The purpose of the Society is to forge partnerships among citizens, scientists, and professionals to foster the management and protection of lakes and reservoirs for today and tomorrow.

Forging partnerships is central to NALMS’ mission and one of our key partnerships will be highlighted during the last week of March as NALMS facilitates the 11th National Monitoring Conference. The National Monitoring Conference is hosted by the National Water Quality Monitoring Council (NWQMC), a subcommittee of the Advisory Committee on Water Information (ACWI). The NWQMC is made up of a number of federal, state and local agencies along with select nonprofit organizations, including NALMS. Typically held in even-numbered years, NALMS has facilitated the National Monitoring Conference on behalf of the NWQMC five times since 2006.

The 2019 conference will be held in Denver, Colorado and all water stakeholders—including federal, state, tribal and local water professionals, nonprofits, academia, and volunteer citizen scientists—are welcome at this important national forum.

Attendees will have opportunities to network and create new relationships, exchange information on topics relevant to all water resources, as well as to develop new skills and learn about the latest technologies and techniques. All water resources, including lakes and wetlands, rivers and streams, coastal waters and estuaries, groundwater, and processed water, will be represented. The conference attracts professional papers and posters that run the gamut from monitoring and assessment to protection and restoration, as well as cutting-edge technologies and methods.

### 11th NATIONAL MONITORING CONFERENCE
**Working Together for Clean Water**

March 25–29, 2019  
Denver, Colorado
“Mirror, Mirror” by Mark Howarth.

Mark’s photo was an entry in the 2018 NALMS Photo Contest held at the Cincinnati Symposium. The 2019 contest will be held at the Burlington Symposium. Look for your opportunity to enter this summer.

You shop. Amazon gives...to NALMS

You shop on Amazon right? Well now you can help NALMS at the same time with AmazonSmile. When you shop at smile.amazon.com you still get all the same low prices and wide selection you’ve come to expect from Amazon. Only now 0.5% of your purchase price can go to NALMS. The average online order these days hovers around $70. So on average about 35¢ per order could come to NALMS to enhance our programs and further our mission. That may not sound like much but every penny can make a difference. And when you add those pennies up, say, over 1,000 NALMS supporters making two purchases a year, the total comes to $700. Not too shabby. Now imagine those 1,000 supporters got a couple of friends to join in as well. Now we’re rolling at $2,100. You can help us get going by getting set-up today – here’s how:

2. Log into your account or create a new one.
3. Look up and select “North American Lake Management Society” when prompted.
4. Shop until you drop.
5. And don’t forget to tell your friends and family!
Like me, many of you experienced the recent polar vortex – where some of the coldest Midwestern and east coast temperatures were recorded. While the polar vortex is not a new phenomenon (the first noted in historical lore occurred in 1853), the most recent instability of the normally tight spiral of cold air around the north and south poles sent many of us heading to indoor pursuits rather than attempting any of our previously scheduled field monitoring. Many Great Lakes enthusiasts were bolstered by these freezing temperatures as they pushed Great Lakes ice coverage to over 39%. However, the swift retreat of the polar vortex over this past weekend created a surge in unseasonably mild air generated a temperature swing of more than 60 degrees in much of the Midwest and northeast. Great Lakes ice is holding on across the basin; however, ice coverage dropped to under 30% coverage across the great waterbodies in the warming temperatures. Frost quakes, ice dams, and flooding are common with these rapidly changed conditions.

A recent National Geographic publication from Alejandra Borunda highlights the vibrant ice fishing culture surrounding the Great Lakes and much of the upper Midwest and northeast. Ice fishing is a multi-million dollar business with more than 1.5 million people engaging annually. With recent data highlighting winters warming faster than other seasons and data suggesting that Michigan has warmed by 1 degree since 1951 and Minnesota warming by 3 degrees over the past 40 years, the ice fishing culture will be impacted. Ice cover days continue to decline across the Great Lakes (down 71% since 1974) and our inland lakes are affected as well. While many of our inland lake species hibernate during the cold winter months, some phytoplankton and zooplankton species spring to life once a lake freezes over. While many are researching at the impacts of limited ice depth and shortened ice cover, the impacts on lake biota continue to be impacted by these changing conditions. Additionally, and more personally, the sense of community that arrives when a lake is frozen is phenomenal – the barriers to access the waterbody fall away when you don’t need a boat to get out on the water. The comfort afforded by the thick blanket of ice once associated with our inland lakes provides potentially a false sense of safety – here in Indiana our Conservation Officers have rescued a record number of individuals tempted to venture out onto unsafe ice. The connection our lake communities have to their local waterbody will continue to be affected by these changing conditions.

