

NAME	AFFILIATION/ ORGANIZATION	OTHER PRESENTERS / CO-AUTHORS	SESSION TITLE	ABSTRACT
Mark Barrow	Beneath British Waters		Our Freshwater World	<p>Freshwater is the most precious resource on our planet, without it nothing can survive yet less than 4% of the water on our planet is freshwater yet it holds some of the richest biodiversity in the world. On their timeless journey from source to sea rivers have forever provided the lifeblood of a nation – vital to wildlife and our own well being too. Waterways fascinate us at all ages. □</p> <p>Water is a life-force of nature and our history is shaped by rivers: they have shaped our villages, towns, cities and countryside. They give us precious moments and long lasting memories: of summer walks, swimming, boating, fishing. Rivers are areas of healing and they help us unwind and they connect us closer to the natural world, Deep relaxing flows and pools to the fast water rapids and waterfalls which carve out these unique areas. □</p> <p>Freshwater is home to a vast array of wildlife and the aquatic species that live in this alien world come in all shapes and sizes. Reconnecting people back with the freshwater environment through film is the way to ensure part of its survival, with this in mind my 30 minute presentation will be a visual feast for all to see of freshwater fish species based on my last 30 years as an underwater cameraman specialising in freshwater showcasing on film how these amazing creatures live, breed and survive the daily rigours these aquatic creatures face living in freshwater including pollution and the work I do to restore these valuable habitats and the benefits we have seen from various projects with freshwater including our citizen science testing we carry out each year.</p>
Ralph Bednarz	MDEQ Limnologist (retired) and Rennie Lake Association		Libraries Love Lakes – The 2022 TADL Event	<p>Libraries Love Lakes is an outreach project which pairs school and public libraries with lake scientists to provide collaborative programming emphasizing the importance of lakes in our everyday lives. In 2019, the North American Lakes and Management Society (NALMS) partnered with Libraries Love Lakes to bring the project to a broader audience in conjunction with Lakes Appreciation Month. This presentation highlights a Libraries Love Lakes event implemented in partnership with the Traverse Area District Library (TADL), Traverse City, Michigan during July 2022 Lakes Appreciation Month.</p>
Elizabeth Belanger	Lake Superior State University; Center for Freshwater Research and Education; Student		Use of an Aquatic Remotely Operated Vehicle to Assess Relative Abundance of Fish and their Relations to Water Quality Variables.	<p>My Research project is through Lake Superior State University, Center for Freshwater Research and Education Center. My project is an ongoing development project with data to be recorded this coming summer. The project incorporates both robotics and biology whereby I have been designing mounts, building, wiring, and programing (in development) DIY Sensors attached which have been attached to a Sofar Trident drone (ROV). This summer the project will start in a local lake, Monocle Lake. The objectives of the study are (1) determine if the ROV fitted with sensors can be an effective non-intrusive method of locating fish within Monocle Lake, (2) What season is the best use for the ROV (spring or summer) and (3) determine how water quality parameters (temperature, depth, dissolved oxygen, and turbidity) relate to the distribution and relative abundance of these fishes. The proposed methods are as follows; before a thermocline develops forty evenly space transects will be ran perpendicular to shore, and after a thermocline develops, twenty transects will be ran, more if time and budget permits. Every two seconds data will be recorded from both the dissolved oxygen and turbidity sensors, depth and temperature are live recording from ROV. At every fish sighting data from the ROV and sensors will be back tracked to the closest time of sighting to identify the water quality at the fish's location. From here I will see if there is a correlation between the four factors and fish location and produce a distribution map. All data will be collected in a brief time to minimize recounting.</p>
Kelsey Bockelman	Michigan State University Extension (MSUE)	Paige Filice, MSUE	Step aboard Michigan's Clean Boats, Clean Waters program and learn about current aquatic invasive species outreach and education efforts	<p>Step aboard and learn about Michigan's aquatic invasive species education program, Clean Boats, Clean Waters from Michigan State University (MSU) Extension Educators, Kelsey Bockelman and Paige Filice. Clean Boats, Clean Waters is on a mission to prevent aquatic invasive species introductions and their spread from boating and fishing activities. Clean Boats, Clean Waters fills an educational gap through unified and consistent messaging about boat cleaning practices and current regulations. The program stresses the "clean, drain, dry" message through the distribution of educational materials, hosting local boat cleaning events, a small grants program, and partnerships with conservation organizations. Clean Boats, Clean Waters is wrapping up its second year of providing grant funds to lake associations, non-profits, and other passionate organizations dedicated to protecting their local water bodies from aquatic invasive species. Past grant projects have included decontamination sign installations, outreach events, and infographics in magazines. Additionally, Clean Boats, Clean Waters now hosts the MSU Mobile Boat Wash program under its umbrella. The MSU Mobile Boat Wash program is entering its 8th season of providing hands-on outreach to boaters on best practices for aquatic invasive species decontamination. This program hosts free events across Michigan and provides access to crews who come with a heated high-pressure, trailer-mounted boat cleaning system as well as an extensive library of aquatic invasive materials. Currently, Clean Boats, Clean Waters is funded by the Great Lakes Restoration Initiative and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and is coordinated by MSU Extension and EGLE.</p>
Jason Broekstra	PLM Lake & Land Management Corp	Rick Buteyn, Progressive AE and Pamela Dugan, SePRO Corporation	Inland Lake Restoration; Establishment of a LMP, lake management case studies, phosphorous mitigation for the future.	<p>Progressive AE: Establishment of an LMP; the importance of monitoring for invasive species and nutrient loading, and the process to implement management effort in Michigan.</p> <p>PLM Lake &amp; Land Management Corp: Lake Management Case Studies; A review of multiple lake management programs utilizing ProcellaCOR for the control of EWM/HWM and phosphorus mitigation with Phoslock (lanthanum).</p> <p>SePRO Corporation: EutroPHIX, phosphorous mitigation products for the future.</p>
William Brown	Michigan Waterfront Alliance	Ralph Bednarz, Retired, Rennie Lake; Dr. Frank Lupi, MSU; Alan Steinman, GVSU; Ron Olson, DNR	"An Assessment of the Economic Contributions of Michigan's Inland Lakes"	<p>A 5.5 hour seminar dedicated to exploring the multi-faceted contributions of Michigan's inland lakes to Michigan's economy. Three presentations to be held in one 3.5 hour block to be held on the morning of Friday, September 16th. Two presentations and a brief panel discussion to be held on a 2.5 hour block on the afternoon of Friday, September 16th.</p>

Eric Calabro	Michigan Department of Environment, Great Lakes, and Energy		Policy and Regulation surrounding Aquatic Plant Management in Michigan	Various aquatic plant control activities are regulated under different statutes on Michigan's inland lakes. Physical/mechanical control of aquatic plants is regulated under Part 301, Inland Lakes and Streams and Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended (NREPA), and administered through EGLE's Wetlands, Lakes, and Streams Program. Chemical control of aquatic plants is regulated under Part 33, Aquatic Nuisance Control of the NREPA and administered through EGLE's Aquatic Nuisance Control Program. This session will cover best management practices and permitting requirements for various types of aquatic plant control methods.
