THE MUCKREADER

Message from the Editor

Dear Limnogeologists,

Hello! If this is your first time to the Muckreader, WELCOME! This newsletter is filled with a plethora of lacustrine goodness so dive right in, and be sure to check out the GSA Talks Bingo cards at the end.

I yield the remainder of my page space to highlighting the exciting Limno-events at GSA Connects 2021, including the virtual Limnogeology Division awards reception!

Enjoy and if you haven't already, **get your Fauci-ouchie**!

Andrea Shilling, *Limnogeology Division Secretary & Muckreader Editor,* shilling.andrea@gmail.com

Important GSA Connects 2021 Events

- *Technical Sessions 138 and 182:* T68: Lacustrine Systems Around the World I and II: In Honor of Michael Rosen; **Tuesday 8 am - 12 pm and 1:30 - 5:30 pm, Oregon Convention Center, Oregon Ballroom 252**

  This is a combined virtual and in-person session of oral presentations. It is chaired by Scott W. Starratt, Bailee N. Hodelka, and Michael McGlue

- *Technical Session 236:* T69: Out of This World Lakes; **Wednesday 1:30 - 5:30 pm, Oregon Convention Center, Rm D135**

  This is an in-person session of oral presentations. It is chaired by Kathleen Benison, Brenda Bowen, and Johan C. Varekamp

- Limnogeology Division awards reception: **Wednesday, November 3rd, 2021, 8 pm Eastern Time.**

  * Please note this is a *virtual* event, meeting details as follows:

  Zoom meeting ID: 915 0529 6934 Password: LimnoNov3

Message from the Chair

October, 3rd 2021

The Limnogeology Division is now 20 years old. The brainchild of the late Beth Gierlowski-Kordesch, along with Lisa Park Boush and Kathleen Nicoll, our division has established itself as a group of geoscientists interested in all aspects of modern lakes and ancient lake deposits. We sponsor technical oral and poster sessions, short courses, field trips, and a reception at GSA meetings. We provide partial research funding for a student through the Kerry Kelts Award. Through the Israel C. Russell Award, we celebrate excellence in careers in limnogeology. And maybe most importantly, we aim to provide a venue for networking among students, faculty, and government and industry scientists interested in limnogeology.

"The Limnogeology Division is now 20 years old."

Since March of 2020, we've faced some challenges in conducting business-as-usual due to the covid pandemic. As I write this, most of us are fortunate enough to be vaccinated, yet are still cautiously masked and keeping socially distant. The GSA Connects 2021 meeting is scheduled for next week in Portland, Oregon. Last spring and into the summer, we joyfully planned lots of in-person division activities for this meeting. But now, we face a GSA annual meeting that will be of low attendance due to travel restrictions, worries about possibly carrying infection home to unvaccinated children and other vulnerable family members, and a general wariness due to the current surge in covid cases in much of the U.S. As a result of projected lower-than-usual attendance at the GSA meeting in Portland, we have cancelled our in-person exhibit hall booth and our in-person awards reception. We look forward to seeing everyone in Denver next fall for a fully in-person meeting.

We invite you to join us for a remote awards reception in celebration of Natalie Packard (Kerry Kelts 2021 recipient) and Dr. David Long, the 2021 recipient of the Israel C. Russell Award for major achievements in Limnogeology through contributions in research, teaching and service. Please see Page 3 for more about these awards.

Finally, we were deeply saddened to learn of the passing of Michael Rosen, long-time member and supporter of the Limnogeology Division. One of the technical sessions at GSA Connects 2021 will honor him. Michael's family is working with GSA and the Limnogeology Division to establish a student award in his name. See page 8 for more on Michael Rosen.

Thank you to officers Jason Price (Vice Chair), Lisa Park Boush (Past Chair), Andrea Shilling (Secretary), David Finkelstein (Treasurer), and Student Representatives Elena Robakicwicz, and Mackenzie Eskey for weathering 18 months+ of remote division meetings with grace.

I encourage you all to join us for division events and to reach out with any ideas and suggestions for our division.

Respectfully,

Kathy Benison, *Limnogeology Division Chair, West Virginia University*

kcbenison@mail.wvu.edu

Limnogeology Division Awards 2021

✳ Reminder the Limnogeology Division awards Reception will be held virtually on Nov. 3rd details on the front page of this newsletter.