While we can adapt to these rapidly changing climatic conditions by rescheduling field work or using our observation skills to avoid unsafe conditions, many of our federal, state and local partners were impacted by the record length government shutdown. While many of our federal partners were furloughed, their work laid fallow falling behind on sample collection, data analysis and reporting and more. Grant funding for many of our important lake and watershed sampling and restoration efforts will likely be impacted by these changing conditions setting moving targets for many of our partners. And closer to home, the National Water Quality Monitoring Council conference planners continue to work through attendance approval processes with our state and federal partners. We hope to have more information about the conference and its planned program in the next week. ✨
**News From Our Affiliates**

**Pennsylvania Lake Management Society (PALMS)**

PALMS is pleased to announce the selection of 5 projects to receive $79,000 in funding. These selected projects for 2019 will improve shorelines and manage invasive species for the betterment of lakes within Pennsylvania.

**Lake Alden – Hydrilla**
The Lake Alden Association and adjoining property owners are working with the Wayne County Conservation District to control the spread of *hydrilla* in Lake Alden (Long Pond). *Hydrilla* was identified in the lake in 2016. This project adds to the existing Lake Alden Aquatic Plant Management Plan for managing *hydrilla* with monitoring, control, and outreach components.

**Chapman Lake – Shoreline Improvement**
Chapman State Park is located in Pleasant Township, Warren County. The park contains 68-acre Chapman Lake popular for fishing, swimming, and boating. The Bureau of State Parks works with the Pennsylvania Fish and Boat Commission to manage lake habitat, and a fisheries biologist assessed the shoreline of Chapman Lake to identify critical points of erosion that will be addressed in this project.

**Harveys – Lake Hydrilla**
The Borough of Harveys Lake in Luzerne County is working toward eradicating the highly aggressive, invasive species *hydrilla* in Harveys Lake. This project will expand the management program expected for 2019 efforts.

**Kyle Lake – Shoreline Improvement**
Kyle Lake is a 165-acre lake in Jefferson County owned and operated by the PA Fish and Boat Commission. Specific sites of previously degraded shoreline from human foot traffic and vehicle usage will be remedied by building shoreline deflectors that protect the sites.

**Pine Run – Water Chestnut**
Upon identification of European water chestnut in the Pine Run impoundment in 2018, an aquatic invasive species rapid response was organized by the Mercer County Conservation District. Local volunteers attempted mechanical control via hand-pulling, but were unsuccessful due to the size of the infestation. This project will allow for a post-emergent herbicidal application to assist with control efforts.

**New York State Federation of Lake Associations, Inc. (NYSFOLA)**

NYSFOLA is gearing up for another season of the Citizens Statewide Lake Assessment Program (CSLAP) in partnership with the New York State Department of Environmental Conservation. More than 400 volunteers will collect samples from nearly 190 sites as part of the 2019 field season.

Check out our new website! [www.nysfola.org](http://www.nysfola.org). This one should be much more user friendly and easier to maintain. CSLAP reports are available on the site, and the new and improved search feature makes them easier to find.

We are also preparing for our annual conference May 3–4 at the Fort William Henry Hotel and Conference Center in Lake George. We hope to have around 300 attendees this year, and we thank the Lake George Association for their use of the Floating Classroom for CSLAP training.

Questions? Contact Nancy Mueller fola@nysfola.org (800) 796-3652.

**California Lake Management Society (CALMS)**

**Webinar: Lake ice dynamics and how that may impact ecology and/or water supply**

Join Tim Caldwell, PhD on Wednesday, March 6 from 12:00 – 1:00 pm PT, as he discusses how mountain lakes are likely to be highly effected by climate change due to the faster rate of warming at higher elevations.

