffs in this area show some of the best exposures of the gray Bill's Creek Shale in the lower half of the cliff face, overlain by the tan beds of the Stonington Limestone in the upper half of the cliff face (see Figure 17). The Bill's Creek



Figure 17: The Bedrock Cliffs Along the West Side of the Stonington Peninsula. View North from Stop 3. Photo by Dave Adler.

Shale is noticeably more weathered, softer, and more friable than the overlying Stonington Limestone. It's only a short walk along the shoreline from the boat launch to the cliffs, but you may have to traverse private property. The cliffs can also be accessed by watercraft, again depending on local wind and wave conditions at the time of your visit.

An often-observed feature of cliff faces and high angle rock cuts where softer, more friable rocks underlie harder,

more competent rocks is slope instability caused by undercutting of the overlying rocks leading to collapse. This type of rock slope failure was observed in the bedrock cliffs near the area shown on Figure 17 from the vantage point at Stop 3. As shown on Figure 18, the overhanging tan Stonington Limestone beds in the upper portion of the cliff face have collapsed due to undercutting caused by weathering and wave erosion of the underlying softer shale beds. The resulting slope instability, though localized, is rather striking and dramatic in appearance.



Figure 18: Bedrock Cliff Collapse where the Bill's Creek Shale has undercut the Overhanging Stonington Limestone North of Stop 3. Photo by Dave Adler.

Stop 4: Peninsula Point Lighthouse and Picnic Grounds

Latitude: 45°40'07"N; Longitude: 86°58'00"W

Section 24, T38N, R22W, Delta County

Directions

Stop 4 is the Peninsula Point Lighthouse and Picnic Grounds, also known as Peninsula Point Park, located at the southern tip of the Stonington Peninsula. The park is operated by the US Forest Service and offers opportunities for fishing, picnicking, beachcombing and hiking along the shoreline, observing rock outcrops, and collect-



Figure 19: Aerial View of Peninsula Point Lighthouse and Picnic Grounds. Photo by Bing.com.

ing rocks and fossils. There are picnic tables, outdoor grills, drinking water, outhouse style restroom facilities, and a historic lighthouse tower (see Figure 19). You can climb the 40-foot high lighthouse tower and view the surrounding countryside and the horizon as it extends over Green Bay, Little Bay De Noc, and Lake Michigan from the deck at the top of the tower. Peninsula Point is also a well-known place to observe a multitude of migrating bird species as well as monarch butterflies. It's a very nice venue for a gathering of friends or a family reunion.

When you exit the public boat launch at Stop 3, turn right onto CO 513 and proceed south for approximately four miles. CO 513 ends at Peninsula Point Park. The last mile or so is a somewhat narrow dirt road through the woods that necessitates slowing down a bit, but four-wheel drive isn't needed to get to Peninsula Point. However, the dirt portion of the road is not considered suitable for recreational vehicles or trailers greater than 16 feet long or eight feet high.

Geology

The glacial cover at Peninsula Point is very thin. As shown on Figure 20, bedrock occurs directly underneath the surficial topsoil and vegetation. The bedrock is well exposed along the shoreline at Peninsula Point. It has been identified by Hussey (1926) as belonging to the Ogontz Member of the Stonington beds (Stonington Formation). According to Hussey (1926), the Ogontz member is comprised mostly of cherty limestone that conformably overlies the Bay De Noc Member of the Stonington Formation. The Ogontz consists of 3-20 feet of light gray to yellowish-brown to dark brown massive and irregularly bedded limestone varying from soft and argillaceous to hard and cherty, with fossiliferous cherty beds being predominant. The base of the Ogontz is typically argillaceous. The fossils in the cherty layers, including gastropods and trilobites, are often well preserved, but the cherty nature of the rock matrix makes good specimens hard to obtain.

As shown on Figure 20, the bedrock observed at the coastal exposure at Peninsula Point is light gray, relative-



Figure 20: Coastline Outcrops of the Ogontz Member of the Stonington Limestone at Peninsula Point. Photo by Dave Adler.

ly flat lying limestone with fairly well-defined bedding. It does not appear to be particularly cherty. The exposed beds of the Ogontz here are fossiliferous, although fossils are not as abundant as in the Bill's Creek Shale. If you look closely at Figure 20, you can see the limestone beds extending under the water and out into Green Bay, giving one a feel for the reefs that are known to occur nearby that have historically been a hazard to shipping.

Peninsula Point Lighthouse

During the 1860s, the town of Escanaba and other nearby ports were teeming with sailing ships hauling iron ore, lumber, fish and other commercial goods. When iron ore docks were constructed in Escanaba in 1864, Congress appropriated \$15,000 for a lighthouse at the tip of the Stonington Peninsula at Peninsula Point (Stop 4) to assist ships in navigating around shoals and reefs in the local waters of Lake Michigan/Green Bay. The Peninsula Point Lighthouse was completed in 1865 with a square, 40-foot tall brick tower attached to a 1.5 story brick light keeper's dwelling. The lighthouse was equipped with an oil-fired fourth order Fresnel lens inside the decagonal shaped lantern room atop the lighthouse tower. A photo of the lighthouse and keeper's dwelling circa 1914 is shown in Figure 21.

In 1922, the fuel for the light was changed from oil to acetylene gas, allowing the lighthouse to be automated and unattended. The acetylene fueled light produced a white flash every ten seconds. In 1936, a new lighthouse was constructed at Minneapolis Shoal located approximately seven miles southwest of Peninsula Point. As



Figure 21: Peninsula Point Lighthouse Circa 1914 Showing the Keeper's Dwelling and Associated Outbuildings. Photo source: https://www.lighthousefriends.com/PeninsulaPoint1_1914_cg.jpg.

most shipping in the area now passed to the south of Minneapolis Shoal, the lighthouse at Peninsula Point was no longer needed and was decommissioned. Ownership of the Peninsula Point lighthouse and surrounding 47 acres was transferred to the U.S. Forest Service in November of 1936. The Civilian Conservation Corps was granted custodianship in 1937 and subsequently repaired the lighthouse buildings and created a campground and picnic area on the grounds.

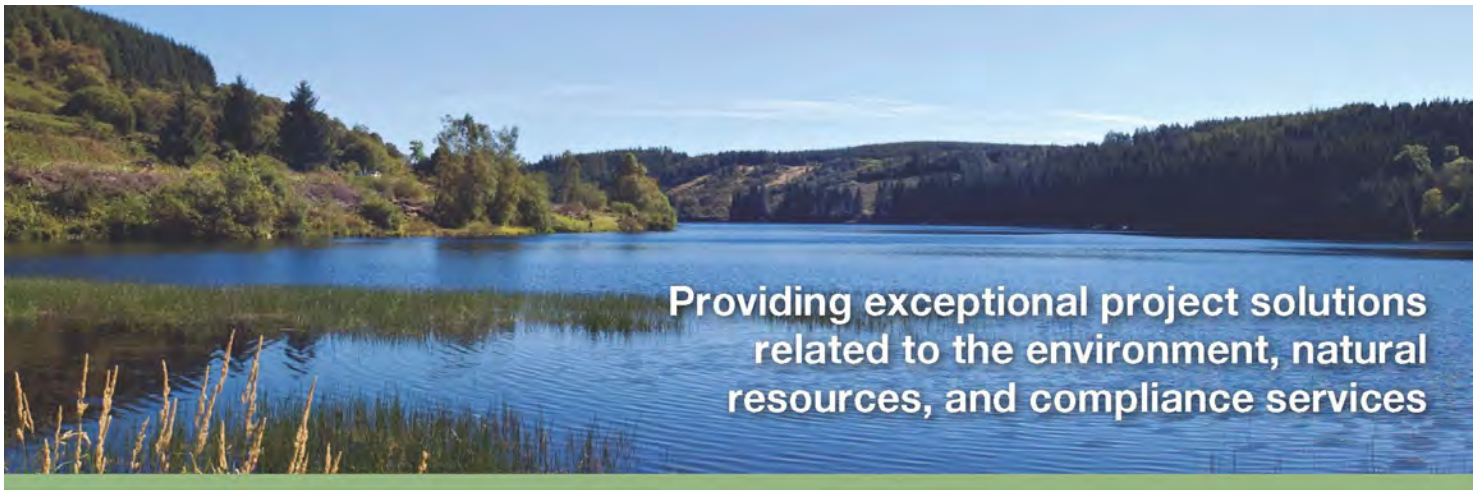
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The light keeper's quarters burned in 1959 and the remains of the building were removed. Today, only the 40-foot tall lighthouse tower remains, surrounded by a day use picnic area with picnic tables, outdoor grills, and primitive restroom facilities. There is an interpretive trail along the coastline where outcrops of the exposed fossiliferous Ordovician carbonate rocks can be observed. The lighthouse tower is listed on the National Register of Historic Places. Visitors can climb the lighthouse tower for spectacular panorama views of Lake Michigan and the surrounding coastline. The tower also serves as an elevated vantage point for watching migrating birds and butterflies.

