The Maine Geologist

NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MAINE

February 2023 Volume 49 Number 1

PRESIDENT'S MESSAGE

Greetings GSM members! I would like to start by saying that I am really looking forward to the first in-person spring meeting we have had in years! It will be held at the University of Maine at Orono (UMO) on March 31st. Big thank you to Marty Yates and the UMO faculty for organizing. The spring meeting is always student-focused, but UMO is also hosting a gallery opening for some newly installed mineral exhibits in conjunction with this event. John Slack, USGS emeritus, will be the keynote presenter and extend the fall meeting theme with a talk about Maine's critical mineral resource potential. If you have not seen John's recent publication (Slack et al., 2022) on the subject, I have included the reference (along with others at the end of the newsletter).

Lithium has been on my mind in recent months as I continue to develop a temporary, but long-term exhibit on the subject for the Maine Mineral and Gem Museum. Below are some recent developments in the lithium arena and a bit of a follow-up from the fall meeting. Located near the Nevada-Oregon border, Thacker Pass is arguably the largest known lithium deposit in North America and is fully owned by the Canadian company Lithium Americas. The project had been held in federal court until the first week of February 2023 when it was 'approved' pending a review of the tailings disposal permit. However, just a few weeks prior to the ruling, General Motors announced that it would be a strategic partner in developing this project by providing half a billion dollars ($650,000,000 to be precise) to develop Thacker Pass. Despite some lingering uncertainty with permitting, this seems like an indication that work on Thacker Pass will commence sometime in the future. This is speculation on my part, but given this kind of signaling, I don't think my claim is baseless.

But what about here in Maine? What is happening with respect to lithium mining? You'll have to stay tuned as ten bills related to mining have been submitted during the 131st Maine Legislative session. Just so we are all on the same page, the lithium deposit that is getting all the attention in Maine is the Plumbago North pegmatite located in the town of Newry. This locality contains the primary hard-rock lithium ore mineral spodumene ($LiAlSi_2O_6$), with world-class crystals up to 11 meters in length! A report by Simmons et al. (2020) based on two bulk sample analyses and exploratory drilling results, suggest the reserve has an average grade of 4.68% Li_2O and contains 10Mt of ore. These estimates suggest that this is some of the highest-grade spodumene ore know in the world. Of course, more feasibility studies need to be conducted to further confirm or disprove these estimates. For more information about lithium in Maine, I recommend reviewing Henry Berry's recent (February 2023) Maine Geological Survey Circular: *Lithium in Maine*.

Why does any of this lithium stuff matter? Whether we like it or not we are in the middle of a very interesting and fast-moving transition away from our dependence on fossil fuels. A large part of that transition currently hinges on the use of lithium-ion batteries. There are many different types of these batteries, and some also include other critical materials like aluminum, cobalt, graphite, manganese, and nickel, but all types need lithium. The primary *charge* behind lithium-ion battery manufacturing is to produce Electric Vehicles, or EVs for short. In order to buy your EV, there are nearly five necessary steps between your purchase and the removal of raw minerals from the ground. Material must be mined, processed into the necessary precursor materials, processed into battery components like a cathode or anode, manufactured

into batteries, and finally put into a series of modules that sit neatly in the base of your electric vehicle. Each of these steps could possibly be on a different continent, creating a very complex supply chain that is all dependent on mineral resource extraction. I should also note that EVs are what we often hear about, but they are not the only instigator of the raw battery material rush. Renewable energy storage also depends on lithium-ion batteries for those days when the sun is not shining, or the wind is not blowing. Not to mention all the 'essential' portable electronic devices we find ourselves needing daily.

Here in Maine, the Mills administration has set an ambitious goal of getting 219,000 EVs registered in the state by 2030. According to Energy.gov, which was last updated in June of 2022, Maine has just over 3,000 EVs registered in the state. It is also worth mentioning here that the state of California is planning to ban the sale of internal combustion engines by 2035. **WOW!** There are many other nations around the world that are also making bold policy moves to guide an eventual transition. **Such proclamations have consequences**. I personally think that anyone who is in the position to purchase an item containing a lithium-ion battery should know the implications of that purchase, as there are always unintended consequences that result from our actions. It is easy to make these purchases as they have become so essential to our daily lives, but as we do so, we are participating in a very complex supply chain that spans nearly every continent. It includes child labor, bribery, corruption, nonexistent worker safety regulations, geopolitics, burning fossil fuels, and creating other forms of pollution. That's a lot of stuff you don't see in your battery! Our needs are **completely dependent** on resource extraction. In closing, I hope everyone can enjoy the snow while it lasts. As I'm finishing this sentence the thermometer reads 52° - fortunately, I have a calendar to let me know that it is actually February!

