



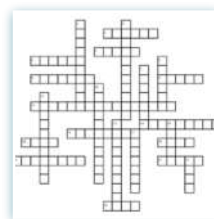
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THE MUCKREADER

Message from the Editor

Dear Limnogeologists,

Hello! How is everyone? Ready to get back out there and socialize? Or are you an introvert like myself slowly having to accept that social interactions will once again be required? *dread* Wherever you find yourself I hope you find this newsletter to be informative and that it brings you joy.

You might be noticing some changes to the Limnogeology Division newsletter. As the new Secretary of the Limnogeology Division I decided to shake things up a bit, well that and I found myself with some spare time and an excess of creativity. I hope the changes are to your liking, but if not... you will survive. I'll start with the name, I decided to give our newsletter an eye-catching name "The Muckreader!" But that's not a real word you might be thinking. Well, no strictly speaking it is not, but I think it is quite clever and let's be honest if you deal with lakes, you deal with muck!

*If you deal with
lakes, you deal with
muck!*

And besides "The Muckraker" sounded far too scandalous, I mean honestly how scandalous can lakes be? In addition to the new name and layout, I have also added a fun and games section at the end for when your brain needs a break but you still love lakes! We'll see how long this section lasts as it takes a surprising amount of time to create.

If you are still reading bravo! I am impressed. Gold star for you! I guess all I have left to say is, please enjoy the new format, there is tons of useful information, which I have attempted to present in as interesting a way as possible. If you ever have something you want to see in the newsletter, something you feel is missing, please reach out and let me know.

Enjoy,

Andrea



Message from the Chair



One thing I've realized recently is that there has never been a better time to be a limnogeologist. Modern lakes provide information about local and regional water quality, ecosystem health, and weather and climate influences. Deposits of ancient lakes record crucial clues about past environments, past life, and past climates. Lakes serve as a nexus of many Earth system interactions. As limnogeologists, we can help solve pressing problems with both our knowledge of lakes and our understanding of systems.

The study of lakes on other planets has had a boost from the Mars 2020 mission. The Perseverance rover landed in Jezero Crater, an ancient lake

basin, on February 18, 2021. "Jezero" even translates to "lake" in several eastern European languages. Perseverance will spend the next two years studying and sampling lake deposits before it makes its way out of the crater.

***"There has never
been a better
time to be a
limnogeologist"***

As I write this in late March, 2021, GSA is planning for an in-person annual meeting in October in Portland, Oregon with some of the activities also being offered remotely. The Limnogeology Division plans a big presence at GSA Connects and I encourage you to take advantage of the following Division activities, (discussed further on Page 3):

- pre-meeting short course
- co-sponsored field trip,
- several division-sponsored technical sessions
- exhibit hall booth
- business meeting/awards ceremony

One of our technical sessions, Out of This World Lakes, will showcase some cutting-edge research by our limnogeology community about Mars' and Mars-analog lakes, as well as other lakes of the solar system.

I look forward to seeing you at GSA Connects 2021,

Kathy Benison

Limnogeology Division Chair, West Virginia University



Artist's rendition of Lake Jezero on Mars, as it appeared ~3 billion years ago. This now empty crater is currently being explored by the Perseverance rover. Image courtesy of NASA/JPL-Caltech.

Limnogeology Division @ GSA

Sponsored Technical Talks/Poster Sessions

Consider one of the following when trying to decide where to submit your work for GSA Connects 2021, **Abstract deadline is July 20, 2021:**

- “Lacustrine systems around the world”
- “The diversity of Cenozoic western North American lakes”
- “Out of this world lakes”
- “Paleoclimate and paleoenvironment of northwestern North America”
- Sigma Gamma Epsilon student poster session

Co-sponsored field trip:

“A volcanic tour of central Oregon: Newberry volcano geothermal scientific drilling and Fort Rock geoarcheological sites”

Limnogeology Division Short Course

Age-Depth Modeling of Sedimentary Deposits

Students and beginners welcome! Your own age dates are not required.