Eric Calabro	Michigan Department of Environment, Great Lakes, and Energy		State Regulations Surrounding Construction Activities on Wetlands, Lakes, and Streams	Certain construction activities such as dredging, adding fill, or placing structures on bottomlands in waterbodies and wetlands of Michigan may be regulated under the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended (NREPA). Part 301, Inland Lakes and Streams and Part 303, Wetlands Protection of the NREPA are two of the statutes regulating many construction activities on Michigan's wetlands, lakes, and streams. This session will cover best management practices and permitting requirements for various types of construction activities surrounding wetlands, lakes, and streams.
Eric Calabro	Michigan Department of Environment, Great Lakes, and Energy		Inland Lake Shoreline Trends and Analysis	This session will discuss statewide National Lake Assessment trends with a focus on the inland lake shoreline development metrics. We will also present multiple case studies from around Michigan which used GIS to quantify shoreline development through time, and provide the methods for lake associations to complete these analyses for their lakes. We will close this session with a discussion of some best management practices for inland lake shorelines.
Dane and William Carey	Carey and Jaskowski PLLC		Current legal issues impacting inland lakes in Michigan	The firms of Carey and Jaskowski PLLC (William Carey) and Kuhn Rodgers PLC (Dane Carey) will host a question and answer session on current legal issues impacting inland lakes in Michigan. The scope of the legal questions would not be limited, beyond the focus on inland lakes. However prominent current legal issues would include keyholing, commercial development of lakes via development of lake channels, and judicial overview of the EGLE permitting process. Both speakers have extensive experience on all legal issues impacting inland lakes in Michigan and have presented similar question and answer sessions on these topics in the past.
Emily Cook	Benzie Conservation District/Aquatic Invasive Species Pathways Program		Changing Behavior Among Watercraft Users in Northwest Michigan: How the Aquatic Invasive Species Pathways Program is working to prevent the spread of AIS through outreach and boat washing services	Now in its sixth year of operation, the Aquatic Invasive Species Pathways Program (AISPP), has established itself as a one-of-a-kind presence in northwest Michigan. Utilizing mobile boat washing units and passive education techniques, staff and volunteers are working to encourage behavior change among watercraft users of all kinds. With a goal of providing decontamination services to prevent the spread of invasive species, the AISPP travels throughout its four-county service area of Benzie, Grand Traverse, Manistee, and Leelanau counties. Working closely with a vast network of partners which includes private community members, Lake Associations, Municipalities, and more – the mobile boat wash education station and washing services are providing frontline aid in preventing the spread of aquatic invasive species. Utilizing proper messaging, incentives, and methods of approach, the AISPP and its partners have found increasing positive response when engaging with boaters on the proper methods of AIS decontamination. That being said, there are still numerous challenges and roadblocks in regard to completing conservation work that depends directly on human response. These trials and lessons will be discussed as they relate to invasive species and preventing their spread. Additionally, future plans for the AISPP and adaptations in response to boater behavior will be addressed. (AISPP is partially funded via the Michigan Invasive Species Grant Program.)
Stacy Leroy Daniels	Benzie Co. River Improvement Co.		Protecting Our Lakes from Natural & Anthropogenic Disasters – Yesterday, Today, & Tomorrow	We view our water environment from differing times: the distant past, the fleeting present, and the far future. We cannot change the past of yesterday. We think we can change the present of today. We hope we can change the future of tomorrow! During our brief existences we are faced by the omnipresent hazards of life which can be either ubiquitous, and relatively benign, or infrequent, but severe. We are faced with threats of natural and/or anthropogenic (artificial) "disasters" of varying degrees, both real and imagined. Some of us are fortunate enough to be riparians and littorians, living along streams and lakes. We set goals to have "A place by the water". We plan to enjoy our lives in peaceful coexistence with both the naturally created environment and our artificially built environment. Our lakes and rivers, however, are subject to beneficial and detrimental changes pending reactive or preventative actions, to control water level control, human dimensions, and watershed management. Some changes are intense for short durations, like sudden storms with whitecapped waves, or dam breachings followed by inundations causing significant damage downstream. Other changes are imperceptible over long durations of millennia, like glaciers forming lakes and altering landscapes. Changes in construction and operation of engineered structures and changes in human behavioral patterns are addressed as examples of preventive strategies. References Engineered Structures in Early Michigan History, Hist. Soc, MI, 03/30/2012; Human Impacts upon Crystal Lake: Past, Present, and Future, MiCorps Conf. 10/30/2012; A Tale of Two Inland Lake Systems, MILP, 09/17/2020; "Wreck"-reation or R?-Creation? – A Comparative Tale of Two Michigan Inland Lake Communities, World Canals Conf., 08/30/2021; A Littorian's Obsession with Crystal Lake, Benzie Co. MI, A Mapping Review, MASAL, 03/11/2022.
Melissa DeSimone	Michigan Lakes and Streams Association		Utilizing Partners: The Michigan Alphabet Soup	A discussion of the acronyms used in Michigan to refer to organizations and terms important to water conservation and issues for lakes and streams. Join this session for an overview of important partners throughout the state and also receive a resource with acronym definitions and links to the organizations they represent.
Melissa DeSimone	Michigan Lakes and Streams Association		5 minute lightning talk about Michigan Lakes and Streams Association	Will describe our mission, programs, and history of the organization.

