TLA Quarterly

JANUARY 2012

President's Letter

TLA's Executive Director: Changing of the Guard

THANK YOU
Norton Bretz

WELCOME
Leslie Meyers

Norton, on behalf of a very grateful Board of Directors, and the membership of Three Lakes Association, please know that your services as our Executive Director for the past five years have been greatly appreciated. We **THANK YOU**. We especially appreciate your leadership in continuing to use environmental science and data to guide our lake association's activities in the footsteps of your predecessor Tim Hannert. Some of the hallmarks of your credible tenure include the following:

- Championing the summer internship program for four of the last seven years, which now includes more than 40 high school students who worked with you and TLA volunteers to kayak around the three lakes documenting patches of Cladophora filamentous algae, to measure the seasonal profiles of water quality parameters in the lakes, and to survey populations of diporeia (a major fish-food organism in our lakes, ~3/8-inch long invertebrate bugs that live in the sediments of these lakes; glacial relicts).
- Compiling interesting articles in TLA quarterly Newsletter, including many articles that you authored. Encouraging high-quality educational events.
- Building working relationships between our lake association and other northern Michigan lake associations, two watershed councils that include the Elk River Chain of Lakes in their service area (The Watershed Center in Traverse City, and Tip of the Mitt in Petoskey), Grass River Natural Area, local units of government, local school districts, MI-Dept of Environmental Quality, and universities, most notably MSU and Tufts University (Betsy Homa's PhD thesis in 2009, an extension of TLA's project to build predictive water quality models).
- Archiving historical reports of studies on these three lakes that supported the re-licensing of the hydroelectric operation within the Elk Rapids Dam.
- Implementing plans for managing Eurasian watermilfoil in Torch Lake; forecasting the impact of dredging Craven Pond on Lake Bellaire water quality; maintaining & calibrating TLA's special water quality instruments; and creating a TLA Executive Director Fund.

We are delighted that you are willing to continue serving our TLA's Board as a Director at Large, and to continue volunteering on special projects, as time allows.

Leslie, WELCOME to the position of Executive Director of Three Lakes Association. We are looking forward to your leadership in helping to shape the direction of our organization. TLA Board's search committee was particularly impressed with your skills and experiences in working with local units of government and your degree from Michigan State University in Urban and Regional Planning. Since most of TLA's goals are accomplished through the efforts of volunteers, and through collaborative partnerships with other organizations, and generous donations, we were also impressed with your experience in working with non-profit organizations, such as being the Executive Director for the Clarkston Area Chamber of Commerce. As part of your part-time job as Whitewater Township's Planner, we recognized your contributions in the Elk River Chain of Lakes stakeholders group, where TLA is an active participant. We also appreciate your special intangible talent for resolving issues, building a consensus in a civil, non-adversarial manner, and recruiting the scientific talent to continue TLA's science-based decision making process.

TLA's Board and membership are looking forward to your active involvement in the following activities to help accomplish our 2012 goals:

- Grow TLA's membership, including non-riparians and local businesses who benefit from TLA's activities
- Participate in our outstanding summer internship program
- Continue building project-specific partnerships with The Watershed Center, Tip of the Mitt, and Elk-Skegemog Lakes Association including the following projects (1) the development of a stormwater management plan for Shanty Creek Watershed, (2) a reduction of human activity-related sediment loading into Grass River based on hydrologic stream modeling, (3) a restoration of native fish populations in the tributaries of Grass River in collaboration with DNR, and (4) installing multiple fish shelters in accordance with DEQ permits.
- Continue TLA's environmental education programs including its unique outreach grants to local science teachers, and the joint education events.
- Advocate for water quality protection initiatives, including the protection of shoreline greenbelts and evaluation of septic systems.
- Improve TLA's communications with people of all ages about efforts to protect these lakes and streams using currently available technology.

Sincerely, Dean Branson

THREE LAKES ASSOCIATION

Founded 1966

The TLA Quarterly is published by the Three Lakes Association

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In this issue

TLA's Facebook page

In response to a strong recommendation by a focus group of ten non-Board members in our community last March, TLA created its own Facebook page about 8 months ago. We now have 73 "fans" who have "liked" the page.

The idea, as suggested by the focus group, is to broadly communicate TLA's activities to a bigger audience, including people who may not routinely read our quarterly Newsletters but who love the lakes, actively glance at new Facebook postings, want to be kept abreast of TLA's activities to protect these lakes.