Login: [https://mccenv.my.webex.com/mccenv.my/j.php?MTID=m65c4b485378e506230d6dab3dda18e1f](https://mccenv.my.webex.com/mccenv.my/j.php?MTID=m65c4b485378e506230d6dab3dda18e1f)

Call in: 510-338-9438

Access code: 299 336 460

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**Submit Your Affiliate News**

Let us know what your NALMS affiliate is up to! State and provincial lake management groups do fun and interesting things. Let NALMS and others know what you are up to. You spend a large amount of volunteer time to put on great events, might as well share them. Send your news to us at nalmsnotes@nals.org.
The Illinois Lake Management Association’s 34th annual lake conference is being held at the Holiday Inn Conference Center in Crystal Lake on March 14-16, 2019. This conference will feature over 30 experts presenting on various lake and watershed topics. The technical presentations will occur over two full days; the workshops will be split between the second and third day. Come take advantage of the opportunity to learn and network with persons throughout the industry. For full registration information please see our website at: www.ilma-lakes.org

This year’s keynote speaker is Dr. Gerould Wilhelm. Dr. Wilhelm’s career has included 22 years as a researcher at the Morton Arboretum and 20+ years as the owner of the Conservation Design Forum. Additionally, he is a founding member of the Conservation Research Institute (CRI). The CRI is a private, 501(c)(3) organization established in 1997 and is dedicated to the promotion of planning, design, installation restoration, and long-term management of sustainable ecological systems in built and natural environments through applied research, education, and outreach. Dr. Wilhelm is a renowned botanist and is the ‘Wilhelm’ in the duo of Swink & Wilhelm (a reference for any amateur or professional botanists working in the Chicagoland area). Come hear his talk on the influence of water within our landscape, how it has the power to both physically shape our environmental and the perception of our living spaces.

The registration fee for this year’s conference includes lunch on Thursday and Friday, an exhibitor reception and dinner on Thursday evening, as well as all conference materials. The registration fee is $150 for current ILMA members or $170 for non-members. Special rates: $120 for representatives of home owner associations and to full time students. The Saturday workshops can be attended with or without registration to the full conference at a fee of only $30.

Be sure to register soon as conference/workshop and hotel availability are limited. Payment can be made by check (mail) or via PayPal through the website. Cancellations will be subject to a $20 service fee up until March 1, 2019, after which no refund will be available. See our website for the most up-to-date information: www.ilma-lakes.org.

Conference attendees will be provided a special rate of $92 per night at the Holiday Inn (815-477-7000) 800 South Route 31, Crystal Lake, Illinois. Be sure to notify the hotel when making a reservation.

Professional Development Hours (PDHs) will be provided for those guests who attend either the 2-day conference sessions and/or the workshops; 10 PDHs for the conference sessions, 4 for attending one of the workshops. IEPA Class ID numbers will be provided for operator certification.

Technical sessions, including Dr. Wilhelm’s keynote address, will be held on Thursday and Friday. All workshops will be on Saturday. Most sessions will run in concurrent pairs. The sessions are 90 minutes long, typically with three separate presenters; however, some will be in a panel format. A full program guide with presentation times will be released soon.
Thank You for Your Donations to NALMS!

We'd like to thank all of the members and friends of NALMS who have donated to the organization recently. We've received donations in response to our end-of-year giving campaign, by members adding donations to their membership renewals, purchases through AmazonSmile, and Facebook donation campaigns. We know that a lot of organizations seek donations at the end of the year and your donations to NALMS, whatever the amount, are important to us and are greatly appreciated!

NALMS 2018 Annual Report Coming Soon

We are in the process of putting the final touches on what we believe will be NALMS' first ever annual report. An annual report gives the opportunity to reflect back on our accomplishments of the previous year. We hope that this report marks the first in an annual tradition of engaging with our network to celebrate our successes and highlight our future targets. Look for the report soon on the NALMS website.

Not a NALMS Member? It’s Easy to Become One. Join Today!

NALMS Notes & Lake News is free for everyone, but only NALMS members can have LakeLine Magazine and Lake and Reservoir Management delivered to their mailboxes 4 times a year. NALMS members also receive discounts on publications and conference registration.