Erick Eckl	Water Words That Work, LLC		Water Words That Work	<p>Make a splash with your words and pictures! Relearn the language that everyday citizens use and become more confident and successful with your outreach. This course provides unique insights into what words and pictures turn your audience on, and off.</p> <p>Part 1. The Perils of Preaching to the Choir. You will discover how to spot the signs of "preaching to the choir" and recognize when you are sending messages that miss the mark or antagonize your audience.</p> <p>Part 2. The Environmental Message Method, Steps 1-4. You will learn a proven step-by-step method to translate professional-caliber information into messages for the general public.</p>
Erick Elgin	MSU Extension	Bill Keiper, Eric Calabro, Tom Alwin, Sarah LeSage, EGLE	Aquatic plant restoration post invasive species control	<p>Restoration of native plant communities is a key requirement of a successful invasive species control program. In lakes, native aquatic plant recovery following aquatic invasive species control may be slow due to a lack of existing, viable propagules- the result of years of suppression by the invading species. Although some native aquatic plants produce persistent propagules within the seed bank, many do not and the diversity of returning plants post-management may be low as a result. Therefore, active restoration of multiple native plant species may be needed to revive the plant community. We tested three aquatic plant restoration techniques (hand planted, stapled, and weighted burlap) using three native plant species (Illinois Pondweed, Sago Pondweed, and Chara spp.) in a pond where eradication efforts are underway for Yellow Floating Heart. Success of each technique will be measured by survival, change in biomass, and ease of the method. We will discuss preliminary results of this experiment and offer lessons learned.</p>
Erick Elgin	MSU Extension	Jo Latimore, MSU and Paul Skawinski, UW-Stevens Point Extension Lakes	Aquatic Plant Identification Workshop	<p>Submersed aquatic plants are an important component of lake ecosystems and provide many beneficial services. Yet, aquatic plants are often identified simply as "cabbage" or "milfoil", which overlooks the wonderful diversity present in Michigan's lakes. Furthermore, aquatic invasive species can often be confused with native look-alikes, which may spur improper management actions or inaction. This workshop will consist of a lecture covering aquatic plant identification 101 mixed with interactive identification activities. Participation in this workshop will help advance submersed aquatic plant identification skills and foster a growing appreciation of native aquatic plants found in Michigan's lakes.</p>
Erick Elgin	MSU Extension	Paul Steen, Michigan Clean Water Corps, and Jo Latimore, MSU	Using and Understanding Temperature/ Dissolved Oxygen Data collected by the MiCorps Cooperative Lakes Monitoring Program - 90 minute workshop	<p>Temperature and dissolved oxygen data is essential in understanding the ecology of lakes. The extent of fish habitat and what fish species is present is often dictated by the presence and amount of oxygen. The presence of dissolved oxygen is also important to the nutrient cycling of lakes, specifically the internal loading of phosphorus. Michigan's volunteer lake monitoring program, MiCorps Cooperative Lakes Monitoring Program, measures temperature/dissolved oxygen in lakes across the state. This long-term dataset can be used to understand lakes further and help with current and future management. This workshop will consist of a lecture covering the basics of temperature and oxygen stratification in lakes. We will also go through simple graphing activities and calculations that will help individuals visualize and interpret Temp/Dissolved Oxygen profile data. We will be using data collected by MiCorps Cooperative Lakes Monitoring Program volunteers. Microsoft Excel will be used for this workshop's activities.</p> <p>Other Authors: Tamara Lipsey, Jean Roth, Melissa DeSimone</p>
Paige Filice	Michigan State University Extension		Keeping aquarium and garden pets and plants out of Michigan's inland lakes	<p>Aquatic invasive species are a significant ecological and economical threat to the health of Michigan's inland lakes. Sometimes these non-native plants and animals are from aquariums and water gardens and are released by well-meaning hobbyists. To address this issue, Michigan State University Extension educates retailers and hobbyists about safe handling and disposal practices for aquarium and water garden organisms through the research-based outreach program Reduce Invasive Pet and Plant Escapes (RIPPLE). Since RIPPLE began in 2015 over 140 pet stores, garden centers, hobbyist clubs, nature centers, zoos and school districts have become RIPPLE partners. Partners receive free aquatic invasive species identification and reporting resources as well as eye catching materials for public display that stress the "do not release" message.</p>
Mike Foster	Kieser & Associates, LLC		Reducing management decision uncertainty with lake circulation modeling	<p>Hydrologic circulation models provide predictive capabilities for complex lake issues that can otherwise be very difficult to analyze. We utilized the AEM3D model to simulate select inland lake applications to analyze a variety of lake conditions for large-scale management implications. As a three-dimensional model, AEM3D allows for simulation of both horizontal currents as well as vertical mixing. It also allows for the simulation of biogeochemical processes such as macrophyte and algal growth, as well as nutrient/metals interactions. These capabilities allowed K&amp;A to analyze phenomena such as:</p> <ul style="list-style-type: none"> <li>* Tributary loading and nutrient plume transport in a 7,300-lake with a 10+ year hydraulic residence time including: 1) ice formation timing and under-ice nutrient plume movements; 2) temperature stratification magnitude, timing and impacts on sediment/water column exchange</li> <li>* Limited areal dosing with Alum and distribution impacts on sediment/water column phosphorus concentrations in a 700-acre river-run lake</li> <li>* Lake current direction and velocity impacts on dredging design for a shallow 279-acre lake and portions of a river impoundment</li> </ul> <p>Modeling these scenarios enabled superior decision-making for expensive management options. Simulations for Big Green Lake (Green Lake, WI) demonstrated that both of the two main tributaries contribute similarly to open lake nutrient concentrations despite the largest being in close proximity to the lake outlet. Simulations showed lake managers that both drainage areas should be targeted for watershed improvements. For Mona Lake (Norton Shores, MI), simulations analyzed whether alum treatments in the upstream portions of this drowned river-mouth lake connected to Lake Michigan will potentially suppress phosphorus release from downstream, untreated sediments. In the Fox River/Lake Tichigan impoundment in Waterford, WI, simulations examined dredge operation management needs to minimize disturbed sediment transport, and where dredged areas may be vulnerable to sediment movement and back-filling. This paper will discuss benefits for reducing management decision uncertainty with lake circulation modeling.</p>
Kevin Frank	Michigan State University		Lawns and Lakes: Managing Lawns while Preserving Water Quality	<p>Michigan is a state with invaluable surface water assets. From the Great Lakes to inland lakes and streams, Michiganders take great pride and enjoyment in our natural waters. Bordering many of the lakes are homes and of course many homes have lawns that are at the waters edge or perhaps separated by a beach or a vegetative buffer. There are many misconceptions about turfgrass management and especially nutrient management and it's impact on water quality. In this presentation I will discuss the two primary nutrients of interest, nitrogen and phosphorus. I will discuss nutrient sources, application timing, rates, and risk of leaching or runoff. It is possible to maintain a healthy lawn and still preserve surface water quality.</p>

Jason Frenzel	Huron River Watershed Council	Kate Laramie, Huron River Watershed Council; Eric Diesing, Clinton River Watershed Council and Sam Davis, Friends of the Rouge	Challenges, successes, and lessons learned in surveying for the aquatic invasive species, European frog-bit, in an urban setting	European frog-bit was first discovered in Oakland County, Michigan in 2018- far from previously known infestations in the Great Lakes. This aquatic invasive plant negatively impacts local ecosystems and hinders recreational boat traffic. A grant was awarded to the Oakland County Cisma from the State of Michigan to determine the extent of the infestation in the county and to increase public education about this species. The Cisma is collaborating with local watershed councils (Huron River, Clinton River, & Friends of the Rouge) to survey water bodies near the infestation, as well as to create educational materials, host virtual public meetings, and to mail information to landowners. Last year, watershed staff surveyed a total of 320 points (approximately 150 acres), only 23% of which were private. No new frog-bit locations were found, and no aquatic watch-list species were observed. In 2022, surveying new sites and treating known frog-bit locations will be our main focus. This panel will review lessons learned during surveying and treatment, as well as future steps and improvements including the use of mapping softwares (ArcGIS); coordinating with MI EGLE on control; and collaborating with multiple organizations, businesses, and private landowners.