Find us on Facebook

Since Facebook is primarily a visual media, we have been posting pictures of TLA activities with short captions. We are actively seeking feedback. What kind of postings do you like the best? Least? Please add your comments under the postings.

If you have a Facebook profile but have not checked out TLA's Facebook page, please do so. An easy way to find TLA's Facebook page is to log on to our Website (www.3lakes.com), and then click on the link (below). It is a hot link and will take you directly to our Facebook page. Please "like" the page and leave a few comments.

Science Education Outreach Program: Fourth Year, 2011-2012

by Patricia Roush

On the last December Monday of school before the holiday break, two dozen local science teachers and their students received some very good news. I contacted the teachers informally, by email, to inform them that Three Lakes Association will provide all of, or a good share of, their requests to our Science Education Outreach Program.

Fourteen teachers, singly or representing other science teachers in their districts, applied for grants to purchase science equipment and science experiences totaling over $10,000 and benefiting over 1000 students. This Science Education Program is budgeted by the TLA Board of Directors at $12,000 for the 2011-2012 school year. $3,200 is set aside annually from the whole to provide one class experience aboard the Inland Seas Education Association Schoolship for each of our four school district partners, i.e. $800 per class for a class of about 30 students.

The remainder, $8800, will provide almost all wish-list requests in this, TLA's fourth year of the program. Teacher applicants provided smart, detailed rationale for requests and will share their experiences with us as the school year goes on.

Kelli Hammond, a 5th grade teacher at the elementary in Bellaire, requested a Smart Board/Interactive Whiteboard explaining, "These boards are great for all learners and they really engage the students in learning. I can use it for more than science lessons, but science is the area that we need it most. Our science kits for fifth grade are outdated and this new technology will advance and enrich our science requirements." Ms. Hammond said that she and her colleagues have been able to obtain everything for teaching science with the SmartBoard so we are ready to go.

She also included some thoughts from her students:

"This will help us get our science going. We will be able to zoom in on things."

"It (the SmartBoard) will enhance our learning in the science world."

"This wonderful board will challenge our minds."

"This board will allow us to do more hands on activities."

"During lessons, our teacher will not have to run back and forth from the computer to the board, showing and teaching us different lessons. (She can stay in one place and save her energy!)"

Who could resist such thirsty minds? In January, formal notification will be sent to each teacher, each principal and each superintendent. Funds will be sent to district superintendents or business managers.

Here's a synopsis of requests made and granted:

Experiences

Four Inland Seas Schoolship experiences, one per district
Two whole grade Au Sable Institute field trips benefiting 179 students
One whole grade Grass River Natural Area field trip, 30 students
One Camp Hayo-Went-Ha Overnight Science field trip, 34 students
One Raven Hill Discovery Center field trip
Solar System Evening for fourth graders and their parents at the J.H. Rogers Observatory at Northern Michigan College
Michigan Science Teacher Assoc. annual conference, 4 teachers

Equipment

Science magazine subscriptions, books and posters
Microscopes
Safety Glasses
A wireless animation weather station
A sling psychrometer
A Dwyer wind meter
Magnifiers and magnet kits
Thermometers
Gear sets
Measuring sets
A renewable energy kit
Dissection materials including frogs
Scholastic Brain Bank Science Boxes
Tri-fold presentation boards for 7th/8th grade science fair
Water quality sensors

As Chairperson of TLA Education Committee and the administrator of Science Education Outreach Program, I thank TLA's Board and our membership for your continuing support. Our organization is providing much needed assistance to area science staff for the benefit of area students.

In Memoriam:

Shirley Hetzel and Skip McCully, conscientious members of TLA's Board of Directors, died this past year. Their support of TLA's activities on behalf of these lakes for many years serves as an inspiration for our team of volunteers. The Board expresses our sympathy for their family's loss.

Muriel Jean McClelland, wife of Board member, Bob McClelland, died in December, and Mary Kay McDuffie, one of the original TLA members and wife of former TLA Vice President and Water Quality Director Ed McDuffie, also died in December. Mary Kay and Ed are authors of Torch Lake: The History of Was-Wah-Go-Ning, 2009.