Kerry Kelts Research Award

THIS MONETARY AWARD IS GIVEN TO UNDERGRADUATE AND GRADUATE STUDENTS. NAMED IN HONOR OF KERRY KELTS, A VISIONARY LIMNOGEOLOGIST AND INSPIRING TEACHER.

2021 Recipient: Natalie Packard, University of Michigan, for her project: *Dolomitic Influence on the Triple Oxygen Isotope Signature at Bear Lake, Utah/Idaho*

Natalie Packard is a PhD candidate, working with Dr. Ben Passey, in the Earth and Environmental Sciences department, at the University of Michigan. Her broad research focuses on understanding paleo-aridity in western U.S. lake systems. More specifically, she is among the first few trailblazers using the novel triple oxygen isotope application on carbonate archives.

Natalie Packard on the western shore of Bear Lake, Utah/Idaho; photo credit: Drake Yarian

Natalie's research on the Bear Lake, Utah/Idaho core investigates a large positive oxygen isotope ($\delta^{18}O$) shift moving from the Last Glacial Maximum to the present. This positive $\delta^{18}O$ shift is accompanied by a negative shift in $\Delta^{17}O$ (an evaporative signal indicator). However, initial clumped isotope thermometry revealed unreasonably high carbonate growth temperatures suggesting a minor detrital dolomitic influence was amplifying the isotopic signal. Through temperature stepped reactions and re-analysis she evaluates the detrital interference in both clumped and triple oxygen isotope measurements.

When Natalie is not in the lab, or out in the field, she enjoys spending her time kayaking, hiking, making collages, gardening, exploring with her adventure kitties, and cooking vegan meals.

Dr. David T. Long

Israel C. Russell Award

AWARDED FOR MAJOR ACHIEVEMENTS IN LIMNOGEOLOGY THROUGH CONTRIBUTIONS IN RESEARCH, TEACHING, AND SERVICE.

2021 Recipient: Dr. David T. Long, *Michigan State University*

Citation by Dr. William Lyons:

"It is both an honor and a great joy for me to introduce Dr. David T. Long as the 2021 Israel C. Russell Awardee for excellence in limnogeology. Although Dave has a broad and productive research portfolio including important contributions in medical geology and environmental geochemistry, the research area that he has maintained throughout his entire 40-year career has been in limnogeology. During those four decades, Dave, his students, and his many collaborators have worked on lakes in the Middle East, Africa, Australia, Mexico, and in the

Laurentian Great Lakes and smaller lake systems in his now home state of Michigan. Dave has published extensively on the sources, transport and fate of trace metals in lacustrine systems, on the partitioning of metals between solid sediment and pore fluids, and on the use of lake sediments as archives to document the role and timing of anthropogenic activities, especially land-use change and pollution history. Dave was a leader in NOAA's Undersea Research Program (NURP) in the 1980s and 90s, where he utilized submersibles to investigate lake processes and to obtain cores for paleolimnology studies. Dave also served on the NOAA-NURP planning committee for their Great Lakes of the World Program. He was the co-coordinator of Michigan State University's Yucatan Cooperative Water Initiative from 2012 until his retirement in 2019, leadership reflecting his important contributions on cenotes and groundwater-lake interactions in karst settings. His leadership and scientific contributions on Lake Tyrrell, a playa lake system in eastern Australia led to some of the first publications describing in detail the geochemistry and the hydrogeology of a contemporary acid groundwater-lake environment. His ability to integrate geochemical, hydrological, and ecological principles into his research has been an important attribute of his work.

"The energy and enthusiasm that he brings to the classroom and to the conference podium are well known"

In addition to his scientific acumen, Dave is a dedicated and accomplished teacher. The energy and enthusiasm that he brings to the classroom and to the conference podium are well known. He has also been an outstanding mentor of students to whom he brought his enthusiasm for Earth sciences. As a member of the society, since the late 1970s, and as a GSA Fellow, Dave has a long-time involvement and a lengthy service record to GSA.

Dave is an excellent choice for this year's Russell Award for his important, innovative, and long lasting contributions to the field of limnogeology. Congratulations, Dave."

A few words from Russell recipient Dr. David T. Long:

"Berry, thank you for the kind words and for reading the text I sent you so well. Seriously, being nominated for the GSA 2021 Israel C. Russell Award in Limnogeology by a very close friend, extraordinary colleague, and outstanding scientist and educator is humbling.

