



The Maine Geologist

NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MAINE

June 2023

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PRESIDENT'S MESSAGE

Hello GSM members,

I hope this newsletter finds everyone well and enjoying all the wonderful springtime weather we've been having.

In early May, many towns in Maine experienced significant flooding. Here in Bethel, when the Androscoggin swelled, it became a murky brown, laden with sediment. As I stood watching the river, I took a moment to contemplate just how much sediment is transported from Maine's interior to the coast. And with that thought, my mind carried me to the shores of Maine, and I was reminded that summer is just around the corner.

Though it is not my discipline, I have grown to appreciate coastal geology immensely over the years. What keeps me so engaged is the diversity of environments and morphological features such as barrier islands, dunes, tombolos, marshes, estuaries, spits, cliffs, rocky headlands, maritime forests, cobble, pebble, and sandy beaches. Maine's coast has it all! I hope that everyone gets a chance to get out there this summer and experience all that Maine's coastline has to offer*.

The annual New England Mineral Conference (except for the past couple years) was held at Sunday River on May 19-24. For those of you who remember the Maine Mineral Symposium, it is a similar conference with professional lectures, mineral exhibits and dealers, and a final day of field trips. This year was a little different as the organizers eliminated the "education day" which was normally held on the Friday of the conference. Instead, they organized an afternoon technical session where college students and researchers presented their work in a GSA-type format. It was a great success, and the organizers hope the event will

return next year. College professors might hear from me again about this in the future.

LD 269, an act to designate granitic pegmatite as the Maine state rock was signed by Governor Mills earlier this spring and will go into effect later this June. Thanks to all who helped with that effort.

For summer news, we have an excellent field trip planned for July! You'll find more of the trip details in this newsletter. Thanks to trip leaders Allan Ludman and Steve Pollack for organizing the stops, and GSM VP Rich Campbell and others for organizing the accommodations.

Looking ahead to the fall, the EC thought it might be worthwhile to explore the current state of PFAS in Maine as a theme for the fall meeting. There are several folks who have expressed interest in helping to find speakers, but if you have any suggestions, please contact me. It's never too early to pull a program together!

I owe a huge thank you to Cassy Rose who is stepping down as our website administrator. Among other things, Cassy was instrumental in developing our new website and its online registration capabilities. Cassy is going to focus on her new role at the U.S. Climate Alliance - we wish her the best and hope to see her around at future GSM meetings. Chris Halstead of the Maine Geological Survey has agreed to the website administrator position. Thanks, Chris!

A big thank you to UMO School of Earth and Climate Science for hosting our spring meeting and to our two keynotes, John Slack and Chunzeng Wang. I felt like it was a huge success and coupling this event with the opening of a mineral exhibit was fantastic! Bowdoin College has graciously offered to host the 2024 spring meeting and I am looking forward to that.

Thinking ahead, next year marks GSM's 50th anniversary - anyone have any cool ideas to celebrate?

Sincerely,
Myles
President, GSM
Curator, Maine Mineral & Gem Museum
mfelch@mainemineralmuseum.org

*To learn more about Maine's coast, check out Living with the Maine Coast written by GSM members, Drs. Joe & Alice Kelley.

THE EDITOR'S MESSAGE

The newsletter is distributed through email in PDF format. Anyone with special needs should contact the Editor. Please send items of interest and photographs of GSM activities to:

Lindsay Theis, Newsletter Editor
lindsay.theis@maine.gov

GSM WEBSITE: www.gsmmaine.org
FACEBOOK: facebook.com/GSMMaine

NEWS FROM THE STATE GEOLOGIST

Granitic pegmatite becomes the official Maine State Rock on June 29, 2023. After waiting patiently for hundreds of millions of years, pegmatite is finally being recognized. Hats off to GSM President Myles Felch for leading this initiative. Governor Janet Mills signed L.D. 269 into law on March 29, 2023. The full legal reference in law is short and to the point. [Sec. 1. 1 MRSA §230](#) is enacted to read: Granitic pegmatite is the official state rock.