Course Sponsors: Limnogeology Division, Geochronology Division, Continental Drilling Division, Quaternary Geology and Geomorphology Division, Sedimentary Geology Division, EarthRates RCN

Course Format: VIRTUAL

Dates: Wednesday September 15, 22, 29 (10-12 MDT; 12-2 EDT)

Course Length: 6 hours (3 x 2 hour sessions)

Cost: \$30 registration

Description: Chronologies form the backbone of most studies of past environmental change; only when put on a calendar time-scale can the timing and spatiotemporal dynamics of sites and events be inferred securely. Different approaches to age-depth modeling of sedimentary deposits can result in different estimates of ages, rates of change, and uncertainties. Although classical linear interpolation appears to reconstruct very precise age-depth models, Bayesian approaches produce more realistic uncertainty estimates. **In this workshop, we will cover the basics of dates (e.g. Pb210, C14) and classical and Bayesian age-models, and allow for participants to work on age-depth models for their own sites.** Participants will be familiarized and trained in age-modeling for sediments, particularly those from sediment cores.

Course Leaders: Maarten Blaauw (University of Belfast); Amy Myrbo (Amiable Consulting); and Lisa Park Boush (University of Connecticut)

Opportunities

Coronet Workshop

Do you core lakes? Are you interested in becoming part of a dynamic **network** of people who study and core lakes? We will be hosting a **workshop** to develop the groundwork for this type of network in June, 2021. This will be a Limnogeology Division @ GSA **VIRTUAL WORKSHOP** organized and sponsored by Earthrates RCN and the Limnogeology Division. Goals for the workshop will be to develop working groups focusing on best practices for core and data collection and analyses, instrument calibrations and troubleshooting, resources (where to buy and how to do), interlab comparisons using lake studies in education and outreach.

If you have questions or are interested in participating in this workshop, please contact Lisa Park Boush at (lisa.park_boush@uconn.edu). More information will be sent to you about this in the coming weeks via GSA Membership communication.



Free social media plug!!

Our fall 2021 newsletter will spotlight lake/ lake adjacent social media and will be distributed at GSA!



If you have a social media account discussing lake related content let us know! have a blog? Let us know! Is your twitter account full of limnological goodness? We want to know and tell others! Lake tiktokers... ummm yes please! Alternatively, if you follow any amazing lake accounts you feel deserve recognition please let us know so we can spread the word.

Not restricted specifically to the body of water, oh no... Lake organisms? yes please! Weather's impact on lakes? sure! Literally anything related to lakes is fair game.

Email shilling.andrea@gmail.com with all your favorite limnogeological social media. **Shameless self promotion welcome!!**

Lake of the Week



The Limnogeology Division *facebook and twitter accounts* will be starting a "Lake of the week" series. Do you have a lake worthy of the title? Send us your favorite lakes, lakes you study that you think are cool, let the world know which body of water has your heart. Email suggestions to Lisa Park Boush (lisa.park_boush@uconn.edu)

Meet the Officers*

Chair



Name/Pronouns: Kathy Benison, she/her/hers

Education: Bridgewater State College, B.S.; Binghamton University, M.A., University of Kansas, Ph.D.

Current University: West Virginia University

Current Research: Acid saline lakes in Western Australia; Permo-Triassic red beds and evaporites; Mars sample return

Favorite Big Question: What are water-mineral-weather/climate-microorganism interactions in extreme environments?

Favorite Geologic Event: Pm-Tr drying and warming of Pangea

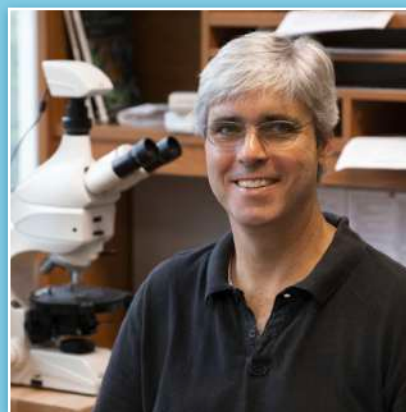
Most Important Field Tool: A bucket for carrying Sharpies, ziplock bags, camera, pH meter, etc. across shallow salt lakes

Favorite Lake: Lake Aerodrome, near Norseman, Western Australia

Message to the People: Lake people are nice and fun. Come say “hello” at our Limnogeology Division booth and join us at our business meeting/awards reception at the GSA Annual Meeting

Email: kathleen.Benison@mail.wvu.edu

Vice Chair



Name/Pronouns: Jason Price, he/him/his

Education: Northern Illinois University, B.S.; Michigan State University, M.S. and Ph.D.

Current University: Wayne State College

Current Research: Phosphorus dynamics in the remote wilderness lakes and watersheds of Colorado.