Joining is easy! Visit our website to get started.

Consider a Donation to NALMS

You can donate at any time by simply visiting the NALMS website at www.nalms.org/donate-to-nalms/.

Eberhardt Memorial Student Fund

Supports travel grants for student presenters to attend the Annual Symposium.

G. Dennis Cooke Symposium Fund

Supports NALMS' effort to facilitate the exchange of information on managing lakes and watersheds.

Lake Givers Club

Contributions to the Lake Givers Club support NALMS' educational publications, programs and operations.

Secchi Dip-In

Contributions support the operations of the Secchi Dip-In citizen science program. 🌟
NALMS Seeks Conference Coordinator

The North American Lake Management Society is seeking letters of interest from individuals interested in transitioning into the role of conference coordinator for the organization. The selected individual will work in tandem with the current conference coordinator through the 2021 symposium to become integrated into the existing conference framework. It is anticipated that the next coordinator will have experience with a past NALMS symposium local organizing committee and other basic knowledge of conference planning and execution. The conference coordinator will work in close conjunction with local organizing committees and the NALMS conference committee to continue NALMS’ history of successful, enjoyable and informative symposia. The conference coordinator’s primary areas of responsibility will be in site selection, budget preparation, facilitating exhibitors, and negotiating/contracting conference facilities, hotel rooms, food and beverage service, audio visual and decorating services for the annual NALMS Symposium and the biannual National Water Quality Monitoring Conference.

As a volunteer-led organization NALMS is highly dependent on 2 sources of revenue; membership dues and conference registration. While the Board of Directors is working to reduce the importance of conference revenue to the overall budget, it remains a driver in the society’s viability. As such, budgeting and adherence to spending restraints can add significant challenges to this position.

The target for NALMS is to begin planning conferences 3 years in advance, as such the coordinator would be involved in some aspect of planning 5 conferences in any given year. It is anticipated that in addition to the full week of the NALMS Symposium and full week of the (biannual) National Water Quality Monitoring Conference the position will require 3–6 additional days of travel to potential conference locations every year.

NALMS provides an annual stipend of $12,000 in addition to travel expenses (e.g., meals, lodging and transportation). The selected individual will receive travel assistance and 25% of the stipend ($3,000) during their first year (July 1, 2019 – June 30, 2020). It is expected that during the first year the selected individual would attend the 2019 NALMS Symposium in Burlington, Vermont as well as be copied on all correspondence between the current NALMS conference coordinator and the conference facilities (hotel, meeting venue, exhibition hall, etc.). The selected individual will receive travel assistance and 50% of the stipend ($6,000) during their second year (July 1, 2020 – June 30, 2021). It is expected that the selected individual will assist with negotiations with 2020 conference venues, as an observer, while taking the lead on venue negotiations and selection for the 2021 conference. The selected individual will receive the full stipend and travel assistance starting in their third year (July 1, 2021 – June 30, 2022).

NALMS is asking that individuals interested in the conference coordinator position commit to the position for at least 5 years (July 1, 2021 – June 30, 2026).

Those interested in being considered for the position should send a letter/email to Shannon Brattebo (Shannon.Brattebo@tetratech.com), NALMS Conference Committee Chair by April 15, 2019. In the letter you should briefly indicate your past participation in conference planning, NALMS conferences, and visions for successful conference execution. The NALMS Conference Committee will review all letters of interest and make a recommendation to the NALMS Executive Committee.
Conferences & Events

倌 Virginia Water Conference
Virginia Lakes and Watersheds Association
March 4–5, 2019 • Richmond, Virginia
_school executive editor_ www.vlwa.org

倌 Pennsylvania Lake Management Society 29th Annual Conference
Pennsylvania Lake Management Society
March 6–7, 2019 • State College, Pennsylvania
_school executive editor_ www.palakes.org

倌 16th Annual International Rainy-Lake of the Woods Watershed Forum
Lake of the Woods Water Sustainability Forum
March 13–14, 2019 • International Falls, Minnesota
_school executive editor_ lowwsf.com

倌 Montana Lakes Conference
Whitefish Lake Institute
March 13–14, 2019 • Whitefish, Montana
_school executive editor_ www.whitefishlake.org

