

# Mazina'igan

A Chronicle of the Lake Superior Ojibwe

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ZIIGWAN 2026

## Supporting safe fish consumption for 30 years



GLIFWC mercury advisory maps are essential fishing gear

By Esteban Chiriboga  
GLIFWC Environmental Specialist

Mino-bimaadiziwin, or living life in a good way, involves many interrelated parts in an Ojibwe household's day-to-day activities. One of those elements is the harvest and sharing of natural resources to maintain community wellness. To empower and support that good-living lifeway, GLIFWC applies science and natural resources stewardship to its work across the Ceded Territory. And for the past 30 years, GLIFWC's fish consumption advisory maps have been a key part of that mission, helping harvesters make healthy nutritional choices.

"My husband and I use the maps because we have five grandchildren and we worry about the mercury levels in their little growing bodies," said Tina Van Zile, Sokaogon Chippewa citizen. "Also, our daughter uses the map because she is breastfeeding and she worries about the effect it can have on her infant. So, we always try to harvest from the lakes with lower mercury levels. Then we make sure to label our fish [packages], so we know which lake it was harvested from."

In 1996 GLIFWC began developing an oga consumption advisory to protect tribal families from toxic exposure

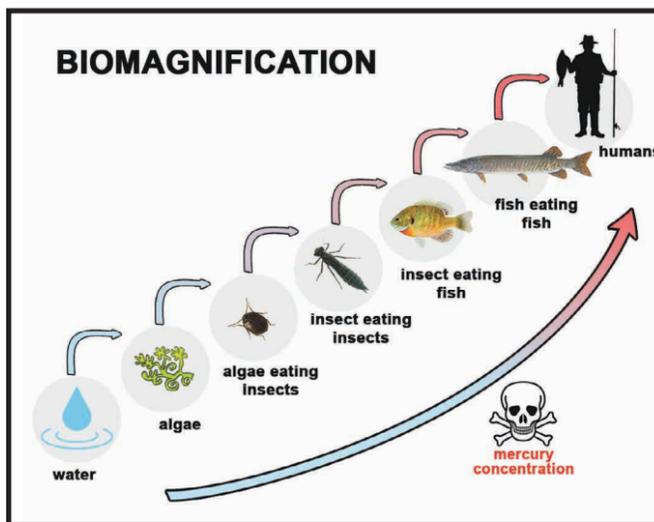


Figure 1. Mercury concentration is magnified along the food chain.

to mercury. It was not an easy decision. Harvesting oga is central to Ojibwe culture and preparing and eating walleye is a vital part of ceremony, diet, economy, and the cultural (see 30 years of mercury maps, page 7)

## Open Water Fishing 2026: Lakes abound with opportunities

By Mark Luehring  
GLIFWC Inland Fisheries Section Leader

The inland waters of the Ojibwe Ceded Territory are home to robust giigoonh communities from Mille Lacs Lake through northern Wisconsin and Upper Michigan. Ongoing environmental changes in recent decades are rebalancing how well individual fish species do in regional lakes that may be warmer or degraded by development and non-native beings. For the upcoming open water season, tribal fishers



Asaaweg (pictured), ashiganag, ginoozheg, and agwadaashiwag are all harvested by Ojibwe fishers every year. All of these native swimmers can complement a traditional springtime walleye harvest in the Ceded Territory. (COR photo)

can generally count on bountiful northern pike populations, variable walleye success, and expect encounters with a whole grab-bag of others like asaawe, ashigan, and many more.

"An assortment of giigoonh show up in the creel reports annually, showing us that harvesters are taking advantage of the variety, particularly in the spring. Which is great!" said Alexandra Bohman, Biological Services Division Director.

A late January cold snap sent ice thickness increasing throughout the Ceded Territory, further blanketing the fish below. This provided some of the best ice conditions for fishing and traveling in at least three years. Now just around the corner is the spring ice-off and harvesting season. As fishers prepare for the upcoming harvest, we have a few updates on the most recent findings about fish populations.

Overall, walleye (ogaawag) in the Ceded Territory and the Midwest are in decline. Each lake is different, but recent studies indicate that low juvenile survival, lakeshore development, changes in fish communities, nonlocal beings, chemical treatments, and harvest have contributed to decreasing walleye populations.

That's not to say all lakes are doing poorly, but the general trend is downward. In Wisconsin and Michigan, the overall number of walleye available for harvest is similar to last year but has been following the long-term trend. This is not surprising since available harvest numbers are updated annually based on the most recent survey data.

In Mille Lacs Lake, the available walleye harvest is down slightly since the spawning stock biomass has decreased from 2025. Here, the larger walleye are in good condition, with plenty of young tullibee to eat. In addition, (see Giigoonyikewin, page 10)

## Around your Waakaa'igan



Whether you live in town or in the woods, a lot of the same animals are right outside the door.



Ajidamoo



Aandeg



Waabooz

See inside for this ginoozhe recipe (pg.5)





# Mazina'igan's Plucinski celebrates final deadline

By Charlie Otto Rasmussen, Editor

Anyone who's picked up a copy of *Mazina'igan: A Chronicle of the Lake Superior Ojibwe* has a connection to Lynn Plucinski. For more than 40 years she's left her mark on GLIFWC's quarterly newspaper, creating a unique layout style that's delivered news and an assortment of award-winning content to generations of readers. Additionally, Plucinski's work in the GLIFWC Public Information Office spans all manner of roles, from in-person outreach at outdoors sports

**Retiring PIO Director of Operations Lynn Plucinski received a wool blanket from the commission in December 2025 as chi-miigwech for her many years of hard work. (JVS photo)**



shows to managing the creation and distribution of an extensive catalog of printed materials on Ojibwe tribes and treaty rights.

Catch a glimpse into Plucinski's memorable career highlighted in the following five questions. From her time working for GLIFWC's precursor—Great Lakes Indian Fish Commission—to retirement as PIO director of Operations in December 2025. Miigwech for your good work, Lynn!

## Naanan questions with Lynn Plucinski

**What are the most meaningful things you've done in your career? What's your proudest accomplishment?**

My proudest accomplishment is *Mazina'igan*, but I have also participated in many other meaningful initiatives through-

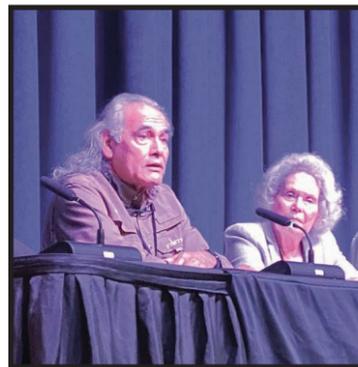
out the years. Some of the most meaningful things for me at GLIFWC over the years started several decades ago. I was there at the boat landings [beginning in 1986] during the spearfishing controversy in northern Wisconsin and was present at many sport shows and state fairs providing factual information about Ojibwe treaty rights. I was yelled at and called names, and I continued to stand strong with the tribes. I attended PERM (Proper Economic Resource Management) and PARR (Protect Americans Rights and Resources) meetings to report back the information (correct or incorrect) being shared.

My work at GLIFWC has undergone significant changes since the organization's [Voigt merger with the Great Lakes Indian Fisheries Commission in 1984. I began my career as a clerk typist, responsible for taking meeting minutes and handling general office tasks. In 1985, I began working on the *Mazina'igan* as a typist, and in March 1986, I transitioned into the role of Public Information Office Assistant. I dabbled with writing, photography, editing, distribution, and layout during the early years, but my passion was layout. I am proud to say that I led *Mazina'igan* into a new era as one of the first publications in the Northland to go from using a typesetter to computerized layout with the purchase of a Mac [Macintosh computer] and some training. (see Naanan questions, page 10)

# Honoring outstanding law careers representing Ojibwe treaty tribes

By Charlie Otto Rasmussen, Editor

While some legal observers remain skeptical that retirement will appreciably sideline a pair of titans in Ojibwe Indian Law, attorneys Henry Buffalo and Kathryn Tierney accepted well-deserved accolades from grateful Ceded Territory communities this past winter. Beginning with their critical roles in launching a new agency called Great Lakes Indian Fish & Wildlife Commission in 1984, Buffalo and Tierney devoted prolific decades to strengthening tribal sovereignty



**Henry Buffalo and Kathryn Tierney appear during a panel session at GLIFWC's 40th anniversary celebration in Sept 2023 (COR photo)**

and helping treaty tribes return to their historic roles in regional natural resources management and decision making.

"It is no exaggeration to say that GLIFWC owes a significant part of its existence to these two individuals," said Ann McCammon Soltis, director of intergovernmental affairs at GLIFWC. "But perhaps even more importantly, they played an enormous role in developing the self-regulatory systems that allow tribes to govern themselves and exercise their sovereignty in the area of treaty rights implementation."

In the decade before serving as the first executive administrator of GLIFWC in 1984, Henry Buffalo cultivated leadership skills at Red Cliff under his father—elected tribal officer and hereditary chief Henry Buffalo Sr—amassing a distinguished academic career

that culminated with graduation from University of Wisconsin law school in 1981.

With a juris doctorate in hand, Buffalo negotiated a commercial fishing agreement between the State of Wisconsin and Red Cliff Tribe and networked with Ojibwe bands around the region to lay the foundation for intertribal cooperation on natural resources management. That work led to the establishment of GLIFWC's forerunner, the Great Lakes Indian Fishery Commission (GLIFC). After overseeing the launch of GLIFWC, Buffalo joined Fond du Lac Band's treaty rights implementation in the Minnesota 1837 and 1854 Ceded Territories. He ultimately served as distinguished legal counsel for additional tribes including the Mdewakanton Dakota in Minnesota.

For Tierney, known to friends as Candy, the University of Minnesota cum laude law school graduate played key roles in many of the most consequential Ojibwe treaty rights cases in the Great Lakes region. From the *U.S. v Michigan* case to extensive *Lac Courte Oreilles v Voigt* litigation, she helped guide courts in affirming the validity of rights reserved by tribes in the treaty-making era of the middle 19th Century.

