

Minutes: LLAA Fish Habitat Committee meeting August 1, 2019.

(Also to be submitted as Lake Lucerne Fish Stick Proposal to LLAA)

Meeting began at 9 am and ended at approximately 10:45 am at Lucerne boat landing.

Attendees:

FHC: Mary Heilmann, Ed Mullaney, David Schlitz, Tim Sprink, Jim Wienser, Jim Zach (chair)

DNR staff: Jason Headson (Forestry technician), Greg Matzke (Forest/Florence Cty Fish Biologist), Katie Renschen (Fishery Technician), Scott Van Egeren (Regional Aquatic Biologist)

Observer: Mike Heim

Agenda:

- 1) Tour and assess the near-shore habitat along the south end of Lucerne.
- 2) Assess whether a limited fish stick project in this area can benefit this area's aquatic community and fishery while considering current fish management plan.
- 3) Discuss future steps FHC wishes to consider, and how to proceed.
- 4) Other related matters that may arise.

The meeting consisted of discussion and tour of proposed fish stick/tree drop project area aboard committee member Tim Sprink's pontoon boat. This project would be located along portions of the shallower southern area of Lake Lucerne. This area is essentially bounded by the southern shoreline of privately owned islands on its northern end and the Lucerne shoreline including bays to the east, south, and west. See photo page 5.

Discussion Points

Background:

Regarding Agenda item 2, this meeting grew out of discussion at the February 21 FHC meeting and subsequent discussions with DNR staff regarding whether there was, or was not, optimal woody habitat material in Lucerne to promote a thriving fishery for a variety of species found in Lucerne. Also whether such a project would support, interfere, or not likely affect the lake's Walleye management plan if done in the unique habitat of the south end compared to the northern 9/10ths of Lucerne. The Walleye management plan has been supported primarily by Walleye stocking since there has not been significant natural reproduction of Walleye possibly due to a persistent Rainbow Smelt population in deeper (pelagic) waters. There is also insufficient non-competing Walleye forage fish which is attempting to be improved by occasional stocking efforts of pelagic (deeper cold water) species Cisco and Whitefish when available. Those species are not fish eaters. Rainbow Smelt are fish eaters, and will feed upon Walleye fry when they enter deeper waters during the approximately 30 day period between when the newly hatched Walleye have used up their yolk sac while hiding for a week in the gravel/rock spawning beds where they "hatched". (Rainbow Smelt Update: see Appendix C —received from Greg Sass 8/22/2019.)

Fall surveys designed to assess walleye recruitment have been conducted during the past 5 years on Lake Lucerne. These surveys have found an average of < 1 age-0 walleye per mile over this 5 year period. Greg Matzke typically uses a benchmark of 20 age-0 walleye/mile in at least 1 out of every 5 years to quantify solid natural reproduction. His assessment is that while natural reproduction is occurring at very low levels, natural reproduction is not significant enough to increase the adult walleye population by a measurable amount. Matzke added that he has not seen any data that would suggest stocked walleyes are surviving at a good rate, hence walleye management is struggling on Lake Lucerne at the present time.

Fish sticks help build a fish food web-of-life and support fish reproduction in the near shore environment. (See **Appendix A** provided by Scott Van Egeren) Coarse Woody Habitat (CWH) supplies woody carbon material and structure in the environment that is needed to promote periphyton (organisms such as algae that grow attached to underwater structure) and macrophytes (water plants), that in turns feeds invertebrates (water bugs),

that feeds a variety of minnows and small fish — and provides shelter for fish. This provides the food for fish like Bluegill, Largemouth Bass, and to a lesser extent Smallmouth Bass. These fish are better adapted to the shallower and warmer water of the south end of Lucerne. The more northern approximately 9/10ths of Lucerne is typically steeper underwater slopes, colder water, and better suited to Walleye, Cisco, Whitefish, and Lake Trout. While fish such as Smallmouth Bass can migrate, Greg Matzke and Scott Van Egeren don't think that a project of this size and location will interfere with the Walleye Management Plan. It will add diversity of habitat and help restore the shoreline trees that used to fall into the water before the intensive development of Lucerne's shoreline occurred over the last 50 years. The addition of CWH helps to restore the food resources that are becoming insufficient for the numbers of fish in Lucerne.

Prior habitat efforts on Lucerne included fish cribs which were placed in 15-20 feet of water, and have been found to concentrate fish and attract anglers. They have not been found to promote reproduction of fish in studies done on other lakes.

Greg Matzke has been involved in fishery surveys of Keyes Lake in Florence County which like Lucerne also has a history of introduced Rainbow Smelt and a struggling Walleye population. A fish stick project undertaken there has been found to support populations of Bluegill, Largemouth Bass, Crappie, and to a lesser extent Smallmouth Bass.