倌 Illinois Lake Management Association’s 34th Annual Lake Conference
Illinois Lake Management Association
March 14–16, 2019 • Crystal Lake, Illinois
_school executive editor_ www.ilma-lakes.org

倌 31st Annual Indiana Lakes Management Conference
Indiana Lakes Management Society
March 21, 2019 • Syracuse, Indiana
_school executive editor_ www.indianalakes.org

倌 11th National Monitoring Conference
National Water Quality Monitoring Council
March 25–29, 2019 • Denver, Colorado
_school executive editor_ acwi.gov/monitoring/conference/2019/

倌 36th New York State Federation of Lake Associations Annual Conference
New York State Federation of Lake Associations
May 3–4, 2019 • Lake George, New York
_school executive editor_ www.nysfola.org

倌 NALMS Affiliate Organizations

As we reflect on the past year, we are so grateful for all of the support and partnerships we’ve enjoyed. We have a lot of plans to grow and strengthen our important programs in 2019 (and beyond), but need your help! Will you consider NALMS for your end-of-year giving? Why donate to NALMS?

• To show your support for clean lakes, reservoirs, and watersheds, and their management and protection.

• To encourage student enrichment and education through travel grants, mentorship, and unique educational opportunities.

• To facilitate the exchange of information on managing lakes and watersheds through themed sessions and plenary speakers at our annual symposia.

• To demonstrate the power of citizen science and the importance of gathering environmentally-important information on our freshwater resources through support of the Secchi Dip-In.

For a limited time, if you donate $10 or more to any of NALMS programs, we will send you a fun, full-color “Save our Lakes” bumper sticker! We hope you will sport this sticker on your vehicle or bicycle (or wherever you choose!) with pride. Show your support for clean and healthy lakes … consider a donation to NALMS today!

To donate online, please visit our website at www.nalms.org/donate-to-nalms/. NALMS is a 501(c)(3) tax-exempt nonprofit. We strive to be good stewards of the fiscal gifts made by members, donors, and partners like you.

Have a conference or workshop you’d like to see listed in NALMS Notes & Lake News? Email the details to us at NALMSNotes@nalms.org. You can also add your event to our online calendar of events: www.nalms.org/events/community/add/
After its successful world premiere in Cleveland in 2017, the environmental oratorio by award-winning composer Margaret Brouwer, made its debut in Cincinnati in a free public performance in partnership with the NALMS 2018 International Symposium.

The Cincinnati performance by Brouwer’s Blue Streak Ensemble was held on Wednesday evening, October 31, after the Exhibitors Reception. Thanks to the 21c Museum Hotel for donated space as part of their regular concert series, we had a wonderful venue for Voice of the Lake. Even on a drizzly Halloween night, the event was well attended, and the audience was treated to a special performance. It was the first time many had attended a live oratorio performance. The topic couldn’t have been more appropriate for the lake science and management crowd in attendance. From the program:

Voice of the Lake, an Oratorio for Vocal Soloists, Choirs and Instruments is a musical description of Lake Erie, the good and the bad, in the first quarter of the 21st century. The music portrays the constant motion of the waves splashing on the rocks, of walking on the beach, of the sun glinting on the water, of children playing in the water, and of the pleasure of a fisherman in his boat fishing. The Oratorio also depicts the environmental problems that the lake faces. After a canoe trip near the algae friendly river, the mezzo shows photos to her friend and sings of the lake where it is filled with algae. She also shows various innovative attempts to control and stop the algae. Another section of the Oratorio portrays a public hearing over whether to dump the toxic residue that has been dredged from the Cuyahoga River into the lake. This revised version of Voice of the Lake focuses on factual information in the libretto veering away from the use of poetic lines. We hope this musical vista of nature will help raise awareness about the pollution of Lake Erie and its need for protection by dramatizing the story through music.

Longtime NALMS member Elizabeth Herron got the idea for organizing such an event after hearing a story about the Cleveland premier on NPR. It turns out that NALMS Region 5 director and classical music aficionado Eugene Braig had already been in contact with Brouwer in connection with another event, so the idea of staging a performance in Cincinnati was hatched. NALMS board members Lisa Borre, Perry Thomas and Kiyoko Yokota joined Eugene on the organizing committee.

