

Science Education Outreach Program 2016 - 2017 Grant Recipients

By Patricia Roush
Education, Chairman

One Central Lake Public Schools teacher and three Bellaire Public Schools teachers applied for SEOP Grants for the upcoming school year, 2016-2017. In total, TLA granted \$3217.50; \$780.50 to Central Lake and \$2437 to Bellaire.

From Central Lake Schools, Kelly Barry applied for a mobile light cart and spectrum bulbs to supply it. The light cart will be used in Kelly's third grade classroom to aid in growing plants harvested from a memorial garden outside the elementary school entrance. Seeds from the current garden will be harvested in September and planted in pots placed on the light cart where students will tend to the plants throughout the school year. In the spring students will plant the young plants in the memorial garden to flourish all summer. In the fall, this cycle will be repeated. This project is an excellent example of a hands-on learning experience for the students.

Kelly included this statement in her grant application:

"Three years ago one of my 8 year old students passed away due to a sudden illness. A class project at that time allowed me to plant a memorial garden in her honor near our front entrance. I would love (to have an) indoor gardening lab for many reasons. Each fall, I would have my students harvest seeds from this garden and plant them. That

would allow students to harvest/plant/water and tend to the seeds from start to finish and plant the flowers they grew in the memorial garden. We would continue to add beauty to this garden, Olivia's Garden, year after year. Students would see their project come to life each spring."

From Bellaire Schools, Kim Clark requested partial funding for two away-from-school experiences, one for the entire seventh grade class and the other for her high school Biology II class. Kim has been an SEOP grant recipient for several years.

The Bellaire seventh graders participate in an overnight experience at Camp Hayo Went Ha every year. Kim states in her application, "While at Camp Hayo Went Ha the students participate in many outdoor activities such as climbing rock walls, the high ropes course, and hiking through the woods. **They also learn first-hand about river and forest ecosystems.**" This curriculum requirement fits in with TLA's interest in raising awareness of our local waters among the young people who will someday manage this resource.

Ms. Clark's Biology II class takes a field trip each May to the Upper Peninsula where they select a river to study, "where we experience real-world research with scientists in a university setting. This year we will be visiting Lake Superior State University and the fisheries research facility

on campus. The students will design river research accessing the Intermediate River and a small river near LSSU for comparison. Their assessments and research will include chemical tests, **river profiles, and population studies of macro-invertebrates. The data from the two rivers will then be compared.**" Part of Kim's request this year was for 5 pairs of waders to use every spring when conducting water studies on local rivers and often in the UP as well. (Maybe they'll share with TLA's water research volunteers!) Kidding.

Also from Bellaire, Sue Mills, who is a fourth grade teacher at John R. Rodger Elementary, requested funding for a classroom website license to enable her students to use "Gizmo", an interactive science and math website. Here is part of Sue's description of how Gizmo works: "The site offers science simulations that provide instant results from student actions. The strong visual imagery allows students to enter and manipulate different variables with a simulation, experiment or visualization. The teacher can use the site for direct presentation of new knowledge followed by student application. By using this program within the classroom, we will be able to work in small groups or in whole group situations to explore and learn about our grade level science standards. (There are) hundreds of science gizmos available to us..."

Sue also requested from TLA half of the admittance fees for her 28 students for two field trips. The **Grass River Natural Area** trip will be in the fall and a trip to

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Sneak peek

CONGRATS TLA ON 50 YEARS
11,000 LAKES IN MICHIGAN?
DOCKSIDE DONATES \$2500
CAROL GRAY NORRIS FUNDS

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The mission of the Association is to provide leadership to preserve, protect, and improve the environmental quality of the Elk River Chain of Lakes Watershed for all generations with emphasis on Lake Bellaire, Clam Lake, Torch Lake and their tributaries.