All the best,
Myles Felch
President, GSM
Curator, Maine Mineral & Gem Museum
mfelch@mainemineralmuseum.org

THE EDITOR'S MESSAGE

Amber Whittaker turned over the GSM Newsletter Editor duties to me at the 2022 Fall meeting after five years at the helm. Thanks, Amber, for many excellent newsletter editions.

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.spigel@maine.gov

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

NEWS FROM THE STATE GEOLOGIST

Weather whiplash seems to be the new normal here in Augusta and across Maine. Temperature and precipitation swings have been pushing records to both highs and lows. Lake ice is too thin for ice fishing in many places. Snowpack was late to build and often mixed with rain. In December and January, cryoseisms and a microearthquake swarm caught the attention of many residents and the press. The Maine Geological Survey (MGS) adapted our web site to upload small seismic events and posted reports of possible cryoseisms. The December 23, 2022 winter storm Elliott coincided with a king tide. Storm tides rose to within a few inches of the "100-year storm" of February 1978. Surf flattened beach profiles, scarped dunes, and led to so much coastal property damage that a disaster declaration may be issued. The four-year state climate action plan *Maine Won't Wait* won the national 2022 Resiliency and Sustainability award from the American Planning Association. Geosciences have a key role in understanding and explaining change happening all around us, and I encourage the membership to not wait - share your expertise and knowledge at every opportunity.

Maine is on the verge of announcing granitic pegmatite as the state rock. Senator Lisa Keim of Oxford introduced a bill (LD 269) to the Maine

Legislature, and a poll of GSM members found overwhelming support for this choice. A public hearing was held on February 14, 2023 in the Joint Standing Committee on State and Local Government and I testified in favor of granitic pegmatite on behalf of the Mills Administration, as did several others. The bill passed unanimously out of committee without opposition and, as of this writing, awaits votes in the Maine Senate and House of Representatives before advancing to the Governor. In my opinion, this is an excellent rock choice for many reasons, including the fact that it hosts the state mineral, tourmaline.

At the MGS, 2021-22 bedrock mapping focus was driven by both the USGS STATEMAP and Earth MRI programs. In northern Maine, continued mapping of the Munsungun – Winterville Belt identified two new formations and faults. Collaboration with Chunzeng Wang of the University of Maine at Presque Isle (UMPI) led to new maps of the Carr Pond and Fish River Lake quadrangles in 2022, and preliminary Chase Lake and Spider Lake quadrangle maps are in production. Geochronology revised the tectonic setting from peri-Gondwanan to peri-Laurentian with accretion to North America during the Taconic Orogeny. UMPI also assisted with ground support for airborne geophysics flown in 2021 by the USGS Earth MRI program.

In central Maine, 2021 and 2022 field work in the Lewiston region was a second bedrock focus area. Urban field work and sampling helped better define stratigraphic relationships, fault types, and sequences of igneous intrusions (420 to 278 Ma), metamorphism, and deformation spanning from the Silurian up through the Permian, and thus, much of Maine's bedrock history. This effort helped build detailed maps for Lewiston in 2022 and the southern half of Lake Auburn East in 2023.

Coastal Maine was the third bedrock mapping focus area over the last two field seasons. The mid-coast region has many peninsulas that owe their origin to complex thrust faulting, folding, igneous intrusions, and differential weathering. Ordovician volcanic arc and sedimentary sequences abut Silurian flysch, and all underwent extensive metamorphism up to amphibolite facies. Structural relations are complex and exposed along the ocean shoreline. The MGS collaborated with David West of Middlebury College to enter over 60 years of Bowdoin College professor Arthur Hussey's field observations and maps into a digital database and merged the earlier data with new field observations to produce four new maps of the Boothbay Harbor, Bristol, Pemaquid Point, and Phippsburg quadrangles in 2022. Maps of the Louds Island and New Harbor quadrangles derived from 2022 field season work are currently in production.