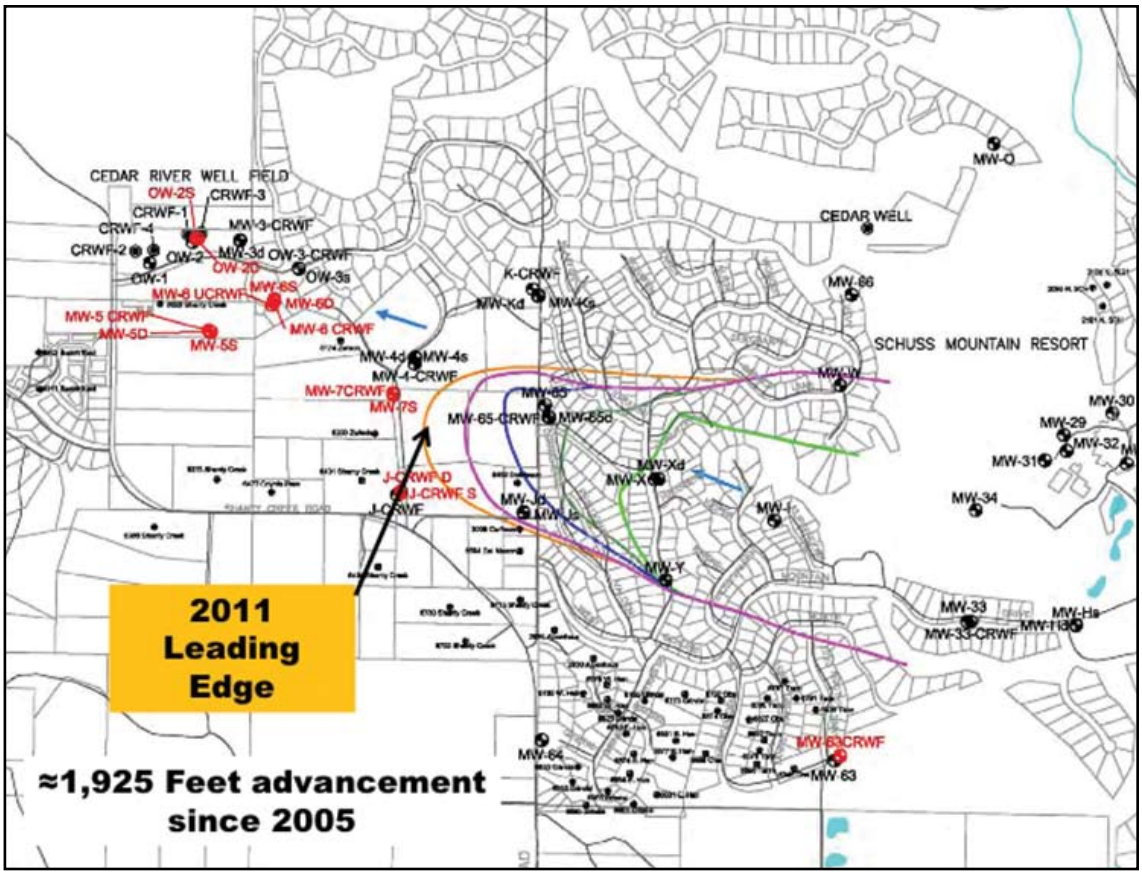
The Mission of the Three Lakes Association
is to provide leadership to preserve, protect,
and improve the environmental quality of the
Elk River Chain of Lakes, especially Torch Lake,
Clam Lake, and Lake Bellaire,
for all generations

TCE Plume: Pending Permanent Solution

by Gary Knapp and Dean Branson

It has been four years since ACUTE (Antrim County United Through Ecology) suspended regular meetings, but on October 26, 2011 we once again convened these stakeholders for an update. ACUTE was formed and organized as a community advocacy coalition to respond to groundwater contamination related problems and challenges originating in Mancelona and extending to the Schuss Mountain, Shanty Creek and Cedar River Village area. Two parallel plumes of groundwater contamination originating from the former Dura facility and Tar Lake (a former EPA Superfund site) have contaminated ten to thirteen trillion gallons of groundwater. The most toxic source of contamination is trichloroethylene (TCE), a recognized carcinogen (cancer causing agent).

Prior to suspending ACUTE in 2007, the State Department of Environmental Quality (DEQ) had invested over seventeen million dollars in the design and construction of a regional municipal water system in order to provide safe drinking water to over 1500 homes whose private wells were contaminated by TCE. This regional municipal water system relies on two well fields as the primary sources of water for the system – one on the Mancelona end and the other on the Cedar River end of the system (the Cedar River Well Field). The primary focus of the October 26th ACUTE meeting was to revisit the very real possibility that the TCE groundwater contamination plume could negatively impact the Cedar River Well Field. As shown on the map, the western lobe of the plume has crossed Del Mason Road and is migrating toward the Cedar River Well Field at a rate of about 350 to 400 ft per year. The leading edge of the plume (orange line) is about 350 to 550 feet from the first sentinel well, and about 2,650 feet from the well field itself. The leading edge of the TCE plume in previous years is shown in red, blue, and green.