Kelsey Froelich	School of Public Health, University of Alberta		Monitoring enteric bacteria contamination in a freshwater watershed in Northern, MI using qPCR and a community participatory research framework.	Enteric bacteria are a common and generally harmless part of the digestive system of all animals, including humans. Certain species of enteric bacteria are used as indicators of faecal pollution in water bodies. Traditionally, faecal contamination has been measured using culturable Escherichia coli (E. coli), but newer techniques using quantitative polymerase chain reaction (qPCR) have proven to be advantageous to traditional methods due to the speed of processing and ability to undertake microbial source tracking studies on samples that are found to be highly contaminated. In this study, we assessed the presence and abundance of the faecal indicator bacteria Enterococcus at several locations along a river input to Crystal Lake, MI and at several beach locations that have historically presented high E. coli levels. Enterococcus qPCR values were compared to cultured E. coli values and each sample was assessed for human (HF183) and gull (LeeGull) faecal markers to determine potential sources of contamination. After the first year of data collection, qPCR results show a moderate correlation to culturable methods, while 10 out of the 11 sampled locations showed evidence of human fecal contamination. Five out of the 11 sampled locations showed evidence of gull fecal contamination. Analysis of these results, and other studies like it, can help lead management decisions for a lake and provide evidence to support septic system analysis. This project highlights the ability of community partners to participate in research and monitoring projects at several levels, including question generation and sample collection. We also provide support for the use of qPCR for monitoring bacteria or other species of interest.
Elizabeth Haber	Michigan Natural Features Inventory		Rare Aquatic Plant Species in Michigan: An overview of their Identification, Habitat Preferences, and Status	Michigan Natural Features Inventory (MNFI) is part of Michigan State University Extension, and our goal is to guide the conservation of Michigan's biodiversity by providing the highest quality scientific expertise and information. To help achieve this goal, MNFI curates a statewide database with all known historical and current records of rare and endangered species. MNFI tracks the locations and population health of 26 rare aquatic plant species in Michigan. This presentation will give an overview of the rare plant species in Michigan: focusing on identification, growth forms, habitat preferences/general locations where they can be found, and their conservation needs. The rare aquatic plants in Michigan range from waterlilies and waterlily-like plants, to submersed pondweeds and water-milfoils, to free-floating duckweeds and their relatives, to carnivorous plants, to tiny herbaceous species of shallow water, and even an aquatic fern ally! These rare aquatic plants are found in all kinds of waterbodies, ranging from the largest rivers in the state to quiet shores of shallow lakes. Half of these rare aquatic plant species are known from 6 sites or fewer in the state, and some of these species have not been observed for decades. There is a need for more information about the status and extent of rare plant species populations in Michigan in order to assess current their current conservation needs and their prognosis for thriving in the future.
Paul Hausler	Progressive AE		A review of the fishery response over time to continuous AIS management in several Michigan lakes	Using data provided by MDNR Fisheries Division as part of their Status and Trends program, provide an evaluation of fishery responses to the implementation of lake-wide aquatic invasive species control programs. Lake-wide control programs were verified using Michigan Department of Environment, Great Lakes, and Energy (EGLE) MiWaters database files that had been uploaded for each of the subject lakes. Data were evaluated from a total of 14 lakes that had instituted lake-wide AIS control between the first and second fishery surveys. These data were compared to data collected on 7 lakes where lake-wide AIS control had not been implemented. A description of established sampling protocols are also provided as well as potential sources of error in the data sets.
Jennifer Jermalowicz-Jones	Restorative Lake Sciences LLC		Differences in Rural and Urban Lakes and Implications for Management	There are over ten thousand lakes in Michigan and most of them are located in either rural or urban areas. The two location types are associated with different challenges relative to successful management outcomes. Trends in rural lake water quality demonstrate increases in nutrient loading from septic systems and agricultural inflows and runoff. Also common are increased concentrations of E. coli bacteria that may pose a human health risk. Reductions in nutrient loads and E. coli are dependent upon the local community resources as well as effective immediate watershed management. Trends in urban water quality demonstrate increases in pollution from storm drains and nutrients from lawn fertilizer applications, runoff, and septic systems. Pollutants such as chlorides and suspended solids are often elevated in these systems. Such issues are a management challenge since urban road runoff and drains are often limited relative to diversions or other changes to reduce pollutant loads to the lakes. This presentation focuses on ten urban and ten rural lakes relative to multiple water quality parameters such as chlorides, nitrogen, phosphorus, E. coli bacteria, total suspended solids, specific conductivity, water clarity, and chlorophyll-a. Graphical trends are offered along with future management recommendations for water quality improvements in both unique rural and urban settings.