Discussion of whether the timing of a fish stick project for Lucerne is appropriate:

Greg Matzke thinks current timing is good for several reasons and is supportive of this project.

- 1) While there have been natural additions of woody habitat along the shores of Lucerne in the last couple years due to dying saplings that grew up along exposed shore during the decade or so of drought, and have since been inundated as the water level has risen. However, many of those shoreline trees are small birch. While useful as woody habitat in the short term, their benefit will be relatively limited due to small size, natural deterioration of wood, and because they are small saplings they are susceptible to removal by ice action. Placement of fish sticks, and tree drops where appropriate, will add mature trees of

approximately 8” trunk diameter and 30 to 40 feet tall, using a variety of hardwoods and pine. These trees would be placed with butt ends cabled to shore or within 20 feet of shore, and anchored to the lake bottom to stay in place and not become navigation hazards. Trees would be placed in groups of 1 to 4 trees. Expected lifetime of the beneficial effects of this woody habitat is up to several decades.

- 2) A source of locally available and affordable trees is needed. Dan Novak’s large island (Antony) is listed in the WI Managed Forest Law and a cutting practice is due. He has been approached regarding this project by FHC member Tim Sprink. Dan is tentatively willing to provide the needed trees (approximately 80-100 was mentioned, actual number to be determined by scope of project). The DNR will work with him to satisfy his woodland tax law requirements through this project. See email from Tim Sprink — **Appendix B**.
- 3) Equipment would be needed to move trees over the ice to place them into position per design that Greg Matzke would develop. This equipment can be available through Tim Sprink and Dan Novak — see **Appendix B**.

Additional Details of Proposed Project:

- 1) Proposed area — See photo below.

At a minimum, the area utilized could include the DNR owned properties. There could be additional fish sticks where there are willing property owners in the areas of the photo including the bays. It would avoid any areas deemed to be walleye spawning areas due to presence of rocks and gravel shores, such as all of Sugarloaf Island. If the Novaks agree, this could include the south shore of Antony Island but exclude reed beds areas.

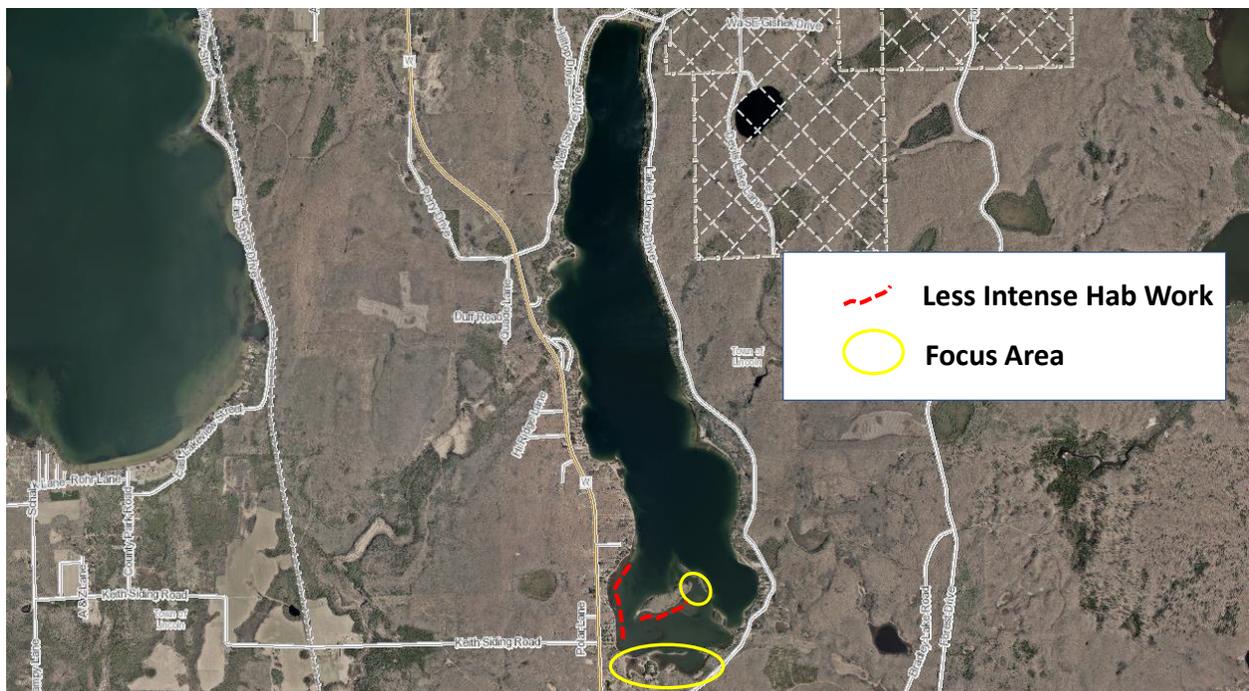
- 2) Utilize approximately 100-150 trees of mixed variety excluding spruce.