Map of Shanty Creek area showing TCE plume advancement

Following a thorough review of all pertinent and relevant data provided by DEQ and its contractor MACTEC at the October 26th meeting the community stakeholder individuals and organizations in attendance committed to a course of action to ensure a timely and decisive path forward aimed at protecting the integrity of the regional municipal water system. Accordingly, it was determined that (with the full support of the DEQ) that ACUTE would pro-actively advocate for a new well field to replace the Cedar River Well Field between now and the year 2016 at a cost of $1.9 million, starting with $0.3 million in 2012.

Consequently, on December 1, 2011 Dean Branson, Steve Grill and Gary Knapp (representing ACUTE) met in Lansing with Representatives Greg MacMaster and Eileen Kowall (Chairman of the House Committee on DEQ Appropriations). Steve Grill is the President of the President's Council of Property Owners Associations within the Shanty Creek region. The purpose of the meeting was to advocate for DEQ appropriations to design, site, construct, and connect a new well field for the Mancelona-Shanty Creek public water system. It is safe to say that this request, on behalf of the community, was very well received by Representatives MacMaster and Kowall. As of this writing it is anticipated that the information provided on December 1st will be shepherded through the legislative process by Representatives MacMaster and Kowall. This process includes a review by the Senate Committee for DEQ Appropriations, Chaired by Senator Mike Green, with assistance from Senator Howard Walker and full participation and support of the DEQ and ACUTE, as needed.

As requested by Representatives Kowall and MacMaster, we solicited and received two letters of support for this DEQ appropriations, one letter from the Antrim County Board of Commissioners, and the other from Shanty Creek Resort Chief Operating Officer, Pete Bigford.

MDNR Fisheries Biologists Make Amazing Discovery

by Fred Sittel

"Five years ago, we were doing a large lake survey on Elk Lake, and pulled in some lake trout and they just looked different, like something special" said Jory Jonas, a research biologist with the Charlevoix Fisheries Research Station. The fish the DNR netted seemed more bullet shaped with the dorsal fin set further back on the body and they had a different coloration. These observations led Jonas to have genetic analysis performed on samples from 25 fish. The results showed these lake trout had more similarities to Lake Superior genotypes than to current hatchery brood stock or to lake trout stocked in Elk Lake during the 1980's. They had other unusual traits as well. When water temperatures drop to 46-52F° in the fall, it's spawning time for lake trout. Typically, lake trout prefer shallow rocky bars to drop their eggs which hatch in four to five months and require oxygen rich water. The Elk Lake fish laden with eggs, however, are in 100 feet or more of water along the western side in the lake's central basin, leading to speculation that they may be related to one of the deepwater forms that used to exist in Lake Michigan. It's believed that their Lake Michigan counterparts succumbed to over fishing and the sea lamprey and became extinct in the 1950's. "Any lake trout that you catch in Lake Michigan today, with the rare exception, is from a hatchery," said Jonas. Since Elk Lake was dammed off from the Grand Traverse Bay starting as early as the 1860's, and fish passage was all but eliminated by the turn of the century, these trout may have remained genetically isolated for over 100 years.

With help from Laura Mathews, a Central Michigan University graduate student in biology, Jonas embarked on an extensive study of the lake trout in Elk Lake this Fall. "How do eggs survive in up to 180 feet of water on a clay bottom, where does the oxygen come from?" questioned Jonas. However, studying fish in very deep water is a difficult task. Current DNR long term temperature monitors in Elk Lake are located in water that is too shallow. Capturing fish with nets in water this deep is also difficult. The researchers want to avail themselves of underwater robotic technology being used to capture fish in the Great Lakes and plan to start bottom mapping with high tech sonar equipment that can differentiate bottom substrates starting next summer. So far 130 fish have been tagged and released. Subsequent net drops were successful but only two tagged fish have been recaptured, indicating the population size may be large. Jonas hopes to get help from local fishermen. If you catch a tagged lake trout, the DNR would like you to send the date, location of capture, length of fish and the tag (if kept) or tag number (if released) to the Charlevoix Great Lakes Station or report the information on the following website: http://www.michigandnr.com/taggedfish/