Closing

The west side of the Stonington Peninsula offers a number of excellent opportunities to observe and examine the Ordovician rocks of the Michigan Basin and collect specimens of the abundant fossil assemblages found in these rocks. It's also a secluded place of quiet solitude where one can breathe fresh clean air, enjoy the wildlife, comb the beaches, fish, and paddle the blue waters of Lake Michigan. It's a place that has much of the appeal that Michigan's Upper Peninsula is known for.

This field guide is intended to assist those who may be interested in fossil collecting and experiencing some of the geology of Michigan in an up close and personal way. The fossils of the Ordovician rocks on the west side of the Stonington Peninsula have been presented in this field guide in a general manner. Those wishing to take a deeper dive into the paleontology of this area are encouraged to consult the references below, where additional and considerably more detailed information can be obtained.

Acknowledgments

Ms. Jenny Hamel was instrumental in preparing the figures for this field guide. Special gratitude is also extended to Eric Wallis, CPG, who first told the author about the excellent fossil hunting on the west side of the Stonington Peninsula many years ago.

References

- Apple, B., and Reeves, H., Summary of Hydrogeologic Conditions by County for the State of Michigan, U.S. Geological Survey Open-File Report 2007-1236.
- Dorr, J., and Eschman, D., 1970, *Geology of Michigan*, The University of Michigan Press.
- Google Earth, www.google.com/earth/.
- Harrison, III, W., 2016, *Geology of Michigan* (Power Point Presentation), Michigan Geological Repository for Research and Education, Department of Geosciences, Western Michigan University, Kalamazoo, Michigan, <https://scholarworks.wmich.edu/michigangeologicalrepository/2/>.
- Hussey, R., 1926, The Richmond Formation of Michigan, Contributions from the Museum of Geology, University of Michigan, Vol. II No. 8, pp.119-187, July 15, 1926, University of Michigan Ann Arbor.
- _____, 1952, The Middle and Upper Ordovician Rocks of Michigan, State of Michigan Department of Conservation Geological Survey Division Publication 46, Geological Series 39.
- Jerome, D., 2006, Landforms of the Upper Peninsula, Michigan, United States Department of Agriculture Natural Resources Conservation Service, Draft February 2006.
- Kesling, R., and Hussey, R., 1953, A New Family and Genus of Ostracod from the Ordovician Bill's Creek Shale of Michigan, Contributions from the Museum of Paleontology, University of Michigan, Vol. XI, No. 4, pp. 77-95, November 16, 1953, University of Michigan Press, Ann Arbor.
- LaRowe, M., Conodont Biostratigraphy of the Ordovician Bills Creek, Stonington, and Big Hill Formations in the Upper Peninsula of Michigan, submitted as partial fulfillment of the requirements for the degree of Bachelor of Science in Geological Sciences at The Ohio State University, Summer 2000.
- Lamsdell, J., LoDuca, S., Gunderson, G., Meyer, R., and Briggs, D., A New Lagerstätte from the Late Ordovician Big Hill Formation, Upper Peninsula, Michigan, *Journal of the Geological Society*, doi:10.1144/jgs2016-059.
- Michigan Department of Transportation, 2008, Brine Well Cavity Investigation Technical Report, The Detroit River International Crossing Study.
- Western Michigan University, 1981, Hydrogeologic Atlas of Michigan, Department of Geology, College of Arts and Sciences, Western Michigan University, Kalamazoo, Michigan, United States Environmental Protection Agency Underground Injection Program.
- Wicander, R., and Playford, G., Upper Ordovician Microphytoplankton of the Bill's Creek Shale and Stonington Formation, Upper Peninsula of Michigan, U.S.A.: Biostratigraphy and Paleogeographic Significance, *March 2008- Revue de Micropaleontologie* 51(1), DOI: 10.1016/j.revmic.2007.01.001.



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Here is some information about this year's recipient, Konraad VanDyke, SA-11583:

I am a second year geology student at Michigan Technological University where I expect to graduate in 2026. I hope to have a career in either mineral exploration or as a mine geologist. I was elected to the Undergraduate Student Government for my first and second years, and will be returning for a third year.

I have been interested in geology from a very young age.

One of the first things I wanted to do was to be a paleontologist. That early plan has morphed into working with the rocks surrounding me. This love of rocks and minerals has grown exponentially since then and I have become more oriented toward putting that knowledge to use in exploration and mining. I have become infatuated with how mineral exploration occurs and the idea of living my whole life identifying rock and minerals. The idea that I would get to be outside in nature while I explore and work would be a dream come true. My enthusiasm for geology paired with my studies and the practical skills I have acquired point me toward a career in mineral exploration or as a mine geologist.

Learning more about geology, especially in a professional setting, is a high priority for me. I have enjoyed learning about exploration and mining in the past and I hope to learn more with hands-on experience in the future.



Photograph of Konraad VanDyke (center) receiving his scholarship from Scholarship committee member and national AIPG President-Elect Sara Pearson (left) and AIPG liaison to the MTU chapter, David Adler (right) at the Michigan Geological Survey facility in Kalamazoo.

Coming Events

December 3-5, 2024: Great Lakes Virtual PFAS Summit. Hosted by EGLE. Registration information at: [2024 Great Lakes PFAS Summit - Michigan Department of Environment, Great Lakes, and Energy](#).

December 5, 2024: Michigan Section AIPG Annual Meeting. Crystal Gardens, Howell, speaker and presentation TBA.

December 7, 2024: AIPG National Executive Committee Turnover Meeting. The meeting will be held virtually at 11 am EST on Zoom; email invite forthcoming from AIPG headquarters.

December 12, 2024: Michigan Association of Environmental Professionals annual meeting. Weber's Inn, Ann Arbor. Details at: <https://maep.org/event-5886514>.

February 13-16, 2025: 70th Anniversary Tucson Gem & Mineral Show, Tucson, Arizona. "Shades of Green—Experience the Magic!"

February 22, 2025: AIPG National Executive Committee Meeting to be held at headquarters in Denver. The meeting will have a virtual component; all members are welcome to attend. Email invite forthcoming from AIPG headquarters.

May 2025: Kalamazoo Rock, Gem, Fossil & Mineral Show. Kalamazoo County Expo Center, 2900 Lake

Street, Kalamazoo.

June 11-12, 2025: 14th Michigan Section AIPG Environmental Risk Management Workshop, Ralph A. MacMullan Conference Center, Roscommon, Michigan. Details Forthcoming!

October, 2025: 62nd AIPG Annual Meeting, St. Louis, Missouri.

Member's Corner

The Member's Corner includes information about the Section's membership. This is your chance to provide information on where you are and what you are doing. Simply send the information to the Editor for inclusion in this section.

No Member's Corner articles were received for this edition of *Geologically Speaking*.

Welcome New Members!