Professor Russell was an interesting fellow, although where he chose to be a professor may be considered suspect. His training in civil engineering allowed him to be engaged in various studies of lakes, rivers, and Quaternary history. He approached the history of lakes from a geological perspective. Consider his statement in his 1895 publication, *Lakes of North America: a Reading Lesson for Students of Geography and Geology:* "The history of a lake begins with the origin of its basin and considers among other subjects the movements of waters, the changes it produces in the topography of its shores, its relation to climate, its geological functions, its connection with plant and animal life, etc." My training in aqueous geochemistry has allowed me a similar diversity of studies, albeit from a chemical perspective.

"How I got involved in mud stories is like a pachinko machine in which a small steel ball falls through a maze of brass pins."

Lakes have another type of history, the stories in their mud. My stories have focused on a time span recording the antics of humans. How I got involved in mud stories is like a pachinko machine in which a small steel ball falls through a maze of brass pins. Hitting a pin changes its direction. Walking down the hallway one day, Bill Cooper from Zoology yelled out, "Hey Dave, do you want to go for a ride in a submarine?" That started the Laurentian Great Lakes studies, from below (Johnson Sea Link submersible) and above (US EPA RV Lake Guardian). Steve Eisenreich taught me the process of conducting historical mud research and things like

focusing factors, and Yu-Ping Chin, the how-to's of porewater work. Tim Wilson, my graduate student, was key in getting these studies off the ground including building a gimbal for our centrifuge, leading the way for further studies by grad students Judy Campbell, Adam Heft, Sang Jo Jeong, Jon Kolak, Jane Matty, Joe McKee, William Sitarz, and Jeffery Vought. When we moved to inland lakes of Michigan, we designed our own platform with support from the then Michigan Department of Environmental Quality. The coring device was from the recommendation by Tom Johnson, a past Russell Award recipient. John Geisy taught me sediment sampling for nasty organic chemicals. Key to the success of these studies were the huge efforts of Sharon Yohn, my graduate student, who designed the workflow (cruise to lab to thesis, dissertation, and/or publication) that was passed on to graduate students Merideth Benedict, Joel Fett, Colleen Jones, Matthew Parsons, Amanda Robinson, Sydney Ruhala, and Ryan Vannier.

"The journey was fun"

In sum, I am very honored to receive this award from the Limnological Division of GSA and would like to thank the chair, Kathy Benison for her support. I accept it on behalf of all who made this possible; my colleagues, my graduate students, the many undergraduate students that included my son Jonathan, who was studying at that other university, my wife Jean, and all the brass pins in my life. The journey was fun."

Events, News, & Opportunities

- The American Quaternary Association (AmQua) will be holding its 2022 Biennial Meeting in Madison, Wisconsin on 8-10 June 2022. The specifics of this meeting are being developed but the plan is for an in-person meeting with a virtual component. More information about the meeting will be shared on the AmQua website (https://www.amqua.org/) and through the AmQua listserv as it becomes available.

A look back at Short Course 503

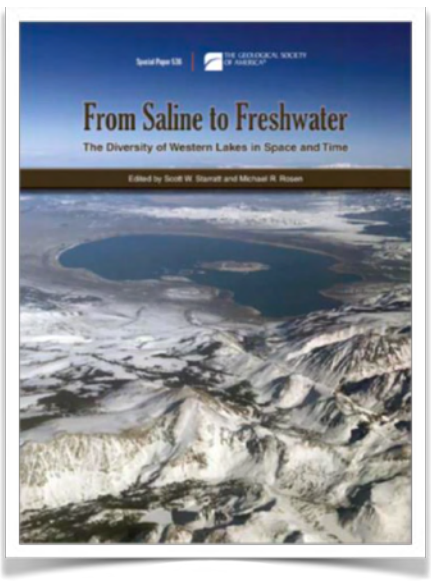
AGE-DEPTH MODELING OF SEDIMENTARY DEPOSITS

This was a virtual short course, endorsed by the Limnogeology Division, that took place over three sessions in September and was led by Maarten Blaauw, Amy Myrbo, and Lisa Park Boush. Participant Jason Price had the following to say about the short course:

"It was terrific. Convener Amy Myrbo and instructor Maarten Blaauw did excellent jobs with respect to content, pacing, and being receptive and responsive to participant suggestions and questions. It was overbooked with registrants and from my perspective it was a huge success."

