



QUARTERLY

THREE LAKES ASSOCIATION

SERVING LAKE BELLAIRE, CLAM LAKE AND TORCH LAKE IN ANTRIM COUNTY, MICHIGAN

OCTOBER 2017

SEOP 2017-18, what will next year bring?

By Patricia Roush

TLA's Science Education Outreach Program (SEOP), is eleven years old. Over the years SEOP has awarded thousands of dollars in science experiences, materials, equipment, trips, teacher education, magazines and books to the students whose teachers applied for SEOP grants.

Every science teacher in our four school districts (Bellaire, Central Lake, Kalkaska and Mancelona), is eligible for an SEOP grant. This includes every elementary teacher, as these teachers teach all subjects every day. An added bonus to these grants is that much of the equipment is reusable, year after year, thereby benefiting new students, year after year.

Three Lakes proudly announces that the 2017-2018 SEOP grants totaling \$7,848.03 have been awarded to seven teachers in the Bellaire, Central Lake, and Kalkaska Public Schools.

Bellaire Schools:

Kelli Fischer 5th grade, received tuition funding for a



Happy Bellaire 4th graders from Mrs. Mills' class.

class trip next year to the Grass River Natural Area. Kelli also received funds to purchase or update her classroom earth science, space science, ecosystems and properties of matter kits.

Sue Mills received funds to purchase a second year website license for Gizmo, an online learning tool that provides "hundreds of online simulations with lesson materials, supporting research-based strategies to build deep conceptual understanding in math and science." Sue also received supplies for several science lessons and supplies for the "Salmon in the Classroom" project.

An article appeared in the Antrim Review this spring about Ms. Mills' class releasing the salmon they raised, in their classroom, into the Platte River. And, Ms. Mills received a tuition grant to cover admission fees to the Impression 5 Science Museum in Lansing.

Sue Mills, on the rewards of the Salmon in the Classroom program: "The salmon became an up close and personal way to provide the students with the understanding that water is a precious resource that needs to be protected. We were able to connect many important lessons about pollution, water run-off, connections of rivers

to lakes, water treatment sites, destruction of wetlands, etc., through our study of the salmon. I would like to provide this opportunity to my incoming students."

Chris VanderGriff, 7th and 8th grade science and high school chemistry, received three Chromebook computers to use with his classes. Chris and Kim Clark were awarded \$600 to put towards tuition for their annual field trip to the educational camp experience at Hayo-Went-Ha.

From Bellaire Superintendent, James Emery: "Thank you, once again, to the Three Lakes Association for the grant funds

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Sneak peek

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THREE LAKES ASSOCIATION

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President's Message - Back on track

Greetings,

It does take a team to carry out the mission of the Three Lakes Association; and every member of the team is important; every member is needed. When we are missing a team member, we are handicapped to some degree.

For the last few months, we have been operating without an Executive Director, a very significant member of our team. The process of recruiting and interviewing candidates for the position, sorting out talents and skill-sets, seeking to discern the best fit between individual and organization, is now complete.

We'd like to introduce TLA's new Executive Director: Marina Friend.

Marina comes to us with a strong background in marketing and sales, social media outreach, and administration, as well as a solid knowledge of modern communications technology. Her presence is delightfully charming, energetic, and upbeat. We believe she will represent the Three Lakes Association with diplomacy and contagious enthusiasm as she moves among the public and the many organizations with whom we partner. She also brings a sincere heart for the mission of the Three Lakes Association, which is "to provide leadership to preserve, protect, and improve the environmental quality of the Elk River

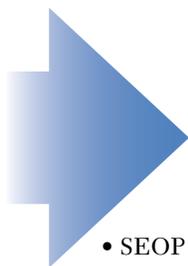


Chain of Lakes Watershed for all generations with emphasis on Lake Bellaire, Clam Lake, Torch Lake and their tributaries."

While that mission statement is very simple and straightforward, it takes a lot of people to carry it out. It takes a rich blend of talents and a basketful of diverse skill-sets, along with a unifying passion for stewardship of our watershed. There's a need for just about any talent or skill one can think of. There is field work to do, gathering water samples, getting samples tested, counting bugs in the stream or measuring the depth of a river channel. There is education to do, in the classroom, in the water, or in public; reporting on the results of testing, communicating the meaning of those results to the community at large, explaining the rules of boating safety or supporting the practices of shoreline protection. There is outreach to do, informing the public about environmental health matters that may not be widely known.