Brouwer’s Blue Streak Ensemble are currently performing “CATCHING FIRE 2019” a series of concerts through September 2019 to musically remember the Cuyahoga River Fire 50 years ago that catapulted the movement for environmental change.
You’re invited...

39th International Symposium of the North American Lake Management Society

WATERSHED MOMENTS
Harnessing Data, Science, and Local Knowledge to Protect Lakes

November 11-15, 2019
Double Tree Hotel
Burlington, VT

Sponsored by the New England Chapter of NALMS

Vermont is home to more than 800 stunning lakes and ponds, including Lake Champlain, an aquatic gem we are fortunate to share with New York and Quebec. There is no better place to celebrate the partnership between local knowledge and scientific innovation than this lake that unites three borders. Burlington is a thriving and progressive small city, home to the University of Vermont, endless locally-sourced dining options, and a pedestrian-friendly waterfront. Visitors will enjoy scenic beauty and a wide variety of outdoor recreational opportunities.

For other details, visit www.nalms.org or contact one of the conference coordinators: Meg Modley (mmodley@lcbp.org), Jeff Schloss (jeff.schloss@unh.edu), and Perry Thomas (perry.thomas@vermont.gov).

- atmospheric deposition
- impacts of climate change
- citizen science
- water level management
- lake remote sensing
- sentinel lakes
- regional monitoring
- lake bioindicators
- cyanobacteria and algal blooms
- nutrient pollution
- flooding and extreme events
- aquatic invasive species
CALL FOR ABSTRACTS
39th International Symposium of the North American Lake Management Society
November 11 – 15, 2019
DoubleTree by Hilton Burlington Vermont

Watershed Moments: Harnessing Data, Science, and Local Knowledge to Protect Lakes
Vermont is home to more than 800 stunning lakes and ponds, including Lake Champlain, an aquatic gem we are fortunate to share with New York and Quebec. There is no better place to celebrate the partnership between local knowledge and scientific innovation than this lake that unites three borders. Burlington is a thriving and progressive small city, home to the University of Vermont, endless locally-sourced dining options, and a pedestrian-friendly waterfront. Visitors will enjoy scenic beauty and a wide variety of outdoor recreational opportunities. Inside we will have workshops for citizen scientists and decision makers on Sunday, November 10 and technical workshops for all on Monday, November 11, followed by 3 days of presentations organized into themed tracks and sessions.

Preliminary Session Topics
We are working this year to encompass a broader range of lake management topics, integrating considerable program elements for citizen scientists as well as reflecting new advances on the technical side of lake management. We encourage the submission of papers or posters on any aspect of lake and reservoir management but are especially interested in valuable insights on the following topics:

- Regional monitoring and research networks
- Volunteer monitoring and planning efforts
- Sensors and remote monitoring
- All aspects of harmful algal blooms
- Impacts and control of invasive species
- Climate change issues and preparedness
- Extreme event impacts and resilience plans
- National Lake Assessment insights
- Working with large and long-term data sets
- Implementing nature-based solutions
- Applying traditional/local knowledge in projects
- Shoreland protection and restoration
- Lake-oriented legislation and policies
- Using paleolimnology in lake management
- Impact and management of salt use
- Water supply management
- Watershed management successes
- All forms of in-lake nutrient control
- Linkage between lakes and watersheds
- Assessing and managing large lakes

Important Dates
May 17, 2019
Abstracts Due

Late Spring 2019
Registration Opens

August 30, 2019
Registration for presenters of accepted abstracts due.

October 19, 2019
Last day conference hotel rate available.