Much more legislation took place in the subsequent "Special Session" that continues into June with a goal of adjournment by June 21 after working on over 1,800 bills. Unless bills were passed as Emergency, the remaining laws will become effective 90 days later, so laws on mining and water resources, among others, will take effect in September. Perhaps the most significant change was

to the Maine Metallic Mineral Mining Act which was amended (L.D. 1363) to allow quarry-like standards for the extraction of pegmatites. In the next several months, the Maine Department of Environmental Protection will conduct rulemaking that will be open to public input, so GSM members can fully participate and contribute to standards that might be in place for years to come.

A recent paper in [Economic Geology](#) describes the rocks at Pennington Mountain in northern Maine. Anomalously high thorium values in data collected by a USGS Earth MRI airborne radiometric survey led by Dr. Anji Shah during the pandemic spurred significant collaboration among GSM members. This occurrence of rare earth elements, niobium, and zirconium is of international significance because of the structural geology, mineralization, and concentration of critical minerals. This is a rare discovery of potential national value for domestic supply chains of strategic minerals and elements. More background is available on the [Maine Geological Survey website](#).

The Maine Geological Survey (MGS) wrapped up another year of impressive surficial and bedrock mapping with USGS support through the STATEMAP program. In addition to geologic maps, Level-3 compliant GeMS geodatabases were also produced and the MGS continues to advance GeMS programming for both the USGS and other state surveys to use. Now available on the MGS website are surficial geologic and materials maps of the Rome and Belgrade Lakes quadrangles in central Maine, as well as Old Speck Mountain and part of the Success Pond quadrangles in western Maine, with all mapping by MGS Senior Geologist Lindsay Theis. Bedrock maps include the southern half of the Lake Auburn East quadrangle near Lewiston, the Louds Island and New Harbor quadrangles in the mid-coast, and the northern halves of Spider Lake and Chase Lake quadrangles in northern Maine. Bedrock mapping was led by MGS Senior Geologist Amber Whittaker in collaboration with Chunzeng Wang (UMPI) and David West (Middlebury). The West Rockport bedrock map, on which MGS Senior Geologist Henry Berry collaborated with Philip Osberg and Andrew Fagenholz, was brought up to GeMS compliance this spring and released on the MGS website. Several other 24K bedrock maps from

the EarthMRI projects and miscellaneous STATEMAP backlog were also recently released.

The MGS digital air photo collection advanced significantly in the first half of 2023. The Maine Department of Transportation transferred its historical print collection to the MGS in 2022 for archiving. Some of the photos date back to the 1930s and are of value for research. With a high-resolution scanner acquired by the MGS through a USGS Data Preservation grant and state funds, Chris Halsted and Lauren Cormier set up an air photo repository, digitally indexing photo footprints, and getting images into Digital Maine. In a superhuman effort, Lauren scanned over 76,000 air photos between January and June. These images are now available for search and download through the [MGS website](#).

The Maine Climate Council began its next term - working groups are forming, and the Science and Technology Subcommittee will write a new scientific assessment in late summer/early fall for use in deliberations of work groups and the full council. You can find more about upcoming meetings, how to participate, and trends across Maine at maine.gov/climateplan. It should come as no surprise, but sea level continues to rise, and new records are being set for monthly high tides. The MGS [Sea Level Rise Ticker](#) is regularly updated by MGS Marine Geologist Peter Slovinsky, and is a good source for both historical data and projections under different greenhouse gas emission scenarios.

Over the winter, MGS Hydrogeologist Ryan Gordon regularly conducted field measurements and then published data and maps for the [Maine Cooperative Snow Survey](#). Trends in these data will become very valuable over time as the state experiences changes in weather and climate. In months to come, the groundwater monitoring network will be expanding to provide even more data on the hydrological cycle over time.

The MGS continues to evaluate options for improved rock core storage, preservation, and scientific access in or around the Augusta area. Under consideration is to have sufficient space to take in additional cores as they become available. Our larger goal is to provide a facility with easy accessibility to spur more geologic research and collaboration. I welcome your thoughts on this

initiative and other ways the MGS can be of service to the geoscience community.