William Keiper	MI Dept. of Environment, Great Lakes, and Energy (EGLE)	Sarah LeSage and Tom Alwin, EGLE	Progress toward eradication of Parrot Feather and Yellow Floating Heart in Michigan	The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has been actively working to address populations of watch list aquatic invasive species since 2016. The goal of this work is to prevent the establishment and spread of aquatic invasive plants on Michigan's watch list and pursue local eradication, when possible and practical. EGLE staff will present background and identification information on Yellow floating heart (Nymphaoides peltata) and Parrot Feather (Myriophyllum aquaticum) and share experiences on responses to over 20 locations that have resulted in 4 local eradications to date. We will share lessons learned including information on herbicide and hand pulling methods and efficacy.

William Keiper	Michigan Department of Environment, Great Lakes, and Energy		Expansion of European Frog-bit in Michigan : Response at Reeds and Fisk Lake Case Study	European frog-bit ( <i>Hydrocharis morsus-rane L.</i> ) (EFB) is an invasive free-floating aquatic plant of growing concern to water resource managers, waterfront property owners, and recreational users due to its continued spread and potential negative effects on water resources. The EFB Collaborative was established in fall of 2018 to improve coordination and collaboration among stakeholders and build consensus on next steps for EFB management and research in Michigan. We will provide an overview of the EFB Collaborative and use Reed and Fisk Lake as an EFB response case study. EFB was first discovered in Reeds and Fisk Lake in 2016 during a routine herbicide application. Since the initial finding, a coordinated response effort has been underway involving several project partners. On-going adaptive management efforts to eradicate EFB include herbicide treatments, hand pulling, frequent monitoring, and education/outreach. We will provide an update on 6 years of response efforts, successes to date, and lessons learned.
Julia Kirkwood	Michigan Department of Environment, Great Lakes, and Energy	Joe Nohner, Michigan Department of Natural Resources (DNR)	Grant Fund Options for Inland Lakes	TBA
Julia Kirkwood	Michigan Department of Environment, Great Lakes, and Energy		Choosing the Right Plant for the Right Place	There are so many different species of native plants so which ones are the best options for your lakeshore property? Come learn about MI native plants, which ones are the "work horse" species that provide the root structure to help protect shorelines, some ideas and resources to help you choose for your property and where you might purchase plants in Michigan.
Julia Kirkwood	Michigan Department of Environment, Great Lakes, and Energy	Erin Fuller - Van Buren Conservation District	Are You Looking for an Educational Resource that Fits Your Audience?	Lifelong residents, weekenders, suburban transplants - most lakes have a variety of shoreline ownership. In this session we will discuss different potential audiences and offer ideas for creating an outreach plan that works for everyone. We will share many different educational materials that can help you in your outreach efforts and help you choose the resources that will resonate.
Julia Kirkwood	Michigan Department of Environment, Great Lakes, and Energy		Michigan Natural Shoreline Partnership	The Michigan Natural Shoreline Partnership (MNSP) formed in 2008 with a mission of protecting Michigan lakes through conservation and restoration of natural shorelines. Learn about how the MNSP and the resources and learning opportunities it has provided.
Julia Kirkwood	Michigan Department of Environment, Great Lakes, and Energy		Michigan Shoreland Stewards Program	The Michigan Shoreland Stewards Program is an online inland lake property assessment tool. Learn more about this free program and how you can access it.
Craig Kivi	Natural Shorelines Forever		Portage Lake 2,700' Natural Shoreline Restoration, Protection and Habitat Improvement through introduction of Woody Structure	This project consists of 2700' of natural shoreline and 11 acres of attached wetlands. The fundamental goals are simple; to stabilize and restore the natural shoreline, prevent further erosion from watercraft and to introduce new habitat by way of wood structure (also known as Coarse Wood Debris (CWD), coarse woody habitat, large woody debris, etc.) This entire process is also known as shoreline "soft", or "natural" armoring. Portage Lake in Pinckney, Michigan is not unique. Thousands of all sports lakes are experiencing the same severe and rapid degradation of natural shorelines and associated natural habitat due to the exponential increase in size, horsepower and quantity of watercraft, magnified by the high percentage of hard armoring (Portage lake is 85% hard armored). Two approved permits were written with the help of a coalition from Michigan State University, department of Environment, Great Lakes and Energy, Michigan Natural shoreline Partnership, Michigan Department of Natural Resources and Natural Shorelines Forever and with fast growing support from others. The project is one of the largest inland lake natural shoreline projects in Michigan's history and considered a model for other interested groups to follow. Per the EGLE permits, giant 8' stumps, 3,000 pound, 20' logs and up to 50' full sized trees, with an estimated total of over 55,000 pounds were transported across the ice and affixed to the shoreline and littoral zones in many various configurations. This project can also be considered an ongoing experiment where Scientists, Environmental Agencies and other organizations are unfettered to experiment with only one condition: the data, lessons learned and any other results from this project be shared statewide, nationwide and beyond.
Jo Latimore	Michigan State University	Bindu Bhakta, Erick Elgin, Paige Filice, Brad Neumann, Mary Reilly, and Lois Wolfson, MSU Extension; and Julia Kirkwood, EGLE	Introduction to Lakes Online: A course from MSU Extension	Introduction to Lakes Online is a 6-week, fully online course offered by Michigan State University Extension. Through self-paced videos, readings, activities, and discussions, the course introduces lake and watershed ecology, aquatic plants, shoreline habitat, lake policy and law, and community engagement. First offered in 2015, Over 1500 people have participated in the course since it was first offered in 2015. It will next be offered in early 2023.
Carrie Meier	Michigan State University		Why Don't They Clean, Drain, and Dry? Understanding Boater and Angler Behavior	Aquatic invasive species (AIS) negatively impact our lakes and other waterways. Once they establish, removal of these species is either impossible or costs immense amounts of money, therefore, preventing the spread of AIS is extremely important. Unfortunately, AIS continue to be spread by boaters and anglers, primarily those who travel between different waterways without cleaning their equipment. We must increase the number of people who incorporate cleaning into their travels to reduce the chances of AIS spread. As we all understand, changing behaviors can be challenging and it begins with understanding why recreationalists skip cleaning their equipment in the first place. This is one of the questions our research seeks to understand. Through face-to-face interviews and follow-up surveys of boaters and wading anglers, we are determining barriers to equipment cleaning, motivations for cleaning when it does occur, and perceptions of invasive species spread. We are also testing various outreach approaches for handouts and signage to understand which style produces the most change in AIS perceptions and cleaning behavior. The findings of our research can be used to help tailor messaging and improve outreach materials for distribution to boaters and anglers.