Contact Information
Symposium Co-chairs
Meg Modley | mmodley@lcbp.org
Perry Thomas | perry.thomas@vermont.gov

Program Co-chairs
Amy Smagula | amy.smagula@des.nh.gov
Ken Wagner | kjwagner@charter.net

General Conference, Exhibitor & Sponsorship Information
NALMS Office | 608-233-2836

Visit www.nalms.org/nalms2019 for more information and to submit your abstract.
Partnerships

Source Water Collaborative: Blue Accounting Releases Data Tools Showing Source Water Risks and Protections in Great Lakes Basin

Blue Accounting’s Source Water Initiative recently launched visual tools that illustrate work to protect source water in the Great Lakes Basin. The visual tools measure progress toward four goals: protecting drinking water from nutrient impacts; ensuring all public water supply systems are guided by up-to-date protection strategies; taking action on contaminants of emerging concern; and building binational consensus on strategies for source water protection across the Great Lakes Basin.

“Residents of the Great Lakes and St. Lawrence River Basin are rightfully proud of our shared natural resource, yet we struggle to consistently track progress toward a safe and sustainable supply of drinking water,” said John Linc Stine, former commissioner of the Minnesota Pollution Control Agency and chair of the Great Lakes Commission (GLC), which leads the Source Water Initiative. “The visual tools released today will help us understand where we currently stand on protecting drinking water sources and how we can best protect our water in the future.”

The Initiative collects and maps key data to demonstrate the scope of threats to sources of drinking water and tracks progress on mitigation strategies. An interactive map on the "Nutrient Impacts" page shows which watersheds are designated as “nutrient impaired” and which are currently used as sources of drinking water. The “Planning” results page shows the status of source water protection planning by jurisdiction. Another map shares information on a regulation intended to detect contaminants of emerging concern. A “Binational Consistency” page displays variations between source water protection policies and implementation in each state and province.

The Source Water Initiative also posts information about Great Lakes state and provincial strategies and investments to protect source water. The Initiative partners with communities and organizations to showcase local source water protection strategies and investments supporting the Initiative’s goals.

Todd Danielson, Chief Utilities Executive for Ohio’s Avon Lake Regional Water has been with the initiative since its 2017 launch. “This work with Blue Accounting recognizes that even the best local efforts to protect source water need the help of neighboring communities,” he said. “As a system that relies on Lake Erie, we know that working together to protect our shared source of drinking water is far more powerful than working alone.”

Blue Accounting’s source water initiative includes representatives from state, provincial, and federal agencies, local governments and water suppliers, academia, nonprofits, and the private sector. The initiative is part of Blue Accounting, which translates shared data into relevant information for decision-makers to understand how their investments and actions impact the Great Lakes region. GLC and The Nature Conservancy co-lead Blue Accounting in partnership with federal, state, provincial, local and private organizations. Blue Accounting receives vital funding support from the Charles Stewart Mott Foundation, the Fred A. and Barbara M. Erb Family Foundation, the Joyce Foundation, and the Herbert H. and Grace A. Dow Foundation.

Great Lakes Day March 7, 2019

The annual Congressional Breakfast in Washington, DC is an opportunity to participate in discussions between regional leadership and members of Congress that focus on Great Lakes priorities. The event is hosted by the Great Lakes Commission and the Northeast-Midwest Institute, and includes representatives from the Council of Great Lakes Governors, the Healing Our Waters-Great Lakes Coalition, the Great Lakes Fishery Commission, the Mayors of the Great Lakes-St. Lawrence Cities Initiative and Tribal agencies. These representatives participate in the Breakfast and also make visits to Congressional offices. For more information on this year’s events, visit www.glc.org.
Latest Articles From LRM

NALMS Student, Professional, Life and organizational memberships include full online access to Lake and Reservoir Management articles.

Oxygenation and hydrologic controls on iron and manganese mass budgets in a drinking-water reservoir
Published online: 27 Feb 2019

Contrasting histories of microcystin-producing cyanobacteria in two temperate lakes as inferred from quantitative sediment DNA analyses
Shinjini Pilon, Arthur Zastepa, Zofia E. Taranu, Irene Gregory-Eaves, Marianne Racine, Jules M. Blais, Alexandre J. Poulain & Frances R. Pick
Published online: 12 Feb 2019

Phosphorus loading from onsite wastewater systems to a lake (at long time scales)
Frank L. Schellenger & Ferdi L. Hellweger
Published online: 28 Jan 2019

Citizen science for Saskatchewan lakes: a pilot project
Jessica S. Bos, Lushani Nanayakkara, Margot Hurlbert & Kerri Finlay
Published online: 22 Jan 2019