Stephen M. Dickson, Ph.D.
State Geologist

NEWS FROM THE CAMPUSES

University of Maine at Presque Isle

I have started my field season already with several days in the farm fields and woods - yes, farm fields for bedrock outcrops because this year's USGS EarthMRI project is the Mapleton quadrangle, which has lots of farm fields. I have been successful in finding some bedrock outcrops right in the fields before they are covered by green. So far, so good. My new field/project assistant Ethan Albair had his first day out with me today (5/8/2023; photo below).

Chunzeng Wang



Unity College Hybrid Learning

As many of you may have read, Unity College's evolution continues with [the recent announcement of a name change](#). As of July 1, 2023, we will officially be Unity Environmental University, though our in-person programs and courses will continue, as before, under the "Hybrid Learning" business unit based in Unity.

In a project led by my climate monitoring project work study student, Leia Fagundes, two Unity College students (Leia and Willie Broadie) collected snow at hourly increments during a nor'easter in mid-March, and subsequently brought those samples to the Stable Isotope Laboratory at

the University of Maine-Orono in April. The team really enjoyed the opportunity to visit the lab and meet staff and faculty at UMO. We recently received the results of the sample analyses, and Leia and Willie are spending part of their summers working on drafting a poster to present their interpretation of the data to the Unity campus community. All the best from Unity!

Tom Whittaker

University of Maine at Farmington

The University of Maine at Farmington students have been out in the field and at various conferences, including the Maine Sustainability and Water Conference and GSM Spring Meeting – see photos below!

Doug Reusch



College of the Atlantic

COA third-year student, Ludwin Moran is completing a drinking water study of the COA campus taps. He is investigating lead levels in our publicly sourced campus water following Maine Public Law 2019 Ch.158, *An Act to Strengthen Testing for Lead in School Drinking Water*, which lowered the lead limits for schools to 4 ppb. Ludwin presented his initial findings at the Fall Acadia National Park Science Symposium and will be taking on a summer internship with the MDI Biological Laboratory to follow up on his drinking water quality work. A spring field course to Costa Rica led by Dorr Natural History Museum Director, Carrie Graham, and Professor of Herpetology, Steve Ressel, had students practicing field sketching and studying ecology in a tectonically exciting area. In the photos below, see students at Arenal volcano and the Osa Mélange. Geoscience faculty, Sarah Hall, will be taking a leave from COA during 2023-2024 to serve as a Science and Technology Policy Fellow with the USGS in the Washington, D.C. area. COA is actively searching for a visiting geoscience faculty member - please find the full advertisement here: <https://www.coa.edu/human-resources/job-openings/>





GSM SUMMER FIELD TRIP

Field Trips in the Greenfield-Old Town-Bangor Area July 22-23, 2023

The GSM 2023 summer field conference visits the Greenfield-Old Town-Bangor area to examine recent changes in understanding the geology of and relationships among three major lithostratigraphic belts in central Maine. The trip dates are **Saturday July 22 and Sunday July 23, 2023**. The trip will focus on the Cambro-Ordovician Miramichi terrane and the adjacent (mostly) Silurian Central Maine/Aroostook-Matapedia basin and Fredericton trough. The Saturday trip highlights Ordovician Miramichi volcanic rocks and their tectonic significance. Sunday's trip introduces new stratigraphic interpretations of the younger rocks and unresolved issues of correlating them with well-established stratigraphy in surrounding areas.

Saturday's trip will be led by Dr. Allan Ludman and starts and finishes at the Route 2 Costigan boat launch on the east side of the Penobscot River a few miles north of Milford. Sunday's trip will be led by Dr. Stephen Pollock and will focus on the

stratigraphy, depositional environments, and structures of the Central Maine Basin in the vicinity of Old Town, Bradley, Brewer, and Holden. The trip will highlight the difficulty of correlating rocks in the greater Bangor area with similar rocks to the northeast and to the southwest in the greater Waterville - Palermo - Liberty areas. We will also compare an outcrop of Flume Ridge Formation on the northwest side of the Norumbega with an outcrop of the Bucksport Formation in the Fredericton Trough on the southeast side of the Norumbega. A potential optional stop will examine the Passagassawakeg Gneiss and its contact with the recently dated Pine Hill gneiss in the town of Orrington. The trip will end in Holden except for those continuing along to the optional stop in Orrington.