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The TLA Quarterly is published by the Three Lakes Association
 Please direct comments or questions to:
Leslie Meyers, Executive Director
231-544-7221 - Please leave a message
P.O. Box 689, Bellaire, MI 49615
info@3lakes.com

President's Message

Greetings to all,

Fifty years ago, on July 11, 1966, a small group of citizens recognized a significant environmental threat to the health of the waters of our region, and stepped up to meet that threat, thereby launching the Three Lakes Association. Here are a few excerpts about that beginning, taken from the TLA history "The First 30 Years," published in 1996:

Fortunately for all of us, our Three Lakes Association founders were struck by the unique beauty of our lakes and joined together, in the face of various crises, to preserve their natural state.

Betty Kohl, a Torch Lake summer resident and founding member of TLA, remembers that she and her neighbors, as well as their teen-aged children, observed foam and green "slimy stuff" in Torch Lake near the Alden railroad station. Could it be from the Laundromat located across the road from the station, they wondered? Or was it a naturally occurring substance? They couldn't be sure, but they did know that it was the first time they had noticed something "foreign looking" around the lake.

Samples were taken and the origin of the polluting substances located. The foam was a naturally occurring froth of fine methane and carbon dioxide bubbles rising from the oil-bearing shale far below. The green "slimy stuff" was much less benign - an indication that better septic provisions had to be made for lakeside dwellings.

On another front, Hartley Comfort, also a TLA founder, remembers that the degradation of various downstate lakes was well known by residents in the TLA area and "us folks up north got to thinking about the need to take preventive action."

Hartley Comfort and Betty Kohl were not alone in questioning the assumption that the lakes in our area would always be there in their pristine clarity for them and their families. They saw that they had to swap myth for reality. An historic get-together followed on July 11, 1966, with these friends and neighbors in attendance: Bill Lee; Martha and Lloyd Aemisegger; Margaret Campbell; Caroline and James Kirkpatrick; Kathryn and Hartley Comfort; Sam Comfort; Betty and John Kohl; Russ Wheeler; Vi Patchen. This meeting inaugurated our organization and, for the record, Kathryn Comfort came up with the name, Three Lakes Association, to indicate the interdependence of Lake Bellaire, Clam Lake and Torch Lake. Martha Aemisegger drew the first map used for publicity and membership mailings. Hartley Comfort was elected the first President and Lloyd Aemisegger was elected the first Treasurer.

Throughout the ensuing fifty years, the spirit of environmental stewardship exemplified by this small group of determined pioneers, has endured. The Three Lakes Association is now widely known for its dedication to the health of our region's fine lakes and streams, and for its rational use of scientific methods in analyzing threats to that health as well as seeking remedies for those threats.

A gala celebration of this significant anniversary, will be held August 11 at Shanty Creek. Of course, we will celebrate where we've been and what we've accomplished in the last fifty years, but we also want to think about where we will be and what we need to accomplish in the next twenty-five years. As we approach that date, there are still jobs that can use willing hands. If you would enjoy helping with this celebration, be sure to contact us by phone (231-544-7221), or by email (info@3lakes.com); or visit our website (www.3lakes.com) and fill out the volunteer form. Sandy Gourley is chairing this event; she will know where additional help may be needed.

The words to the TLA mission have changed over the years, but their ultimate meaning has not. It remains "to provide leadership to preserve, protect, and improve the environmental quality of the Elk River Chain of Lakes Watershed for all generations with emphasis on Lake Bellaire, Clam Lake, Torch Lake and their tributaries."

Tina

New
Members

Brett Howard
 Daniel & Eileen Sajkowski
 Daniel & Sharon Phillion

Congratulations to Three Lakes Association from the Antrim Conservation District - Celebrating 50 years! Here's to 50 more!

Congratulations again to Three Lakes Association and many thanks for sharing a portion of this newsletter with the Citizens for Antrim Conservation District.

There was a song back in the 1960's written by Peter W. Allen and Carole Bayer Sager titled, "Everything Old is New Again". This title feels appropriate as we talk about the new energy that the Antrim Conservation District (ACD) has today. To many here in Antrim County, ACD is a household word, but there are still many new property owners are unaware of the District and the many services they provide. So here's a little primer.