In the early 1980s Tierney directed the Wisconsin Judicare-Indian Law Office, providing legal services to tribal citizens in the northern half of the state before going to work for the Lac du Flambeau and Lac Courte Oreilles Bands. She went on to work for nearly a dozen American Indian tribes and served as lead counsel in the long-running *LCO v Voigt* case. Tierney's role in establishing the Voigt Intertribal Task Force directly intersected with Buffalo when the VITF merged with GLIFC to create the Great Lakes Indian Fish & Wildlife Commission in 1984. At Bay Mills Indian Community where she invested much of her later career, 1836 Treaty issues were at the forefront.

Without fail, the two renowned attorneys have shared their knowledge, legal prowess, and singular insights with Ojibwe tribes, and with GLIFWC and its staff, innumerable times over 45 years. The GLIFWC community warmly celebrates Henry Buffalo and Kathryn Tierney, adding the proviso that chances are good some may yet seek their guidance as the work of defending environmental health, indigenous lifeways, and treaty agreements stretches long into the future.

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Although **MAZINA'IGAN** enjoys hearing from its readership, there is no "Letters to the Editor" section in the paper, and opinions to be published in the paper are not solicited. Queries as to potential articles relating to off-reservation treaty rights and/or resource management or Ojibwe cultural information can be directed to the editor at the above address.

For more information see GLIFWC's website [glifwc.org](http://glifwc.org) and our Facebook page.

## On the cover

Singers from tribal nations across Wisconsin walked around the Wisconsin Capitol February 10 in Madison followed by a color guard carrying eagle staffs. Flag bearers were just in front of the hundreds who joined the procession led by Red Cliff Chairperson Nicole Boyd and Governor Evers. The group entered the Capitol building on its West side where the Assembly chamber is located. See page 4 for more on the annual State of the Tribes address to state lawmakers. (J Van Sickle photo)



# Ceded Territory news briefs

## Manoomin stewardship council takes shape in Wisconsin

GLIFWC joins First Nations from across Wisconsin in nominating representatives to the state's Wild Rice Stewardship Council. Governor Tony Evers created the manoomin-centered committee upon signing Executive Order #277 on Oct. 13th, 2025—Wisconsin's Indigenous Peoples' Day. Alongside tribal and GLIFWC representatives, the council will be comprised of state officials across multiple departments including the Wisconsin Department of Natural Resources, Wisconsin Department of Agriculture, Trade and Consumer Protection, Office of Environmental Justice, plus other individuals as appointed by the governor. Tribal representatives fortify the council with indigenous perspectives on manoomin, helping protect this incredibly culturally significant being for generations to come. A complete list of council members is expected soon after all nominations are approved by the governor.

One early nomination from Red Cliff Chairwomen Nicole Boyd is Sagen Quale. A Red Cliff tribal member, Quale has shown great care in her stewardship actions, having worked in several communities and alongside GLIFWC to uplift community connections to manoomin.

"It is a huge honor to represent our sovereign nation and to speak on behalf of a relative [Manoomin] that has shared so much with me," Quale said. "I hope that those on the stewardship council can be directly communicating the needs of manoomin based upon our community's input."

At GLIFWC, Wildlife Section Leader Miles Falck, received a nomination. Additionally, Ganawendang Manoomin Kathleen Smith, and me, Manoomin Wiidookaage Esiban Parent, have been nominated as alternates. We look forward to further collaboration in the ongoing protection of manoomin, one of our most valuable relatives. —E. Parent

## Crosshairs on ma'iingan: Wis shooting produces fine

Following an investigation by US Fish & Wildlife Service into the illegal killing of a wolf in far northern Wisconsin, a retired Department of Natural Resources game warden forfeited more than \$4,000 in federal fines. Wisconsin authorities have not assessed state fines or penalties as of press time.

On Christmas 2023, Pat Quaintance reportedly spotted the wolf near his rural Bayfield County home where he baited animals with breakfast cereal and donuts. After shooting the wolf, he called the county sheriff's department and reported that the animal was wearing a radio collar. Red Cliff Band Ojibwe wildlife specialists knew the collared female well—Wolf 813—the matriarch of the Echo Valley Pack.

"813 was more than just a wolf," said Red Cliff Wildlife Technician Ron Nordin Jr who interacted with her during an ongoing ma'iingan study. "We saw her has family, as a co-worker sharing data on den sites, on using territory. People should understand wolves have a right to this land too."

Meanwhile, wolves remain on the endangered species list in both Wisconsin and Michigan as legislation moves through Congress to remove federal protections in place since February 2022. In Minnesota ma'iingan is listed as a threatened species, which grants federal officials lethal control authority in verified cases of livestock depredations.

An interdisciplinary study published in 2018 found that one out of 10 wolves are illegally killed in Wisconsin each year. Vehicle collisions and natural mortality also account for significant wolf deaths annually. —CO Rasmussen

## Elk hunters navigate tough conditions

Weather extremes and access to some hunting grounds played a significant role the 2025-26 omashkooz season. Ojibwe treaty tribes hunt in two zones in the Great Lakes region: the Wisconsin Ceded Territory and Lower Michigan Ceded Territory

Bay Mills Indian Community hunters entered the season with six harvest tags in Michigan. Between the warm September weather and a storm-shattered landscape, three tagholders were unsuccessful on early hunts in the Pigeon River Country State Forest.

"With so many downed and broken trees, access to hunting areas was difficult," said Captain Steven Amsler, a GLIFWC warden based in Michigan. Salvage logging and clean-up from a widespread March 2025 ice-storm remained ongoing. "During the December hunting time period an abundance of snow on all that downed timber made the late season a challenge."

Despite the snow-covered debris and obstructed two-track roads, Bay Mills hunters harvested three cow elk and one bull. The remaining two tags, valid for one bull and one cow omashkooz respectively, went unfilled said Justin Carrick from the BMIC Conservation Department.

In Wisconsin, hunters also dealt with early heat and late snows but Ojibweg from four treaty tribes filled the four bull-only tags issued by tribal authorities. Meat from those animals are being distributed to all the Ojibwe communities signatory to the 1837 and 1842 Treaties. —CO Rasmussen

# A pike-uliar proposal to pique your palate

Days are getting longer; the sun lingers a little more each evening. The forest that once echoed only the sound of snow crunching beneath your feet now reverberates a chorus of drips, trickles, and drops as the earth and air start to loosen their wintry grip. Ziigwan is almost here. Soon, ogaawag (walleyes) will gift themselves and another harvest season will begin. But, what about before or after prime ogaawag spearing? Or simply a change of giigoonh (fish) scenery?

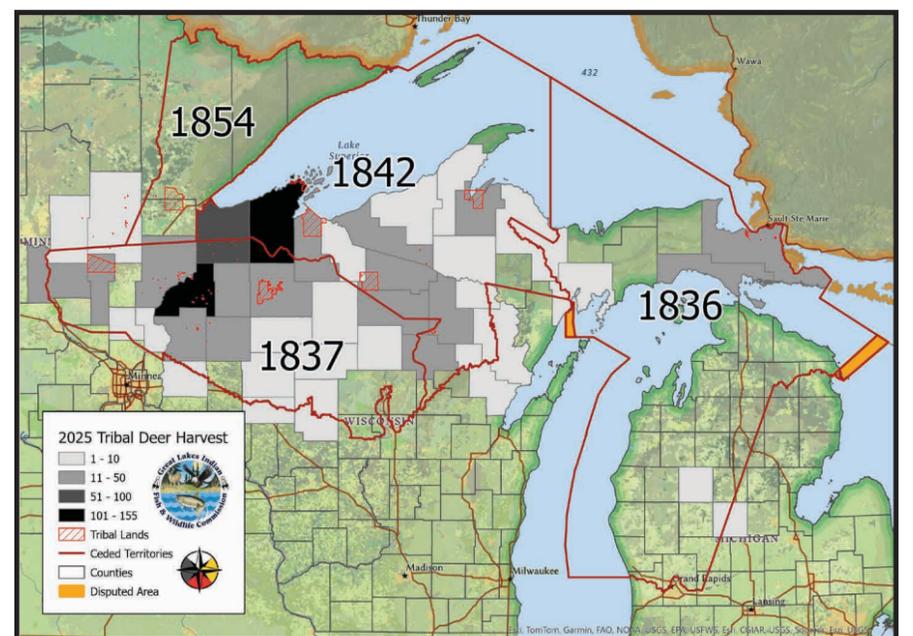
Whether you're fishing hook-and-line, spearing, or netting, the ginoozhe (northern pike) is often overlooked despite being quite tasty. However, ginoozhe are plentiful and open to tribal harvest with most methods year-round. In the case of Lake Mille Lacs, they're the most abundant they've ever been! Tribes can harvest up to 50,000 lbs of ginoozhe from Mille Lacs during the 2026 fishing season—a really nice, and largely untapped, opportunity.

Like many other giigoonyag, northern pike can be prepared in a variety of ways to suit a variety of palates. So, why aren't they more popular? Ginoozhe get a bad rap because of the Y-bones found in their fillets. Although these pesky bones help make ginoozhe the fierce predators that they are, they can also make cleaning ginoozheskawaan (pike meat) a little more tedious compared to other giigoonyag. Still, with a little practice and finesse, you can have yourself some boneless snot rocket backstraps that eat just as good as any fish—if not better!

Not entirely sold on a little extra cleaning, but still finding yourself captivated by the delectability that could be? Pickle 'em up! Not only does pickling ginoozheskawaan add a little zest and tang to its flavor profile, it also completely removes bones from the equation. That's right—by pickling your fillets, the bones are completely broken down by the brine (see page 6). You can pop your pike right down the hatch, worry-free.

Feeling a little more persuaded? Be sure to consult your tribe's off-reservation conservation code. Harvesting ginoozhe with methods other than open water hook-and-line and ice fishing are subject to harvest permits and, in the case of gillnets, may have seasonal and lake size restrictions. Make plans now to get yourself some ginoozhe this spring! —B. Byrne

# By the numbers: Whitetail success leads autumn hunting season



**Distribution of waawaashkeshi (deer) registered by GLIFWC-member tribes in the 1836, 1837, and 1842 Ceded Territories during the 2025 off-reservation hunting season summarized by deer registrations in each county. \*The boundaries are representations and may not be the legally binding boundary.**

During the 2025-26 off-reservation waawaashkeshi season, Ojibwe hunters registered 917 deer in the 1836, 1837, and 1842 Ceded Territories—up almost 7% compared to the 860 deer registered in 2024. White-tailed deer taken from reservation lands are not included in the season harvest totals.