The Michigan Section is continuing to grow. Please welcome the following new CPGs, Professional Members, Early Career Professionals, Associate Members, and Students:

Benjamin Hinks, CPG-12238; Jonathan Haynes, CPG-12235; Joseph Klumpstra, CPG-12236; Daniel Hirvi, CPG-12239; Jack Hines, ECP-1159; Ashley Reibel, MEM-3674; Michael Home, MEM-3689; Carlos Pelletier Martinez, MEM-3690; Anthony Mack, MEM-3685; William Weiss, MEM-3701; Helen Spence, SA-12335; Jonathan DeSantiago, SA-12348; Julia Shreve, SA-12354; Luke Atma, SA-12369; Trentin Hohler, SA-12362; Madison Sorensen, SA-12371; S. Brink, SA-12373; Vanessa Kraemer, SA-12375; Kaylee Harwick, SA-12400; Sherri Nidiffer, SA-12401; Amber Edmondson, SA-12402; Edward

Kosmicki-Lovelace, SA-12403; Kelli Jurich, SA-12407; Akintunde Samakinde, SA-12413; Monica Hormuth, SA-12418; Chris Finley, SA-12432; Thomas McCourt, SA-12434; Gouro Koita, SA-12447; and Jacynnda Green, SA-12448.

To each of our new members, welcome to our Section! We encourage you to attend Section meetings and other events. You are also invited to provide information for the Member's Corner articles so that our members can get to know you.

Regulatory Roundup

As the Michigan 2023-2024 legislative session comes to a close, several bills have been introduced that touch on critical areas such as environmental protection, energy policy, land use, and other natural resource issues. These legislative efforts are directly relevant to the work we do, providing valuable insight into the interests and priorities of various groups, including the public, stakeholders, industry, and many others.

Some of these bills have already been signed into law, while others may not progress beyond the introduction phase. However, all of them offer a glimpse into the key issues shaping our field and highlight the importance of staying informed. Given the significance placed on these topics, we must continue to lend our scientific expertise to ensure that sound policy decisions are made based on accurate, well-researched data.

As always, we are committed to keeping our members up to date on these issues, and we encourage you to engage in the policy-making process. Science must play a central role in informing environmental, land use, natural resource use and management, and energy regulations, and your input is vital in making that happen.

This quarter's regulatory roundup includes a list of the

bills introduced by Michigan's legislature, along with their current status, offering a snapshot of the legislative session. While elections are currently occupying much of the legislature's attention, more law-making activities are expected to ramp up after the November elections. Be sure to keep an eye on these developments as they unfold.

For more detailed information on these bills and other legislative activities, we recommend utilizing the available search tools.



Michigan legislative bill [search](#)



Michigan Administrative Code Rulemaking System [search](#).

The complete list of bills is on the following pages...

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Check Out the AIPG Mentoring Program

Mentoring is an experience that promotes personal growth, creates meaningful connections, and sparks creative innovations. AIPG offers an opportunity to connect mentees with mentors. To sign up for the program is easy and can be done when paying your annual dues or updating your online profile. You may check the box on your paper dues renewal form that you send in via mail or log into your account at www.aipg.org and update your member profile. Be sure to check whether you would like to be a mentor or mentee and the fields of expertise. The system allows individuals to search for people with similar interests and connect via email. Check it out today!

State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
House Bill	4023	0	0	Environmental protection: underground storage tanks; placement distance of underground storage tanks from a public water supply system; revise. Amends sec. 21102a of 1994 PA 451 (MCL 324.21102a) & adds sec. 21102b.	1/19/23	bill electronically reproduced 01/19/2023	Curtis VanderWall
House Bill	4083	0	0	Environmental protection: hazardous products; use of perchloroethylene in dry cleaning solvents; prohibit. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding subpt. 3 to pt. 147.	3/23/23	referred to second reading	Julie Rogers
House Bill	4187	0	0	Environmental protection: air pollution; asbestos emissions program for demolition or renovation activity; require annual report on sufficiency of number of inspectors. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding sec. 5519b.	11/1/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Abraham Aiyash
House Bill	4188	56	2024	Environmental protection: air pollution; asbestos emissions program; impose fee on notification of demolition or renovation and specify minimum rates of inspection. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding secs. 5519 & 5519a.	6/6/24	assigned PA 56'24	Abraham Aiyash
House Bill	4228	0	0	Energy: alternative sources; distributed generation; eliminate caps. Amends sec. 173 of 2008 PA 295 (MCL	3/9/23	bill electronically reproduced	Gregory Markkanen
House Bill	4238	0	0	Appropriations: department of natural resources; Michigan natural resources trust fund; provide appropriations for fiscal year 2022-2023. Creates appropriation act.	5/4/23	REFERRED TO COMMITTEE ON APPROPRIATIONS	Joey Andrews
House Bill	4249	0	0	Appropriations: department of environment, Great Lakes, and energy; appropriations for fiscal year 2023-	6/28/23	REFERRED TO COMMITTEE ON	Rachel Hood
House Bill	4321	0	0	Environmental protection: other; criminal penalties and civil fines for unlawful dumping of garbage; provide for. Amends sec. 8905a of 1994 PA 451 (MCL 324.8905a).	3/23/23	bill electronically reproduced 03/22/2023	Tyrone Carter
House Bill	4325	6	2024	Environmental protection: other; criminal penalties and civil fines for unlawful dumping of garbage; provide for. Amends sec. 8905a of 1994 PA 451 (MCL 324.8905a).	2/21/24	assigned PA 6'24	Helena Scott
House Bill	4340	0	0	Water supply: quality and standards; installations of filtration systems in child care centers; require. Amends sec. 1 of 1973 PA 116 (MCL 722.111) & adds sec. 3i.	5/16/23	referred to second reading	Curtis VanderWall
House Bill	4341	154	2023	Water supply: quality and standards; clean drinking water in schools and child care centers; provide for. Creates new act. TIE BAR WITH: SB 0088'23, HB 4342'23	10/19/23	assigned PA 154'23 with immediate effect	Ranjeev Puri
House Bill	4342	155	2023	Water supply: quality and standards; installations of filtration systems in child care centers; require. Amends 1973 PA 116 (MCL 722.111 - 722.128) by adding secs.	10/24/23	assigned PA 155'23 with immediate effect	Cynthia Neeley
House Bill	4359	0	0	Environmental protection: pollution prevention; plastic bags and other containers; repeal act preempting local regulation of. Repeals 2016 PA 389 (MCL 445.591 -	11/9/23	referred to second reading	Felicia Brabec
House Bill	4382	0	0	Drains: water management districts; chapter 22 of drain code; revise process through determination of sufficiency of petition and proposed boundaries. Amends secs. 551, 552, 553, 555, 556, 557 & 558 of 1956 PA 40 (MCL 280.551 et seq.). TIE BAR WITH: HB 4383'23	4/13/23	bill electronically reproduced 04/12/2023	Christine Morse
House Bill	4383	0	0	Drains: water management districts; chapter 22 of drain code; revise process following determination of sufficiency of petition and proposed boundaries. Amends secs. 559, 560, 561, 562, 563, 564, 565, 569, 570, 571, 572, 573, 574, 576, 577, 578, 580, 581, 582 & 583 of 1956 PA 40 (MCL 280.559 et seq.); adds secs. 561b, 561d, 564b & 569b & repeals secs. 554, 566, 567, 568, 575 & 579 of 1956 PA 40 (MCL 280.554 et seq.). TIE BAR	4/13/23	bill electronically reproduced 04/12/2023	Curtis VanderWall