Years of bedrock geologic mapping in northern Maine led to an Earth MRI-funded project led by Anji Shah of the USGS in the summer of 2021. An airborne geophysical survey identified a radiometric anomaly at Pennington Mountain about 40 miles northwest of Presque Isle. Elevated concentrations of rare earth elements plus additional elements, niobium and zirconium, were found in a brecciated trachyte. The geophysical data led to a more thorough field effort to map the extent of the minerals at the surface and collect samples for laboratory study to better understand the genesis and nature of mineralization. Swift scientific collaboration among the USGS, MGS, UMPI, and the University of New Brunswick produced results published in the December 2022 issue of Economic Geology.

The MGS also recently completed a two-year Earth MRI-funded project on lithium-bearing pegmatites in western Maine in collaboration with Dyk Eusden, Myles Felch, Dwight Bradley, Chris Koteas, and numerous undergraduate students. Two new bedrock maps of the Puzzle Mountain and part of the East Andover quadrangles were published at the start of the year. Starting in September, MGS began a 3-year Earth MRI-funded bedrock mapping project on the manganese deposits in northern Maine, collaborating with Chunzeng Wang and Lauren Madsen, a graduate student at the University of Maine at Orono.

Surficial mapping in the western Maine mountains will soon result in maps for the Old Speck Mountain and Success Pond quadrangles, with a focus on Grafton Notch State Park. The MGS has been communicating with the New Hampshire Geological Survey about maps that cover both states

in this region, and the USGS has recently shown interest in mapping the surficial geology of federal lands in this area (White Mountain National Forest). In central Maine, surficial mapping over the last two summers focused on the Unity and Belgrade Lakes areas. Both areas have significant esker systems that are potential aggregate sources. Glaciomarine deposits in this region are prone to landslides, so detailed surficial mapping also helps identify potential geohazards. Striations and lidar topographic imagery helped to reconstruct the history of Laurentide ice flow. New radiocarbon ages indicate that the late-glacial sea was present in the Unity area until at least 12,000 radiocarbon years BP. This STATEMAP- funded effort resulted in surficial geology and surficial materials maps for the Unity and Unity Pond quadrangles, and maps for the Rome, Belgrade Lakes, and Norridgewock quadrangles will be published this spring.

MGS reviewed needs for improved drilled rock core storage, preservation, and scientific access. There is a repository of 75,000 linear feet of core in Augusta with another 66,000 feet in Presque Isle. This archive is estimated to have a value of around $200 million and represents some locations that could not be redrilled should the existing samples be damaged or lost due to neglect. With a national interest in critical minerals and metallic commodities, the existing archive needs improved curation and a facility that can accommodate further investigations, analysis, and accessibility. The MGS is working to develop a plan and path forward for funding.

Collaboration with the NOAA Office for Coastal Management led to geomorphic maps of the Gulf of Maine seafloor along the Maine coast. Marine geological mapping produced a digital layer of "geoforms" interpreted from bathymetry, multibeam backscatter, and sediment samples. These data compliment the Coastal Marine Ecological Classification scheme used for habitat mapping. The effort included joint mapping off New Hampshire and Massachusetts to make a regional map of features and bottom types in an area of multiple uses including ground fishing, lobstering, species migrations, shipping, and potential offshore wind energy siting and cable routes. Results will be available through the Northeast Ocean Data Portal in 2023.

Coastal erosion monitoring resulted in synthesis of dune changes, migration of the high-water line, and shore-normal beach profiles. Results and trends were released in a 2022 State of Maine's Beaches report along with online access to custom mapping. In addition to erosion, multiple online tools allow analysis of high-resolution inundation mapping of storm surge and sea level rise scenarios. Additional hazards can be evaluated to compare FEMA Flood Insurance Rate Map water levels with elevations of coastal engineering structures for overtopping vulnerability. Another mapping option is to examine the suitability of shorelines for possible living shoreline construction. The MGS also posts monthly verified NOAA tide gauge data on a sea level rise ticker and a more in-depth dashboard with sea level rise trends and projections.

Stephen M. Dickson, Ph.D.
State Geologist

NEWS FROM THE CAMPUSES

University of Maine at Presque Isle

Kevin McCartney (after serving 35 years full time at UMPI) and David Putnam (after serving 22 years full time at UMPI) retired at the end of 2022. An arrangement will be made to honor both of them later this spring. UMPI will be hosting NEIGC 2023 – see the formal announcement later in the newsletter.