Joe Nohner	Michigan Department of Natural Resources	Joe Rathbun, Retired, EGLE Pete Badra, Cleoy Harris, EGLE	Strengthening our mussels: Science and management of mussels in inland lakes	In progress

Joe Nohner	Michigan Department of Natural Resources	Ed Baker, DNR, Kim Scribner, MSU, and Emily Martin, DNR	Sturgeon in Michigan: Science, Management, and Cultural Importance	TBA
Joe Nohner	Michigan Department of Natural Resources		Michigan lakes in a changing climate	TBA
Joe Nohner	Michigan Department of Natural Resources	Pamela Toshner, Wisconsin DNR, Heather Baird, Minnesota DNR, Sarah Nelson, Michigan Association of Conservation Districts	Protecting lakes through watershed management: Examples from Michigan, Wisconsin, and Minnesota	TBA
Joe Nohner	Michigan Department of Natural Resources	Katelyn King, MSU; Jessica Collier, US Fish and Wildlife Service; Patrick Ertel, DNR, and Chris Freiburger, GLFC	Helping fish swim into lakes: Fish passage for inland lake fishes	TBA
Joe Nohner	Michigan Department of Natural Resources	Craig Kivi, Natural Shoreline Forever	Wood is good! Woody habitat in lakes for fish and more	TBA
Joe Nohner	Michigan Department of Natural Resources	Matthew Diana and Brian Gunderman, DNR	Fisheries Management I	TBA
Joe Nohner	Michigan Department of Natural Resources		Midwest Glacial Lakes Partnership: Science, Outreach, and Conservation funding lake ecosystem management	The Midwest Glacial Lakes Partnership works together to protect, rehabilitate, and enhance sustainable fish habitats in glacial lakes of the Midwest for the use and enjoyment of current and future generations. The partnership provides scientific assessments of all Midwest lake ecosystems and fish habitats such as those found in its Conservation Planner tool. It enables partners to complete on-the-ground habitat conservation projects through grants. It conducts education and outreach such as the distribution of its Shoreline Living document that promotes natural shorelines or its Lake Conservatoin Webinar Series. Finally, it provides a forum for those seeking inland lake fish habitat conservation to share strategies and resources. Learn more about the Midwest Glacial Lakes Partnership at this presentation or by checking out the website, <a href="http://MidwestGlacialLakes.org">MidwestGlacialLakes.org</a> .
Aaron Parker	Michigan Department of Environment, Great Lakes, and Energy		Cyanobacteria monitoring of inland waterbodies in Michigan	The Michigan Departments of Environment, Great Lakes, and Energy (EGLE) and Human Health and Services (DHHS) have been tracking cyanobacteria blooms in Michigan inland waterways since 2016. Most blooms that EGLE and DHHS become aware of are reported by citizens. When possible, samples are collected by trained staff throughout the state and analyzed for cyanotoxins. Results are then relayed to local health departments to communicate health advisories to the public. Since monitoring began, the number of waterbodies with confirmed cyanobacteria blooms has increased. Regression analysis of county central latitudes and number of blooms in the respective counties revealed a significant inverse relationship ( $R^2 = 0.25$ , $p < 0.001$ ) confirming our observations that most blooms occur in the southern half of the Lower Peninsula. Instances of the less common cyanotoxins anatoxin-a and cylindrospermopsin began in the southern part of the state and have been expanding further north. Over half of the lake systems that have had cyanobacteria blooms have either been reservoir systems or natural lakes with dams at their outlets. However, only about 11% of the lakes in Michigan that are >5 acres in size are reservoirs or natural lakes with dams, indicating that these waterbody types are over-represented amongst lakes with confirmed cyanobacteria blooms. Reservoir systems are significantly shallower (Analysis of Variance [ANOVA] $F = 5.25$ , $p < 0.001$ ) and have higher shoreline development factors (ANOVA $F = 7.87$ , $p < 0.001$ ) than both natural lakes and natural lakes with dams.
Annalise Povolo	Lake Leelanau Lake Association and Grand Traverse Band of Ottawa and Chippewa Indians	Ron Reimink, Freshwater Solutions, LLC; and Dan Mays, Grand Traverse Band of Ottawa and Chippewa Indians	Control Methods for Eurasian Watermilfoil in Lake Leelanau	Eurasian watermilfoil (EWM) was confirmed in Lake Leelanau in the summer of 2019. EWM is an aggressive invasive aquatic plant capable of growing into dense mats at the surface, interfering with recreational activities, light penetration to native plants, and the amount of dissolved oxygen in the lake. Chemical and biological treatment options have been utilized by others, but with varying effects and potentially dangerous side effects. In response to this threat, the Lake Leelanau Lake Association (LLLA) and the Grand Traverse Band of Ottawa and Chippewa Indians (GTB) partnered to develop an Aquatic Invasive Species Remediation Program to control EWM in Lake Leelanau without the use of chemical or biological treatments. Beginning in 2020, the LLLA and GTB utilized the methods of hand-pulling by divers or Diver Assisted Suction Harvesting (DASH), and the placement of benthic barriers over dense, nearly-exclusive infestations of EWM. Two different types of benthic barriers were used on Lake Leelanau, manufactured Lake Bottom Blankets (LBBs; 2020 only) and burlap barriers (2020 and 2021). LBBs are made of synthetic material, and thus are reusable after being pulled out of the lake. Custom ordered burlap barriers, made of biodegradable material, were not removed from the lake, but were monitored the following year and generally continued to prevent the return of EWM during the summer of 2021. The success of hand-pulling EWM is variable, but the use of benthic barriers was shown to be highly effective in killing EWM. Restoration efforts for native plants over the existing benthic barriers began in 2021 and will continue at a larger scale in 2022 in cooperation with Grand Valley State University. New methods used in 2022, such as drone imagery and in-water ground-truthing to estimate the surface area of EWM infestations, will be presented, highlighting their success, limitations, and impacts.