Over the 2025 season, about 23% of deer were registered by the end of October, compared to about 18% in 2024, 25% in 2023, 28% in 2022, 19% in 2021 and 36% in 2020. As in past years, most of the deer registered over the waawaashkeshi off-reservation hunting season were registered during the month of November, accounting for 60% of all deer registered.

Antlerless deer accounted for 47% and antlered deer accounted for 53% of the deer registered over the 2025 season. Adult does and fawns make up the antlerless harvest totals. Ojibwe hunters took deer from 42 counties within the 1836, 1837, and 1842 Ceded Territories (Figure 1). This included 24 counties in Wisconsin, 11 counties in Michigan, and seven counties in Minnesota. Six counties in Wisconsin accounted for over half (55%) of the total off-reservation deer harvest. Those counties included Burnett Co. (17%), Bayfield Co. (15%), (see Giiosewin, page 10)



# Manoomin, indigenous homelands take center stage in address to lawmakers

By Jenny Van Sickle, Staff Writer

**Madison, Wis**—For the 22nd time, at the invitation of the Speaker of the Wisconsin Assembly, the annual State of the Tribes Address commenced. Chairwoman Nicole Boyd Bimikawekwe (Woman Who Leaves Tracks Where She Walks) took the



Ella Goodwin, Senior Miss Red Cliff Royalty who led the chamber in reciting the Pledge of Allegiance stands with At Large Tribal Council member David Curran of the Red Cliff Band of Lake Superior Ojibwe following the Address. (JVS photo)

podium to deliver the tribes' message to the 107th legislature and a jubilant crowd.

Each year the Wisconsin tribes, along with the Lac Vieux Desert Band, provide input on which issues to include in the speech. Then the speaker will add their own personal touches and generally you can pick up important themes they've incorporated.

Boyd's February 10th address centered on protecting water with distinct legislative asks of the body. Between thunderous applause and standing ovations, Boyd's grandbaby, Maeve filled the chamber with the sound of her coos. Boyd's remarks were specific and directly addressed the importance of treaty rights:

"Governor Evers' Executive Order 277 Relating to Treaty rights and the protection of wild rice is an example of honoring tribal ecological knowledge and the significance of working in partnership toward a common goal...tribal nations request that you consider naming Manoomin, the Wild Rice, as the official state native grain. This natural resource holds immense cultural value and is a vital component to Wisconsin's wetlands."

"This is the place our ancestors fought for and are buried within. And we will continue to exercise our treaty rights in perpetuity. The motivation to protect our home may never be relatable for some, but as we face the upcoming challenges related to growing technology and social injustices, I urge us to be vigilant and not surrender our values."

## Helping amplify native voices

For more than 20 years Therese Safford of the Great Lakes Inter-Tribal Council (GLITC), has been quietly and efficiently organizing the annual State of the Tribes Address. Safford, a deputy administrator who has been at GLITC for 23 years said although her role and title has shifted over the years, she's been the point person for the State of the Tribes Address since the first address in 2005.

Recurring conversations between then-president of the Stockbridge-

Munsee Tribe Robert "Bob" Chicks and then-Speaker of the Assembly John Gard led to GLITC's Board of Directors committing the organization to creating something similar to the State of the State speech, which is delivered annually by the governor.

"The first one was the result of good relationships and brainstorming between state and tribal leaders," said Safford.

GLITC's Board of Directors consists of the presidents (or their designee) of the 11 federally recognized Tribes in Wisconsin plus Lac Vieux Desert of Michigan.

The event has landed anywhere from February-May over the years.

"Once the date is settled, the first thing I do is apply for the Rotunda permit from the Capitol police for the Veteran's color guard drum procession," she said.

For the first few years, GLITC's board president gave the speech. But that process has shifted over the years. There have been other changes too.

"The procession around the Capitol, the drum circle in the Rotunda and the teleprompter have all been welcome additions to the day," she said.

Safford is also grateful for the tribal support and the many helping hands that roll up their sleeves along the way. Assistance from Capitol staff, the Assembly Sergeant at Arms, the Speaker's Chief of Staff and scheduler, the Administrator from the Dept. of Administrator's Division of Intergovernmental Affairs and Department of Veterans Affairs, Tribal Liaison, has always been much appreciated. Each tribe usually brings at least two people for the Color Guard, one singer, their nation's flag, and Eagle staff.

Each year Safford feels like she's watching the event from a different vantage point. "Some years I've been in the back of the Assembly with the Veterans, off to the far side of the chambers, or up the gallery." No matter where she's watching from, the day is always a powerful in-person experience, she said.

## Good ice connects youth & giigoonh

**Baraga County, Mich.**—Just off the Sand Point Lighthouse in the heart of the Keweenaw Bay Indian Community nearly 100 people dropped their lines through the ice on a bright February morning.

The Band's Natural Resource Department (NRD) measured 10 inches of ice just before the 4th Annual Family Ice Fishing Day kicked off. "It's about 60' deep where most people are fishing out there," said Outreach Coordinator Austin Ayres, KBIC tribal member who has worked at the Band's natural resource department since 2012.

KBIC activated a crew of helpers wearing high-vis vests zipping across the bay on snowmobiles drilling fishing holes. Teachers and knowledge holders were close by to offer support and education as needed. Prizes, hot cocoa, and buckets of equipment were set up and ready to go. "Kids bundled up outside, learning to feed themselves is our goal," said Ayres.

In previous years this winter fishing event has taken place on Otter and Vermilliac Lakes.

"This is our 4th year organizing this event and this is the 1st year we've been able to hold it out on the Bay," said Ayres.

Youth Activities Administrative Specialist, Mike Lahati, who helped coordinate the day's activities said "It's important we're connecting with nature and our community."



Patrick, Field Fisheries Coordinator 16 years on the job transfers the minnows back and forth to oxygenate their water.

Assisting with registration was KBIC's Promise Neighborhoods. Christine Awonohopay, their Assistant Director of Culture & Language got each person signed in. Promise Neighborhood partnered on the event to make sure the department has the equipment and goods they need to make sure the event is a success. "We're really happy to be here to help and support the kids," said Awonohopay.

The day's smallest fish prize went to JJ Beller, 17 who hooked a 12' Lake Trout. Quentin Lahti's 19" Lake Trout won him the top slot for largest fish.

After a successful morning on the ice, kids found their way back to the shore. Lahti reflected, "Look how much fun people had, look how long they stayed in the cold and wind. Most folks didn't leave with a fish, but everyone left with some nice memories from the ice today."

80 miles south of Keweenaw Bay on Lake Lac Vieux Desert, the Band's Conservation Committee hosted their Youth Ice Fishing & Spearing event. With good ice conditions across the Ceded Territories many tribes held family-friendly outdoor learning and harvesting events this past winter.

—J. Van Sickle

## Congrats 2025 phenology season observers!

Chi-miigwech to everyone who submitted seasonal observations to our climate change team in 2025! We received some excellent observations, including first maple sap flowing in Ishpeming, Michigan on March 9th, first thunderstorm with hail and lightning in Bayfield, Wisconsin on March 14th, and earliest recorded snow in the Keweenaw Peninsula on September 4th.

For the 2nd year in a row, John Jungwirth is the adult winner for the most observations submitted. John and his partner Victoria live off the grid in a remote area near Ishpeming, Michigan, where they make and sell birch bark canoes and herbal products. The youth winner for most observations is Jessica Gagne's 4th grade class at Churchill Elementary in Cloquet, Minnesota. Ms. Gagne's class enjoys phenology lessons every week on "Phenology Friday." The award for most interesting observation goes to Novalee Larson, a student in Ms. Gagne's classroom, who observed a "tree with lots of holes from a woodpecker. It's dead and pretty. I love nature."

JOIN US! Help document seasonal changes and submit observations from your location at: [glifwc.org/phenology/calendar](http://glifwc.org/phenology/calendar). Youth and adult observer prizes will be awarded January 2027. Additionally, the Mazina'igan Biboon 2025-26 edition contains a hard-copy submission form

—H Panci



Ms. Gagne's 4th grade class



# Ginoozhe, a longtime provision for Northwoods subsistence harvesters

By Travis Swanson, GLIFWC Forest Ecologist

David Schutte was a logger, trapper, fisherman, and lifelong outdoorsman who lived in far northern Wisconsin, near Marengo. The forests, rivers, and tributaries of Lake Superior were not just places he visited; they were home.

Schutte, my great grandpa, spent much of his life working and traveling throughout the Northwoods. He ran a trapline on Lake Superior south shore tributaries and built lasting friendships on the Bad River Ojibwe Reservation and across northern Wisconsin. Over time, I've learned more about the depth of those connections, including his friendship with the late Joe Rose Sr of Bad River and many other Indigenous families up through the Red Cliff Reservation. Great Grandpa Dave was known as a kind and steady man; someone who would lend a hand, share knowledge, and mentor anyone willing to learn.

He and his wife Viola, of German and Finnish descent, raised their family in the north country and were deeply rooted in the land and local communities. Their way of life was centered on sustaining from the landscape like harvesting, preserving, and preparing high-quality foods to nourish family and friends.

I was fortunate to meet my great grandfather when I was young. Today, his stories live on every time I walk the woods with my grandfather, William 'Bill' Schutte. The tradition of harvesting from the land continues in my own life; teaching my children respect for nature, stewardship of the forest, and the importance of preparing good food from what the land provides.

For generations, northern pike, or ginoozhe, has been an important food source for my family. I'm proud to share our family recipe originally developed by Great Grandpa Dave long ago with fresh ginoozhe from waters of the Ceded Territory. —Swanson is a Bad River Band member and all-seasons harvester. He lives on the Bad River Reservation with his family.

Miigwech Mazina'igan readers for your enthusiastic response to the new feature page Gimino-Miijiminaan. The recipes, resources, and stories shared here originate with residents of the Ojibwe Ceded Territory who live on (and with) the land and water. Ingredients and preparation instructions are formatted in a clip-and-save style, sized to fit single-folded into a traditional recipe box or simply pasted into a notebook. Digital copies and previously featured foods are always available at [glifwc.org/education-outreach/mazinaigan/language-and-food](http://glifwc.org/education-outreach/mazinaigan/language-and-food).