Camping will be available Friday and/or Saturday night at Timeout Wilderness Campground (189 Berry Pit Road Hudson, ME 04449). Those that do not wish to camp can find a variety of hotel options in the Bangor area. Registration and camping fees, along with exact meeting times and locations, will be provided in the forthcoming registration form. Please contact Rich Campbell with any questions (rcampbell@cegenvironmental.com).

GSM SPRING MEETING RECAP

University of Maine-Orono March 31, 2023

The best poster award went to University of Maine student Cade King, with an honorable mention to the Mount Blue High School students. Abstracts for all student posters follow below. Text is presented here as submitted (unedited).

GEOCHEMISTRY OF SURFACE WATERS NEAR THE PLUMBAGO NORTH LITHIUM - BEARING PEGMATITE, NEWRY, MAINE

Will Robert, University of Maine at Farmington

Will Robert, Doug Reusch, LeeAnn Munk, Dwight Bradley, Myles Felch, Dyk Eusden, Amber Whittaker

Geochemical analysis of surface waters near the Plumbago North (PbN) spodumene-bearing granitic pegmatite was initiated in Fall 2022 to provide an environmental baseline for any future lithium mining. We collected seven 125 mL filtered (0.45 microns) samples: from a perennial pool in the PbN quarry, Spodumene Brook (1 site above, 3 sites below PbN, Howe Brook (control), and the Ellis River at USGS Site 01054300 (upstream). Samples were collected on 2022.09.27 and again on 2022.11.06. The samples were analyzed for concentrations of major, minor and trace elements by ICP-MS, for chloride and sulfate by ion chromatograph, and for alkalinity by charge balance at the University of Alaska Anchorage's ASET Lab. All samples are calcium-bicarbonate in composition. Lithium concentrations at the six stream sites range from 1.5 to 6.6 µg/L (September) and 27 to 37 µg/L (November), which are less than pool values (167-172 µg/L), and all lower than the "EPA-recommended 700 µg/L threshold." Lithium in Spodumene Brook is 1-4× more concentrated than outside of the watershed, consistent with similar studies of lithium-bearing pegmatite drainages in Ireland, eastern Europe, and Portugal. While our discharge measurements did not reveal significant variation from September to November, the 6-fold contrast in lithium concentration may be a dilution effect or, possibly, related to the coincident loss of foliage, increase of leaf litter and production of organic acids.

A STUDY OF THE GEOLOGIC HISTORY AND ORIGIN OF CLIFFORD WOODS, FARMINGTON, ME

Mount Blue High School

Millette, P. M., Abbott, T. C., Bailey, T. A., Ball, P. M., Bartlett, E. M., Berry, K. R., Brewer, A. K., Civiello, N. G., Cote, M. X., Cushman, K. D., DeCarolis, G. J., Evans, C. W., Galkowski, S. E., Hall, K. A., Hoeft, E. S., Hoeft, G. P., Irish, S. J., Kellett, M. G., Latham, R. M., Leso, N. M., McCourt, E. B., McCourt, H. B., Ryder, B. C., Sawyer, S. L., Tinker, B. H.

A series of geological events over the course of hundreds of millions of years determined the formation of Clifford woods today. To understand how this happened, a research group investigated a

public green space called Clifford Woods in Farmington Maine. Methods including strike and dip, surveying, collecting and analyzing sediment samples, and collecting and identifying rock samples helped to determine the geologic events that occurred here. Findings suggest that when the African and North American plates crashed they formed folded mountains containing metamorphic rock that formed from the intense pressure and heat. During the Quaternary period, glaciers had a significant effect on the oceans and continental elevations because of its intense weight. The weight of these glaciers caused the continents to become depressed which made the sea level rise. Furthermore, because there was no more weight on them, and the ocean level fell revealing the sediments that were left behind. As glaciers moved across the continent they deposited till all over the continent. When they fully melted, the sea level rose and the ocean flooded most of coastal Maine and associated river valleys. This allowed sediments such as sand silt and clay from the ocean to settle on the land. Then the continents rose.