Favorite Big Question: How to best quantify chemical transfers at the Earth's surface

Favorite Geologic Event: Younger Dryas Stadial

Most Important Field Tool: Ice auger

Message to the People: Don't be afraid to let science take you into unfamiliar (and uncomfortable) research directions and to seek collaboration

Email: japrince1@wsc.edu

Secretary/ Newspaper Editor



Name/Pronouns: Andrea Shilling, she/her/hers

Education: Franklin & Marshall College, B.A., Rutgers University, M.S., Indiana University, Ph.D.

Current Job/University: None, if you know of an opportunity in the Pittsburgh PA area let me know!

Current Research: TBD, life has thrown me a curve ball and I am rolling with it the best I can.

Favorite Big Question: How could this be improved or made more efficient?

Favorite Lake: Lake Tekapo in New Zealand because it is stunningly beautiful or Lake Nyos in Cameroon because it is a burping death-lake

Message to the People: (1) Be kind to each other (2) Things rarely go as planned and that is okay.

Email: shilling.andrea@gmail.com

Treasurer



Name/Pronouns: David Finkelstein, he/him/his

Education: University of Massachusetts, B.A., M.S.; University of Illinois, Ph.D.

Current University: Hobart and William Smith Colleges

Current Research: Controls on the chemical evolution of till-derived waters

Favorite Big Question: Did the wetting and drying cycles of the earliest lakes catalyze early life?

Favorite Geologic Event: The transition and biogeochemical response of lake sediments from overfilled to underfilled conditions.

Most Important Field Tool: Hand lens and baked aluminum foil for sampling

Favorite Lake: Anderson Lake, OR

Message to the People: Join us in bringing modern and ancient lake science into focus

Email: finkelstein@hws.edu

Past Chair



Name/Pronouns: Lisa Park Boush, she/her/hers

Education: College of Wooster, B.A.; University of Arizona M.S and Ph.D

Current University: University of Connecticut

Current Research: Lake Tanganyika Drilling Project; Bahamas saline lakes; Cenozoic lakes of the Western Interior

Favorite Big Question: What drives diversity dynamic?

Favorite Geologic Event: PETM

Most Important Field Tool: Custom made Jacob staff

Favorite Lake: Lake Erie

Your Message to the People: Lakes are more than just a facies

Email: lisa.park_boush@uconn.edu

Graduate Student Representative



Name/Pronouns: Elena Robakiewicz, she/her/hers

Education: Oberlin College, B.A.; University of Connecticut, M.S

Current University: University of Connecticut and Universität Tübingen

Current Research: Paleoclimate in Africa related to human evolution and migration. My current field sites are in Angola and Kenya.

Favorite Big Question: How has climate impacted human evolution and societies?

Favorite Geologic Event: I love watching paleogeography reconstructions of India speeding into Asia and forming the Himalaya.

Most Important Field Tool: It may not be the most useful overall, but I love my Opinel foldable knife.

Favorite Lake: Wangumbaug (Coventry) Lake, Connecticut

Message to the People: I am the graduate student representative for limnogeology! I'm so excited about starting this position! Please reach out to me if you have any questions/ideas/concerns regarding the limnogeology division of GSA. I'm excited to be a part of this community!

Email: elena.robakiewicz@uconn.edu

Undergraduate Student Representative



Name/Pronouns: Mackenzie Eskey, she/her/hers

Education: Currently working towards a double major in Biology and Earth Science.

Current University: Wayne State College

Current Research: Controls on water chemistry of The Lock, a subalpine lake in Rocky Mountain National Park

Favorite Lake: Berkeley Pit, Montana

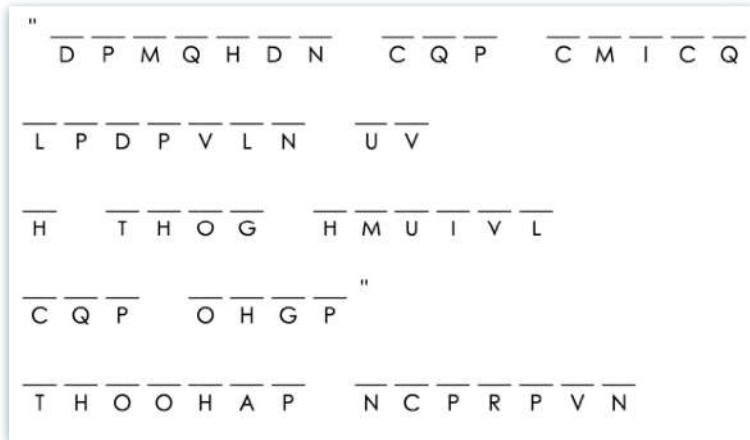
Message to the People: I am the undergraduate student representative. While I am new at this, please feel free to ask me any questions!