Chunzeng Wang

University of Maine at Orono

The University of Maine at Orono will be hosting the Spring GSM meeting in conjunction with the Golden Family Mineral Collection and Student Center dedication event – see the formal announcement later in the newsletter.

Marty Yates

Unity College Hybrid Learning

Happy New Year to you all! Exciting things are underway at the Unity College campus in 2023, and I will share a couple of those items here. Last month we officially launched our newest degree program: B.S. in Natural Resources Conservation and Management (NRCM). This will broaden our geoscience offerings, as it runs alongside our existing B.S. in Environmental Science and will allow us to get back to teaching soils and hydrology. The program will have an emphasis on wetlands and aims to prepare students for environmental consultancy work (among other career options).

We have also been able to dramatically increase the number of work-study positions on campus in the past month. The College is underwriting pay for students not eligible for federal work-study. Effectively, any student on campus is now able to take on a work-study position and get paid for their work (in 2022 the faculty and staff had been supporting a number of student volunteer positions). As a result, we (myself and Dr. Kathy Crowley) now have a small number of students actively engaged in supporting environmental science projects and research. We hope to have a Unity College student attend (and maybe present) at the GSM Spring Meeting for the first time in a few years. Looking forward to catching up at the Spring Meeting. Best wishes from Unity!

Tom Whittaker

University of Maine at Farmington

Senior geology major Will Robert has initiated a program to document stream geochemistry in the vicinity of the Plumbago North lithium deposit. Earth and Environmental Science students conducted sedimentological studies in the aftermath of dam removal in Temple Stream, West Farmington, and will present their results at the Maine Sustainability and Water Conference in March. Drs. Julia Daly and Rachel Hovel (Biology) participated in production of a documentary produced by Mt. Blue TV on lake monitoring research for the Friends of Wilson Lake (FOWL). Dr. Marlon Jean is taking the lead on a project to investigate the ultramafic rocks on Deer Isle and Little Deer Isle, and will present preliminary results at the GSA Cordilleran Section meeting in May. Marlon's department seminar "From Diamonds to Mars" is also available courtesy of Mt. Blue TV. In October, Dr. Doug Reusch, in conjunction with Mt. Royal University geologists Drs. Jeff Pollock and Michelle DeWolfe, helped Dr. Phil McCausland begin a paleomagnetic study of the Castine Volcanics. Doug will be geologist-in-residence for the Geology at the Edge (GATE) program on Fogo Island, NL next July. We look forward to seeing everyone at the spring meeting in Orono.

Doug Reusch

GSM SPRING MEETING

March 31, 2023, University of Maine at Orono

The School of Earth and Climate Sciences at the University of Maine is pleased to host the Geological Society of Maine's Spring meeting. This meeting will showcase student research, so we are requesting participation from all of Maine's college campuses in the form of research posters and 12-minute talks. The meeting will take place on Friday afternoon, March 31, in the Bryand Global Science Center. We plan to combine this year's meeting with the dedication of a collection of stunning, museum quality specimens recently donated by the Golden Family to the School of Earth and Climate Sciences. The collection will be on display on the second floor of the Bryand Global Science Center. In addition, we are pleased to announce that Dr. John Slack, Scientist Emeritus with the USGS, will provide the keynote address titled "Potential for Critical Mineral Deposits in Maine."

Schedule:

In the Bryand Global Science Center:
12:00 pm Registration and Poster Setup
12:30 pm Poster Presentations

In Nutting Hall, Rm100:

2:00 pm GSM Business Meeting
Keynote Address: Dr. John Slack, *"Potential for Critical Mineral Deposits in Maine"*
GSM student talks

In the Bryand Global Science Center:

4:30 pm Golden Family Mineral Collection and Student Center Dedication
Anderson Fund Poster and Talk Awards
Social Hour

Parking is available behind (east side) of Bryand Global Science Center.

Student Presenter Information:

If you are interested in presenting a poster or talk at the GSM meeting, please send an abstract in Word or plain text format to Marty Yates (yates@maine.edu) by Friday, March 24. Posters should be standard GSA format. Talks will be limited to 12 minutes, and ***due to time constraints, only the first five talk requests will be accepted.*** Posters and talks by undergraduates will be judged for the Anderson Award competition.