As always, I close with my customary plea: if you value the mission of TLA, please volunteer to help with any of our ongoing projects. Just call us (231-544-7221), or email us (info@3lakes.com); or visit our website (www.3lakes.com). There is room for you, no matter what your skill level is.

*Welcome, Marina!
Tina*



TLA Education Funding Numbers to be Proud of

- SEOP Grants total \$50,537.75
- ISEA Grants total \$16,550.00
- CGN Funds total \$2713.00
- 25 classroom excursions aboard the Inland Seas Schoolship.
- 43 other field trips, including many class field trips to Grass River Natural Area.
- 15 framed maps of the Elk River Chain of Lakes for school libraries and classrooms.
- 22 teachers attended science conferences.
- 12 memberships in state or national

- science education organizations.
- 800 students benefited from subscriptions to science magazines.
- 494 pieces of science equipment placed in classrooms.
- 90 participating teachers received most or all of their grant requests.
- Thousands of science students in our area have been served with classroom and field trip experiences that have enhanced their science curriculum through SEOP, ISEA and the CGN Fund.

Science Education Outreach Program *continued from page 1*

that our staff received for the upcoming school year. Mrs. Fischer, Mrs. Mills, and Mr. VanderGriff are excited about what these funds will be able to do to help support their classrooms. Last week I shared with our Board of Education the total amount of the grants (\$3,761.35) and the Inland Seas grant (\$425) that your organization so graciously awarded our staff and students. Your group has been very kind to Bellaire Public Schools for many years and we truly appreciate it.”

Central Lake Schools:

Received from Lenore Weaver, Superintendent of Central Lake Public Schools, on August 30, 2016: “I wanted to take a moment to introduce myself - I am the new superintendent at Central Lake. I have only been here for one month and I have already heard the most amazing things about your group. What a wonderful thing that you ... are doing ... for our kids. I want to thank you for all that you do for our students and staff and I would like to offer my support in any way that I can.” (Mrs. Weaver has been very much in touch with TLA this year. She invited us to attend, and help with, a women in science conference held in the high school; she is looking for someone with a passion for astronomy to work with some students next year; and she attended one of our fall board meetings to initiate getting to know us.)

Kari Groll, Kindergarten, received 25 pairs of snowshoes for outdoor winter environmental exploration. Kari and her



Chris Vandergriff, Bellaire 7th grade teacher, and two students explore a creek at Hayo Went Ha.

co-teacher, Bridget McAvoy are planning to implement a curriculum next year that is more environmentally based with a focus on being outside in all kinds of conditions.

Kelly Barry, 3rd grade, and her students, started a garden last year with some help from SEOP to fund the equipment needed for an indoor grow lab. This year Kelly

received funding to keep the grow lab running. Students plant seeds in the indoor grow lab in the fall, tend them all winter, and transplant them to the garden area outside their building in the spring. It's a yearlong science learning experience. Ms. Barry also received a kit that converts grams to ounces

See SCIENCE EDUCATION page 4

WANTED NEW SEOP DIRECTOR

TLA is on the lookout for a member interested in taking over the direction of one of our education projects, the Science Education Outreach Program. Currently, Patricia Roush is directing SEOP and she will step down next summer. Patricia would like to work with her successor during the coming year to pave the way for a smooth transition. If you are interested, please call Patricia at 231-599-2198 or send an email to pandproush@gmail.com.

Note: You do not need to be a current board member to take over the SEOP.



Patricia Roush, TLA SEOP director and Central Lake teacher Kelly Barry with part of her 3rd grad class seated in Garden.

Science Education Outreach Program *continued from page 3*

and vice versa.

Sally Kinery, 6th and 7th grade science, received 6 microscopes for her science classes, along with slide making and lens cleaning kits. Other requests granted included a fish factory lab kit, food chain curriculum and an owl pellet lab kit.