- 3) A few landowners “up-lake” have approached the chair regarding their interest in a fish-stick off their shoreline. Greg Matzke thought this can provide useful habitat diversity for the lake if kept to approximately 1 per 1000 feet of shoreline. (Walleye have been observed to utilize and congregate under CWH if there is enough depth between the CWH and lake bottom — per phone call with Greg Sass while preparing this document.)

- 4) While I am still seeking expert opinion regarding this point, initial response from DNR staff agrees that this project will also benefit Lake

Lucerne Loons as they are fish eaters and the CWH will be in the area of the lake that they nest and raise their young.

Map of Lake Lucerne showing proposed project area provided by Greg Matzke



Proposed Plan and Timeline Agreed to by Consensus of FHC Members Present on August 1, 2019. This includes additional details worked out through discussion with Chair and DNR staff, Tim Sprink, and Rick Hermus since that meeting:

- 1) Write up minutes and circulate to members and DNR staff for additional input/changes. (DONE 8/21)

- 2) Submit proposed plan to LLAA Board and membership at General Membership meeting on August 31, 2019 for discussion and feedback.
- 3) Submit proposed plan to LLAA Board for approval at a fall meeting, possibly September (date to be determined).
- 4) **Estimated Budget:** This estimate is based upon 100 trees. Actual number of trees used in project could range between 50 and 150 depending upon design of project, trees available, and number of land owners interested in participating, timing, and weather. DNR permit fee —\$600. Greg Matzke estimates \$23 per tree for cables and anchoring system —\$2300. Reimbursement to tractor owners to move trees — equipment use and fuel \$1000. Payment to a Sawyer —\$10/tree = \$1000. **Estimate total: \$4900 with cost range of \$3650 to \$6550.** Fish Habitat Grant provided by the Potawatomi Community through the Town of Lincoln in 2018 was \$10,000. (See **Appendix D** for more budget estimation detail)
- 5) If LLAA is supportive, approach tree source landowners to see if 50-150 trees and equipment to move them are potentially available. (DONE - see **Appendices B and D**)
- 6) Develop a design plan with Greg Matzke.
- 7) Apply for fish stick permit through the DNR. Permit is issued for a specified duration, typically up to 5 years. This allows time to accomplish the initial project, and also allow any additional private landowners wishing to “piggy-back” on the LLAA permit to do so pending DNR approval that request is within the description of the project and with no more than 1 fish stick/tree drop per 1000 ft of frontage if “up-lake”).
- 8) Regarding project labor: Jason Headson will survey for appropriate trees and is able to cut trees on the state-owned islands for this project but not on privately owned land. The labor that WDNR is able to perform for this project includes: 1) coming up with a design for the project with input from LLAA (Greg's Team). 2) cutting some trees on the state-owned islands (Jason). 3) Help with temporarily anchoring the trees to the shoreline on the ice, we would want help from LLAA members as well (Greg's Team). 4) Permanently anchoring the trees to the lake bed, likely during June or July (Greg's Team).
- 9) This project could potentially be initiated during winter of 2019-2020.

This document prepared and submitted to DNR staff and FHC members for comment August 19, 2019.

Recommendations received from Greg Matzke were incorporated into final document and submitted to FHC, DNR Staff, and LLAA Board August 27, 2019.

For more WI DNR information regarding fish sticks — See **Appendix E**

Jim Zach MD
Chair, LLAA Fish Habitat Committee
Member, LLAA Board

Appendix A

Report by WI DNR Fisheries Research Team Leader, Greg Sass PhD, regarding value of Coarse Woody Habitat (CWH) to the fisheries of glacial lakes. Abstract below. Full report available through FHC committee members and Scot Van Egeren, WI DNR.