NEIGC 2023

Field Trips in Northern Maine and Western New Brunswick
October 6-8, 2023
Hosted by the University of Maine at Presque Isle

The NEIGC 2023 will be hosted by the University of Maine at Presque Isle (UMPI), a small but beautiful campus located in Aroostook County, the largest county east of the Mississippi River, known for its potato farms, North Maine Woods, and Acadian culture. It will be dedicated to Dr. Robert Marvinney, who served as a geologist with the Maine Geological Survey for 34 years, with 26 of those years as State Geologist and Director of the Bureau of Resource Information and Land Use Planning. His contributions to Maine geology research have spanned more than 40 years. In recent years, Dr. Marvinney played a critical leadership role in the USGS-funded STATEMAP and Earth MRI bedrock geologic mapping and airborne geophysical survey projects in northern Maine that have led to breakthroughs in Maine Northern Appalachian geology and tectonics, and to discovery of the Pennington Mountain REE-Zr-Nb deposit. The NEIGC 2023 will also honor pioneer geologists Gary Boone, Bill Forbes, Brad Hall, and David Roy who have made historic and significant contributions to the study of geology in northern Maine. This will be the second time the NEIGC is held in Aroostook County – the first and last one was in 1980, organized by Drs. David Roy (Boston College) and Richard Naylor (Northeastern University), and facilitated by Bill Forbes (UMPI).

In addition to field trips in Northern Maine, with collaboration from the University of New Brunswick Department of Earth Sciences and the New Brunswick Department of Natural Resources and Energy Development (Canada), a couple of trips will be run across the border in western New Brunswick, making the NEIGC 2023 an international event. Field trips will include bedrock geology, economic geology, Quaternary and glacial geology, as well as geoarchaeology. Bedrock geologic trips will cover all the major lithotectonic belts and terranes in northern Maine and western New Brunswick, including, from northwest to southeast, Connecticut Valley-Gaspé, Munsungun-Winterville (a newly identified peri-Laurentia massif), Weeksboro-Lunksoos Lake, Number Nine Mountain, Aroostook-Matapedia, and Miramichi/Meductic.

The NEIGC 2023 will provide a great opportunity to head north and visit "the County" where there are few traffic lights and people but abundant wildlife, examine the wonderful and unique geology of the Northern Maine Appalachians, and see the beautiful landscape during a peak foliage week. The Presque Isle area offers great lodging and camping facilities with excellent restaurants. The organizer, Dr. Chunzeng Wang, and the host, UMPI, intend to make the NEIGC 2023 the best one ever: concerted and successful fundraising will reduce the financial burden for all student attendees and UMPI

officials have reserved the fitness center, Gentile Hall, for free indoor camping, particularly for students. Registration will be open in late August 2023. Please check the NEIGC 2023 website (https://storymaps.arcgis.com/stories/5dba93241a084f519130df50ac85f7a8?fbclid=IwAR27C6ZjOQc1vVRvsEARZmMotY8BUzB05AH484iECAw0pRbHHiGhK6AiSqo) and the NEIGC website and Facebook page for updates. Please contact Dr. Chunzeng Wang (chunzeng.wang@maine.edu) for any questions and information about the NEIGC 2023.

SECRETARY'S REPORT

The Executive Council (EC) met by Zoom in October 2022 to plan the fall GSM meeting and discuss Education and Professional Development funding requests. The EC met by Zoom in November 2022 to finalize plans for the fall 2022 GSM business meeting (minutes are provided below) and discuss a draft Code of Conduct and statement on Diversity, Equity, and Inclusion (DEI). Other business included reflection on how to engage students and young geologists in GSM, potential workshop opportunities, fall 2023 meeting topic, and beginning ideas to celebrate GSM's 50th anniversary in 2024. The final EC meeting in this reporting period was January 5 by Zoom. Discussion included updates from the Treasurer, Secretary, and Newsletter Editor; spring 2023 meeting planning; and summer 2023 field trip ideas. The EC also adopted the Code of Conduct and DEI statement, which are posted on the GSM website.