Heading into ziiigwan and the open water season, there's an abundance of fish available for harvest. Just about everything that comes out of icy springtime water is firm and flavorful. One often overlooked fish is ginoozhe—northern pike. Enjoy baked or fried fillets or give Travis Swanson's featured pickled pike a try. It is excellent!

—COR

8-year-old Bineshiikwe Zoey McDaniel, a student at Waadookodaading Ojibwe Language Institute holds up a ginoozhe (northern pike) at the annual Biboon Fishing Extravaganza in Lac Courte Oreilles held on the Chippewa Flowage on Sunday, February 22nd. (Bizhikiins photo)

Inset: Jar of pickled ginoozhe.



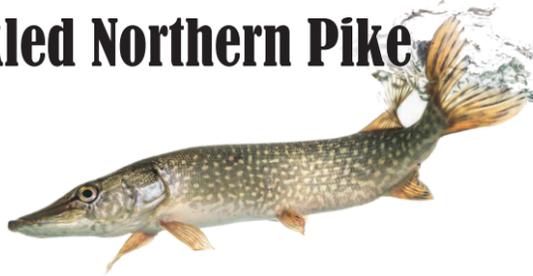
## Schutte's Pickled Northern Pike

### Ingredients:

**Salt Brine (48-hour soak)**  
 4 cups water  
 1 cup salt  
 1 tablespoon powdered alum  
 Northern pike: cleaned, skinned, and cut into bite-sized pieces

**Vinegar Soak (24-hour soak)**  
 Enough white wine vinegar to fully cover fish

**Pickling Brine**  
 2 cups white vinegar  
 2 cups dry white wine (an inexpensive dry white works well)  
 2 3/4 cups sugar  
 2 tablespoons mixed pickling spice  
 10 bay leaves  
 1 teaspoon whole peppercorns



**For Packing Jars**  
 Onion slices  
 Lemon slices  
 1 bay leaf per jar  
 A spoonful of pickling spice per jar

\*yield is best suited for:  
 2-3 northern pike (~18 inches each)  
 1-2 northern pike (~23 inches each)  
 1 large northern pike (~32 inches)

### Directions: Preliminary: Catch a Northern Pike

**Step 1: Salt Brine (48 Hours)**  
 1. Dissolve salt and powdered alum in 4 cups of water.  
 2. Place fish pieces in a non-reactive container (glass or food-grade plastic).  
 3. Pour brine over fish, ensuring it is completely submerged.  
 4. Cover and refrigerate for 48 hours.  
 5. After 48 hours, drain/rinse fish thoroughly.

**Step 2: Vinegar Soak (24 Hours)**  
 1. Cover rinsed fish completely with white wine vinegar.  
 2. Refrigerate for 24 hours.  
 3. Do not rinse after this step.  
 4. Drain before packing into jars.

**Step 3: Prepare the Pickling Brine**  
 1. In a saucepan, combine vinegar, white wine, sugar, pickling spice, bay leaves, and peppercorns.  
 2. Bring to a gentle boil, stirring until sugar dissolves.

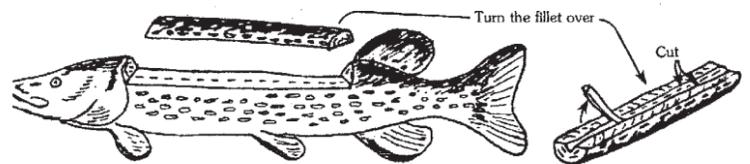
**Step 3 (continued):**  
 3. Be careful not to scorch the brine, as overheating can cause browning.  
 4. Remove from heat and cool completely in the refrigerator.

**Step 4: Pack and Store**  
 1. In clean glass jars, layer fish pieces with onion and lemon slices.  
 2. Add 1 bay leaf and a spoonful of pickling spice to each jar.  
 3. Pour cooled brine over fish, fully covering all pieces.  
 4. Seal jars and refrigerate.  
 5. Let cure in the refrigerator for 2-3 weeks before enjoying.

**Storage:**  
 This recipe is not shelf-stable and must remain refrigerated.  
 Keeps up to 1 year under refrigeration — though it rarely lasts that long.

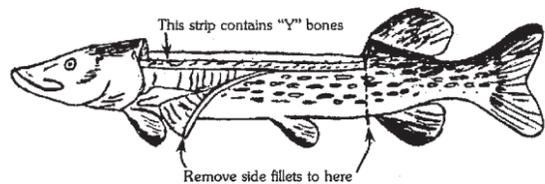
### How to prepare boneless northern pike fillets

**1**  
 Make vertical cut behind head down to, but NOT through, backbone.  
 Turn knife horizontally and cut backward along top of backbone. You should be able to feel the blade "clicking" along the top of the "Y" bones.

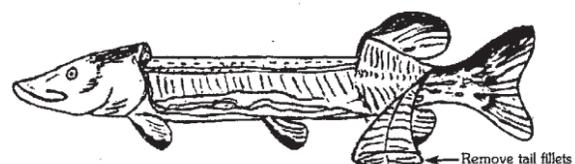


**2**  
 There is a row of small bones down the center of this fillet. Remove them with a V-shaped, lengthwise cut along each side of the center bones.

**3**  
 With the backbone exposed, a series of bones will be observed running parallel to it on either side. Make a cut down and slightly inward along the outer edge of these bones. Work down and over the ribs and remove the flank fillet. Repeat for other side.



**4**  
 Cut fillet free from each side of dorsal fin back to tail. There are no "Y" bones here.



**5**  
 Skin each fillet. You now have five bone-free fillets.

find online PDFs of Gimino-Miijiminaan recipes at [glifwc.org/education-outreach/mazinaigan/language-and-food](http://glifwc.org/education-outreach/mazinaigan/language-and-food)



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 PUB-FH-504 2001



# GLIFWC Environmental Section: Safeguarding health of all beings

## Some things are forever, like diamonds, true love, and PFAS

By Caren Ackley and Joshua Salley, GLIFWC Environmental Toxicologist

Developed to improve everyday life, PFAS are becoming an everlasting problem. From fast-food cheeseburger wrappers to the white-froth firefighting foam central to emergency fire suppression, chemical additives within the broad umbrella of PFAS (pronounced "Pea-Fass") are widespread across Turtle Island. Staying informed on the presence and distribution of these forever chemicals is an important strategy in keeping you and your family healthy.

### What are PFAS?

PFAS, or per- and polyfluoroalkyl substances, are a class of thousands of man-made chemicals that have been manufactured since the 1940s. Known for their unique water, oil, chemical, and heat-resistant properties, PFAS have proven useful in many industrial and consumer products and applications such as waterproofing fabric treatments, non-stick cookware, food packaging, cosmetics, electronics and firefighting foam. Their durability and chemical stability also mean that once released to the environment they do not degrade.

Sampling and monitoring efforts to detect PFAS in municipal water systems, surface waters, fish and wildlife have been undertaken by state and tribal agencies across the Ceded Territories. As PFAS sampling and monitoring efforts continue, more information is revealed about the lands and waters contaminated by PFAS, the scope of contamination, and actions you can take to protect the health of yourself and loved ones from exposure.

### How do they get into the environment?

While many industrial and consumer products contain or once contained PFAS, environmental contamination can come from various sources. The primary sources of PFAS contamination include chemical companies that produce PFAS (e.g., 3M, Dupont), industries that use PFAS in manufacturing (e.g., microchips, textiles, carpets, paper, firefighting foams), firefighting training facilities, and landfills and wastewater treatment facilities that receive PFAS-containing waste.

Biosolids are the semisolid byproduct of wastewater treatment that is commonly spread on farm fields as a means of disposal and a source of fertilizer. These biosolids can contain high levels of PFAS from industrial wastewater discharge and have unexpectedly contaminated entire agricultural operations where they have been spread, including some areas in Wisconsin. Once PFAS are released into the environment they can enter and contaminate both surface and groundwater. When public water supplies are contaminated with PFAS, they become a challenge for municipal wastewater treatment plants and for home filtration systems to completely filter out. Where environmental contamination occurs, remediation is difficult, if not impossible, and can cause significant PFAS exposure for wildlife and humans.

### New consumption advisories in the Ceded Territories

The Wisconsin Department of Natural Resources (WDNR) and Wisconsin Department of Health Services (WDHS) issued updated PFAS-based consumption advisories for several species, including fish and deer, in the area surrounding the Town of Stella in Oneida County, Wisconsin on September 4, 2025. The consumption advisories include a "Do Not Eat" advisory for all fish species harvested from the Moen Chain of Lakes (Moen Lake, Second Lake, Third Lake, Fourth Lake, Fifth Lake), Sunset Lake, Starks Creek (upstream

to and including Starks Spring) and Snowden Lake. A "Do Not Eat" consumption advisory has been issued for deer liver and a "One Meal per Month" advisory for deer muscle (venison) for whitetails harvested within a 5-mile radius of the Town of Stella's town hall. The DNR and DHS also issued consumption advisories on September 4 for mallard and wood ducks harvested in Green Bay, in addition to existing fish consumption advisories.

Still in force today, PFAS-based consumption advisories were issued for several species in a number of waterbodies and regions across Wisconsin. In 2020, a "Do Not Eat" advisory was issued for deer liver harvested between Marinette and Peshtigo. Fish consumption advisories are active for portions of the Wisconsin River, including Lake Mohawksin and Castle Rock Lake near Tomahawk, a stretch of the river south of Rhinelander, Lake Wausau and the Big Rib River at Wausau, the Stevens Point Flowage, and a section south of the Town of Plover, as well as Lake Superior and Lake Michigan. Information about PFAS and other waterbody, region and species-specific consumption advisories are available at <https://dnr.wisconsin.gov/topic/PFAS/Advisories.html>. Site-specific consumption advice is provided for all waterbodies in WDNR's Choose Wisely booklet and available online at <https://dnr.wisconsin.gov/topic/Fishing/consumption/specialmap>.