(Note — Allocthonous = introduced from a source external to the lake)

Coarse woody habitat and glacial lake fisheries in the Midwestern United States: knowns, unknowns, and an experiment to advance our knowledge

Greg G. Sass, Stephanie L. Shaw, Thomas P. Rooney, Andrew L. Rypel, Joshua K. Raabe, Quinnlan C. Smith, [show all](#)

Published online: 22 Jul 2019

- [Download citation https://doi.org/10.1080/10402381.2019.1630530](https://doi.org/10.1080/10402381.2019.1630530)

Abstract

Sass GG, Shaw SL, Rooney TP, Rypel AL, Raabe JK, Smith QC, Hrabik TR, Toshner ST. 2019. Coarse woody habitat and glacial lake fisheries in

the Midwestern United States: knowns, unknowns, and experiment to advance our knowledge. Lake Reserv Manage. XX:XXX–XXX.

Coarse woody habitat (CWH) additions have increased in popularity in glacial lakes (i.e. kettle lakes) of the Midwestern United States. However, most enhancements have not been treated as deliberate experiments to test for fish and aquatic ecosystem responses. Whole-lake CWH removal studies have shown reductions in fish growth rates, declines in forage fish abundance, and behavioral changes. Whole-lake CWH addition studies have shown improved reproductive output of certain fishes, increased availability and diversity of prey available to fishes, and influenced behavior and habitat use. Key uncertainties identified in previous CWH addition studies include: (1) Does CWH increase fish production? (2) Does CWH influence certain fish species differently? (3) Does CWH influence fish populations in larger lakes than previously studied? (4) Does CWH influence fish populations over longer periods of time? In 2015, we began a whole-lake CWH addition experiment on a northern Wisconsin lake aimed to address these uncertainties. Sanford Lake maintains a low productivity fish community and supports fishes not generally studied before in the context of CWH. Fish population dynamic/behavior and aquatic ecosystem response variables will be monitored, and tree drop CWH additions are slated for 3 phases over 20yr. We introduce the Sanford Lake experiment and provide recommendations for expectations and the implementation of CWH additions in inland glacial lakes. Given the reliance of north-temperate inland glacial lake fisheries on allochthonous sources of energy and negative influences of lakeshore residential development on CWH, we hypothesize that CWH addition may contribute to maintaining or enhancing fish production.

Appendix B

Email Received 8/1/2019 from Tim Sprink

Jim

I spoke to Dan Novak this afternoon regarding the island timber. In principal he feels the family would have no issues with either donating or selling at a very nominal cost the 80-100 trees of pulp wood size that were discussed today. He was pleased with the idea the DNR would work with them in return regarding the cutting plan of their choice being implemented.

Realize that I presented this at a basic concept level not knowing for sure this project would be approved by the association.

I do not think it would be difficult to acquire the use of the needed equipment to move the trees on the ice. Both myself and Novaks have everything we would need to do it efficiently with some volunteer manpower behind it.

If the association would move forward with today's concept and use of the grant I know the Novaks will be very receptive to further details and providing their cooperation as much as possible in providing both the timber and allowing trees to be placed along their island property as discussed.

Let me know if I can be of any further assistance.

Best regards,

Tim Sprink

Appendix C

Portion of email received from Greg Sass, PhD 8/22/2019 relating to ongoing Lake Lucerne Rainbow Smelt monitoring:

“As for smelt on Lake Lucerne, we collected 1 smelt and no cisco in our vertical gill netting efforts in 2013. This summer (2019), we collected 0 smelt and 18 cisco in our gill net samples. As far as Lucerne's walleye plan, our findings of no smelt in 2019 with the presence of cisco would be encouraging.”

Appendix D

Email from Tim Sprink regarding proposed budget received August 20, 2019:

Jim

I spoke with Dan Novak again regarding the trees and cost to acquire those. He is on board with donating the lower value pulpwood size trees we are in need of. It suits them well aesthetically because we will be taking the entire tree, no tops left behind. I think there should be no issue finding 50-80 trees for the project. Dan and I agree it would be best for him and I to take a walk to identify candidate trees so we could then get DNR approval by Jason Headson. The balanced approach of Novaks removing and donating the low value trees of their choice and that process satisfying the required MFL cut is the key factor.

As far as additional costs other than what you mentioned. We both have smaller compact 4WD tractors that would be perfect for skidding the trees on the lake and we would donate our time running them. I also have a large snowblower attachment for my tractor if we need to clear "ice roads" to get around. There are walking trails on the island that may need snow removal done to them for access to the trees we need to drag. I think it would be appropriate to consider a \$500 expense per tractor for wear and tear and fuel. I also have a track skid steer with a brush-grab attachment and snow bucket if it is needed to place trees and manipulate snow. On variable expense I could foresee would be the cost to pay a sawyer to fell the trees. If there is no economic return from sale of wood we may need to find a willing and qualified saw man to drop the trees. Maybe a cost of \$10/tree????