Sally Kinery, on her request for microscopes: "For use in my 7th and 8th grade Life Science class, I have 8 working microscopes, 6 of them having been purchased through your grant two years ago, for approximately 28 students to use. I believe that it is extremely important for students to gain experiences in science through hands-on activities. Having working microscopes to use with my students has really helped them to experience life science in a concrete and exciting way. I do not feel that we need a full class set, but it would be nice to eventually have approximately 15 to use with partners."

Kalkaska Schools:

Greg Beach, 2nd grade, received tuition funding for all 2nd graders to take a field trip to the Au Sable Institute of Environmental Studies, "where students deepen their knowledge and appreciation for the water cycle, water quality, and the organisms that depend upon the water." The 2nd graders at Birch Street Elementary have been going on this trip for several years now thanks to the SEOP grant.

Three Lakes Association awarded \$7,848.03 to these eight teachers and their science classes! Over the 11 years of the SEOP, grants add up to \$50,537.75. Every member of TLA contributes, through our annual membership dues, to all aspects and projects of the organization. Thus, each of you can take pride in helping make this important education project succeed.

Kelly Barry, Central Lake 3rd Grade

"I just finished my first year using the growing lab I was able to purchase thanks to the grant I received from you! In the fall, my class went to a garden on school grounds and harvested seeds from lilies, daisies and marigolds. The class learned how to find the seeds a plant produces as it nears the end of its life, and see how, if planted, those seeds grow a new plant. We planted those seeds and put the pots in the growing lab. Then we watched and waited. It did not take long with the 24/7 amount of "fake" sun!" - Kelly Barry

Quotes from students:

"I feel now, I can plant! I saw flowers I did not know existed. Now I do!" - Josh Beasley

"I found out old flowers dying can give us seeds!" - Bri Hammacker

"I loved seeing how flowers grow. I learned how to plant and [that] you can get seeds from old flowers." - Savannah Duff

"I thought it was neat to plant seeds. Planting will help the world. It was neat to watch plants grow. We had to replant when some died." - Joe



Mrs. Barry's 3rd grad girls weeding and enjoying the garden.

Kelly

"It was fun! I learned how to grow stuff! When I grow up, I am gonna start growing small plants to large plants." - Brett Murray

"I thought gardening was neat, putting seeds in dirt and waiting 'til they bloom. We had to replant some because we planted some seeds too soon." - Hunter Dennis

Sue Mills, Bellaire 4th Grade



Students using the snap-circuits kits

Because of the many requests that you have graciously granted over the years, my students have been able to experience science-based field trips, have access to materials for hands-on projects, experience the opportunity to interact with web-based demonstrations and experiments in order to better understand their grade level science standards, and have resource and reading materials available to develop their curiosity in all areas of science.

Chris VanderGriff and Kim Clark, Bellaire 7th Grade

Thank you for helping our 7th grade students attend Camp Hayo-Went-Ha again this year. We had an outstanding experience with so many students conquering their fears on the high ropes course, zip line and climbing walls.

They hiked through wetlands and sampled a creek looking for aquatic macro invertebrates to determine the health of the stream. Torch Lake was the backdrop to many of the activities where ecology and stewardship took center stage throughout our two-day adventure. It is difficult to describe the excitement and wonder our students experienced in this magical place, but we, as teachers, were filled with joy as we witnessed life-changing moments where they persevered through challenging tasks or were amazed by Mother Nature's beauty.



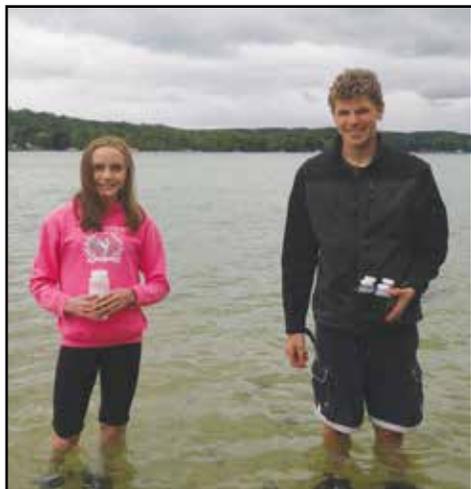
Bellaire 7th graders learn about ecosystems at Camp Hayo Went Ha.