State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
House Bill	4388	0	0	Environmental protection: other; electronic submissions for registrations, notices, inspection and test reports, and other documentary information required under part 211; require. Amends sec. 21105 of 1994 PA 451 (MCL 324.21105).	4/13/23	bill electronically reproduced 04/12/2023	John Roth
House Bill	4444	0	0	Environmental protection: groundwater contamination; waste injection wells; prohibit. Amends sec. 62506a of 1994 PA 451 (MCL 324.62506a).	4/25/23	bill electronically reproduced 04/20/2023	James De-Sana
House Bill	4463	0	0	Water supply: other; shallow wells drilled on personal property; allow. Amends 1978 PA 368 (MCL 333.1101 - 333.25211) by adding sec. 12714a.	4/26/23	bill electronically reproduced 04/25/2023	Luke Meer-man
House Bill	4464	0	0	Energy: alternative sources; community solar facilities; provide for establishment of. Amends 2008 PA 295 (MCL 460.1001 - 460.1211) by adding secs. 235 & 237.	4/26/23	bill electronically reproduced 04/25/2023	Rachel Hood
House Bill	4465	0	0	Energy: other; energy efficiency funding for repairs to moisture management measures of residential buildings; provide for. Amends sec. 5 of 2008 PA 295 (MCL	4/26/23	bill electronically reproduced 04/25/2023	John Roth
House Bill	4466	0	0	Environmental protection: litter; releasing balloons into the atmosphere; prohibit, and provide civil fines. Amends secs. 8902 & 8905a of 1994 PA 451 (MCL	4/26/23	bill electronically reproduced 04/25/2023	Natalie Price
House Bill	4479	0	0	Environmental protection: sewage; onsite wastewater treatment systems; regulate, and provide for assessments and evaluations. Amends sec. 12752 of 1978 PA 368 (MCL 333.12752) & adds pt. 128. TIE BAR WITH: HB 4480'23	5/2/23	bill electronically reproduced 04/27/2023	Phil Skaggs
House Bill	4480	0	0	Environmental protection: sewage; onsite wastewater treatment systems; regulate and provide for assessments and evaluations. Amends 1978 PA 368 (MCL 333.1101 - 333.25211) by adding secs. 12815, 12817 & 12829. TIE BAR WITH: HB 4479'23	5/2/23	bill electronically reproduced 04/27/2023	Carrie Rheingans
House Bill	4494	0	0	Environmental protection: sewage; "nonflushable" warning label for wipes; require. Creates new act.	5/3/23	bill electronically reproduced 05/02/2023	Tom Kuhn
House Bill	4527	0	0	Land use: zoning and growth management; mining; modify conditions under which zoning ordinance may prohibit. Amends sec. 205 of 2006 PA 110 (MCL	5/9/23	bill electronically reproduced 05/04/2023	Tyrone Carter
House Bill	4528	0	0	Natural resources: mining; regulations for mining of sand and gravel operations; modify. Amends sec. 9115 of 1994 PA 451 (MCL 324.9115) & adds pt. 639. TIE BAR	5/9/23	bill electronically reproduced 05/04/2023	Angela Witwer
House Bill	4596	43	2024	Environmental protection: sewage; labeling standards for disposable wipes products; provide for. Creates new act.	5/22/24	assigned PA 43'24	Denise Mentzer
House Bill	4759	0	0	Energy: alternative sources; renewable energy standard; increase, and establish a carbon-free energy standard. Amends title & heading to subpt. A, art 2 & secs. 1, 3, 7, 9, 11, 22, 28, 29, 45, 47 & 49 of 2008 PA 295 (MCL 460.1001 et seq.) & adds secs. 32, 34, 50, 51, 52 & 53.	6/15/23	bill electronically reproduced 06/15/2023	Betsy Coffia
House Bill	4761	0	0	Energy: conservation and efficiency; process to allow public comment; provide for. Amends secs. 1, 7, 9, 13, 22, 71, 73, 75, 77 & 78 of 2008 PA 295 (MCL 460.1001 et seq.) & adds secs. 80, 80a & 80b. TIE BAR WITH: HB 4760'23	6/15/23	bill electronically reproduced 06/15/2023	Abraham Ai-yash
House Bill	4809	0	0	Natural resources: gas and oil; certain references in the oil and gas mining statute; make gender neutral. Amends sec. 4 of 1941 PA 178 (MCL 319.104). TIE	6/20/23	bill electronically reproduced 06/15/2023	Jason Morgan
House Bill	4826	9	2024	Environmental protection: other; environmental rules review committee; eliminate. Amends secs. 33, 39a, 41, 42, 43, 44, 47 & 48 of 1969 PA 306 (MCL 24.233 et seq.) & repeals secs. 65 & 66 of 1969 PA 306 (MCL 24.265 & 24.266).	2/27/24	assigned PA 9'24	Sharon Mac-Donell

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State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
House Bill	4832	0	0	Natural resources: inland lakes; structure or fill on inland lake or stream bottomlands; authorize DEGLE to issue emergency order concerning. Amends 1994 PA 451	10/12/23	referred to second reading	Julie Rogers
House Bill	4836	0	0	Land use: land division; number of parcels resulting from division; modify. Amends sec. 108 of 1967 PA 288 (MCL 560.108).	6/27/23	bill electronically reproduced 06/22/2023	Jay DeBoyer
House Bill	4839	0	0	Energy: alternative sources; distributed generation, storage, and aggregation; create program for in rate cases. Amends 2008 PA 295 (MCL 460.1001 - 460.1211) by	6/27/23	bill electronically reproduced 06/22/2023	Jenn Hill
House Bill	4840	0	0	Energy: alternative sources; grants for residential customers who install electric generators and storage systems; provide for. Amends 2008 PA 295 (MCL 460.1001	6/27/23	bill electronically reproduced 06/22/2023	Donavan McKinney
House Bill	4939	0	0	Natural resources: other; public trust resources; protect. Amends secs. 1701 & 3103 of 1994 PA 451 (MCL 324.1701 & 324.3103) & adds pt. 4.	9/6/23	bill electronically reproduced 09/05/2023	Jason Morgan
House Bill	5007	140	2023	Environmental protection: other; general amendments to fees in the natural resources and environmental protection act; modify. Amends secs. 3122, 4112, 5522, 11525a, 17303, 17317, 80130, 80315, 81114 & 82156 of 1994 PA 451 (MCL 324.3122 et seq.).	10/3/23	assigned PA 140'23 with immediate effect	Donavan McKinney
House Bill	5083	0	0	Environmental protection: air pollution; low-carbon fuel standard; provide for. Creates new act.	10/4/23	bill electronically reproduced 10/03/2023	Joey Andrews
House Bill	5118	0	0	Energy: alternative sources; participation in property assessed clean energy program; extend to energy, environmental hazard, and water usage projects on residential property. Amends title of 2010 PA 270 (MCL 460.931 - 460.949); designates sec. 1 as pt. 1 & secs. 3 - 19 as pt. 2 & adds pt. 3. TIE BAR WITH: HB 5119'23	10/11/23	bill electronically reproduced 10/10/2023	Rachel Hood
House Bill	5119	0	0	Energy: conservation and efficiency; credits for property assessed clean energy projects on residential property; grant to utility. Amends sec. 83 of 2008 PA 295 (MCL	10/11/23	bill electronically reproduced 10/10/2023	Rachel Hood
House Bill	5120	233	2023	Energy: alternative sources; large scale solar, wind, and energy storage facilities; authorize MPSC certification for zoning exemptions. Amends title & sec. 13 of 2008 PA 295 (MCL 460.1013) & adds pt. 8. TIE BAR WITH: SB 0588'23, HB 5121'23	12/31/23	assigned PA 233'23	Abraham Aiyash
House Bill	5121	234	2023	Land use: zoning and growth management; large scale solar, wind, and energy storage facilities; make zoning enabling act subject to. Amends sec. 205 of 2006 PA	12/31/23	assigned PA 234'23	Ranjeev Puri
House Bill	5122	0	0	Land use: zoning and growth management; solar and storage facilities of 50 or more MW but less than 100 MW; authorize MPSC certification for zoning exemptions. Amends title of 2008 PA 295 (MCL 460.1001 - 460.1211) & adds pt. 8. TIE BAR WITH: HB 5123'23	11/2/23	placed on third reading	Phil Skaggs
House Bill	5123	0	0	Land use: zoning and growth management; certification of solar and storage facilities of 50 or more MW but less than 100 MW; make zoning enabling act subject to. Amends sec. 205 of 2006 PA 110 (MCL 125.3205). TIE BAR WITH: HB 5122'23	11/2/23	placed on third reading	Ranjeev Puri
House Bill	5205	0	0	Environmental protection: water pollution; water resources protection; modify. Amends sec. 3103 of 1994 PA 451 (MCL 324.3103).	10/25/23	bill electronically reproduced 10/24/2023	Emily Dievendorf
House Bill	5242	0	0	Environmental protection: cleanups; cleanup to residential and safe drinking water standards; require unless technically infeasible. Amends secs. 20118, 20120a, 20120b, 20120e & 20121 of 1994 PA 451 (MCL 324.20118 et seq.). TIE BAR WITH: HB 5247'23, HB 5245'23	10/26/23	bill electronically reproduced 10/25/2023	Jason Morgan