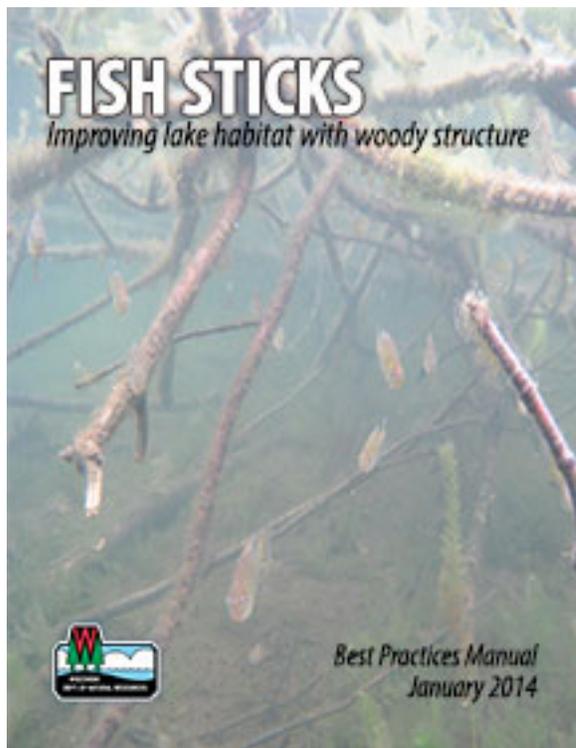
If we can ask for sign up volunteers to donate some time hooking and unhooking the trees from the tractors, it would be helpful to have that.

So, foreseeable expenses could be \$1000 for equipment and \$1000 for felling.....still well below budget with your other numbers added in.

I am planning to attend the meeting so would be available to answer any further questions then as well as prior to or during.

Tim Sprink

Appendix E: What are Fish Sticks?



Fish sticks manual and guide

- **Contact information**

For information, contact:

[Fisheries Management](#)

Fishing Wisconsin

Fish sticks: Improving lake habitat

Trees have been dropping naturally into Wisconsin lakes since the glaciers receded. Fallen trees provide shelter and feeding areas for a diversity of fish species and may also provide nesting and sunning areas for birds, turtles and other animals above the water. Nearly all fish species use woody habitat for at least a portion of their life cycle.

What are fish sticks?

“Fish Sticks” projects are intended to restore woody habitat in lakes by adding trees to the near-shore area. They are large woody habitat structures that use either single trees or trees grouped together. Fish sticks structures are anchored to the shore and are partially or fully submerged near the shoreline of a lake. Fish sticks projects are completed to provide additional fish habitat, as well as to expand fishing opportunities by anglers and provide protection to shorelines. Additional information on fish sticks and the fish sticks implementation process can be found in the [Fish Sticks Best Practices Manual](#). [PDF].

Fish sticks projects generally include a variety of cooperators: lakefront property owners, lake associations or districts, DNR permitting and fisheries staff, county land and water conservation departments and possibly federal agencies.



A small musky cruises among the wood.

How can I get involved in a fish sticks project?

- Fish sticks projects are permitted through a [general permit](#) process.
- How do I apply for a fish sticks project? [The online permitting process](#) [PDF]
- Contact your [local fisheries biologist](#) for recommendations.

How do I apply for a fish sticks project?

You can apply for a fish sticks project through [the online permitting process \[PDF\]](#)

Fish sticks funding: Healthy Lakes grants

The statewide Healthy Lakes initiative funds simple best practices like fish sticks, native plantings, and rain gardens on lakeshore properties. Eligible applicants include local governments, qualified lake associations, lake districts, and non-profit conservation organizations who sponsor projects on behalf of individual property owners. Learn more at the [healthy lakes initiative website](#). (exit DNR)

Fish sticks literature

- [A second life for trees in lakes: as useful in water as they were on land \[PDF\]](#)
- [Impacts of lakeshore residential development on coarse woody debris in north temperate lakes \[PDF\]](#)
- [Lakeshore woody habitat in review \[PDF\]](#)
- [Less work, more beauty, better protection - Wisconsin Natural Resources magazine, April 2000 \[PDF\]](#)
- [Natural and anthropogenic variation in coarse wood among and within lakes \[PDF\]](#)
- [Fish community and food web responses to a whole-lake removal of coarse woody habitat \[PDF\]](#)
- [Is littoral habitat affected by residential development and land use in watersheds of Wisconsin lakes? \[PDF\]](#)
- [Largemouth bass nest site selection in small, north temperate lakes varying in littoral coarse woody habitat abundances \[PDF\]](#)

For more detailed fish stick information, visit this link:

<https://dnr.wi.gov/topic/fishing/documents/outreach/FishSticksBestPractices.pdf>