As a follow up for those who attended this course, Limnogeology Division Vice Chair Jason Price has written a summary of the article "Current Practices in building and reporting age-depth models" by Lacourse and Gajewski, 2020, which provides a review of the literature and an evaluation of radiocarbon-based age-depth models. This summary can be found on Page 7 of this newsletter.

Recent Book Publications



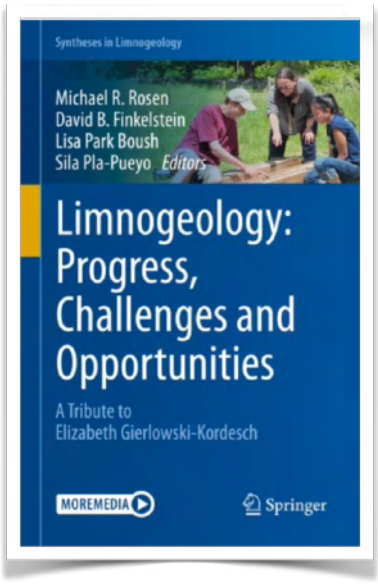
From Saline to Freshwater: The Diversity of Western Lakes in Space and Time

Editors: Scott W. Starratt and Michael R. Rosen

Brief Description:

"Beginning with the nineteenth-century territorial surveys, the lakes and lacustrine deposits in what is now the western United States were recognized for their economic value to the expanding nation. In the latter half of the twentieth century, these systems have been recognized as outstanding examples of depositional systems, which serve as models with global applications, and many may serve as harbingers of the twenty-first-century environmental change. The localities extend from exposures of the Eocene Green River Formation in Utah and Florissant Formation in Colorado, through the Pleistocene and Holocene lakes of the Great Basin, to lakes along the California and Oregon coast. The chapters explore environmental variability, sedimentary processes, fire history, the impact of lakes on crustal flexure, and abrupt climate events in arid regions, often through the application of new tools and proxies." - From geoscienceworld.com

ISBN Number: 987-0-8137-2536-9



Limnogeology: Progress, Challenges and Opportunities A Tribute to Elizabeth Gierlowski-Kordesch

Editors: Michael R. Rosen, David B. Finkelstein, Lisa Park Boush, Sila Pla-Pueyo

Brief Description:

"This book honors the career of Professor Elizabeth Gierlowski-Kordesch who was a pioneer and leader in the field of limnogeology since the 1980s. Her work was instrumental in guiding students and professionals in the field until her untimely death in 2016. This collection of chapters was written by her colleagues and students and recognize the important role that Professor Gierlowski-Kordesch had in advancing the field of limnogeology. The chapters show the breadth of her reach as these have been contributed from virtually every continent.

This book will be a primary reference for scientists, professionals and graduate students who are interested in the latest advances in limnogeologic processes and basin descriptions in North and South America, Europe, Africa, and China." - From springer.com

DOI: https://doi.org/10.1007/978-3-030-66576-0

Article Summary

"CURRENT PRACTICES IN BUILDING AND REPORTING AGE-DEPTH MODELS" (†LACOURSE AND GAJEWSKI, 2020)

The Limnogeology Division organized and offered a short course entitled, "Age-Depth Modeling of Sedimentary Deposits" offered in conjunction with GSA Connects 2021. As a follow up to this short course we offer a brief summary of Lacourse and Gajewski (2020) which provides a review of the literature and an evaluation of radiocarbon-based age-depth models. These authors used a completely conformable varved lake sediment core from Lac Noir in Québec, Canada with a dating density of 2 dates per millennium and a relatively smooth and linear age-depth trend. The findings of this study are summarized in the table below.