State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
House Bill	5243	0	0	Environmental protection: groundwater contamination; limitation period for filing actions; revise. Amends sec. 20140 of 1994 PA 451 (MCL 324.20140).	10/26/23	bill electronically reproduced 10/25/2023	Cynthia Neeley
House Bill	5244	0	0	Civil procedure: statute of limitations; accrual of cause of action for groundwater contamination cases; revise. Amends 1961 PA 236 (MCL 600.101 - 600.9947) by	10/26/23	bill electronically reproduced 10/25/2023	Phil Skaggs
House Bill	5245	0	0	Administrative procedure: rules; definition of a rule; exclude cleanup criteria and target detection limits. Amends sec. 7 of 1969 PA 306 (MCL 24.207). TIE BAR	10/26/23	bill electronically reproduced 10/25/2023	Noah Arbit
House Bill	5246	0	0	Environmental protection: pollution prevention; financial assurance for any facility required to file a pollution incident prevention plan; require. Amends secs. 3101, 3103 & 3115 of 1994 PA 451 (MCL 324.3101 et seq.) & adds sec. 3106c.	10/26/23	bill electronically reproduced 10/25/2023	Penelope Tsernoglou
House Bill	5247	0	0	Environmental protection: cleanups; cleanup standards; require. Amends secs. 20101, 20107a, 20112a, 20114, 20114b, 20114c, 20114d, 20114e, 20114g, 20126 & 20126a of 1994 PA 451 (MCL 324.20101 et seq.) & repeals sec. 20114a of 1994 PA 451 (MCL 324.20114a). TIE BAR WITH: HB 5245'23	10/26/23	bill electronically reproduced 10/25/2023	Matt Koleszar
House Bill	5332	0	0	Environmental protection: landfills; TENORM and hazardous waste disposal fees; increase and require percentage to be distributed to host community. Amends secs. 11108, 11109 & 11130 of 1994 PA 451 (MCL 324.11108 et seq.).	12/31/23	bill electronically reproduced 11/14/2023	Reggie Miller
House Bill	5333	0	0	Environmental protection: solid waste; nonhazardous solid waste disposal fees; increase and distribute percentage to host communities. Amends sec. 11525a of	12/31/23	bill electronically reproduced 11/14/2023	Reggie Miller
House Bill	5357	0	0	Environmental protection: other; citations to the motor vehicle sales finance act in the natural resources and environmental protection act; revise. Amends sec. 20101 of 1994 PA 451 (MCL 324.20101). TIE BAR WITH: HB 5354'23	5/23/24	referred to second reading	Jasper Martus
House Bill	5483	0	0	Natural resources: other; natural resources and environmental protection act; amend to reflect amendments to the public health code. Amends sec. 43515 of 1994 PA	2/22/24	bill electronically reproduced 02/22/2024	Josh Schriver
House Bill	5499	0	0	Appropriations: department of environment, Great Lakes, and energy; appropriations for fiscal year 2024-2025; provide for. Creates appropriation act.	6/5/24	referred to conference committee 06/05/2024	Rachel Hood
House Bill	5567	0	0	Environmental protection: other; study relating to low carbon materials and methods; provide for. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding sec. 5543 & repeals sec. 5543 of 1994 PA 451 (MCL 324.101 - 324.90106).	3/14/24	bill electronically reproduced 03/13/2024	Jasper Martus
House Bill	5606	0	0	Energy: nuclear; definition of advanced nuclear reactors; provide for. Amends sec. 10h of 1939 PA 3 (MCL 460.10h). TIE BAR WITH: HB 5608'24, HB 5609'24	3/21/24	bill electronically reproduced 03/20/2024	Graham Filler
House Bill	5607	0	0	Energy: nuclear; grant for certain graduates working in a nuclear or hydrogen energy facility; provide for. Creates new act. TIE BAR WITH: HB 5606'24, HB 5608'24, HB	3/21/24	bill electronically reproduced 03/20/2024	Joey Andrews
House Bill	5608	0	0	Higher education: education programs; nuclear and hydrogen education grant program; create. Creates new act. TIE BAR WITH: HB 5606'24, HB 5609'24	3/21/24	bill electronically reproduced 03/20/2024	Mike McFall
House Bill	5609	0	0	Higher education: education programs; fund for nuclear and hydrogen education grant program; create. Creates new act. TIE BAR WITH: HB 5606'24, HB 5608'24	3/21/24	bill electronically reproduced 03/20/2024	Samantha Steckloff



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State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
House Bill	5614	0	0	Environmental protection: other; requirements for people that use sewage sludge or sewage sludge derivatives in land application to test for PFAS; provide for. Amends secs. 3103 & 3131 of 1994 PA 451 (MCL 324.3103 & 324.3131).	3/21/24	bill electronically reproduced 03/20/2024	Rachel Hood
House Bill	5674	0	0	Environmental protection: other; environmental rules review committee; create. Amends secs. 33, 39a, 41, 42, 43, 44, 47 & 48 of 1969 PA 306 (MCL 24.233 et	4/30/24	bill electronically reproduced 04/25/2024	Dave Prestin
House Bill	5697	0	0	Natural resources: Great Lakes; simplified bottomland permit; provide for during high water levels. Amends sec. 32502 of 1994 PA 451 (MCL 324.32502) & adds	5/2/24	bill electronically reproduced 05/01/2024	Greg VanWoerkom
House Bill	5751	0	0	Environmental protection: air pollution; dispersion of substances or objects into atmosphere; prohibit for purposes of affecting weather. Amends 1994 PA 451 (MCL	6/4/24	bill electronically reproduced 05/30/2024	Rachelle Smit
House Bill	5789	0	0	Environmental protection: solid waste; reporting and compliance requirements for anaerobic digesters; modify. Amends secs. 11502 & 11503 of 1994 PA 451 (MCL	6/11/24	bill electronically reproduced 06/06/2024	Graham Filler
House Bill	5790	0	0	Environmental protection: solid waste; reporting and compliance requirements for anaerobic digesters; modify. Amends secs. 11506 & 11568 of 1994 PA 451 (MCL	6/11/24	bill electronically reproduced 06/06/2024	Joey Andrews
House Bill	5902	0	0	Environmental protection: recycling and waste utilization; packaging reduction and recycling requirements; create. Amends 1994 PA 451 (MCL 324.101 -	8/1/24	bill electronically reproduced 08/01/2024	Abraham Ai-yash
House Bill	5906	0	0	Water supply: systems; authority as municipal authority; modify. Amends sec. 1 of 2006 PA 563 (MCL 15.391). TIE BAR WITH: HB 5909'24	8/14/24	bill electronically reproduced 08/14/2024	Tyrone Carter
House Bill	5907	0	0	Water supply: systems; authority as municipal authority; modify. Amends sec. 2a, ch. IV of 1927 PA 175 (MCL 764.2a). TIE BAR WITH: HB 5909'24	8/14/24	bill electronically reproduced 08/14/2024	Tyrone Carter
House Bill	5908	0	0	Water supply: systems; authority as municipal authority; modify. Amends sec. 2 of 1965 PA 203 (MCL 28.602).	8/14/24	bill electronically reproduced 08/14/2024	Tyrone Carter
House Bill	5909	0	0	Water supply: systems; authority as municipal authority; modify. Amends title & secs. 1, 4, 4a, 4b, 4c & 4d of 1955 PA 233 (MCL 124.281 et seq.).	8/14/24	bill electronically reproduced 08/14/2024	Tyrone Carter
House Bill	5914	0	0	Environmental protection: permits; groundwater discharge permit requirements; modify. Amends sec. 3122 of 1994 PA 451 (MCL 324.3122).	9/11/24	bill electronically reproduced 09/11/2024	Will Snyder
House Bill	5917	0	0	Environmental protection: water pollution; application requirements for new or increased discharge permit under NREPA; modify. Amends sec. 3112 of 1994 PA	9/11/24	bill electronically reproduced 09/11/2024	Alicia St. Germaine
House Bill	5918	0	0	Environmental protection: water pollution; penalty for certain excess discharges into waters of the state; provide for. Amends sec. 3115 of 1994 PA 451 (MCL	9/11/24	bill electronically reproduced 09/11/2024	Alicia St. Germaine
House Bill	5923	0	0	Environmental protection: hazardous waste; disposal of radioactive waste; prohibit. Amends secs. 11109, 11132 & 11514b of 1994 PA 451 (MCL 324.11109 et seq.).	9/11/24	bill electronically reproduced 09/11/2024	Reggie Miller
House Bill	5934	0	0	Environmental protection: funding; clean Michigan initiative reauthorization funds; provide for distribution and allocation. Amends 1994 PA 451 (MCL 324.101 -	9/18/24	bill electronically reproduced 09/18/2024	Alabas Farhat
House Bill	5935	0	0	Environmental protection: funding; clean Michigan initiative; reauthorize issuance of general obligation bonds. Creates new act.	9/18/24	bill electronically reproduced 09/18/2024	Alabas Farhat