MINERALOGY AND PORTABLE-XRF GEOCHEMISTRY OF THE MAPLE-HOVEY MANGANESE DEPOSIT, NORTHERN MAINE

Lauren E. Madsen, University of Maine at Orono

Lauren E. Madsen, Chunzeng Wang, Martin Yates, David R. Lentz, Amber H. Whittaker, Alicia M. Cruz-Uribe

The Aroostook County Manganese District in Northern Maine consists of northern, central, and southern sub-districts of Silurian age. Collectively, they represent the largest manganese reserve in the United States. This study focuses on the central sub-district where the largest known deposit, the Maple-Hovey deposit, is located. Detailed field mapping, cross-section characterization and sampling across two continuous exposures of the primary ore zone, portable-XRF analyses, petrography, and mineral identification by XRD, and µXRF, and electron dispersive spectroscopy (EDS) via electron microprobe have been conducted to characterize the litho-geochemistry, chemostratigraphy, and mineralogy in the deposit to better constrain its metallogenesis. Field observations show that the

manganese deposit is presented as a continuous but pinch-and-swell layer, and the primary ore zone consists of thinly laminated, very fine-grained manganese ironstone. The ore and surrounding host rock are dominated by a layered sequence with varying mineralogy. Petrographic observations and XRD, μ XRF, and EDS spectra reveal a chlorite-rich host rock and four major thinly-laminated layers within the primary mineralized zone – Fe-rich layers largely consisting of hematite with lesser magnetite and pyrite, Mn-rich layer of largely spessartine with minor Mn-oxides, rhodochrosite, and rhodonite (MnSiO₃), Mn-carbonate layer of calcium-rhodochrosite (MnCO₃), and P-rich layers of apatite occurring in the primary Mn ore zone. Cross-cutting veinlets containing rhodonite, albite, and other minerals indicate minor hydrothermal activity. Spessartine garnet occurs as a major Mn-silicate, indicating high Mn and Al concentrations allowed its formation at low temperatures and greenschist-facies peak metamorphism. These observations support the interpretation that the Maple-Hovey Fe-Mn Deposit represents a sedimentary accumulation containing similarities to the well-characterized Silurian Woodstock Fe-Mn deposits in New Brunswick, Canada, and other Fe-Mn deposits worldwide.

Kaidar Donenbayev

Glaciers transform the terrain around them, and when they shrink or disappear, they leave behind markers of their past extents in the form of deposits called moraines. Using a MATLAB glacier modeling program, elevation data, climate data, and a specific amount of cooling, we modeled past glaciers in Mount Giluwe in Papua New Guinea (6°N, 143.9°E) at ~20,000 years ago (last Ice Age). This project helps us to have a better understanding of how glaciers looked in the past and how they changed over time and to predict how glaciers react to different conditions such as temperature, precipitation, etc. For this project, we gathered climate information from different publications and marked moraines in ArcGIS from satellite imagery. We tested a range of past climate possibilities, which resulted in the model glacier matching the moraines. From the model results we estimated past snowline elevation and the extent of the glaciers on Mount

Giluwe. These results complement the lack of data in the field of tropical glaciers and help us understand tropical climate change.

SEDIMENTARY ANALYSIS OF MOUNDS NEAR WHISTLESTOP TRAIL, FARMINGTON, MAINE, USA

Mount Blue High School

Hatch, A. B., Reusch, B.E. Reusch, M.A.

The purpose of this investigation was to determine the identity and origin of the small mound-like features adjacent to the Whistlestop Trail in West Farmington, Maine, USA. The methods used to collect evidence were mapping the research site, profiling the features, acquiring sediment samples, performing grain size analysis, and utilizing ground penetrating radar. The results suggest the field site is covered in marine sediment from after the Laurentide ice sheet receded and ocean water covered that part of Maine. It was determined that the mound features may come from drop stones released from an iceberg that broke off from the glacier. The mounds were then covered in sediment as the ocean receded, and then afterwards, erosion and deposition sculpted them further.

DID ICE AGE SNOWLINES LOWER BY THE SAME AMOUNT GLOBALLY? TROPICAL GLACIERS SAY YES!