Age-Depth Model		Pros	Cons
2nd-order polynomial		• Best for mimicking long-term age smoothness • Better modelled ages and accumulation rates for lower dating density when changes in sedimentation rates are relatively low	• Underestimates accumulation rates and variability in accumulation rates
Clam	Linear interpolation	• Best for mimicking long-term age smoothness	• Over-estimates variability in accumulation rates
	Smooth spline	• Best for mimicking long-term age smoothness	• Over-estimates variability in accumulation rates
Bacon		• Best for encapsulating age uncertainty	• Over-estimates variability in accumulation rates • Reduced accuracy of modelled ages and accumulation rates for higher dating density when changes in sedimentation rates are relatively low

Lacourse and Gajewski (2020) report that each method has its merits and flaws and that the suitable model depends on dating densities, age scatter, outliers, changes in sediment type, and changes in sediment accumulation rates. For a given age-depth data set different models may be employed with the results rigorously assessed based on how well the model approximates the chronological data and satisfies other information. However, lacustrine sediment with one or more unconformities was not included in the study of Lacourse and Gajewski (2020). The paper reiterates the importance of not reducing individual ages to calibrated age estimates before modeling, avoiding long temporal gaps between ages by obtaining radiocarbon ages in batches, and not extrapolating beyond oldest and youngest ages. Whenever possible, radiocarbon dating should be performed on terrestrial macrofossils or charcoal rather than bulk sediment. At least two dates per millennium is optimal with two to three "range-finger" dates distributed throughout the core being obtained at the beginning of a study in order to determine the total number of dates needed for age modeling (Zimmerman and Wahl, 2020).

References

†Lacourse, T., and Gajewski, K., 2020. Current practices in building and reporting age-depth models. Quaternary Research 96, 28-38. http://doi.org/10.1017/qua.2020.47

Zimmerman, S.R.H., and Wahl, D.B., 2020. Holocene paleoclimate change in western US: The importance of chronology and discerning patterns and drivers. Quaternary Science Reviews 246, 106487. http://doi.org/10.1016/j.quascirev.2020.106487

Michael Rosen
photo credit Amy Myrbo

In Memory

Michael Robert Rosen, Ph.D.

(1961 -2021)

The following obituary can be found on the International Paleolimnology Association website:

"Michael Robert Rosen, of Carson City, NV, passed away April 27 at the Mayo Clinic in Rochester, MN, from complications following surgery for pancreatic cancer.

Michael was a Research Hydrologist at the United States Geological Survey (USGS) and Water Quality Specialist for Research with the California Water Science Center. Michael worked on both groundwater and surface water quality. He also studied paleoclimate, paleohydrology, and playas (seasonal lakes in desert regions). In addition, Michael was adjunct faculty at the University of Nevada, Reno's Global Water Center. In 2010 Michael was elected a Fellow of the Geological Society of America. He was author or co-author of numerous scholarly papers in his field of limnogeology, including most recently a book of essays he co-edited, *Limnogeology: Progress, Challenges and Opportunities* (Springer 2021), which was published two days before his death.

Previous employment included work at the Institute of Geological and Nuclear Sciences in New Zealand, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Perth, Western Australia, Curtin University of Technology also in Perth, and the Limnological Research Center at the University of Minnesota. Michael also did research for Arco Oil and Gas while pursuing his PhD at the University of Texas at Austin.

Michael Rosen
photo credit Amy Myrbo

Michael was born January 19, 1961 in Philadelphia, PA, the youngest of four sons born to David and Gloria (Uhlmann) Rosen. He was raised in Swarthmore, PA and attended public K-12 schools there. He lived abroad with his family during his father's sabbatical research leaves, in 1961-62 (Glasgow, Scotland), 1967-68 (Cambridge, England), and 1971-72 (Cork, Ireland). Michael was a competitive soccer player both in high school and as an undergraduate at Haverford College. After college he completed his MS at the University of Rochester (NY), his PhD at the University of Texas/Austin, and post doctoral research at the University of Minnesota.

Michael had passions for hiking, music and taking his family on birding adventures. He was an accomplished self-taught guitarist, singer and songwriter in the British folk tradition, and used to perform locally with his wife Laura accompanying him on violin when they lived in New Zealand. He was a loving and devoted father and husband, and a loyal brother who will be sorely missed by his family, his colleagues and co-workers, and indeed by anyone who had ever encountered his uplifting, cheerful and genial spirit.

Michael is survived by his wife of 29 years, Laura Gibson, his children Nick and Emma, and his three brothers (Carl, Ralph and Paul) and their families. A memorial service is planned for a later date. A memorial scholarship fund has been established in his memory at the Geological Society of America (GSA). Contributions to the Michael R. Rosen Research Award in Limnogeology can be made at this link: https://gsa-foundation.org/fund/michael-r-rosen-research-award-in-limnogeology/."