### Reduce your exposure

While health impacts from exposure to the vast majority of PFAS are unknown, two of the most widely used, found, and studied are perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Research shows that exposure to PFAS chemicals, even at low levels, may cause negative health effects such as thyroid and liver disorders, increased cholesterol, certain cancers, suppressed immune system function, reduced vaccine response and low birth weight. Following consumption advice for harvested foods can help reduce your exposure.

### Known and suspected sources of PFAS

On behalf of EPA, the Wisconsin DNR conducted site investigations to determine the source of PFAS contamination within and around the town of Stella in Oneida County, Wisconsin (~9 miles east of Rhinelander). The investigation found treated sewage sludge, paper mill sludge and septage (collectively called biosolids) containing PFAS that were spread on farm fields since the 1990s as the source of PFAS contamination. The DNR named Rhinelander's paper mill's former owner (Wausau Paper Corp., Wausau Paper Mills LLC and Essity North America) and current owner (Ahlstrom Rhinelander LLC and Ahlstrom NA Specialty Solutions LLC) as responsible parties for the contamination because they disposed of contaminated sludge by spreading it on farm fields. Other responsible parties named include the chemical companies 3M and BASF—manufacturers of PFAS-containing products that were used by the paper companies.

The WDNR tested 60 samples from soil, sediment, surface water, groundwater, and private drinking water wells, and results show significantly high levels of PFAS where biosolids were spread. In the contaminated area, 19 out of 20 wells tested showed some of the highest PFAS levels in the country with PFOA measuring up to 29,400 parts per trillion (ppt),

thousands of times higher than the EPA's PFOA drinking water standard of 4 ppt. While the entire population in the area depends on groundwater as their source of drinking water, including many private wells, there are no PFAS standards for groundwater.

Contamination around the city of Marinette originated from Johnson Controls International's (JCI) Fire Training Center where PFAS-containing firefighting foam manufactured by the chemical company Tyco Fire Products, a subsidiary of JCI, was discharged onto the ground during fire training exercises. Furthermore, JCI/Tyco allowed discharged firefighting foam to enter the sanitary sewer system that was subsequently processed by the wastewater treatment plant and the resultant PFAS-contaminated biosolids were spread on farm fields. The Wisconsin Department of Justice filed a lawsuit against JCI/Tyco in 2022 because the companies violated the state's hazardous substance spills law by failing to notify the WDNR of the PFAS discharges and for not cleaning up the contaminated sites.



graphic by Duke University

### Regulatory actions

Some states, including Minnesota, California, New Mexico, Colorado and Maine, have already moved to ban PFAS that are intentionally added in many consumer products including carpets, cookware, fabric treatments and upholstered furniture.

Wisconsin, among other states, is moving toward aligning its PFAS drinking water standards with federal standards that were updated by the EPA in April 2024. Under the Safe Drinking Water Act (1974), state drinking water standards must be at least as protective as federal standards. The legally enforceable standards are set limits for five individual PFAS chemicals (PFOA, PFOS, PFNA, PFHxS, and HFPO-DA also known as "GenX Chemicals") and for mixtures of two or more of four PFAS (PFNA, PFHxS, PFBS, and "GenX chemicals").

However, in September 2025 under the Trump administration, the EPA moved to roll back portions of this federal rule while water utilities and industry groups, including the Wisconsin Paper Council, Wisconsin Manufacturers and Commerce, and Midwest Food Products Association, are challenging Wisconsin's move toward compliance with EPA's standards in court with concerns of overly stringent policy decisions.

### Looking ahead

While disposing of 'forever chemicals' is a bit of an oxymoron, research on economically viable technologies to destroy or remove PFAS from water is ongoing, yet there are not many treatment options widely available today. For those who are unable to avoid PFAS contamination in their water supply, Granular Activated Carbon (GAC) filters are reported as one possible technology for removing PFAS from water in both household and municipal water treatments. For (see PFAS awareness, page 10)

## 30 years of mercury advisory maps

(continued from page 1)

ties that bind tribal members together. GLIFWC staff worried that a consumption advisory might scare people unnecessarily from eating fish or that we might discourage the exercise of treaty rights. Neil Kmiecik, the biological services director at the time and John Coleman, environmental section leader, felt that doing nothing would be irresponsible given the dangers that mercury poses to people that eat fish as a staple of their diet. The solution: focus on identifying sources for the cleanest fish so that tribal members could make choices about where to harvest.

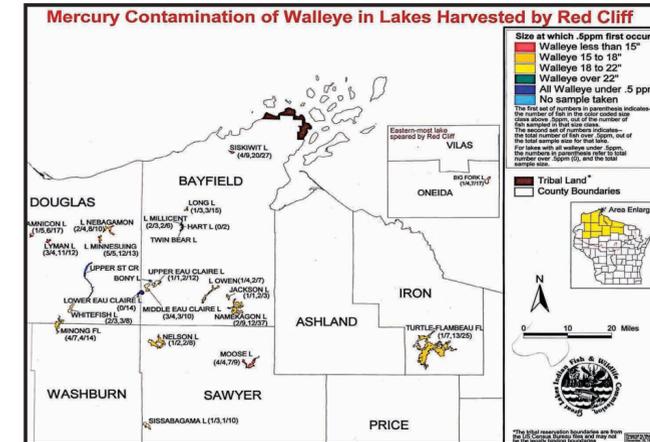


Figure 2. Mercury map draft from 1996 for lakes declared by Red Cliff.

### Why are fish consumption guidelines needed?

Methyl mercury biomagnifies in the food chain, from tiny organisms all the way up to human beings (see figure 1). The greater quantities of high trophic level fish a person consumes, the greater the risk to their health from accumulated methyl mercury. In the early 1990's the State of Wisconsin published a fish consumption advisory for mercury, distrust generated by the struggles and ugliness at boat landing protests were still fresh in tribal members' memory. Many people, including tribal leaders, perceived the state's advisory as another attempt to keep tribal members from exercising their treaty rights. The Voigt Intertribal Task Force directed GLIFWC staff to investigate the issue to determine if tribal members were at risk from eating contaminated fish, and if so, to develop an oгаа consumption advisory that was specifically designed for GLIFWC member tribes.

In sufficient quantities, mercury acts as a neurotoxin that can cause developmental disabilities as the brain and spinal column develop and grow. This is why children and pregnant or nursing women are the most vulnerable to mercury's negative impact. Once GLIFWC staff determined that concern about methyl mercury impacts to tribal members was justified we began developing a fish consumption advisory program. A map-based advisory was chosen because it provided harvesters with two critical pieces of information. First, to identify which lakes had lower mercury levels where more fish could be safely consumed; and conversely, which lakes had high methyl mercury levels.

### Building better maps

The maps start with the mercury database. In 1996 that database was mostly composed of fish tissue samples collected by the State of Wisconsin and GLIFWC did not have a database for lakes in Minnesota and Michigan. Since then, GLIFWC has greatly expanded our sample collection efforts to the point that GLIFWC collected samples now account for approximately 70% of sam-

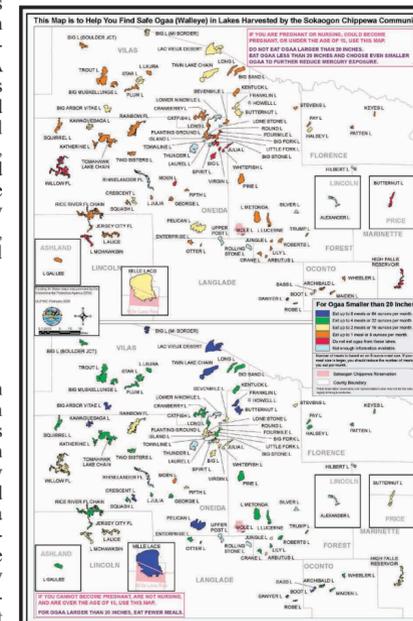


Figure 3. Latest version of the mercury map for lakes declared by the Sokaogon Chippewa Community (2024).

ples in the Wisconsin database and we have robust data for both Minnesota and Michigan. Most of GLIFWC's data collection occurs during spearing season when GLIFWC wardens buy limited numbers of fish in various lengths from tribal spears. The fish are labeled and transported to the lab at the Lake Superior Research Institute where samples are analyzed for mercury. The transportation and analysis of samples are done following strict standard operating procedures to ensure that samples are not lost or contaminated.

Once mercury concentrations in fish tissue data are measured at the lab, GLIFWC conducts a careful quality control check, then uploads the information into the database. Statistical analysis is used to convert the raw data into a lake-specific advisory based on the latest science on safe consumption levels for subsistence fish consumers. The final step is creating the maps which are distributed to tribal spears at registration stations and posted online. Poster-sized maps are also sent to tribal health centers and other public buildings to broadcast the information as much as possible.

The map-based fish consumption advisory has been a success. Over the years GLIFWC staff have received positive feedback from tribal members, many of whom say they use the maps every year. In general, the maps are having their intended effect, which is to protect the health of tribal members while encouraging and promoting oгаа harvesting and consumption. The GLIFWC team—from wardens to scientists—look forward to continuing this work.

Acknowledgements. GLIFWC staff, past and present, that have worked on map development: Adam DeWeese, Adam Ray, Caren Ackley, Dara Unglaube, Esteban Chiriboga, Hannah Arburck, John Coleman, Joshua Salley, Kory Groetch, Majid Allan, Matt Hudson, Neil Kmiecik, Rick Madsen, Sara Moses, GLIFWC wardens and boatlanding creel clerks.