State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
House Bill	5942	0	0	Environmental protection: sewage; violations for sewer overflows; modify. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding sec. 3115b.	9/18/24	bill electronically reproduced 09/18/2024	Douglas Wozniak
House Bill	5965	0	0	Environmental protection: other; grant program for farmers affected by polyfluoroalkyl (PFAS); create. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding sec.	10/15/24	bill electronically reproduced 10/15/2024	Jennifer Conlin
House Joint Resolu-	S	0	0	Environmental protection: pollution prevention; green initiative; provide for. Amends the state constitution by adding sec. 29 to art. I.	4/30/24	printed joint resolution filed 04/25/2024	Rachel Hood
Senate Bill	0025	0	0	Public utilities: water utilities; human right to water act; create. Creates new act.	1/18/23	REFERRED TO COMMITTEE ON HOUSING AND HU-	Rosemary Bayer
Senate Bill	0026	0	0	Environmental protection: air pollution; civil and administrative fines; utilize to benefit communities affected by pollution. Amends 1994 PA 451 (MCL 324.101 -	9/28/23	referred to second reading	Stephanie Chang
Senate Bill	0088	173	2023	Water supply: quality and standards; installations of filtration systems in child care centers; require. Amends sec. 1 of 1973 PA 116 (MCL 722.111) & adds sec. 3i.	10/25/23	ASSIGNED PA 0173'23 WITH IMMEDIATE EFFECT	Sylvia A. Santana
Senate Bill	0089	0	0	Water supply: quality and standards; clean drinking water in schools and child care centers; provide for. Creates new act.	4/25/23	referred to Committee on Natural Resources, Environment, Tourism and Outdoor Recreation	John Cherry
Senate Bill	0153	0	0	Energy: alternative sources; community solar facilities; provide for establishment of. Amends sec. 5 of 2008 PA 295 (MCL 460.1005) & adds pt. 8. TIE BAR WITH: SB 0152'23	3/8/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Jeff Irwin
Senate Bill	0220	0	0	Natural resources: gas and oil; fee for monitoring, administration, and enforcement; increase. Amends sec. 61524 of 1994 PA 451 (MCL 324.61524).	3/21/23	REFERRED TO COMMITTEE ON NATURAL RESOURCES AND AGRICULTURE	Jeff Irwin
Senate Bill	0226	58	2024	Environmental protection: air pollution; asbestos emissions program for demolition or renovation activity; require annual report on sufficiency of number of inspectors. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding sec. 5519b. TIE BAR WITH: HB 4188'23	6/20/24	ASSIGNED PA 0058'24	Erika Geiss
Senate Bill	0228	0	0	Environmental protection: pollution prevention; plastic bags and other containers; repeal act preempting local regulation of. Repeals 2016 PA 389 (MCL 445.591 - 445.593).	3/22/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Sue Shink
Senate Bill	0243	0	0	Economic development: tax increment financing; tax capture districts; exempt public libraries. Amends secs. 203, 303, 404, 618, 715 & 814 of 2018 PA 57 (MCL 125.4203 et seq.).	3/23/23	REFERRED TO COMMITTEE ON FINANCE, INSURANCE, AND CONSUMER PROTECTION	Sylvia A. Santana
Senate Bill	0271	235	2023	Energy: alternative sources; energy storage, clean energy, and increased renewable energy; set targets for. Amends title, heading of subpt. A of pt. 2, secs. 1, 3, 5, 7, 9, 11, 13, 22, 28, 29, 39, 45, 47, 49, 173, 177 & 191 of 2008 PA 295 (MCL 460.1001 et seq.) & adds secs. 32, 51, 53, 101 & 103.	12/29/23	ASSIGNED PA 0235'23	Erika Geiss
Senate Bill	0272	0	0	Public utilities: public service commission; regulation of utilities by the public service commission; modify. Amends sec. 6t of 1939 PA 3 (MCL 460.6t).	4/19/23	REFERRED TO COMMITTEE ON ENERGY AND EN-	Sue Shink