Emilie Casey, University of Maine at Orono

Emilie Casey, Alice Doughty, Meredith Kelly

Glacier size mainly depends on temperature, precipitation, and topography, affecting where the ice starts to freeze or melt (called the freezing line). By determining the elevation of this freezing line during the Last Glacial Maximum (LGM, ~20,000 years ago), we can see how tropical glaciers responded to climate change and better predict how they will respond in the future. Finding the conditions that created these glaciers in the past helps understand the variability in the upper atmosphere climate. In this study, we focused on glacier model output of reconstructed LGM glaciers in the Rwenzori Mountains, Uganda (0.4°N 29.9°E). We

created code in MATLAB to extract freezing line elevations based on model temperature input, with factors including elevation, lapse rate, modern temperature and its change since LGM. Then, we compared the determined freezing line to those in the mid-latitudes in order to have a better understanding of the global pattern of cooling during the LGM. The change in the freezing line between modern and LGM appears to be similar across the tropics and mid-latitudes. These results support a theory in current research; it will support paleoclimate scientists in understanding the cause of ice ages and better predict future glacier behavior.

SEEING THE FORESTS FOR THE STREAMS: THE FRAMING OF STREAM DIAGNOSTICS FOR WATERSHED MANAGEMENT DECISION-MAKING

Cade King, University of Maine at Orono

Sean Smith, Neil Thompson, Cade King, Angeline Casella, Hayden Libby, Morgan Oehler, Samuel Roberts

Geomorphologically based diagnostic tools are important to long term watershed management and sustainability solutions in Maine. Fluvial channel conditions and freshwater aquatic habitat are largely governed by water and sediment supplies, resistance to water flow and erosion, and corresponding relations to channel dynamics and morphology. The foundation that watershed diagnostics in Maine woodlands rest upon includes variables predictive of surface runoff, terrain elevations, hydraulic dimensions, and features governing water flows and sediment transport in stream corridors. Changes to water and sediment supply can produce geomorphological alterations with implications to water quality and habitat. Pervasive human activities that have the potential to alter watershed hydrology and erosion patterns in northern Maine woodlands include roadway and skid trail construction, and removal of forest cover on hillslopes and in stream corridors. Contemporary stream systems can be modified by these watershed changes as well as perturbations from past forest harvest operations. They can also be affected by relatively rapid changes in climate that alter the timing and magnitude of stream flows. Here we summarize recent outcomes

from efforts to develop stream diagnostic tools tailored to conditions in the headwaters of northern Maine woodlands. The research focuses of Smith Brook watershed down to Fish River Lake in Aroostook County using stream mapping protocols, hydrologic measurements and modeling, and hydraulic analyses. Outcomes are being framed to support watershed management related to large scale forest harvest operations and sustainability of cold-water fisheries.

ANALYSIS OF A GLACIAL FEATURE ON EDGEHILL LANE, FARMINGTON, MAINE, USA

Mount Blue High School

Beach, H., Beaudoin, T., Bogar, L., Burke, D., Chen, F., Cooper, E., Gagnon, M., Goodspeed, A., Hewett-Adams, K., Hodgkin, J., Kerbo, M., McCarthy, N., Prescott, N., Thompson-Vought, M., Wildrick, E., Willingham, G., Yeaton, K.

An investigation was conducted to determine the identity and origin of a glacial feature, located on Edgehill Lane, Farmington Maine, USA. The methods used included, surveying for profiles, collecting and analyzing sediment samples using a standard grain size analysis, and identifying rocks and minerals in the sediment samples. Findings showed that the feature is a crag and tail, which was formed by the Laurentide ice sheet picking up sediments northwest of Titcomb Hill Ridge and depositing them on the southeast side of Titcomb Hill Ridge. The till tail was modified over time by modern stream processes.

SECRETARY'S REPORT

The Executive Council (EC) met on Friday, March 31 to discuss final plans for the GSM spring meeting; events planned by the Maine Mineralogical and Gem Museum and gem and mineral clubs; final Code of Conduct and statement on Diversity, Equity, and Inclusion (DEI); planning for the 2023 summer field trip; and location and timing possibilities for the spring 2024 GSM meeting.