### Map Changes Over Time

- 1996** The first set of maps were developed but not widely released to tribal members because GLIFWC staff wanted to carefully consider the results and their consequences. GLIFWC also wanted to experiment with different map styles to find one that conveyed the information in the most effective way possible. The advisory was based on the first fish in a size class that had mercury above 0.5 parts per million (figure 2).
- 1998** Maps were distributed to tribal spears. The six color coded categories of the advice were finalized. The maps also included information on the fish size and number of samples that triggered the advisory for each lake. New informational text on mercury was added to the back of the maps.
- 2001** Maps were redesigned to the 2-panel configuration; one panel for the sensitive population (people under 15 years old and women that are, or may become, pregnant). The criteria were also changed to require two fish with mercury concentrations of 1.0 ppm or greater. This change was based on the latest scientific literature.
- 2005** GLIFWC conducted a review of methods used to develop the fish consumption advice as well as a survey of tribal members to determine how the maps were being used by families. Based on this input, the information on sample sizes and number of fish used to assign color codes was removed from the maps. Feedback from tribal members indicated that these numbers weren't very useful and only caused confusion. The text advice on the back of the maps was also simplified and a version of the color coded advice in table form was added.
- 2008** The methods for assigning color codes were again updated with the latest scientific understanding of mercury in fish tissue. Individual lake color codes were based on predicted mercury concentrations for a 20-inch oгаа. This method has been used ever since. In 2008 GLIFWC expanded its mercury fish tissue databases to the Minnesota 1837 and Michigan 1842 Ceded Territories and maps were created for these regions.
- 2010** Starting this year, the map design has remained the same with only minor changes to wording. GLIFWC tries to keep this consistency because that familiarity with the maps increases the ease of use for tribal members.
- 2022** GLIFWC began automating the process of statistically extracting the advice recommendations from the mercury database to streamline the process. GLIFWC has also shifted map development to earlier in the year to account for early ice out dates that are becoming more common across the Ceded Territories.
- 2024** GLIFWC developed a consumption advisory for maazhiginoozhe (muskellunge) and distributed this information through an online page and an informational pamphlet.



# East Asian revelation on the Gichigami headwaters: A plant detective story

By Steve Garske, GLIFWC Invasive Species Coordinator

**Superior, Wis**—One exciting thing about being in the great outdoors is that it won't be long before you see something that you hadn't noticed before. One such remarkable occasion unfolded on the St. Louis River on the Wisconsin-Minnesota border in 2024. There, on a warm August day, the GLIFWC invasive species crew made a routine stop to control a small patch of non-local phragmites, leading to an unexpected discovery and an intercontinental mystery.

Common reed (or phragmites) is a tall, rhizomatous grass that spreads vegetatively by underground rhizomes, above-ground runners (similar to strawberry runners), cut shoots that re-root, and by seed. As a broadly defined species, phragmites is native to all continents except Antarctica, making it one of the most widely distributed plants in the world. Across this huge range a number of different subspecies and genetic strains or lineages occur that vary in appearance and ability to dominate natural and human-made habitats.

nearly pure stands that leave little room for other plants, including manoomin (wild rice). These dense stands also interfere with wetland hydrology, displace native plants and degrade wildlife habitat. Because of the negative impacts of introduced phragmites to culturally and ecologically important species, GLIFWC and its partners began controlling phragmites on the estuary over a decade ago.

*On the right: The ligule of Eurasian phragmites is very short—usually around 0.1 mm (0.4 mm max) high—and looks like a dark brown line.*



S. Garske photos



S. Garske photos

*Upper left: The European strain of ssp. australis typically has green internodes. Occasionally the lowest internode or two have a hint of faded pink. The internodes are lightly corrugated or ridged. (You can easily tell this by running your thumbnail around the stem.)*

*Upper right: A wall of Eurasian phragmites lines the shoreline of St. Louis River estuary. These stands are usually quite dense, and the shoots and leaves are deep bluish green.*



*Upper left: Native phragmites in a coastal Lake Superior wetland, Port Wing, Wisconsin. The stems usually grow more sparsely than introduced subspecies, and the shoots and leaves are typically medium green.*

*Upper right: The little membranous collar that sticks up where the leaf sheath joins the blade is called a ligule. The ligule of native phragmites (not counting the fringe of hairs) is typically about 1 millimeter high.*

*The deep red or chestnut lower internodes are typical of native phragmites. These internodes are generally smooth.*

The native North American subspecies of phragmites, *Phragmites australis* ssp. *americanus* (aaboojigan in Ojibwemowin), is found across much of temperate North America, where it has coexisted as part of diverse native wetland communities for centuries. There's also "Gulf Coast" phragmites (*Phragmites australis* ssp. *berlandieri*), which is native to (you guessed it) the Gulf Coast of the United States and Mexico, and into South America.

In the early 1800s another subspecies of phragmites appeared on the East Coast: Eurasian phragmites (*Phragmites australis* ssp. *australis*). Introduced from Europe in part for its puffy seedheads which make good packing material, this robust subspecies is highly competitive, aggressively spreading from disturbed human-made habitats into floodplains, lakeshores, and wetlands, and forming

Every summer, GLIFWC staff spend a week or two on the St. Louis River Estuary, mapping and controlling this European strain of non-native (or non-local) phragmites. During this time over 60 European phragmites patches have been found on the Wisconsin side of the river, and nearly all of them have been eradicated. Meanwhile Community Action Duluth (CAD) has been working to control non-native phragmites on the Minnesota side of the estuary, where two large, multi-acre patches have proven difficult to control.

Which brings us to two summers ago. In August 2024 the GLIFWC crew was doing control work when they came across a couple small stands of phragmites that seemed a bit unusual. In some ways their shoots resembled native phragmites, but in other ways they looked more like non-native phragmites. And yet they didn't really seem to fit either one. Not long ago it may have ended there. But now there are ways to figure mysteries like this out! So the crew collected samples from one of the patches and sent them to UW-Whitewater for genetic testing.

Things got really interesting when the lab was unable to genetically match these plants to native phragmites or non-native phragmites, or even to a possible hybrid between the two. (Such hybrids are rare, but they can occur.) It took more plant material and another round of testing at another lab in fall 2025, before the plants were identified as an East Asian lineage of phragmites. (A lineage is a line of descent of individuals from a single ancestor.)

East Asian phragmites is a genetically distinct lineage of Eurasian phragmites, native to Korea and Eastern China. It was first detected in North America in 2016 along the Mojave River in Victorville, California, east of Los Angeles. In 2020 another population was discovered in coastal Washington State. But it is apparently still very rare in North America.

Exactly how and when this lineage of phragmites from halfway around the world became established in the St. Louis River estuary is anyone's guess. It seems likely that, like Eurasian phragmites on East Coast some two centuries ago, it arrived on a ship from some distant port. The seemingly recent appearance of several small populations of this plant in one part of the estuary suggests a single, fairly recent, introduction.

(see Phragmites, page 11)

*From our limited experience East Asian phragmites seems to have medium blue- or gray-green stems and foliage that is more similar to native phragmites than European phragmites. The internodes often have a pinkish cast, even halfway or more up the shoot.*



*The GLIFWC invasives crew (Jose Estrada and John Wilmer) spot-treat Eurasian phragmites, just east of the Blatnick Bridge on the St. Louis River Estuary in 2024. (S. Garske photo)*



S. Garske photo



# Ojibwemotaadiwag Anishinaabewakiing. They speak Ojibwe to each other in Indian Country.

“Howah! Noongom, Ziigwan. Niminwendam, gidayaa omaa. Boozhoo! Aaniin! Aaniin ezhi-ayaayeg?—  
Ojibwemodaa! Ojibwe-ikidowinan. (Giwaabandaanan ozhibii’iganan  
nisayi’ii -Bezhigh-1). Ikidowinan, Ikidowinan! Noongom... **Giwii**-minwendam. Howah!  
Giwii-ojibwem. Giwii-kizhiiwe. Daga, **gidojibwemom**! Howah! Bezhigh, niizh, niswi—Izhaan!

(Alright! Now, it is Spring. I am happy, you are in this place here. Greetings! Hello/How! How thusly-are  
you all?—Let’s all speak Ojibwe! Ojibwe-words. (You see the alphabet letters/vowels sounds down from  
it-Bezhigh-1). Words, Words! Now... **You will** be happy. Great! You will speak Ojibwe. You will speak  
with a clear voice. Please, **you all** speak Ojibwe!!  
Alright! One, two, three—Go!)

**Bezhigh—1** **OJIBWEMOWIN**  
(Ojibwe Language)

Double vowel system of writing Ojibwemowin.  
—Long vowels: AA, E, II, OO  
Waabooz—as in father  
Miigwech—as in jay  
Aaniin—as in seen  
Mooz—as in moon

—Short Vowels: A, I, O  
Dash—as in about  
Ingiw—as in tin  
Niizho—as in only

—A glottal stop is a voiceless hesitation as in A’aw.

—Respectfully enlist an elder for help in pronunciation and dialect differences.

“**Ziigwang, giminwendamin.**  
Endaso-ziigwangagwaajiiing,  
**gibinaakwe’igemin.** Gisinaa  
omaa geyaabi. Bimipon.”

*When it is Spring, we are happy.  
As it’s-spring outside, we rake things.  
It feels cool here yet. Snow goes along.*

Maagizhaa gaye, gooniwaa. —  
And perhaps, it is snowy.

Ziigwan.-It is spring. VII’s are the “**It is... verbs**” - a Verb, Inanimate, Intransitive. Like the “Weather” ikidowinan (words).  
Biizibiisaa. - It is a light rain/drizzle.  
Bii zi bii saa. (Fun to say) & Gimiwan.-It rains.

**Niizh—2** Circle the 10 underlined Ojibwe words in the letter maze. (Translations below)

A. Waabigwaniin! Nawaj waabigwaniin daga. Anokii.  
B. Wewebanaabii. Migiskaneyaabiin. Minwendam.  
C. Noongom waaseyaa agwajiiing zaaga’iganing. Eya’!  
D. Ayaawag opichiwag. Bakadewag.  
E. Gii-ningide dekaag. Ningide mikwamii-makakong. Gaawiin!  
F. Nindizhaa gitigaan.  
G. Giwii-ayaa ina gitigaaning imaa?  
H. Eya’. Niwii-gitige.

W K O N W  
A A I B I A  
G N A W G N A  
B I O B I I D S  
N G B K I N A I E  
J I A W I G K A Z Y  
S T O O N I W Y A H A  
, I Y A N D G A O Z A  
K G S B I E K A N H ‘ A  
O E W Y G A A W I I N B  
W E W E B A N A A B I I  
O O P I C H I G W N Y N



Waawaashkeshi (Deer)

**Niswi—3**

**IKIDOWIN ODAMINOWIN (word play)**

**DOWN:**

- It melts.
- Snow goes away.
- Speaking, Words
- In certain place
- No, Not

**ACROSS:**

- It’s a light drizzle.
- Please, Come on.
- Greetings. What/why?