Conservation Districts are local units of Michigan State government. They were established back in the 1940's by local vote, for the purpose of providing direction and technical assistance to private land owners and county government. Conservation Districts were established in the 1940's, during the dust bowl, to serve as the local connection to farmers for technical erosion assistance from the government. Over the years, forestry services were added and today ACD continues to serve as the local intermediary between land-owners and the State and Federal regulators. Incorporating local knowledge from the ACD staff and indigenous residents contributes to natural resource management that is socially and

economically responsible. Should funding losses continue and the local District, as we know it, dissolve, the State of Michigan will step in to administer.

There are efforts across conservationists worldwide to implement what is being talked about as a new collaboration between science and traditional local knowledge in conservation management. We think that's funny; the Antrim Conservation District has been managing conservation this way for nearly 75 years! That's where "Everything Old is New Again" comes in.

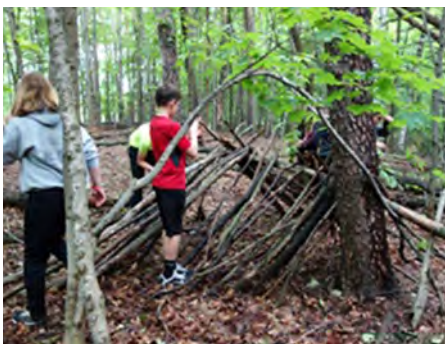
ACD believes that making informed and wise decisions is, and will always be, dependent on the quality and availability of relevant local knowledge. Three Lakes Association is of course a great example of the many local associations that lead efforts that both impact our natural resources and educate our communities.

The Antrim Conservation District recognizes that many of the new Antrim County residents are unaware ACD looks to the future, maintaining a staff that understands our local life style and the value of the natural landscape and water quality we all enjoy. Educating property owners on protecting their investment by protecting the environment while helping them get a desired outcome is what the District does best. That is why we are here.



Thomas Clement, Heidi Shaffer, Dianna Robinson & Bethany Springsdorf - ACD Staff

Don't "they" say, "knowledge is power?" It's the sharing of knowledge that is the foundation of developing systems for conservation management. The staff at the Antrim Conservation District values the partnerships they maintain with the many local natural resource associations. ACD serves as the information base to facilitate communications and to find methods and tools that provide linkages between our traditional knowledge of land use and management systems and the new modern scientific methods.



Our two field trips to Camp Hayo-Went-Ha trip were a huge success. Many said it was the best experience of their lives! "We couldn't have ever had as much fun without you!"

Kim Clark,
Bellaire Public Schools,
7th grade science

EVERYTHING YOU WANTED TO KNOW ABOUT GOLDEN BROWN ALGAE BUT WERE AFRAID TO ASK!

JULY 14, 2016
5:30 PM

Golden Brown Benthic algae (GBA) is native to the local environment: it is *not* an invasive species and is not toxic.

University experts assisting us with the study of GBA will present the findings to date and help us understand this recent phenomenon throughout our waters.

Our Speakers will include:

Dr. Rex Lowe, U of M Biological Station
Dr. Pat Kociolek U of M Biological Station
Dr. Jan Stevenson MSU

SNACKS AND REFRESHMENTS WILL BE SERVED
FOLLOWING THE ONE HOUR PRESENTATION.

KEARNEY TOWNSHIP HALL
4820 AERO PARK DRIVE, BELLAIRE

11,000 Lakes in Michigan: Fact or Fiction?