Great Lakes fisheries managers believe there used to be six to nine different strains of lake trout in Lake Michigan that disappeared in the 1950's. The strains which have been planted since have struggled to reestablish themselves due to reproductive issues such as poor egg hatching and poor survival of fry. "A lot of fingers get pointed at alewives, round gobies and rusty crayfish eating lake trout fry", Jonas said. "Bottom line is, we don't know why they are having these issues." Fisheries managers had been traveling to other States where historic Lake Michigan strains were exported in the past to look for reproductively successful populations and now they may have found one in their own back yard. Jonas recently submitted 50 additional samples from Elk Lake to a geneticist to be compared to scale samples from Lake Michigan genotypes. If sufficient similarities exist it may lead to an attempt to create a hatchery brood stock. "If that is successful, it would reintroduce genetic diversity that we can't find anymore," said Jonas.

Possible relict lake trout from Elk Lake

Relict lake trout with DNR tag
For additional information, fishermen may call (231) 547-2914.

New Members:

Three Lakes Association is proud to welcome new members since October; Leslie & Rick Meyers, Jay & Leslee Hannon, and Theresa Schurman, which brings our total membership to over 500 families.

Grass River Sedimentation Project: Conclusions, Preliminary Plans

by Dean Branson, Becky Norris, Fred Sittel, and Gary Knapp

The environmental problem being addressed by this ongoing project is the amount of sand and sediment accumulating in Grass River causing the River to become noticeably shallower than it was dozens of years ago. Over the years sufficient sand and sediment has accumulated in the River, especially near the mouths of Shanty, Cold, and Finch Creeks to result in challenges to boat navigation and many more boat propeller streak marks in the Riverbed; also referred to as prop dredging. The accumulated sediment has also become a barrier to fish passage into the tributaries.

Grass River is an important part of the Elk River Chain of Lakes, which contributes 60% of the water entering Grand Traverse Bay. Sedimentation is one of highest priority threats to lakes and streams in our EPA & DEQ-approved Watershed Protection Plan. Consequently this project is being conducted in collaboration with The Watershed Center and Tip of the Mitt Watershed Council. A parallel project to investigate sedimentation is being conducted by Elk-Skegemog Lakes Association on Rapid River using similar methodologies and expert guidance.

The following short-term goals for this project were accomplished in 2011. These goals were based on conventional types of characterizations used by regulatory agencies and grant-making organizations to justify corrective actions:

1. Pinpointed locations of human activity-related sources of sand & sediment from the three tributaries, such as sand traps near the golf course that have not been cleaned out, and undersized road-stream crossing culverts
2. Pinpointed locations of fish passage barriers, such as the two dams on Shanty Creek, and three culverts with outlets too high for fish to migrate upstream. One of the photos shows the overflow of the dam on Shanty Creek (west side of M-88), and the other photo shows an example of a perched culvert.
3. Documented the daily and seasonal variation in stream temperatures at 50 to 55 ^{0}F., in an effort to confirm the compatibility for restoring native species such as brook trout. Based on this data, DNR Fish Biologist, Heather Hettinger, was inspired to schedule fish surveys in these tributaries to be carried out in 2012.
4. Documented the diversity of macroinvertebrate populations (aquatic insects) in the tributaries as a biological indicator water quality. Based on the results from a spring and fall sampling of these tributaries, the water quality is only fair, which could be due to excess clay and sediment in the water.
5. Identified locations where stream banks have been eroding, perhaps due to the lack of stormwater detention basins and stream banks stabilization in areas around the Pine Brook development and the golf course.

There are two goals for this project in 2012. The first is to establish a core team of stakeholders and partners to develop and implement elements of a stormwater management plan for the Shanty Creek Watershed. This goal is grounded in the realization that Shanty Creek has experienced significant sand and sediment loading from bank erosion, fallen trees, and other barriers that interfere with the natural flow of this Grass River tributary, especially during major storm events. We envision stakeholders and partners in the core team to include people from Shanty Creek Resort, Pine Brook property owners, Antrim County Conservation District, Custer Township, Antrim County Drain Commission, and Grass River Natural Area.