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State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
Senate Bill	0273	229	2023	Energy: alternative sources; participation in the energy waste reduction program by municipally owned utilities and co-ops; require, and set specific targets for all electric providers. Amends secs. 71, 73, 75, 77, 78, 91 & 93 of 2008 PA 295 (MCL 460.1071 et seq.); adds secs. 72, 80 & 80a & repeals sec. 6x of 1939 PA 3 (MCL 460.6x).	12/29/23	ASSIGNED PA 0229'23	Sam Singh
Senate Bill	0274	0	0	Construction: other; strategic plan relating to greenhouse gas emissions reductions for new construction; require department of licensing and regulatory affairs to create. Creates new act.	4/19/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Sue Shink
Senate Bill	0275	0	0	Environmental protection: air pollution; low-carbon fuel standard; provide for. Creates new act.	4/19/23	REFERRED TO COMMITTEE ON ENERGY AND EN-	Sam Singh
Senate Bill	0276	0	0	Public utilities: electric utilities; phaseout of certain coal-fired electricity-generating plants; provide for by 2030. Amends sec. 6t of 1939 PA 3 (MCL 460.6t).	4/19/23	REFERRED TO COMMITTEE ON ENERGY AND EN-	Rosemary Bayer
Senate Bill	0277	230	2023	Land use: farmland and open space; continued PA 116 enrollment; allow for farmland during deferment period of use for commercial solar facilities. Amends secs. 36101 & 36104a of 1994 PA 451 (MCL 324.36101 & 324.36104a) & adds secs. 36104c & 36104e.	12/29/23	ASSIGNED PA 0230'23	Kristen McDonald Rivet
Senate Bill	0294	0	0	Environmental protection: litter; releasing balloons into the atmosphere; prohibit, and provide civil fines. Amends secs. 8902 & 8905a of 1994 PA 451 (MCL 324.8902 & 324.8905a).	4/25/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Mallory McMorrow
Senate Bill	0299	0	0	Environmental protection: sewage; onsite wastewater treatment systems; regulate, and provide for assessments and evaluations. Amends sec. 12752 of 1978 PA 368 (MCL 333.12752) & adds pt. 128. TIE BAR WITH: SB 0300'23	4/27/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Sam Singh
Senate Bill	0300	0	0	Environmental protection: sewage; onsite wastewater treatment systems; regulate and provide for assessments and evaluations. Amends 1978 PA 368 (MCL 333.1101 - 333.25211) by adding secs. 12815, 12817 & 12829. TIE BAR WITH: SB 0299'23	4/27/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Sam Singh
Senate Bill	0302	106	2023	Energy: alternative sources; property assessed clean energy program; require new construction energy projects to exceed uniform energy code standards. Amends sec. 9 of 2010 PA 270 (MCL 460.939). TIE BAR WITH: SB 0303'23	8/22/23	ASSIGNED PA 0106'23	Darrin Camilleri
Senate Bill	0303	107	2023	Energy: alternative sources; property assessed clean energy program; include environmental hazard and new construction projects and agricultural and multifamily property. Amends title & secs. 3, 5, 7, 11, 13, 15 & 17 of 2010 PA 270 (MCL 460.933 et seq.).	8/22/23	ASSIGNED PA 0107'23	Kristen McDonald Rivet
Senate Bill	0337	238	2023	Land use: other; certified survey map requirements; modify. Amends secs. 1, 2 & 3 of 1970 PA 132 (MCL 54.211 et seq.).	12/29/23	ASSIGNED PA 0238'23	Dayna Polehanki
Senate Bill	0393	0	0	Environmental protection: other; environmental science advisory board; eliminate. Repeals pt. 26 of 1994 PA 451 (MCL 324.2601 - 324.2611).	6/26/24	postponed temporarily	Rosemary Bayer
Senate Bill	0394	0	0	Environmental protection: permits; environmental permit review commission; eliminate. Amends secs. 1301, 1307 & 1311 of 1994 PA 451 (MCL 324.1301 et seq.) & repeals secs. 1313 - 1317 of 1994 PA 451 (MCL 324.1313 - 324.1317).	6/26/24	placed on third reading	Rosemary Bayer
Senate Bill	0398	102	2024	Natural resources: inland lakes; structure or fill on inland lake or stream bottomlands; authorize DEGLE to issue emergency order concerning. Amends 1994 PA 451	7/30/24	ASSIGNED PA 0102'24	Sean McCann

State of Michigan: Bills Introduced During the 2023-2024 Legislative Session

Type	Bill #	PA #	PA Year	Subject	Date of Last History Action	Last History Action	Primary Sponsor
Senate Bill	0543	0	0	Environmental protection: recycling and waste utilization; definition of advanced recycling; modify. Amends secs. 11502, 11503, 11504 & 11506 of 1994 PA 451 (MCL 324.11502 et seq.).	10/3/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Rosemary Bayer
Senate Bill	0605	0	0	Environmental protection: cleanups; cleanup standards; require. Amends secs. 20101, 20107a, 20112a, 20114, 20114b, 20114c, 20114d, 20114e, 20114g, 20126 & 20126a of 1994 PA 451 (MCL 324.20101 et seq.) & repeals sec. 20114a of 1994 PA 451 (MCL 324.20114a). TIE BAR WITH: SB 0606'23, SB 0607'23	10/24/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Jeff Irwin
Senate Bill	0606	0	0	Environmental protection: cleanups; cleanup to residential and safe drinking water standards; require unless technically infeasible. Amends secs. 20118, 20120a, 20120b, 20120e & 20121 of 1994 PA 451 (MCL 324.20118 et seq.). TIE BAR WITH: SB 0605'23, SB 0607'23	10/24/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Jeremy Moss
Senate Bill	0607	0	0	Administrative procedure: rules; definition of a rule; exclude cleanup criteria and target detection limits. Amends sec. 7 of 1969 PA 306 (MCL 24.207). TIE BAR WITH: SB 0606'23, SB 0605'23	10/24/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Stephanie Chang
Senate Bill	0608	0	0	Environmental protection: pollution prevention; financial assurance for any facility required to file a pollution incident prevention plan; require. Amends secs. 3101, 3103 & 3115 of 1994 PA 451 (MCL 324.3101 et seq.) & adds sec. 3106c.	10/24/23	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Erika Geiss
Senate Bill	0609	0	0	Environmental protection: groundwater contamination; limitation period for filing actions; revise. Amends sec. 20140 of 1994 PA 451 (MCL 324.20140).	10/24/23	REFERRED TO COMMITTEE ON ENERGY AND EN-	Sean McCann
Senate Bill	0660	0	0	Environmental protection: sewage; municipal stormwater utilities; provide for, and authorize fee. Creates new act.	11/9/23	REFERRED TO COMMITTEE ON LOCAL GOVERN-	Rosemary Bayer
Senate Bill	0662	112	2024	Natural resources: inland lakes; financing provisions and definition of lake level; revise. Amends secs. 30701, 30711, 30716 & 30717 of 1994 PA 451 (MCL 324.30701	7/30/24	ASSIGNED PA 0112'24	Rosemary Bayer
Senate Bill	0663	0	0	Environmental protection: water pollution; water resources protection; modify. Amends sec. 3103 of 1994 PA 451 (MCL 324.3103).	6/26/24	referred to Committee on Natural Resources, Environment, Tourism and Outdoor Recreation	Sue Shink
Senate Bill	0704	0	0	Environmental protection: funding; solid waste management fund; establish account to fund material waste reduction, reuse, recycling, and recovery. Amends secs. 11550 & 11582 of 1994 PA 451 (MCL 324.11550 & 324.11582).	2/1/24	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Sam Singh
Senate Bill	0735	0	0	Environmental protection: hazardous products; polyfluoroalkyl substances (PFAS) in consumer products and packaging; require warning label. Creates new act.	2/29/24	REFERRED TO COMMITTEE ON REGULATORY AF-	Rosemary Bayer
Senate Bill	0898	0	0	Energy: alternative sources; zoning exemptions for large scale solar, wind, and energy storage facilities; eliminate. Amends title & sec. 13 of 2008 PA 295 (MCL 460.1013) & repeals pt. 8 of 2008 PA 295 (MCL 460.1221 - 460.1232). TIE BAR WITH: SB 0899'24	6/6/24	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Michele Hoi-tenga
Senate Bill	0899	0	0	Land use: zoning and growth management; provision subjecting zoning authority to part 8 of clean and renewable energy and energy waste reduction act; delete. Amends sec. 205 of 2006 PA 110 (MCL 125.3205). TIE BAR WITH: SB 0898'24	6/6/24	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Roger Hauck
Senate Bill	0938	0	0	Environmental protection: hazardous waste; injection well disposal fee; provide for. Amends sec. 62506a of 1994 PA 451 (MCL 324.62506a).	6/25/24	REFERRED TO COMMITTEE ON ENERGY AND EN-	Darrin Camilleri
Senate Bill	0966	0	0	Environmental protection: air pollution; methane from oil or gas wells; require control or capture of. Amends 1994 PA 451 (MCL 324.101 - 324.90106) by adding sec. 61506e.	7/30/24	REFERRED TO COMMITTEE ON ENERGY AND ENVIRONMENT	Jeff Irwin



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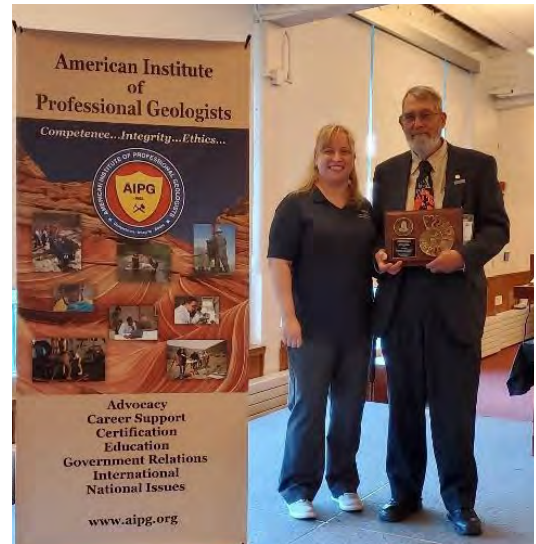
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Students - Reminder

Don't Forget: Each Student Chapter must submit two articles for publication in *Geologically Speaking* each year to qualify for Section funding. Send the articles to Adam Heft at adam.heft@wsp.com.