Spring GSM Business Meeting Minutes, Friday, March 31, 2023

- 1) GSM President, Myles Felch, gave an introduction and thanked the faculty and staff for hosting the spring meeting.
- 2) Myles read the GSM Code of Conduct and directed members to come to him with any concerns.
- 3) Myles read the Treasurer's Report in lieu of Bruce Hunter, who was unable to attend.
- 4) Announcements:
 - a. The 2023 GSM Spring Field Trip will be held in the Lincoln, ME area; plans are in the works.
 - b. GSM members may be interested in a public hearing that will take place for Maine LD1363 (amendment to the metallic mineral mining rules) on April 13 at 1 pm.
 - c. Update on the Maine State Rock bill (granitic pegmatite) – it has passed committee sessions and is awaiting passage through the Maine Senate.
 - d. 8th Annual New England Mineral Conference (New England Mineral Association): May 19-21, 2023, Grand Summit Resort at Sunday River, Newry, ME
 - i. This meeting has a technical session on Friday that may be of interest to GSM members, and/or they may want to participate in future meetings.
 - e. Chunzeng Wang, U-Maine Presque Isle, gave details about the 2023 NEIGC, which will be hosted by UMPI:
 - i. First weekend of October (6-8).
 - ii. Student registration will be low cost (\$5-10).
 - iii. Free indoor camping will be available on UMPI campus.
 - iv. Trips will cover a variety of topics with some in Canada (will need passport).

- f. Woody Thompson announced the 2023 Friends of the Pleistocene Meeting, June 3-4 in Quebec, Canada, led by Michel Parent. Details are still being worked out.
- 5) Myles introduced the Keynote Speaker, John Slack, and his talk *Potential for Critical Mineral Deposits in Maine*.

Many thanks to Lindsay Theis for recording minutes of the EC and GSM business meetings on Friday, March 31! I was sorry to miss these meetings and look forward to the fall 2023 meeting.

Respectfully submitted,
Lisa Jacob, Secretary
ljj@smemaine.com
207-829-5016

TREASURER'S REPORT

The GSM Executive Council changed the name of the Anderson Fund to the Education and Professional Development Fund (EAPD) at the request of Walter Anderson. We are grateful that Walter started the fund and encouraged us to make it an endowment fund managed by the Bath Savings Trust. As stated on the GSM website: "In 2018 an endowment campaign committee was formed with the goal of stepping up the fund to a new, self-sustaining level. This jump start would enable the fund to make more substantial awards needed for geoscience education in Maine." The goal was to have a 3-year campaign from 2019 to 2022. In February 2019, we had a joint fundraising event with the International Appalachian Trail organization in Maine to celebrate Walter's 90th birthday. Unfortunately, that was our one and only event due to the pandemic. Nonetheless the fund grew from \$21,817.40 in 2018 to \$36,512.56 in May 2023.

In 2019, Kevin McCartney sent a check in the amount of \$10,000 to start a fund in his name. We are grateful for this generous donation, and it is currently invested in a Certificate of Deposit at the Maine State Credit Union. Kevin has made additional contributions in addition to contributions

by members of GSM. The Kevin McCartney Fund has a balance of \$16,008.66.

GSM gave \$1,000 research grants each to Will Robert, for a project titled “An Environmental Geochemical Analysis of the Plumbago North Lithium Deposit, West Central Maine and to Piper Kramer for studies of the Central Maine Basin. In addition we gave a \$660 grant to Patti Millette, a Geoscience teacher at Mt. Blue High School to provide transport for her students to the GSM Spring meeting. The general fund was reimbursed \$2,660 by the EAPD fund to pay for the grants.

Respectfully submitted,
Bruce E. Hunter, Treasurer
May 19, 2023

August 1, 2022 to May 19, 2023

	Actual
Income	
Dues Paid	\$2,715.00
Donations received by the Anderson Fund	\$350.00
Donations received by the Kevin McCartney Fund	\$1,265.00
Subtotal	\$4330.00

Expenses

Meeting Expenses

Fall Meeting	\$1,254.00
Spring Meeting Student Awards	\$100.00

Awards for a Field Trip and Research

Research-Central Maine Basin-Piper Kramer	\$1,000.00
Research-Geochemistry Plumbago North Lithium Deposit-Will Robert	\$1,000.00
Assistance to Patti Millette to bus her students to the Spring Meeting	\$660.00