Email: maeske01@wsc.edu

* **For officers' complete
contact information go to:
Limnogeology Division website
—> About Us —> Officers**

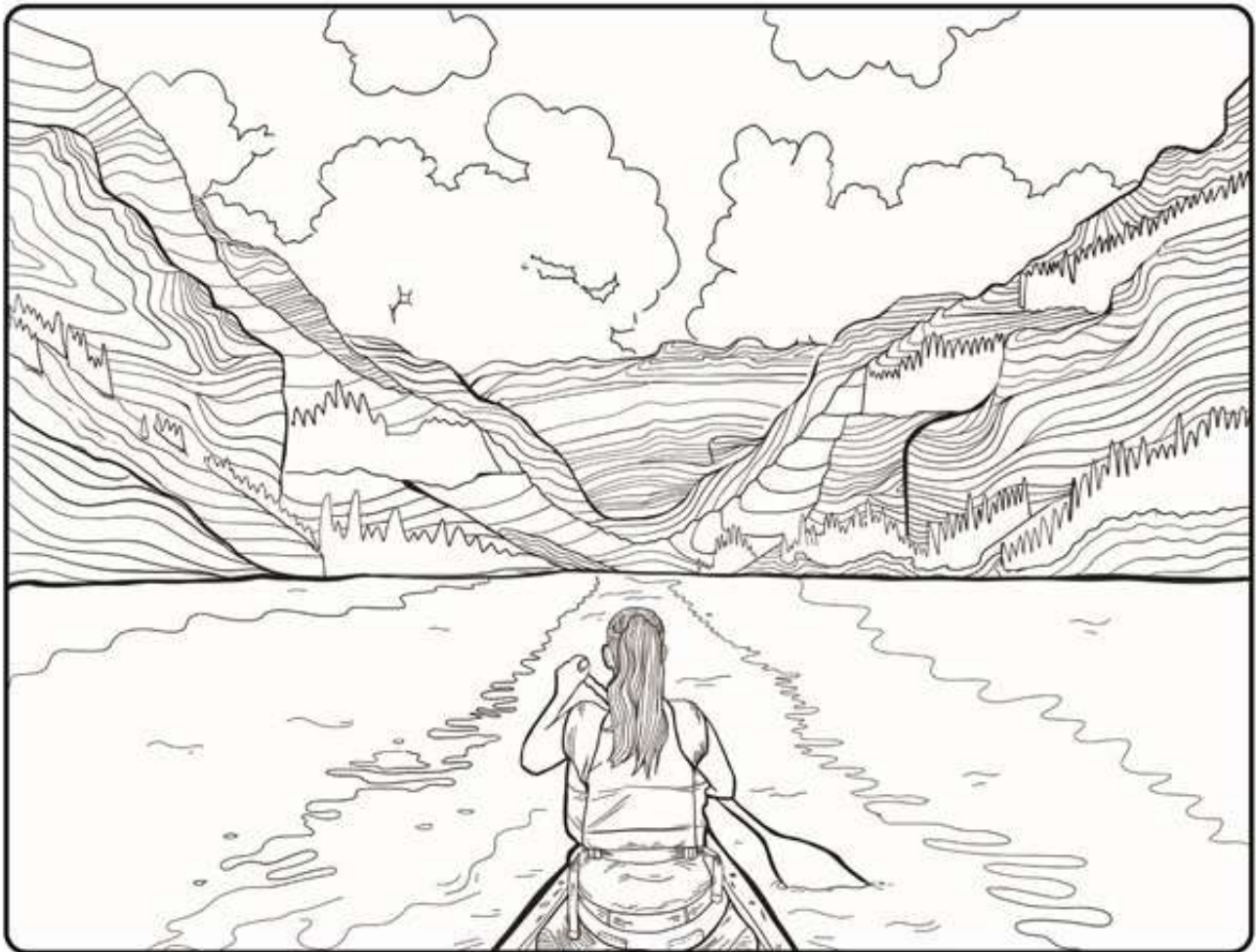
Fun & Games

Because everyone's brains could use a break now and then, here is some lake-themed enjoyment. A new version will be included in our fall 2021 edition and available at our GSA booth, spoiler there might be a GSA talk BINGO card so be sure to stop by and get yours before they are all gone!