By: Tony Groves and Pam Tynning

Water Resources Group, Progressive AE

We often hear that Michigan has 11,000 inland lakes. But is that an accurate number? Breck (2004) described how that number of 11,000 lakes likely came to be:

There have been several attempts to count or compile a master list of lakes in Michigan. The Michigan Lakes and Streams Directory of 1941 reported that there were 6,454 water bodies “large enough to be lakes” (quoted in Brown 1943a). Brown (1943a) attempted to determine the total number of lakes in Michigan. Before counting the number of lakes one must decide on the definition of the term “lake.” Brown (1943a, page 1) wrote that he used “the definition of Forel, the founder of modern limnology, who described a lake as ‘a body of standing water occupying a basin and lacking continuity with the sea.’ According to this definition

all standing waters are lakes regardless of size, depth or origin. Ponds, bogs, swamps, reservoirs, etc. are just special kinds of lakes.” Brown used the best available maps of the time: county master-plan maps from the Department of Conservation and the newly available polyconic projection maps from the State Highway Department. Brown (1943a) reported a count of 11,037 lakes, of which over half were less than 10 acres in surface area. This appears to be the source of the widely reported “fact” that Michigan has 11,000 lakes.

With the advent of geographic information system (GIS) and remote sensing technologies, it is now possible to get a much more accurate count of the number and size of lakes in Michigan (Figure 1).