Simulation of eutrophication in a reservoir by CE-QUAL-W2 for the evaluation of the importance of point sources and summer monsoon
Donghwan Kim, Yoonhee Kim & Bomchul Kim
Published online: 15 Jan 2019

Catchment characteristics, water quality, and cyanobacterial blooms in Washington and Oregon Lakes
Published online: 07 Jan 2019

Note: Response to Osgood Comment: alum efficiency 11 years following treatment: phosphorus and macroinvertebrates
Alan D. Steinman
Published online: 03 Jan 2019

Comment: alum efficiency 11 years following treatment: phosphorus and macroinvertebrates
Richard A. Osgood
Published online: 03 Jan 2019

11th NATIONAL MONITORING CONFERENCE
Working Together for Clean Water
March 25-29, 2019 Denver, Colorado

**Invasive Species**

Wakeboard boats are already controversial among lake users and lakeshore property owners due to their wake. A study by the Minnesota Aquatic Invasive Species Research Center (MAISRC) is not going to help the reputation of wakeboard boats.

How does a wakeboard boat create those waves? Their ballast tanks are designed to take in water while they’re operating, making the boat heavier, which produces more wake than a typical motor boat. The MAISRC study confirms that those tanks are also good at transporting zebra mussels from lake to lake when not properly cleaned and dried. // TwinCities.com

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The water in Austin, Texas had a bit of an odor problem in mid-February. Dead zebra mussels in a raw water intake pipe were the culprit. According to Austin Water Director Greg Meszaros, “zebra mussels were a known risk for us. We have to do better about managing that issue.” // KXAN

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Zebra mussels aren’t the only invasive species issue in Austin. Those electric scooters that have invaded city streets across the country have also invaded our lakes and rivers. In just one report, a couple of local fishermen on Lady Bird Lake found 16 scooters submerged in the lake. The lithium batteries that power the scooters are of particular concern. The Austin Watershed Protection Department sent a notice of violation to scooter company Lime. // KXAN

**Lake Erie**

Voters in Toledo, Ohio approved legislation that allows citizens to sue on behalf of Lake Erie when it’s being polluted. Extending legal rights to natural systems has been tried in several other countries, but Toledo’s law is a first in the US. // Vox

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And it’s already being challenged in court. // Bloomberg Environment

**Climate Change**

A study out of York University in Toronto found that the determining factor in whether a lake froze, stayed frozen, or didn’t freeze at all during winter was the average air temperature over the entire year. Lakes that usually froze solid would only freeze part of the winter if the average air temperature increased to 47° F. At 50° F, the lake was not likely to freeze at all. // National Geographic

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In NALMS’ hometown of Madison, Wisconsin, Lake Mendota has iced over twice this winter. Data on Lake Mendota dates to the 1850s, and in that time, this has happened only twice before. // Milwaukee Journal Sentinel

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In the Sierra Nevada, a study shows that spring snowpack is the biggest predictor of summer warming in small alpine lakes there. The amount of snow controls when the lake becomes free of ice and can absorb radiation from the sun, which heats the water. // UC Davis

**Water Quality**

In northern climates, where there’s ice, there’s usually salt, and that salt is accumulating in our lakes and rivers. The issues in Flint, Michigan’s drinking water arose when the city changed its drinking water supply to a saltier river, which caused lead to leach from supply pipes.

It’s not just human infrastructure and health at risk. The Stroud Water Research Center in Pennsylvania studied the impact of water quality on mayfly larvae. As salt levels approach about a tenth that of seawater at least ¾ of the mayfly species tested are likely to die. As the water gets saltier, young fish are not only impacted by the lack of mayfly larvae, an important food source, but also by the salinity of the water, which may slow their growth, affecting their reproductive capacity. // Scientific American

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What else can we put in our water? How about arsenic, lead, and other toxic metals? The Associated Press used data from public records to determine that more than 50 million gallons of contaminated wastewater flows from 43 mining sites in the US. Much of that ends up in our groundwater, rivers, and lakes. In the West, there are approximately 161,000 abandoned mine sites and as many as 500,000 nationwide. // Associated Press