Wiidige. (S/he marries.)  
Zaagi’idiwag. (They love each other.)

**Online Resources**  
ojibwe.lib.umn.edu  
ojibwe.net  
glifwc.org  
glifwc-inwe.com

**Niiwin—4**

**Nimishoomis, Nookomis! Aaniin-ezhi-ayaayeg? Gizaaga’ininim.**  
My grandfather, My grandmother!  
How are you all? We love you all.  
**Gimino-ayaamin.**—We are good.  
**VII root**—It is colored so—**Inaande.**

It is blue/green.—Ozhaawashkwaa(g)  
It is brown/yellow.—Ozaawaa(g).  
It is red.—Miskwaa. They’re: Miskwaag  
It is black.—Makadewaa.(g) (g=living)  
It is white.—Waabishkaa.(g) (g=plural)  
Plural: add -wan.(-wan: non-living)  
Ozaawaawan.—They’re yellow.  
Miskwaawan.—They’re red.

- \_\_\_\_\_ 4 mazina’iganan.
- \_\_\_\_\_ 2 gichi-zaaga’iganan.
- \_\_\_\_\_ 5 waakaa’iganan zaaga’iganing.
- \_\_\_\_\_ 3 ayaa gichi-baapi omaa.
- \_\_\_\_\_ 1 akwa’waa. Niibing, i’iw jiimaan.
- Apegish menoseyeg.

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**Translations:**  
**Niizh—2** A. Flowers! More flowers please. S/he works. B. S/he fishes with hook and line. Hooks and lines. S/he is happy. C. Today it is sunny outside at the lake. Yes! D. They’re in a certain way, the robins. They are hungry. E. It did-melt, the ice cream. It melt in the ice box. No! F. I go to the garden. G. You will go? to the garden there? H. Yes, I will plant.  
**Niswi—3** Down: 1. Ningide 2. Bimipon 3. Ikidowinan 6. Aandi Across: 5. Biizibiisaa! 5. On Earth 7. Ina 8. Apegish 9. Imaa  
**Niiwin—4** 1. Niiwin papers. 2. Niizh big-lakes. 3. Naanan houses by the lake. 4. Niswi, always walks around town. 5. bezhigh s/he goes spearing/ice fishing. In the summer that canoe. 6. I hope you all have good luck/happenings.

There are various Ojibwe dialects; check for correct usage in your area. The grammar patterns may help a beginner voice inanimate and animate nouns and verbs correctly, as well as create questions and negate statements. Note that the English translation will lose its natural flow as in any world language translation. This may be reproduced for classroom use only. All other uses by author’s written permission. Some spellings and translations from The Concise Dictionary of Minnesota Ojibwe by John D. Nichols and Earl Nyholm.  
All inquiries can be made to **MAZINA’IGAN**, P.O. Box 9, Odanah, WI 54861 [pio@glifwc.org](mailto:pio@glifwc.org).



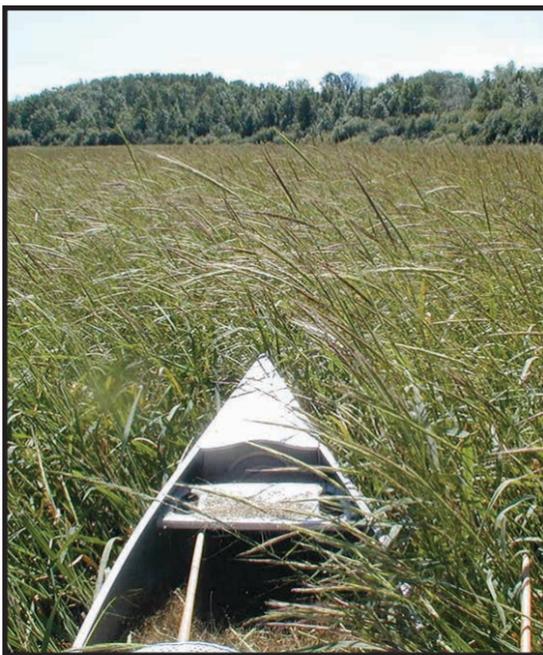
# Changing Worlds: Remembering Ningokwad Binesi, a powerful advocate for environment, Ojibwe tribes

Reginald “Reggie” Defoe of Cloquet, Minn started his journey on Wednesday, February 4th, 2026. Defoe was a long-standing member of the Fond du Lac Resource Management team, an active member of the GLIFWC Voigt Intertribal Task Force, Board of Commissioners, and a proud Fond du Lac tribal member. He began as a natural resources technician in 1993 and eventually became the resource management director in 2006 where he held this post for nearly 20 years.

Executive administrator of the Great Lakes Indian Fish & Wildlife Commission Jason Schlender recalls the many years of working alongside Director Defoe.

“Ningokwad Binesi was a stronghold for both Fond du Lac’s treaty rights and for broad environmental protection. He always held his community in high regard and represented the Fond du Lac band in a good way. He was always thinking about the future generations and saw youth engagement as a mechanism for the preservation of our way of life.”

Defoe was a key part of manoomin (wild rice) restoration and management work, especially on the Fond du Lac reservation. He often recognized the importance



of utilizing survey methods, hydrologic modeling, vegetation management and TEK (Traditional Ecological knowledge) to enhance ecosystems.

In 2017, Defoe played a big role in the finalization of the Fond du Lac Band’s 1854 Treaty case along with the negotiation of an MOU with the State of Minnesota. These agreements and negotiations ultimately reaffirmed the ability of the Fond du Lac Band to legally net lake trout on Lake Superior for the first time in over 100 years.

Fond du Lac Band Natural Resources Manager Thomas Howes reflected on Defoe’s passing: “Ningokwad led in a quiet and thoughtful manner. He continuously sought out information on any particular topic in order to make a sound decision. He believed in his team and actively encouraged them to develop their gifts, passions and skills in order to care for our environment and our way of life as Anishinaabeg. We are grateful to have spent time under his guidance and wish his family strength.”

—D. Jennings & J. Van Sickle

## Naanan questions with Lynn Plucinski

(continued from page 2)

**How has GLIFWC changed since its inception in 1984? What has stayed the same?**

GLIFWC’s mission has stayed the same since its inception. The focus is on the resources and tribal access to resources. Many people have come and gone, but one thing remains the same: the trust and friendship among GLIFWC staff.

**Newspaper publishing of all types is on a long decline. Circulation in the US dropped from 62 million to 20 million over the past 40 years according to Pew Research Center. That includes print newspapers combined with more recent digital subscriptions. How do you account for *Mazina’igan* bucking that trend as subscriptions continue to trend upwards each year?**

I think our popularity stems from a couple different things. We have such a wide range of audiences: from tribal members, educators, students, resource managers, Ojibwe language learners, and the general public. Because we provide relevant news to all of these groups, I think we will remain trending upwards. Another thing that makes *Mazina’igan* popular is that we still print in a traditional newspaper-type way. PIO has found that newspaper production continues to be the most inexpensive way to print and distribute large quantities of information. Despite increasing material costs, the specialized production of newsprint, its compatibility with high-speed printing, and the overall low cost of paper make it difficult to find a better option for high-volume printing.

**Technology has come a long way since the 1980s. How has the work of producing outreach materials evolved over that time period?**

As I mentioned earlier, we transitioned from typesetting all documents to full digital production. The first computerized layout program that GLIFWC purchased was Adobe PageMaker (originally Aldus PageMaker), which I used until the early 2000s. Following PageMaker, we adopted Adobe InDesign, which is currently used for *Mazina’igan* production. In the early 1990s, we began using Photoshop, replacing our previous darkroom setup where the Public Information Office (PIO) would print black-and-white photographs. The shift to digital photography allowed us to move away from the darkroom, enabling us to insert photos directly into layouts instead of sending physical photographs to be pasted up manually using a waxer and layout sheets. In those early years, there were no PDFs; everything was stored in its original format. Files were either sent to printers in their raw applications or the documents were printed and mailed to the printers. These methods often led to font and formatting errors. With each new technology, I learned a great deal through watching instructional videos and participating in a few hands-on training sessions.

**What advice would you give to someone interested in a career in public affairs in Indian Country?**

Oh boy! [laughs] A career in public affairs within Indian Country requires a combination of professional communication skills, having deep respect and knowledge of tribal culture, and an understanding of tribal sovereignty. Relationship building between the tribes, governments, media outlets, and the general public must be a priority.

## Giigoonyikewin

(continued from page 1)

the large year-class that hatched in 2024 could soon boost the walleye population if these fish survive to catchable size.

In many lakes, tribes are working with partners to rehabilitate formerly good naturally reproducing populations that have fallen on difficult times. Rehabilitation plans often include harvest reduction, stocking, habitat improvements, and enforcement actions. Overall, long-term commitment to multiple strategies gives these plans the best chance to be successful.

Other giigoonyag are abundant in many waters and available for harvest. In Wisconsin, largemouth (ashigan) and, in some cases, smallmouth (noosa’owesi) bass are more abundant than they have been historically in many lakes. Similarly, northern pike (ginoozhe) are at an all-time high level of abundance in Mille Lacs Lake and are available for harvest in large numbers.

The upcoming warm days provide Ojibwe harvesters with an opportunity to inspect equipment to ensure everything is ready when the ice finally goes off. This is a good time to sharpen spears, check lights, batteries, life jackets, and motors. Have a safe and successful season!

## Giiwosewin

(continued from page 3)

Douglas Co. (9%), Forest Co. (5%), Washburn Co. (5%), and Sawyer Co. (4%) of the total harvest.

Deer registered online accounted for 647 (71%) of registrations and 267 (29%) deer were registered in-person at tribal registration stations. The phone registration system was discontinued for the 2025 season.

### 2025 makwa (bear) harvest

Tribal hunters registered a total of 38 bears from the portions of the 1836, 1837, and 1842 Ceded Territories in Michigan and Wisconsin during the 2025 season. This is down by about 28% from the 53 bears registered during the 2024 season. A total of 27 bears were registered in Wisconsin from six different counties, and 11 bears were registered in Michigan from seven different counties. Fifteen (39%) of all registered bears were harvested in Bayfield County, WI. Of the 38 registered bears, 18 (47%) were male and 20 (53%) were female. —T. Bartnick

## PFAS awareness

(continued from page 6)

example, some municipalities have provided GAC pitcher filters for communities, such as in Wausau, Wis. With Wisconsin lawmakers setting aside ~\$132 million in tax-payer money to tackle PFAS contamination, it is important to remember that this could’ve been largely mitigated with proper environmental protection regulations, holding polluting corporations accountable for funding cleanup efforts, and rigorous public education and awareness campaigns.