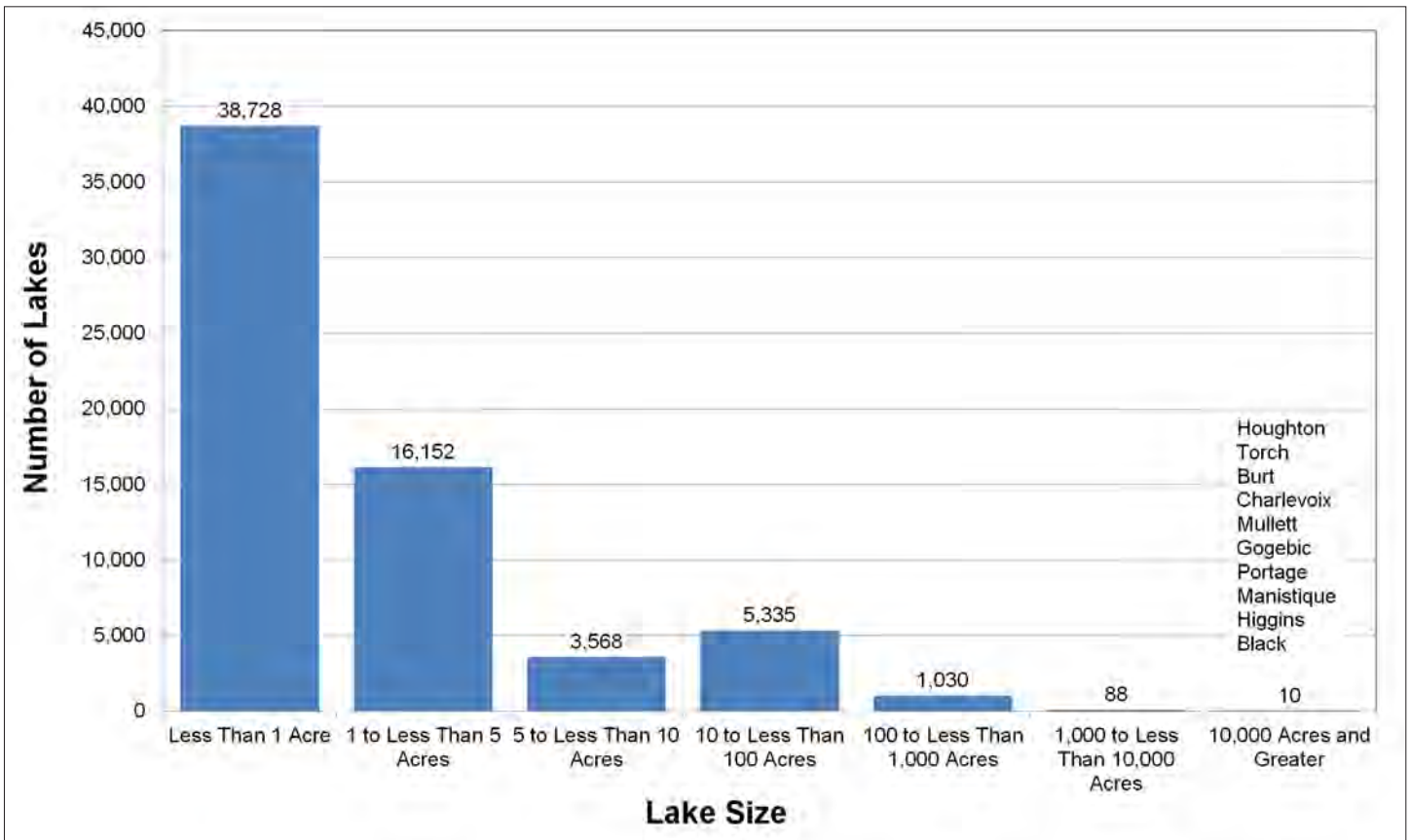


Figure 1. The number of Michigan inland lakes by size (in acres). Source: Michigan GIS Open Data.

See next page

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The state of Michigan information database contains records for a total of 64,911 lakes and ponds statewide (Table 1). This number includes all lakes from the state's largest lakes to ponds only a fraction of an acre. Using the definition from Michigan's Inland Lakes and Streams Act, lakes are 5 acres and greater; therefore, Michigan contains 10,031 lakes. Of those 10,031 lakes, 89% are less than 100 acres and 1,128 (11%) are 100 acres or larger. With a surface area of 20,075 acres, Houghton Lake in Roscommon County is the largest lake in Michigan.

Table 1
Number of Michigan Inland Lakes By Size

Size Category	Number	Cumulative Number of Lakes
10,000 Acres and Greater	10	10
1,000 to Less Than 10,000 Acres	88	98
100 to Less Than 1,000 Acres	1,030	1,128
10 to Less Than 100 Acres	5,335	6,463
5 to Less Than 10 Acres	3,568	10,031
1 to Less Than 5 Acres	16,152	26,183
Less Than 1 Acre	38,728	64,911

Figure 2 shows the distribution and size of lakes across Michigan. Most lakes in Michigan were formed as the result of glacial activity. The largest lakes in the state are located in the northern portion of the lower peninsula and the upper peninsula. Lakes are common throughout much of the state, but portions of the central lower peninsula and the thumb area are nearly devoid of lakes.

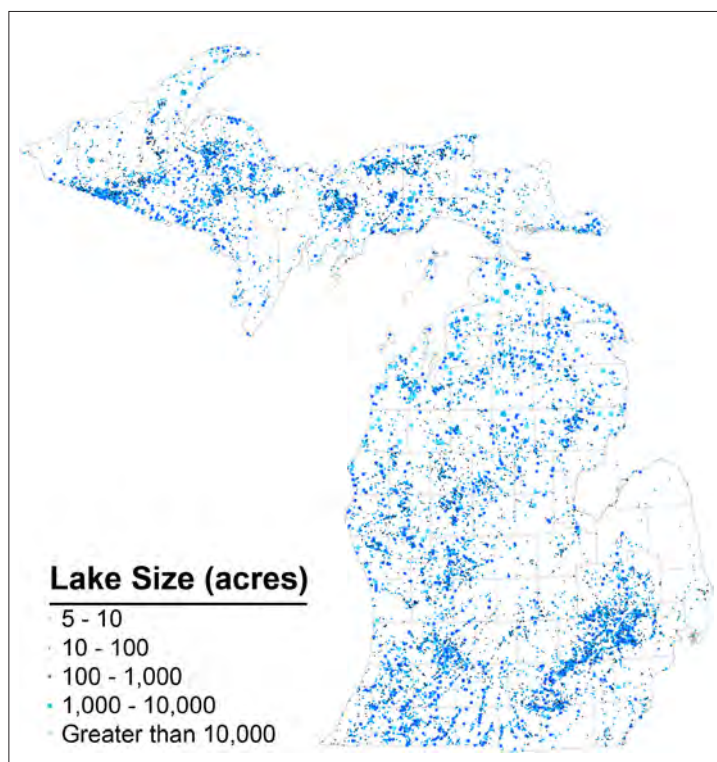


Figure 2. Statewide distribution of Michigan inland lakes greater than five acres. Source: Michigan GIS Open Data.