Left: Cryptogram created using the Cryptogram Puzzle Generator on Super Teacher Worksheets
(www.superteacherworksheets.com)

Below: Lake Louise, Canada coloring page from Crayola.com



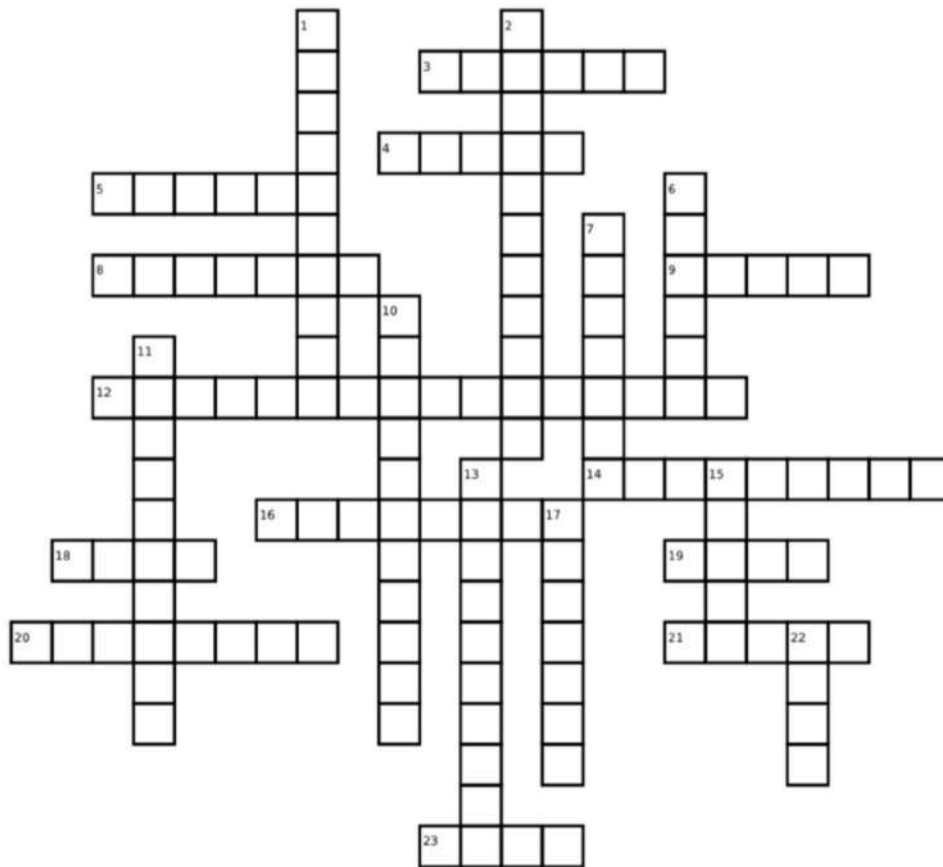
Some Types of Lakes

V M K X M N O Z N D W C W A M B J Z P E R E N N I A L N E R
K E G V D Y L A P I A T E W O L J D U F Q W T A N T U J W C
S S I A Z O V V I O E V J R X O P B K X V O P G M U J W F U
H O L P T O P D T T A J E D G V X B F Y J N P U J I V I S H
H T S C V V T W R Y I G A C G R R A S P D O G B A D C Y A E
H R A W Q V U R Y A N T H R O P O G E N I C M J C A G T Q L
V O C Y T E F L K V I R L H M K Z U F U S K U E I R B Z I I
X P J L A P E J U U E R N D Z O M W C V F G P X D Y A F O C
Q H P O L Y M I C T I C P C O J N G Z U Q V F N X L S I O P
F I T Z W L F Y C E M Q D Y L F Q O Q P G M T K X V C N D Z
U C P F X L A N D S L I D E I S M N M E D H T S X N P G Q E
E P H E M E R A L C Y W Y D G A A E E I A E O L I A N E M E
F N E D Z E F R A H O K J P O T J L T O C V K V Z F Q R F I
G S Y Q E K L B Z M P P S F T O Q G T E F T U R I K U V B Z
D X C A V C V Z Y S M X G Z R X B A K O M J I E X L H U B H
O M E R O M I C T I C B H P O O O K W K O W D C S A H X V J
L J M Q A N N D E L K B L H P C K M U F L G W N Q Q A I I F
Y L Z M G T P P L A Y C C J H O X B O W S F G Y X A F I W R
A N N G L L E M T S A A P J I H C W R C F K G E P C L H E F
C Q W L U I A R T E I Y I O C C N P X C G L C F C J R D R S
A Y B T I C S C P S C X P P U W O S L M W U F C P C I F Z G
S Q R O N G K O I A W T C E U T R O P H I C X V X A C G Q R
M B S M F E D E L A L Y O X G T G D I M I C T I C G U L K V
F R G F R X W A R O L E P N V N L S H O R E L I N E C F O I
D D D H A T Y P B I Y W O Y I Z N B P L A Y A K H V F K M K
H K X C J K H D O J X T K R P C S I K X S S Y Z R P X B A F
B I Q G G P L Z V H O L O M I C T I C H R L E O S J D S U F
K F Y E F E Q E P R M J P E G S M J Q Y V J B B Y M F F R N
M T C R V V U T W Q G C M J Z V U I P X U R M V B Y Y U E I
G T N J E H Y H Y P E R T R O P H I C V O L C A N I C O M W