Fall GSM Business Meeting Minutes, Thursday, November 10, 2023

1. GSM President Sarah Hall welcomed all and called the meeting to order.
2. Treasurer's report
    a. Treasurer Bruce Hunter provided an update on the state of accounts: our general fund is healthy with over $7,000. We have two education awards to pay, $1,000 each to fund research projects of Piper Kramer and Will Robert. The Education and Professional Development Fund has over $34,000. The Kevin McCartney Fund has around $12,000.
    b. GSM funded four education and professional development fund requests in the last year.
    c. We had just kicked off a fundraising campaign for the endowment of the GSM Fund for Education and Professional Advancement prior to COVID. Bruce looks forward to reinvigorating that campaign. It would be great to be able to endow these funds so that they can support project funding with interest rather than principal.
3. Communications Committee – Amber Whittaker provided an update on GSM communications including recent newsletters and the website.
    a. A special edition of the newsletter was published in September 2021 to memorialize articles and messages to GSM from retiring State Geologist Bob Marvinney.
    b. The GSM website is accepting membership dues and new membership requests and provides various resources for GSM members including archived newsletters.
    c. Current Website Administrator Cassaundra Rose and Newsletter Editor and Communications Chair Amber Whittaker are both interested in passing their responsibilities on to others if there is interest among GSM members for assuming these Officer roles.
4. Nominations Committee
    a. The Nominating Committee presented the slate of officers and

councilors for consideration and election:

- President – Myles Felch
- Vice President – Rich Campbell
- Treasurer – Bruce Hunter for two final years
- Secretary – Lisa Jacob
- Newsletter Editor and Communications Chair – Lindsay (Spigel) Theis
- Website Administration – Cassaundra Rose (interested in transitioning out of this role)
- Historian – no nominations at this time
- Councilors – Joe Kelley for a one-year term through 2023, Sarah Hall for a three-year term through 2025.

b. A motion and second was made to elect the slate of officers and councilors, which passed by membership vote.

5. Announcements
   a. The 2023 GSM spring meeting will be held at UMO in April 2023. Marty Yates will coordinate the meeting.
   b. Patty Millette sent word that Mt. Blue High School has a mid-year opening for an earth and physical science teacher, January through June 2023.
   c. Education and Professional funding – the next application deadline will be March 1, 2023. Information and resources are available on the GSM website.
   d. Woody Thompson mentioned the next meeting of the Friends of the Pleistocene, to be held the first weekend in June 2023, in the St. Lawrence River Valley in Quebec. Information and great resources are available online at Northeast Friends of the Pleistocene.
   e. GSM's 50th anniversary is in 2024, please keep in mind any good ideas for celebration.
6. Myles Felch offered acknowledgement and thanks to Sarah Hall for her service as president, a record-setting four years. Sarah kept us all connected through two incredibly difficult years of COVID and provided great programming. Myles presented a lepidolite sphere that was mined from the Havey Quarry (granitic pegmatite) and was crafted by Martin Roberts, as a gesture of thanks and appreciation from GSM.

The business meeting was adjourned. Myles Felch provided opening remarks for the afternoon discussion of critical mineral resources, policy, and supply chain. His remarks were followed by an update from State Geologist Steve Dickson and invited speakers.

Respectfully submitted,

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

TREASURER'S REPORT

A current report was not submitted for the newsletter.

UPCOMING EVENTS

Date	Event	Location	Organizer
March 17-19	NE/SE GSA Joint Mtg.	Reston, VA	Geological Society of America
March 31	**Spring Meeting**	U. of Maine-Orono	**GSM/U. of Maine-Orono**
June 3-4	Friends of the Pleistocene 84th Annual Reunion	Lower St. Lawrence River Valley, Quebec, Canada	Michel Parent, Geological Survey of Canada
October 6-8	New England Intercollegiate Geological Conference	U. of Maine-Presque Isle	Chunzeng Wang, UMPI

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

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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	$_____
Institutional Members	$ 30.00	$_____
Associate Member	$ 15.00	$_____
Student Member	$ 5.00	$_____
Contributions to GSM		$_____
(please write gift or fund on check)		
TOTAL ENCLOSED		$_____

Name _____

Address _____

_____

_____

Make checks payable to:
Geological Society of Maine
Bruce Hunter, GSM Treasurer
44 Old Fairgrounds Rd
Readfield, ME 04355

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.spigl@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!