Thank you to Amy Myrbo, Scott Starratt, and Blas Valero Garcés for your contributions of photographs and words, you helped me get a real picture of Michael.

"If you were a friend, he was never too far away. In a world with increasingly narrowing individualistic views, more even in science where big egos are common, he maintained faith in common goals as a tool to do good science for better communities and world. You can almost sense the beauty of the birds and the sounds of the music he loved when you read some of his papers or you listen to his speeches"
~Blase Valero Garcés

Interview with Amy Myrbo

OF

Amiable CONSULTING

I had the pleasure of interviewing Amy Myrbo, founder and principal of Amiable Consulting. She talked with me about starting her company, the benefits of utilizing an evaluator, common mistakes people make when writing grants, and much more.

CAN YOU TELL US A LITTLE ABOUT YOURSELF?

My limnogeological focus is the geochemistry and sedimentology of small lakes, especially under human impacts. I like stinky, carbonate-producing lakes, but also do work in very fresh waters that grow wild rice. That work is in collaboration with Tribal resource managers. I was Chair and Vice-Chair of Limnogeology Division in the mid-2010s, and worked at LacCore/CSDCO at the University of Minnesota for 1000 years.

COULD YOU BRIEFLY SUMMARIZE WHAT AMIABLE CONSULTING OFFERS ITS CLIENT?

We help them get more NSF grants, with less stress. The most popular service we provide is writing an evaluation plan for the proposal, and acting as the external evaluator if the proposal is awarded. We also do a lot of work developing and improving Broader Impacts - the societal relevance aspects of the proposal that are required by NSF - especially around BA-JEDI (belonging, accessibility, justice, equity, diversity, and inclusion), which is by far the most important thing I feel we can work on. I also love doing "red team reviews" - the term comes from cybersecurity, I think, where part of the development team acts as hackers and tries to bring the system down. In the case of grant proposals, the red team reviews a draft of the proposal and aggressively picks at every weakness they can find, as if they were NSF reviewers having a bad day. It really alerts the writing team to structural problems, issues of clarity, and the "expert blind spots" that they don't always recognize while writing. We also do a lot of logistical support for faculty writing proposals - keeping big Zoom meetings on task, synthesizing budgets from multiple institutions, keeping a checklist of all the different documents needed for submission, acting as liaisons between the scientists and the grants administrators, and much more. All of these activities involve coaching. It's really fun.

WHAT SORT OF PEOPLE UTILIZE AMIABLE CONSULTING'S SERVICES?

We work primarily with geoscience and ecological science faculty, from a huge variety of institutions. There's a perception out there that only "rich" faculty at fancy institutions can afford to hire consultants to help with grant proposals, but we've found that many institutions recognize that faculty are overburdened, and that a small amount of money up front is a great investment to increase the likelihood of a proposal getting funded. The institution gets indirect costs as part of that grant, and those amounts are a couple orders of magnitude higher than what they pay us, so it's a good investment. We've found that all sorts of institutions have some funds to support their faculty in this way. Sometimes faculty use their startup or other unrestricted funds, but we encourage them to look to their institution first.

WHAT IS THE MOST COMMON MISTAKE YOU SEE INDIVIDUALS OR GROUPS MAKING WHEN PUTTING TOGETHER GRANTS?

Not responding explicitly to the NSF solicitation and PAPPG (Proposal and Award Policies and Procedures Guide, the big book of NSF rules). There's so much guidance in those documents, and proposers need to fit their great and creative ideas into the structures NSF has laid out for specific programs. The other mistake is thinking too narrowly about Broader Impacts – only proposing education projects, or grad student training. There are so many possible topic areas and ways to approach Broader Impacts, and so I encourage people to be creative.

CAN YOU TELL US YOUR VIEWS ON BROADER IMPACTS AND WHY THEY ARE/SHOULD BE A HIGHER PRIORITY FOR RESEARCHERS?

First and foremost, equity is a moral issue. We need to fix our culture and our institutions (including ourselves!) so that they are no longer hostile to people who are not cis-hetero White men. There's so much literature on structural racism and other kinds of bias in the academy, and so many amazing people - especially from minoritized groups - doing incredible work. But even as academics have become more aware and supportive, actions to move us forward are still a bit fringe, and meet lots of resistance, because of entrenched and self-perpetuating structures. We can do better! And NSF increasingly expects us to do better, which makes me really really happy. So that's the second reason: because better Broader Impacts will help you get more grants!!