Ronald Reimink	Freshwater Solutions, LLC	Dennis Wiand, ZeroGravity Aerial	Innovative Applications of Drone Technology for Lake Management	Aerial drone technology is positively impacting many sectors of society, including best practices for lake management, and offers significant advantages over traditional data collection techniques. Drone footage is archivable, conceivably in perpetuity, and can provide future reference for comparison and additional analysis. Aerial imaging provides an elevated perspective that allows for accurate and quantifiable mapping, and identification of structures not seen from the ground. Drones are also capable of carrying a variety of sensors allowing for capture of a wide range of electromagnetic spectra. Freshwater Solutions, LLC and ZeroGravity Aerial, LLC present innovative applications of aerial drone technology they have developed and utilized to assess lake wide riparian shoreline practices, identify and quantify Eurasian watermilfoil, map lake wide aquatic gardens, assist in chemical and non-chemical control of AIS, rapidly respond to unique and novel lake occurrences, and identify novel heat infrared signatures over compromised septic drain fields. This quickly developing technology will become a staple for managing water bodies globally.
Lindsey Ruppert	Northwestern Michigan College (NMC)	Dan Olree, NMC	Behind the Scenes at the Michigan Inland Lakes Convention: The Interns' Perspective	College student who interned with the Michigan Inland Lakes Convention will give an oral presentation covering aspects of the internship including outcomes such as what we have learned about careers in water from the experience, how we did in the internship and factors that contributed to its success and areas where we believe there needs to be improvement. It will include an overview of what I did in the internship as well as diving into my internship organization and how they address water-related issues and what my role was in their solution.
Lindsey Ruppert	Northwestern Michigan College	Dan Olree, NMC	Michigan Inland Lakes Convention Trivia	This abstract is being submitted as a place holder for the trivia game that will be held during the convention. Can be held over lunch or at the end of the convention. Platform for the trivia will likely be kahoot and will contain questions from speakers to create a nice wrap up of the topics discussed at the convention and cover the most significant ideas. Top winners will receive prizes.
Lindsey Ruppert	Northwestern Michigan College	Dan Olree, Northwestern Michigan College	Panel: Explore natural resources careers	Whether you are just entering the natural resource workforce after completing a degree, graduating from high school, or want to hear more about employment as it relates to the field, this question-and-answer panel with current natural resource employers will provide you with helpful information. It can be difficult to know which avenue of natural resources is the best fit for you. There are many different fields and areas of expertise. There are hundreds of different specialties to focus on. To help we have assembled a team of experts from all different areas of water and other natural resources to help with your journey into the world of helping to support and save our natural resources. Our panel of experts will be answering common questions, as well as providing advice to help you prepare to make your resume stand out and get you ready for your interviews. We will also be providing time in separate breakout rooms for those of you who want to have more individual questions answered on a more personal level from the panel. Please come join us as we help you to be able to help us!
Frank Slovenec	Global Water Works	Wayne Carmichael, Dr. Ar El Khattabi, EPA	90 Minute Interactive Three Part Discussion on Harmful Algae Blooms with an Expert Panel	Harmful Algae Blooms are not a new phenomenon. Spanish explorers recorded blooms off Florida's coast in the 1500s. In the last 40 years HABs have increased significantly. EPA reports they are now a problem in all 50 States. Global Water Works, working with a panel of three experts, will deliver a 90-minute, interactive (Q & A through chat), three-part session on Harmful Algae Blooms. The Problem Where HABs come from and the damage they do. HABs are blooms of cyanobacteria that are capable of producing toxins that can kill a dog, a deer, or a sheep within minutes, and when they occur in reservoirs, urban water supplies must be shut off until they clear. They are becoming more widespread and frequent. Solutions: To date, a variety of signs and symptoms that correlate with eutrophication and cyanobacteria dominance have been observed, and a variety of symptomatic treatments developed. But few people really understand the underlying causes. We will explore how insightful academics, engineers and biologists have "cracked the code" to understanding the root causes of HABs using case studies to illustrate the impact of technology supporting an integrated water system. Participants will walk away with a clear understanding of how to manage bodies of water to keep them free of Harmful Algae Blooms. Education. On-going available education is important for the interested and affected public. We will share resources that can be used to engage and educate stakeholders on the cause, effect and management of HABs and how to identify them and how to manage them We will profile the framework for effective education and provide a means for everyone to identify a role they can play in solving the problem.
Paul Sniadecki	Michigan Lakes and Streams Association	3 presenters from MLSA	Lake Associations & Citizen Science - Protecting Lakes Today For Tomorrow	Whether you consider yourself bold and influential or timid and conflict averse, this session is for you. As riparian property owners, we will discuss why your lake needs you and an active lake association to ensure a healthy and vibrant legacy. This session will offer the motivation for you to live lake conservation life through your own property maintenance decisions. An emphasis will be put on how these decisions are a fun and fulfilling lifestyle for you that can also inspire others. We will discuss ways you can be a conservation influencer on and off social media without the use of a soapbox. Broadening the picture, we will address the power of a group: your lake association. We will identify the necessary knowledge, skills, and abilities to walk you through how you and your association can guide conservation decisions from the neighborhood all the way to the state level. Come discover how to make conservation light work with many hands and build a proactive community structure that will last for generations.

Deana Soper	University of Dallas, TX	Sckrabulis, J. P., Ostrowski, M. D., Romano, D., Froelich, K. L., Reimink, R., McPhail, B., Rudko, S. P., Hanington, P. and Raffel, T. R	A novel schistosome species hosted by Planorbella (Helisoma) trivolvis is the most widespread swimmer's itch-causing parasite in Michigan inland lakes	Cercarial dermatitis ("swimmer's itch"; SI), characterized by small itchy bumps caused by schistosome parasites of birds, is a common problem in Michigan. Research on avian schistosomes began nearly 100 years ago in Michigan inland lakes, yet scientists are still uncovering basic biological information including the identification of local snail and parasite species that cause SI. Previous research primarily focused on lakes in the northern half of Michigan's lower peninsula, although SI occurs throughout the state. We surveyed snails and snail-borne trematodes in lakes across Michigan's lower peninsula and used qPCR analysis of filtered water samples to identify parasites to the species level, including a recently discovered parasite species that uses the snail Planorbella (Helisoma) trivolvis as its intermediate host. Most SI mitigation efforts have focused on a parasite species hosted by the snail Lymnaea calescopicum (= Stagnicola emarginata); however, lymnaeid snails and their associated schistosome species were largely restricted to northern lakes. In contrast, P. trivolvis and its associated parasite species were common in both northern and southern Michigan lakes. A third schistosome species associated with physid snails was also present at low levels in both northern and southern lakes. These results indicate that the recently discovered parasite species and its planorbid snail intermediate host may be more important drivers of Michigan SI than previously thought, possibly due to increased definitive host abundance in recent decades. These results have potentially important implications for SI mitigation and control efforts.