anthropogenic	hypertrophic	oligotrophic	mesotrophic
monomictic	polymictic	holomictic	meromictic
eutrophic	perennial	landslide	ephemeral
shoreline	dimictic	tectonic	volcanic
aeolian	glacial	amictic	crater
finger	playa	paleo	oxbow
acid	salt		

(Word find created at [education.com/worksheets/word-finds](https://www.education.com/worksheets/word-finds))

Crossword Puzzle



Down:

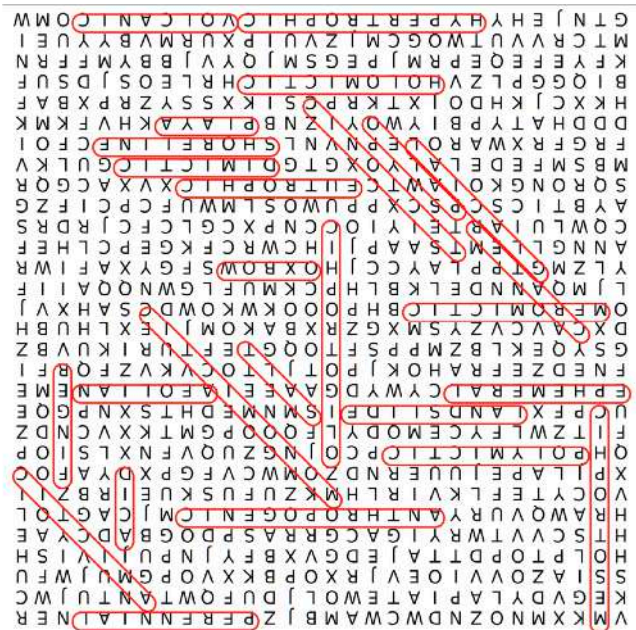
1. steep concentration gradient separating layers of water with different chemical compositions
2. layer of water mixed by the wind
6. nature's pond maker
7. plastic pellets commonly found on the shores of the great lakes
10. low nutrients in nutrients
11. longest lake
13. the measurement of depth of water in oceans, seas, and lakes
15. lake edge
17. glass algae
22. black and white bird with a crazy call

Across:

3. largest lake by volume
4. tall feathered friend
5. name of the crater/ancient lake bed where Mars' latest visitor's landed
8. ____ Pond is the saltiest lake on earth (according to Wikipedia)
9. Lake superior's special stone
12. a.k.a. brian eating amoeba occasionally found in southern US lakes
14. better have this on a sunny day on the lake
16. City of GSA connections 2021
18. small lake
19. lake transport
20. mixes twice a year
21. mystery mammals of Lake Baikal
23. Lake ____ = burping death lake

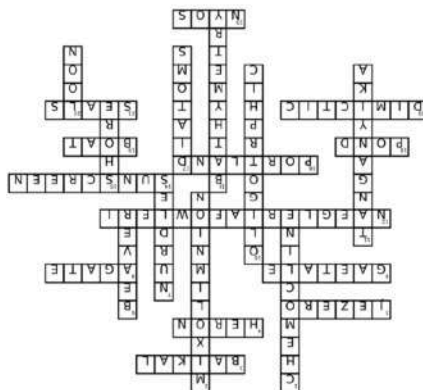
(Crossword puzzle created at [education.com/worksheets-generator](https://www.education.com/worksheets-generator))

Answer Keys



" F E R H A F S I H E I R U I H
D P M Q H D N C Q P C M I C Q
D E E N D S U V
H W A L K A R O U N D
I H E L A K E " C Q P
T H O L A C E S I E V E N S
H O O H A P N C P R P V N

- Down:
1. steep concentration gradient separating layers of water with different chemical compositions
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Crossword Puzzle