Be informed by making PFAS-free consumer purchases, know the sources, threats of exposure, and remember responsible parties. Finally, support and get involved in your local communities and contact your local government to enact the change that’s required that leads to systematic restructuring of our economies for the betterment of humanity.



# Bizhikiins circles back to PIO

Dylan Bizhikiins Jennings returns to GLIFWC to head up the Public Information Office. Jennings served as PIO director from 2017 to 2021, moving on to continue graduate studies in the Nelson Institute for Environmental Studies at the University of Wisconsin Madison.

During his GLIFWC hiatus he taught at Northland College and LCO Ojibwe University and served as Red Cliff Band Treaty Natural Resources Administrator. He was also appointed by Governor Tony Evers to the Wisconsin Department of Natural Resources Board. Jennings is a Bad River Tribal Member, and he resides on the Bad River Reservation with his wife and children.



# Divemaster embraces wetlands and webbed feet

Austen Hilding of Willmar, Minn. launched his role as a wetland ecologist in GLIFWC's Biological Services Division in mid-January.

Hilding's role centers on protecting and enhancing wetland habitat in the Ceded Territories, especially related to manoomin and migratory birds. He'll conduct ground and aerial surveys to monitor wild rice beds, and plan and implement the annual harvest survey. Manoomin restoration activities, including site evaluations for habitat suitability and seeding, is another key role. GLIFWC member tribes will benefit from technical assistance from Hilding on issues related to wetlands and waterfowl.

Hilding attended Gustavus Adolphus College in St. Peter, Minnesota, graduating in 2016 with degrees in geography and environmental science. He earned his master's degree in 2025 from the Integrated Biosciences Graduate Program at the University of Minnesota, Duluth, where he studied the role that plant community diversity plays in shaping how native perennial prairie species respond to intensifying summer drought.

He is passionate about plant biodiversity conservation, ecological restoration, and climate change resilience. Before grad school, he worked multiple positions with the U.S. Bureau of Land Management in Oregon, Idaho, and Washington, D.C. He was also an assistant project manager for Prairie Restorations, Inc. in northern Minnesota.



As a certified divemaster, he has held multiple positions as a research diver for aquatic invasive species, including with the Minnesota Aquatic Invasive Species Research Center.

Hilding lives in Duluth with his fiancé, Angela. He enjoys the outside, especially hiking, skiing, and playing hockey. "I'm really honored and excited to join the GLIFWC team to help lead Manoomin conservation and preservation across the Ceded Territories," he said.

—J. Van Sickle

# Phragmites in the Northwoods

(continued from page 8)

As related by former GLIFWC TEK Specialist Michael Waasegiizhig Price in a Summer 2023 Mazina'igan article, Anishinaabe teachings recognize "the inherent right of all living beings to exist, and require reflection and understanding by human beings before any defensive or mitigative action is considered." The Anishinaabe worldview identifies non-local species not as inherently good or bad, but simply as newcomers to the region. An attempt should be made to understand their potential relationship to us and the rest of the plants and animals, and "they should never be killed without humility, need, and reflection". Non-native phragmites and other introduced beings are just doing what they are made to do. It's humans who are responsible for bringing them here, and for the impacts (good or bad) that they have.

Establishment itself at several far-flung locations in North America would seem to suggest that, like native phragmites and European phragmites, East Asian phragmites is tolerant of a wide range of environmental conditions. Time will tell what the future holds for this newcomer in North America.

## Acknowledgements

Thanks to Professors Nic Tippery of the University of Wisconsin-Whitewater and Douglas Wendell of Oakland University, Rochester, Michigan, for their diligence and expertise in analyzing and identifying these phragmites samples. Funding for genetic testing was provided by the Wisconsin Department of Natural Resources and the Great Lakes Phragmites Collaborative.

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S. Garske photos

**Upper left:** The lower internodes of East Asian phragmites are often green with a hint of pink. They're also smooth and shiny, similar to native phragmites.

**Upper right:** The dark leaf blade bases of East Asian phragmites clearly stand out from the rest of the blades, and the ligule height seems to be intermediate between native and non-native phragmites. Are these consistent characteristics for this lineage? Without examining material from other populations it's impossible to be sure.

# Tech balances field studies with TEK preservation

L Wilkins is settling into GLIFWC's Biological Services Division, aiming to make a big impact through their new dual role. Wilkins first came aboard during the 2024 summer intern cycle before they were hired in 2025 to work in the Climate Change Program. Wilkins began integrating their new position, climate change archivist & technician, during the Half Winter Moon of 2026.

As an archivist, Wilkins is responsible for digitizing GLIFWC's historical materials, including years of Traditional Ecological Knowledge (TEK) interviews from VHS, DVD, cassette, microcassette, and even BETA formats to digital files—helping preserve important knowledge for future generations. They are also transcribing TEK interviews to make the knowledge more accessible so it can be utilized in GLIFWC's work.

As a climate change technician, Wilkins continues doing field work, including plant phenology monitoring, ice and snow monitoring, bird surveys, and seed collection. Hannah Panci, GLIFWC environmental scientist said, "We're really lucky to retain L who is a hard worker, has been involved with local tribal communities for years, and brings a wealth of cultural experiences to the table."

Wilkins grew up in Seymour, Wisconsin and attended Northland College for three years. When Northland College closed last summer, they transferred to Lawrence University and graduated in 2025 with a Bachelor of Arts in Ethnic Studies.

"After Northland closed, it was the community I had built, along with the connections I made with the land and the water that brought me back and kept me in the Northwoods," said Wilkins.

Wilkins lives in Ashland, Wisconsin and enjoys beading, painting, and sewing. They are quite artistic and even dressed up as an ink cap mushroom, which won GLIFWC's Halloween costume contest!

Wilkins has spent years studying Ojibwemowin, playing baagaa'dowewin in local communities, and regularly participating in taekwondo. They also love being in the woods, identifying plants and animals, and photographing details of the natural world.

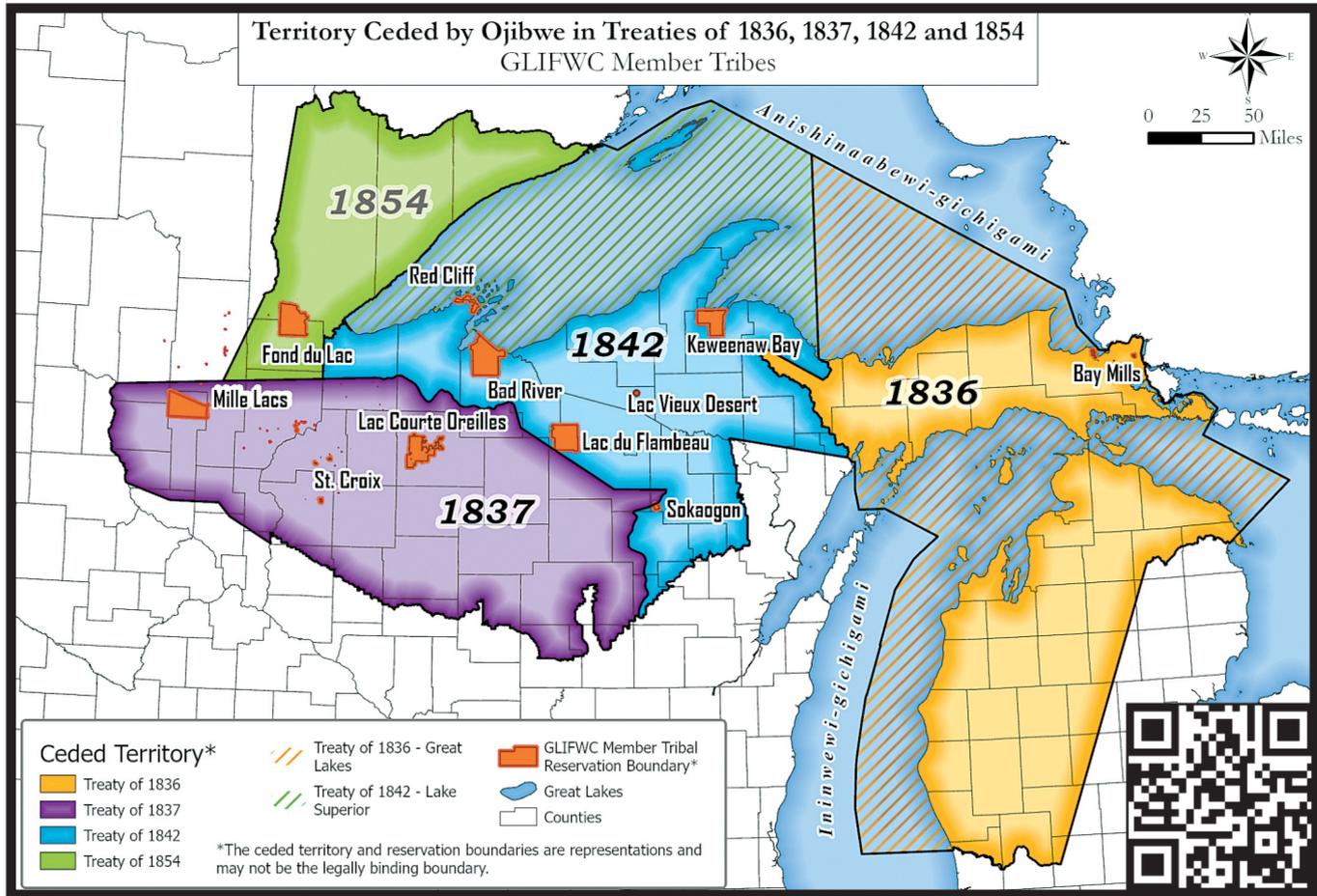
—J. Van Sickle





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# Mazina'igan

A Chronicle of the Lake Superior Ojibwe



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