Update on Water Quality Projects

By Becky Norris

This spring and summer we have continued study of the golden brown algae (GBA) in our lakes. The Elk-Skegemog and Lake Leelanau lake associations are participating with us to track the seasonal pattern of phosphorus levels in the lake water and in the subsurface “pore” water in the lake floors. Sampling devices are installed at one site in each of Torch Lake, Lake Bellaire, Elk Lake, and Lake Leelanau. We are seeking to determine if changes in phosphorus levels parallel changes in the visible GBA. Samples have been collected for July, August and September and results are pending from the laboratory. We are also tracking the sub-lake floor temperature as this may have an impact on the GBA growth. Lake floor algae samples have been collected at the same time points as the water chemistry samples and correlation will be attempted between the algae composition, the lake floor appearance, and the water chemistry data.

Our summer interns have assisted in carrying out a water quality study of the sandbar at the south end of Torch Lake. Samples were collected from three sites: Torch River just downstream of the bridge at Fabiano’s, Torch Lake at the Lake Street public access, and Torch Lake at the Division Street public access. Samples were analyzed for E. coli counts and nitrate nitrogen levels. These samples came up with values in the acceptable range for surface waters. Additional samples were evaluated,



Tim Stoldt and Dahlia Evans, 2017 TLA summer interns, collecting water samples for sandbar study.



Jeff Green and colleagues preparing sampling devices for a GBA study site in Lake Leelanau.

for odors associated with human sewage, by dogs specifically trained to distinguish human from non-human waste. These samples were positive on July 3 when there was a high density of people and boats on the sandbar and were equivocal or negative before and after the holiday period. The overall conclusion was that human presence in high numbers has a detectable effect on the water quality but there was no indication that fecal contamination, specifically, was present.

A shoreline survey was undertaken to locate any large patches of Cladophora, a green filamentous alga that clings to rocks

along the lake shores. Small growths of Cladophora occur naturally, particularly in the springtime, and represent no reason for concern. When the patches are of sufficient size, and when they persist into the summer season, a search may be appropriate to discover sources of excess nutrients, such as fertilizers, wildlife droppings, or overburdened septic systems. Our technique this year was observation of shoreline with binoculars from power boats. Using this technique we found no large patches but could easily have missed small ones potentially due to correctable issues.



2017 Interns report to TLA Board

From left, Becky Norris (TLA WQ Chair), Tim Stoldt (Elk Rapids High School), Tina Norris Fields (TLA President), Dahlia Evans (Bellaire High School).

Mini-Symposium on Golden Brown benthic Algae at MSU

Affiliations:

Jan Stevenson, MSU-Zoology, diatom expert

Dave Long, MSU-Geology

Russ Kittleson, Walloon Lake Association, WQ Chair

Laura Symonds, MSU & Environmental Canine Services

Gary Kohlhepp, Michigan Department of Environmental Quality

Bob Kingon, Elk-Skegemog Lakes Association

Gary Petty, Torch Lake Protection Alliance

Rick Doornbos, Three Lakes Association (Torch, Clam, & Bellaire Lakes)

Anthony Kendall, MSU-Hydrogeology

Tim Veverica, U Of M-Biological Research Station, Pellston

Joan Rose, MSU-Public Health

Dean Branson, Three Lakes Association

Dave Hyndman, MSU-Hydrogeology

Lois Wolfson, MSU-Water Studies

Becky Norris, Three Lakes Association, WQ Chair

Trish Narwold, Three Lakes Association & Torch Conservation Center

Andrew Narwold, Three Lakes Association & Hayo-Went-Ha Camp.

Back row from left, Jan Stevenson, Dave Long, Russ Kittleson, Laura Symonds, Gary Kohlhepp, Bob Kingon, Gary Petty, Rick Doornbos, Anthony Kendall, Tim Veverica, front, Joan Rose, Dean Branson, David Hyndman, Lois Wolfson, Becky Norris, Trish Narwold, Andrew Narwold



Remembering TLA Summer Interns:

In 2009 Wilhelmina Witt (left) was a TLA Intern from Central Lake High School. She and the other interns investigated the populations of Diporeia in Torch Lake, which is a glacial relict macroinvertebrate that represents the bottom of the food chain. She also led an Envirothon Team in Central Lake High School (TLA sponsored) that reduced the energy loss in the school building. Wilhelmina has just finished a year of teaching in South Korea. The photo shows Wilhelmina teaching anatomy of a pig to a South Korean student. Wilhelmina may be teaching in Nepal next year.