WHERE CAN PEOPLE GO TO LEARN MORE?

You can learn more at myrbo.com (scan the QR code for quick access)

HOW CAN PEOPLE GET IN TOUCH WITH YOU?

You can always email me at amy@myrbo.com, request a consultation on my website, or find me IN PERSON as GSA in Portland and AGU in New Orleans.

FAVORITE BOOK?

Oh boy that's so hard! I'm terrible at reading nonfiction, but I really loved "The Warmth of Other Suns" by Isabel Wilkerson. I've just started reading her most recent, "Caste," which is also amazing. My favorite recent historical-fiction book is "The Night Watchman" by Louise Erdrich, about members of the Turtle Mountain Band of Chippewa and the fight against termination.

FAVORITE BAND/ARTIST/SONG?

My favorite band/artist is probably the Mekons, or maybe The Jazz Butcher (who just passed away a couple days ago, and I'm devastated). I also love Open Mike Eagle. I'm gonna say my favorite song is "Be My Friend, Mary Jo" by Wooden Wand, because I think it's just a perfect song. But so is "Outdoor Miner" by Wire. I worked at record stores for a few decades, so it's really hard for me to choose!

Fun & Games

ENJOY THOSE ENDLESS TALKS A LITTLE MORE WITH BINGO. PLAY WITH UP TO 3 FRIENDS, JUST DON'T SHOUT OUT BINGO!

Version 1/4

Speaker talks very fast	Typo/error on slide	Speaker ends early (green light)	Recorded talk	Slide with text too small to read
Joke that doesn't go over well	Someone stands up and leaves in the middle	Someone has the sniffles	Someone sleeping	Man-spreading taking up multiple seats
Speaker can't work the laser pointer	Technical Difficulties	FREE SPACE	Bearded speaker	Student with massive backpack sitting along the wall
cough	Someone scrolling through social media	"that is an interesting point I had not considered"	Diverse speakers (at least two POC presenting)	Covid is mentioned
Slide with only text on it	"No time for questions"	Someone working on laptop during talk	Overly complicated figure	Field work photos

Version 2/4

Speaker is too quiet	*cough*	Speaker ends early (green light)	Recorded talk	Someone working on laptop during talk
Joke that doesn't go over well	Someone stands up and leaves in the middle	Someone has the sniffles	Technical Difficulties	Man-spreading taking up multiple seats
Speaker can't work the laser pointer	Someone sleeping	FREE SPACE	Bearded speaker	Someone scrolling through social media
Typo/error on slide	"that is an interesting point I had not considered"	Student with massive backpack sitting along the wall	Speaker runs out of time, session chair cuts them off	Covid is mentioned
Slide with only text on it	Speaker is too loud	Slide with text too small to read	Overly complicated figure	Diverse speakers (at least two POC presenting)

Version 3/4

Speaker is too quiet	>3 people wearing flannel at a talk	Technical Difficulties	Someone stands up and leaves in the middle	Someone working on laptop during talk
Student with massive backpack sitting along the wall	Session chair asks a question	Cell phone goes off	Speaker is too loud	Joke that doesn't go over well
Man-spreading taking up multiple seats	Someone sleeping	FREE SPACE	Someone has the sniffles	Someone scrolling through social media
Joke that goes over well	"that is an interesting point I had not considered"	Overly complicated figure	Slide with only text on it	Talk outline slide
Speaker runs out of time, session chair cuts them off	Speaker ends early (green light)	Slide with text too small to read	Speaker can't work the laser pointer	Standing room only!!

Version 4/4

Man-spreading taking up multiple seats	>3 people wearing flannel at a talk	Technical Difficulties	Someone stands up and leaves in the middle	Cell phone goes off
Student with massive backpack sitting along the wall	Standing room only!!	Someone working on laptop during talk	Someone sleeping	Joke that doesn't go over well
Speaker is too quiet	Speaker is too loud	FREE SPACE	Someone has the sniffles	Someone scrolling through social media
Joke that goes over well	Slide with text too small to read	Overly complicated figure	Slide with only text on it	Talk outline slide
Speaker runs out of time, session chair cuts them off	Speaker ends early (green light)	"that is an interesting point I had not considered"	Speaker can't work the laser pointer	Session chair asks a question