Overflow from dam on Shanty Creek – barrier to fish passage

Perched culvert – barrier to fish passage

The second goal is to submit applications for grants to further engage stream hydrology experts from Michigan State University to work collaboratively with stream biologists from the Tribe of Ottawa & Chippewa Indians, the College of Brockport, The Watershed Center, Tip of the Mitt, and volunteers from Three Lakes Association and Elk-Skegemog Lakes Association. The desired outcome from this collaboration of stream hydrologists is to identify specific actionable tasks to slow down the accumulation of human activity related sediment accumulation in Grass River from its tributaries.

Fish Shelters Project

by Bob Bagley

Shelter is necessary in a lake to provide fish habitat, primarily for the young fish. Small fish attract larger fish and that makes for good fishing. Back in the day lake property owners would put out their own fish shelter. Some would simply take their Christmas tree out on the ice, weight it down and let it fall through the ice at thaw. Down in our bay there is an old pick-up truck that was allowed to drop at thaw years ago.

Members of Three Lakes Association, Friends of Clam Lake, Intermediate Lake Association, and Elk-Skegemog Lakes Association have launched a project to build and place shelters at 80 different locations in Intermediate (10 shelter locations), Bellaire (10 locations), Clam (10 locations), Torch Lake (35 locations), and Elk Lakes (15 locations). The Fish Shelters Project committee will be selecting locations and getting permission from the riparian owners whose properties front the locations.

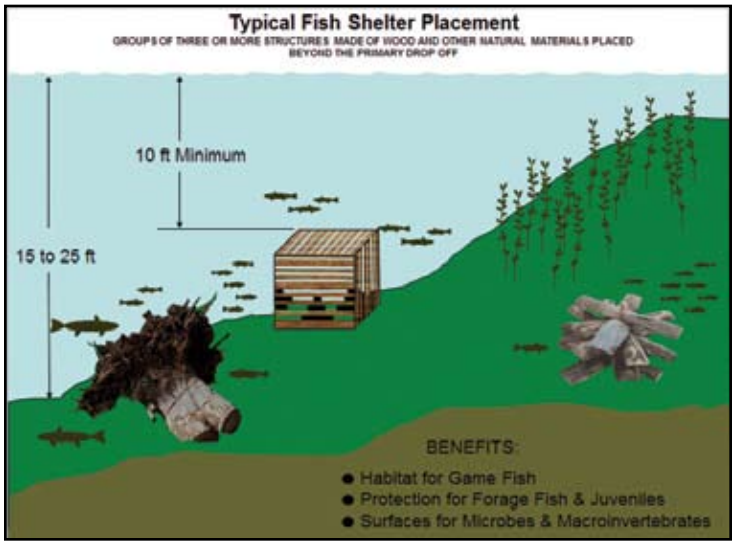
There are three different shelter designs encouraged by the Michigan Department of Natural Resources-Fish Biologist;

- 4 ft by 4 ft crates filled with brush, as being used in Hubbard Lake
- Tree stumps
- Stacked slab lumber in the form of a tree, as being used in Lake Charlevoix

The biologist suggested that we use a variety of different designs at each location because it may improve the effectiveness of this project. The fish shelters will be placed at the drop off of each lake in about 14 to 20-feet of water with at least 10-feet of water above each shelter to avoid boats.

Our plan is to submit a package of five permit applications by March 1, 2012, i.e. a separate permit application for each lake. The Watershed Center will be the applicant of record.

If you would like more information about this project, or you would like to volunteer time constructing or deploying fish shelters, or materials and/or be considered for fish shelters in front of your property on Lake Bellaire, please call Bob Bagley at 231-377-7125 or melnbags@yahoo.com. The contacts for Clam Lake are Fred Sittel (231-377-7818) and Paul Sak (231-668-9605), and Norton Bretz (231-599-2729) is the contact for Torch Lake.



Typical fish shelters proposed for our lakes.

membership counts!

BASIC *$50* ❑ **DONOR** *$100* ❑ **STEWARD** *$500* ❑

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Yes ❑ No ❑

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Three Lakes Association is a 501(c)(3) corporation. Your dues and other contributions are tax deductible. Gifts, memorials, and bequests can also be made to the Three Lakes watershed Conservation Foundation administered by the Grand Traverse Regional Community Foundation. Michigan residents receive a 50% state tax credit for contributions to this fund. Call for further information.

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To join Three Lakes Association please return this form with your check to:

THREE LAKES ASSOCIATION
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Bellaire, MI 49615

THREE LAKES ASSOCIATION

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The Mission of the Three Lakes Association is to provide leadership to preserve, protect, and improve the environmental quality of the chain of lakes watershed for all generations.

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