According to Breck (2004), depth contour maps are available for about 2,600 Michigan inland lakes. Many of the maps were created from data collected by Michigan's Institute for Fisheries Research. In addition to depth contours, these maps often show bottom types, aquatic plant distribution, and other features (Figure 3). Scanned images of the maps can be freely downloaded from the Michigan Department of Natural Resources website.



Figure 3. Barlow Lake, Barry County (1954). Modified from: Michigan Department of Natural Resources.

Reference:

Breck, J.E. 2004. Compilation of Databases on Michigan Lakes. Fisheries Technical Report 2004-2. Michigan Department of Natural Resources Fisheries Division.

Dockside - Torch Lake Donates \$2500 to SEOP

By Patricia Roush
Education, Chairman

Gordy Shafer, owner of the Dockside - Torch Lake restaurant, has pledged \$2500 to TLA's science education outreach grant program (SEOP) for the 2016-17 school year. This is not the first time that Shafer has contributed to our education programs.

Three years ago, when the joint golf outings with GRNA came to an end, TLA lost its main source of funding for the SEOP program. Shafer came forward and pledged \$9000 over three years (\$3000 per year) and challenged TLA and the community to match his pledge. It worked! SEOP has been able to give \$6000 each year through its grants. Our generous members and friends stepped up to the challenge and matched the Dockside - Torch Lake pledge.

Now the Dockside and its generous owner have given an additional \$2500. We appreciate Shafer's generosity and his interest in supporting environmental education for our area children. He has been the catalyst for funding the grant program for the last three years and now for a fourth year. Bravo Dockside - Torch Lake and Gordy Shafer!

TLA's members and friends must take



on a new matching challenge and then some. We are asking our members and the community to pledge \$3500 to reach our \$6000 budget. For the last 8 years, with your interest and generous support TLA has enabled the SEOP to impact every student in every science class in Bellaire, Central Lake, Kalkaska and Mancelona since 2008! That is a remarkable accomplishment and something we want to continue. Please participate in our new pledge effort. This challenge period will run from June - December, 2016. Donate on our website (3lakes.com) or send your contribution to TLA, PO Box 689, Bellaire, MI 49627 and designate that it is to be earmarked for SEOP.

Again TLA commends and thanks Dockside - Torch Lake for its support.

SEOP Grant Recipients *continued from page 1*

Impression5 Museum in Lansing will be next spring. Each field trip supports fall and spring science standards for fourth grade.

The third Bellaire teacher, Chris Vandergriff, teaches seventh and eighth grade science. His request was for partial funding for two fields trips to GRNA, one for his seventh graders and one for the eighth graders. His application states: **"8th grade science standards investigate the importance of water's part in the world. There is no better way to study water than outside splashing in it. There are roughly 40 students who would benefit from the experience of GRNA's Water and Wetlands class program.** 7th grade science standards zero in on energy transfer through ecosystems and food chains, also organisms' structures and functions. GRNA's class program Food Chains and Webs can

address these issues in a hands-on, out of doors angle that would really interest and elevate the students' learning. About 25 students would benefit from this field trip."

These teachers go the extra mile to benefit their students. The equipment and experiences they have asked for enhance science instruction. TLA members can be very proud of our contributions to science education within our own lakes watershed.

All of our grant recipients have expressed their thanks. Look for quotes from them around the newsletter.

This year yielded a small group of SEOP grant applicants allowing TLA to fulfill all their requests and leaving an amount in our treasury which will be carried over and added to next year's grant funds. Our annual budgeted funds are \$6000.