Larry Austin receiving the 2024 Ben Parker Medal in Durango.

Did You Know?

This article is intended to remind members of various aspects of AIPG and benefits of membership. If there is something you would like to see featured in this column, please contact the Editor...

Process for Organizing and Managing an AIPG Student Chapter

Hey students; do you wonder how to establish an AIPG Student Chapter at your school but don't know where to start? Then read on to learn everything you'll need to do just that!

The first thing you need to do is to obtain a copy of the AIPG Student Chapter Manual. This document is available in both .PDF or Word format at: <https://aipg.org/page/StudentChapters>. This manual includes essential guidelines, resources, and forms that need to be completed.

The next thing you will need to do is to hold elections. You will need to elect at least three officers, including President, Vice President, and Secretary/Treasurer. All three individuals MUST be AIPG student members. Since AIPG student membership is free, it is simply a matter of completing and submitting the application form to headquarters.

You will also need to identify a faculty sponsor who is willing to support the Student Chapter. The sponsor should ideally be someone from the geology or earth sciences department who is familiar with AIPG's mission and activities. It would also be helpful to have an AIPG member to serve as a liaison between the Student Chapter and your AIPG Section to keep your student chapter apprised of upcoming events.

Once these steps have been taken, you will need to submit an application for your Chapter to be officially recognized by your college or university. This process may involve providing the chapter's constitution, a list of officers, and the faculty sponsor's details.

After you are recognized by your college or university, you can hold your first meeting to introduce the Chapter to potential members, plan and discuss upcoming activities, and encourage student membership sign-ups. It's that simple!

To Reactivate a Dormant Chapter

In the event that your college or university's AIPG student chapter has been inactive, and you want to reactivate it, you will need to do the following:

First, confirm that you have a faculty member that is willing to act as your sponsor. This may be the previous faculty member or a new one. Next, hold an election for Chapter officers. Be sure that all election candidates are current AIPG student members and ensure that each officer position is able to be filled.

Finally, confirm that your school still recognizes the AIPG student chapter. If the chapter has lapsed in recognition, reapply through your school's student organization office.



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ASBOG Exams

The ASBOG Fundamentals of Geology (FG) and Practice of Geology (PG) examinations are given on the third week in March and the first week in October each year. All examinees must be certified to take the examination at an approved Prometric/Iso-Quality Testing (IQT) testing facility. There are multiple testing centers located throughout Michigan.

Central Michigan University qualifies candidates to take the FG examination in Michigan and surrounding states. The next scheduled examination dates are Thursday, March 20 and Friday, March 21, 2025. Two days will be available to accommodate anticipated demand.

There are three fees for taking the FG examination:

\$50 CMU administration fee, \$200 ASBOG examination fee, and \$75 Prometric testing center seat fee. **For March, the deadline to apply through CMU is January 31st.**

Complete information on applying to take the FG exam is available at se.cmich.edu/asbog. Useful information to help prepare for the FG Exam can be found in the ASBOG Candidate Handbook, which is accessible on the [ASBOG website](#).

Member Input Sought

The Section Executive Committee is seeking input from members on a variety of topics. Do you have any suggestions regarding speakers/presentation topics that you would like to hear? What about field trips or other events? Some place you'd like to see us go, or something you think the membership would enjoy doing? Then

make your voice heard; please send your suggestions to one of the members of the Executive Committee; any of the seven members would be glad to hear from you. AIPG is your organization. Please help keep it relevant and interesting for all by participating.



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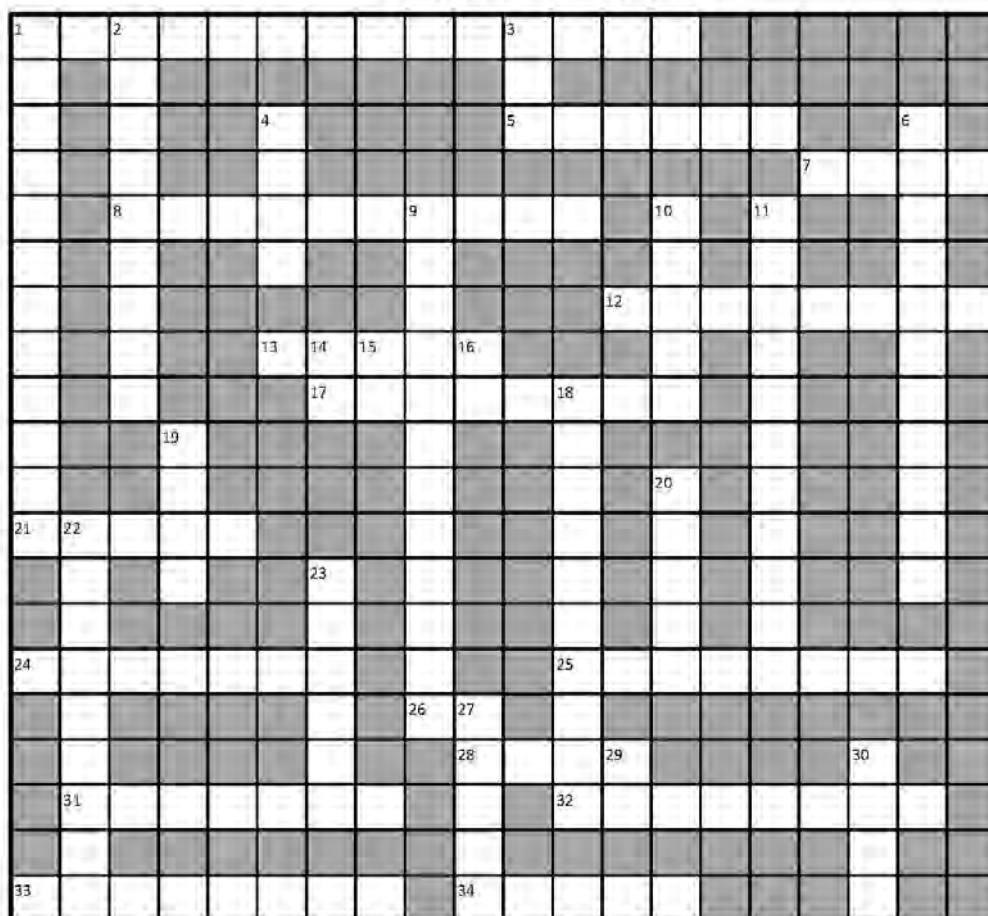
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Geology Crossword #19



Across

1. Surface representing static conditions
5. Not something one does to a leader
7. Not rich
8. Water table under atmospheric pressure
12. Free flowing well
13. Michigan's lithologic stack
17. Measure of dissolved solids
21. To give way
24. A bird at rest
25. Measure of void space
26. A gaseous sign
28. To cancel a transaction
31. An extensive water bearing zone
32. Something inmates should be
33. Something batteries need to be
34. Developed a model for flow to a well

Down

1. A measure of interconnectedness
2. Said of a bouncy plane ride
3. All constituents in solution
4. Go with it
6. A "fly in the ointment"
9. What a spy plans
10. Law describing flow through porous media
11. Not a pizza measuring device
14. A poisonous metal
15. Short answer
16. Five cents
18. The same conditions in all directions
19. For monitoring or supply
20. Useful water chemistry diagram
22. What one does with a computer
23. Dry soil zone
27. A big "to-do"
29. As opposed to "don't"
30. To kill a snake, cut it off

*The solution to this geology crossword will be included in the next edition of *Geologically Speaking*.

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