R. Jan Stevenson	Michigan State University		Could Recent Development of Thick Benthic Microalgal Mats in Oligotrophic Lakes Be Caused by Lower Lake Phosphorus?	Watershed groups for large low phosphorus lakes in the northern region of Michigan's lower peninsula have observed increases in thick, nuisance-level golden-brown algal mats (GBA) in the last 1-2 decades. Stakeholders and I developed a list of potential hypotheses for causes of GBA, which can include both diatoms and coccoid cyanobacteria. Groundwater contamination by nutrients was deemed the most likely hypothesis, but we also considered many more. Spatial patterns in GBA are poorly related to land use and stream inputs around lakes, as we would expect for groundwater or surface water contamination. In addition, changes in groundwater concentrations have not been observed and related well to GBA proliferations in the last 15 years. The one change in many large lakes in the study region over the last 2 decades, and potentially longer, has been a decrease in surface water phosphorus concentrations. Dreissenid mussels and atmospheric N deposition could cause these phosphorus decreases. Could we have reached a tipping point in decreasing phosphorus to cause development of GBA? Low phosphorus is required for high algal biomass of calcareous algal mats in the Everglades and Didymosphaenia in streams. Could the same microalgal ecological processes be operating in northern Michigan Lakes to generate high benthic algal biomass in low phosphorus? We have not developed conclusions about causes of GBA because of limited data and the novel nature of the problem. We continue to gather more information, test hypotheses for GBA causes, and explore new hypotheses to determine if GBA can be managed.
Paul Steen	Michigan Clean Water Corps		Cooperative Lakes Monitoring Program Annual Results	Every year since 1974, the Cooperative Lakes Monitoring Program (CLMP), a part of the Michigan Clean Water Corps (MiCorps), trains and equipments volunteers to monitor Michigan's inland lakes. This five-minute lightning talk very briefly explains what the CLMP is and then provides the highlights of the program's data collected in the summer of 2021.
Kevin Walters	Michigan Department of Environment, Great Lakes, and Energy		Advancing the Understanding of the Recreational Boating Pathway and Aquatic Invasive Species in Michigan and Beyond	With more than 3,000 miles of Great Lakes shoreline, 11,000 inland lakes, over 1,300 boat launches, and over 1 million registered boats, the recreational boating pathway in Michigan presents serious risk and opportunity for aquatic invasive species (AIS) prevention and spread. The development of a mobile application to collect data on recreational boater behaviors coupled with a recent boater survey and collaboration with regional partners is providing new resources to make data driven decisions on AIS risk and outreach methods and locations. Kevin Walters, aquatic biologist with EGLE, will share details about what data is being collected, how it is being used, and how you can help contribute. Preliminary results from the pilot season of the mobile boater application and survey will be shown. Connections to other similar Great Lakes regional efforts will be noted and preliminary implications and evaluations of data sharing options for the recreational boating pathway will be discussed.
Sally Wenczel	West Bloomfield Parks & Recreation Commissioner, author, garden educator		Eat Your Freedom Lawn	We eat our lawn. And it's delicious! Dandelion greens and flowers, violet leaves and flowers, plantain... I love adding nutrient packed living plants to meals, knowing that just minutes before they were soaking up the sun's energy and minerals from the earth. Our patch of violets really spread out since last spring; delicate, heart shaped leaves and soft petals carefully plucked and placed in the basket by my daughter. She's mindful to leave enough of the plant behind so it will keep growing. Just take enough for a meal. Dandelion greens taste best in spring when they're tender and new. A bit bitter otherwise as the heat of summer sets in. We add them to stir fries, salads, scrambled eggs. Last spring, we made dandelion jelly for the first time. It worked! I've had my trials and fails in the kitchen, but this one was a winner. My girls loved it on toast with butter. Dandelion is smart. Have you ever noticed that it flourishes in poor soil and abandoned lots? That's because it has a job to do. The plant drives its long tap root down through layers of topsoil to find the rich minerals deep in the ground. The tap root then pumps minerals up into its leaves. When the plant dies back, the leaves replenish the topsoil with minerals. Voila! When dandelion's job is complete, you'll see less and less of her on your lawn. We have a high frequency lawn, buzzing all summer long with all types of bees and other pollinators. We use zero chemicals or fertilizers on our lawn. My friends, we must stop dumping unnecessary nutrients and chemicals on our lawns. TODAY. Grow your freedom lawn and be proud of it. It's good for your body and good for your lake!

Dane Whittaker	Arizona State University		Polycentric governance for change: Comparing how U.S. Midwest lake and watershed governance systems facilitate learning	<p>Adapting to environmental change requires governance that spans ecological levels, jurisdictions, and challenges. Complex environmental governance is characterized by decision-making centers with overlapping jurisdictions that work together in partnership, conflict, or competition—termed polycentric governance. These decision-making centers are from academic, government, non-profit, and private sectors. Prior research hypothesizes that functional polycentric governance increases adaptive capacity through learning and experimentation. However, empirical evidence shows that decision-making centers in polycentric environmental governance may fail to encourage innovation or provide useful information. In this paper, I compare the structure and function polycentric lake and watershed governance to respond to social and ecological challenges in Michigan, Minnesota, and Wisconsin. I interviewed 18 leaders from lake associations, lake districts, and watershed alliances using expert elicitation and virtual tabletop exercises to gather structured data about the degree to which the organizations' partners help them adapt to their social and ecological challenges through experimentation and learning. My results illustrate how the structure and function of polycentric governance systems differ by challenge. Additionally, diversity in actors may help adaptive capacity if there are functional linkages that facilitate learning, but central decision centers with high control may have a chilling effect on experimentation. I discuss the implications of these findings for governance of complex challenges in the context of environmental change.</p>
Lois Wolfson	Michigan State University		McNALMS Promotes Protection of Michigan's Inland Lakes	<p>The Michigan Chapter, North American Lake Management Society also known as McNALMS is a 501(c)3 organization whose mission is to promote understanding and comprehensive management of Michigan's inland lake ecosystems. During this presentation, we will talk about current activities, our student research grants program, and how others can become involved in our organization.</p>