Braden Ackerman

Jeffrey Brown

Tina Daniels

Jeffrey Darst

Marina Friend

Glenn & Kristine Hallett

Meribeth Hiestand

Julia Orsini

Joan Preece

Veronica Smith

Gary Lockwood

Beverly Marshall

Michael & Ann Welch

New Life Membership:

Tye Nordberg

Swans

on the Chain of Lakes



By Fred Sittel

A number of swans on Lake Bellaire and Clam Lake are wearing bright green neck collars this summer. The added splash of color is part of a cooperative study between Michigan State University, the Michigan Department of Natural Resources and the U.S. Department of Agriculture. Each collar contains a solar powered GPS transmitter to record position information at specified intervals and transmit data over cellular networks. Temperature logging recorders are also being placed in some nests. Mute swans sit on their eggs continuously so changes in nest temperature can determine hatching of signets or nest failure. The project is led by Randy Knapik, a Ph.D. student researching the demographics and movement of mute swans in Michigan. Mute swans, (*Cygnus olor*), are native to Eurasia but have established large feral populations in North America along the Atlantic Coast and in the Great Lakes. Management of swans has become a conservation priority due to their adverse effects on wetlands and frequent conflicts with humans. They are one of the most aggressive waterfowl species and drive out native waterfowl and other wetland wildlife while nesting and raising young.

Successful long term control measures require an understanding of their seasonal movements and population dynamics, information which is currently only known for their native ranges. The study which began in April 2016, will conclude in December 2018. The primary research areas are parts of Topico Marsh in the Bay City

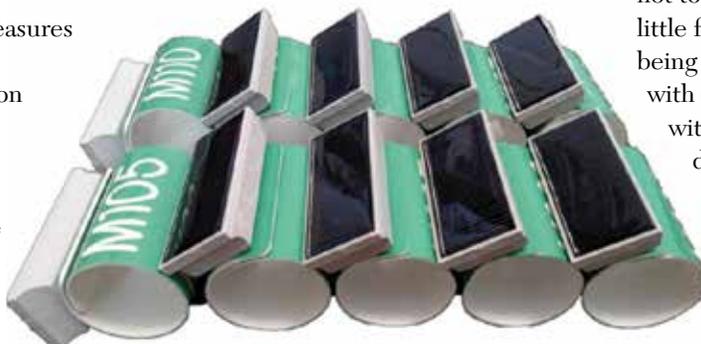


State Recreation Area in Bay County and the Pontiac Lake State Recreation Area in Oakland County. Preliminary data suggested that productivity of swans, as measured by the number of cygnets fledged per nesting pair, is dependant on the local population density. If this effect is strong it must be included in a population model because as numbers are decreased remaining pairs may begin to produce a greater number of young per nest. To explore this possibility, the study will document nesting productivity in areas with a high density of adult swans

versus areas with a lower density.

Mute swans were introduced to North America in the mid-1800's to compliment small lakes in city parks and on estates. The first record of a breeding pair in Michigan dates back to 1919. Since then populations have exploded. It is believed that the population nearly tripled over a recent ten year interval. A study in 2013 estimated the population in Michigan at 17,000 individuals. The National Audubon Society and Ducks Unlimited support drastic reductions of mute swan populations. The DNR goal is to lower the count in Michigan to around 2,000 individuals

by 2030. Along with the invasive mute swan there are two other species of swans which are native to Michigan, trumpeter and tundra swans. Both of these species have black bills which makes them easy to differentiate from mute swans which have yellow bills. Mute swans can also be identified by a large black knob on top of their bill which appears to protrude from the forehead. Many boaters on the chain of lakes and operators of personal watercraft in particular, have experienced aggressive behavior by mute swans. The public is asked to deescalate these encounters and not to harass wildlife. Mute swans have little fear of people and adapt rapidly to being fed from human hands. Boaters with children often stop to attract swans with food handouts. This can be very dangerous, especially for children, because swans can strike at the hand or face without warning. The Michigan DNR reminds the public never to feed any type of waterfowl.





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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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