GSM Website

Annual hosting plan cost	\$280.40
Online payment processing costs	\$407.76

Subtotal	\$4,702.16
Net Loss	\$372.16

Annual Asset Summary May 19, 2023

Account	Sub-Account	May 19, 2023
General Fund	Maine State Credit Union	
	Business Savings	\$21.84
	Checking	\$4,591.79
	Sub-Total	\$4,613.63
EAPD fund		
(previously known as the Anderson Fund)	Bath Savings Trust	
	Managed Account	\$36,802.34
	Sub-Total	\$36,802.34
Kevin McCartney Fund	Maine State Credit Union	
	Business Savings	\$1,255.33
	12month CD 0.896%	\$14,753.46
	Sub-Total	\$16,008.66
All Funds	Total Assets	\$57,424.63

UPCOMING EVENTS

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>Organizer</u>
July 22-23	GSM Summer Field Trip	Old Town, ME	GSM
October 6-8	New England Intercollegiate Geological Conference	U. of Maine-Presque Isle	Chunzeng Wang, UMPI
October 8-14	Earth Science Week	www.earthsciweek.org	AGI
October 15-18	GSA Annual Meeting	Pittsburg, PA	GSA
March 17-19, 2024	NEGSA Meeting	Manchester, NH	GSA

Please submit events to include on the calendar to the Newsletter Editor: lindsay.theis@maine.gov

MEMBERSHIP DUES STATEMENT

The GEOLOGICAL SOCIETY OF MAINE, INC. (often referred to as **GSM**) is a non-profit corporation established as an educational Society to advance the professional improvement of its members; to inform its members and others of current and planned geological programs in Maine; to encourage continuing social contact and dialog among geologists working in Maine; and to further public awareness and understanding of the geology of the State of Maine; and of the modern geological processes which affect the Maine landscape and the human environment.

The Society holds three meetings each year, in the late fall (Annual Meeting), early spring, and mid-summer (usually a field trip). A newsletter, *The Maine Geologist*, is published for all members three times a year. The Society year runs from Aug. 1 to Jul. 31. Annual dues and gift or fund contributions to the Society are tax deductible. There are four classes of membership:

2022 FEE SCHEDULE

- \$ 30.00 REGULAR MEMBER Graduate geologists, or equivalent, with one year of practice in geology, or with an advanced degree.
- \$ 30.00 INSTITUTIONAL MEMBER Libraries, societies, agencies, businesses with interests in or practicing geology and related disciplines.
- \$ 15.00 ASSOCIATE MEMBER Any person or organization desirous of association with the Society.
- \$ 5.00 STUDENT MEMBER Persons currently enrolled as college or university students.

THE GEOLOGICAL SOCIETY OF MAINE ANNUAL RENEWAL / APPLICATION FOR MEMBERSHIP

Regular Member	\$ 30.00	\$ _____	Name _____	Make checks payable to: Geological Society of Maine Bruce Hunter, GSM Treasurer 44 Old Fairgrounds Rd Readfield, ME 04355
Institutional Members	\$ 30.00	\$ _____		
Associate Member	\$ 15.00	\$ _____	Address _____	
Student Member	\$ 5.00	\$ _____		
Contributions to GSM (please write gift or fund on check)		\$ _____		
TOTAL ENCLOSED		\$ _____	_____	

Email Address _____
(GSM funds include the Walter Anderson Fund _____, and discretionary gifts as noted by contributor)

THE MAINE GEOLOGIST is the Newsletter of the Geological Society of Maine, published three times a year in mid-winter, summer, and early fall, for members and associates. Items for inclusion in the **Newsletter** may be directed to:

Lindsay Theis, Newsletter Editor
lindsay.theis@maine.gov

2022/2023 SOCIETY YEAR BEGAN August 1
PLEASE SEND DUES TO TREASURER.
(or pay online at our website: gsmmaine.org)

THE GEOLOGICAL SOCIETY OF MAINE
c/o Bruce Hunter, GSM Treasurer
44 Old Fairgrounds Rd
Readfield, ME 04355

PLEASE PAY YOUR DUES!