What is SEOP?

SEOP is the acronym for Science Education Outreach Program. Seven years ago, our Board of Directors approved a proposal to provide an opportunity for our area science teachers to give their students materials, equipment or experiences that could not be provided by the school districts due to budget constraints.

We selected Bellaire, Central Lake, Kalkaska and Mancelona Schools as their districts border our three lakes.

Each year, the board decided on the amount of funding for SEOP, teachers applied for those items or experiences that they felt would enrich their students' science education and TLA granted as many of the applications as we could. TLA requires feedback during and at the end of the school year, informing us about what they did, how they did it, how and what the students learned, etc. Over the years, TLA has awarded over \$65,000 in grants to area teachers. We are proud of our partnership with the schools.



Magnets are a real hit with our K/1 students and fit in with our science units. We have other magnetic resources in our classroom, but this particular set was a favorite....especially using the magnetic wands.

Kari Groll, Central Lake Public Schools,
Kdg. science

Carol Gray Norris Fund Classrooms

TLA administers the Carol Gray Norris Science Fund for the Norris family. This fund provides assistance to local schools, and occasionally directly to students, for various scientific endeavors.

Dear Three Lakes Association,

Receiving the Carol Gray Norris Fund Grant last year paid huge dividends with all of my science classes. The ScienceWorld Magazine subscription enabled our students to see the connection between the material we are learning and real-world situations where that science is at the forefront.

The ScienceWorld Magazine was a massive hit with the students, the younger ones in



particular but certain aspects reached students of all ages. It is a great way to connect current events from large scale Global Warming Research to more local topics such the Flint Water Crisis; it also includes articles that tie-in Pop Culture and the science behind them, with features on movies like Star Wars and The Martian. Having the subscription come with a teacher guide that has worksheets and quizzes, helps to ensure full participation and retention of the topics we go through.

Overall, I think that the grant funds you awarded us were very well allocated and will continue to pay off in years to come. Thank you very much for all the great work you do and I look forward to our continued partnership.

Sincerely,
Dino Pizzino, MS/HS Science Teacher

Kim Clark, BPS, 12th grade Bio II
The Bio 2 trip this year revolved around the Michigan fisheries and the latest research being done at LSSU. We stayed overnight on campus and toured the university with an emphasis on biology and the fisheries department. We also visited the Soo Locks, McGulpin Lighthouse, and the Oden Fish Hatchery visitors center. We had a wonderful time. Thank you so much for this year's grant... we are already looking forward to our trip next year as well. These experiences are so valuable in helping our young people get in touch with nature and emphasize the importance of being good stewards of these incredible Michigan resources!



Dear Three Lakes Association,
Thank you for the grant monies that helped support my 4th grade science curriculum during the 2015-16 school year. The grant monies were used to purchase Snap Circuits and 1/2 the entrance cost for two field trips: Impression5 Science Museum in Lansing and Grass River Natural Area. Without the grant I would not have been able to purchase the Snap Circuits, which are hands-on circuit building kits with over

100 different projects. Without the grant money, many of my students would have had difficulty coming up with the full fee for the trips.

Again, thank you for supporting science learning in the 4th grade at John R. Rodger Elementary in Bellaire. My students and I appreciated the opportunity to expand our knowledge and meet the goals of our core curriculum.

Sincerely, Sue Mills, 4th Grade Science

- Membership counts! -

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Michigan Riparian Magazine Subscription add \$15

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* * * * *

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**Three Lakes Association
50th Anniversary Celebration
& Annual Meeting**

August 11, 2016, 5:30pm
Shanty Creek Resort, Bellaire Room
5780 Shanty Creek Rd
Bellaire, MI 49615

Fifty Years and still swimming with the fish!

Advance Reservations Required
\$40 per person

Make your reservation and pay online at 3lakes.com
OR
Call 231-544-7221
Reservation deadline is August 4.