Mazina'igan

A Chronicle of the Lake Superior Ojibwe

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Creels featuring lake sturgeon, yellow perch enhance solid ogaa season

By Charlie Otto Rasmussen, Editor

During an open-water season that returned to its more accustomed place on the calendar, Ojibwe fishers squarely landed a solid harvest in the Ceded Territory. Strong catch reports documenting plump, well-fed walleyes, yellow perch, and other giigoonh were welcomed by fishery managers and biologists.

"Overall tribal harvesters had fairly good weather conditions, and the predator fish appeared to be healthy," said Alexandra Bohman, GLIFWC biological services director. "At Lake Mille Lacs, most of the fish looked like they had eaten well during 2024 thanks to the large yellow perch and tullibee hatches."

Located in the Minnesota 1837 Ceded Territory, Lake Mille Lacs accounted for more than 40% of the Ojibweg walleye treaty fishing totals across Minnesota, Wisconsin, and Upper Michigan.

Through a combination of spearfishing and gillnetting, eight tribes brought in 69,271.4–pounds of ogaawag in the form the of 29,655 fish. Along with walleyes, tribal fishers landed 859 ginoozhe (northern pike) and 3,453 yellow perch (asaawe).

Jackson Lemieux, 12, from Bad River lands an ogaa while spearfishing on Presque Isle Lake, Wis. (B. Paulsen photo)

The tribal walleye take from Mille Lacs is the most since 2012 when Ojibweg took home more than 79,000-lbs—but still well below the 2025 intertribal allocation of 88,000 pounds.

More fish were available for harvest on Mille Lacs in 2025 following years of historically low creel limits, which helped the fishery recover from a population decline spurred by invasive species, water quality changes, and predation.

"Our conservative co-management approach with the State of Minnesota has been successful in allowing walleyes to replenish themselves," Bohman said.

(see Ziigwan fishing, page 2)

More than a number: tracking bull elk in the northern forest

By Travis Bartnick
GLIFWC Wildlife Biologist

When Leelyn Van Zile approached the omashkooz to place an asemaa offering, a thick orange collar with the number "527" was visible within the wide-banded brown hair of the bull's neck. On a ceremonial treaty hunt last October, the Sokaogon tag-holder had just downed the elk in the Chequamegon National Forest with a well-placed rifle shot. The animal would provide welcome meat for many Ojibwe people in multiple communities. And then there was the big orange tracking collar.

GPS collared bull omashkooz in Sawyer County, Wisconsin. (WDNR Snapshot Wisconsin)

Van Zile was curious about what the data on the Global Positioning System (GPS) tracking collar that had been around the bull elk's neck might reveal about its life in the Ojibwe Ceded Territory. Eventually Van Zile spoke with GLIFWC wildlife section staff and asked if more was known about the bull elk—where it had roamed, when it was born, how old it was, and more.

This prompted an interagency collaboration between GLIFWC and Wisconsin Department of Natural Resources biologists to seek some answers, helping paint a remarkable picture of the bull elk's life.

Post-harvest, the data from the GPS collar that had been fitted on 527 in early 2023 indicated that that he had spent most of his time over the previous year within a 10-mile radius of the community of Clam Lake, Wis.

Many of the GPS collar locations indicated that 527 spent a lot of time in relatively remote, undeveloped areas. However, there were also some concentrations of GPS collar points in the town of Clam Lake and in some of the residential and more developed areas surrounding some of the lakes in the area, along or near roadways like State Highway 77, county highways, and various forest roads.

(see Tracking omashkooz, page 9)

Ziigwan fishing diversity comes with river spearing

(continued from page 1)

Wisconsin Territory

Following last year's record early season opener on March 10, open water fishing in the Wisconsin territory kicked off April 3 on the Wolf River. Lake spearfishing started one evening later when Lac Courte Oreilles Band opened Amacoy Lake where a pair of spearfishermen harvested 17 ogaawag. Within a few weeks Ojibwe fishers and accompanying monitoring crews were present at lakes across the Wisconsin Ceded Territory.

Towards the tail end of spring fishing, the St. Croix Tribe encouraged treaty tribal citizens to join the hunt for lake sturgeon in the Yellow Lake system. Ojibweg from a handful of different bands made the trip to the Danbury, Wis-area to partake in the intertribal quota including Bad River Band's Kia White.

"It was a special experience," White said. "You're not looking for the [glowing] eyes like walleyes. It's finding these dark masses moving through the water. They're there, then they're gone."

Powerful wind gusts had churned Yellow Lake's waters during the afternoon and by the time she went fishing with friends after sundown, the waters were calm but murky with sediment. She spotted seven lake sturgeon, called name in Ojibwemowin, before a fish eased up and offered her a harvest opportunity.

"Dawn Seagraves taught me how to use a smoker," White said. "A lot of that fish has been gifted: to Dawn, to my dad, to the guys at the [Bad River] Recycling Plant doing all the community clean-up work. I even bartered for some smelt."

Members from Ojibwe bands that include St Croix, Mole Lake, and Lac Courte Oreilles combined to harvest a total of 12 lake sturgeon. Through May 15 the Wisconsin treaty walleye tally is at 34,217, plus 213 muskellunge speared from Ceded Territory lakes.

Michigan Territory

While a few inland lakes high in the Keweenaw Peninsula had only recently become ice-free at Mazina'igan press time, Michigan Ojibweg have largely wrapped up their off-reservation walleye season. Gene Mensch, longtime fisheries biologist for Keweenaw Bay Indian Community, said the band sponsored a pair of community events that produced a nice mix of experienced fishers and new harvesters. A stream-based workshop focused on the spring steelhead run on Gichigami tributaries and at Parent Lake in Baraga County, tribal citizens filled a 50-walleye quota over three nights that included cultural teachings, boat safety, and treaty rights education.

"For some, this was their first experience spear-harvesting walleye," Mensch said. KBIC spearfishers on Portage Lake added just under one thousand ogaawag to community households from a quota of 1,500.

Lac Vieux Desert Band spearfishers found walleyes in solid numbers in western Upper Michigan with a preliminary harvest of 4,538 fish. While the band only issued a few ceremonial permits for youth to harvest ogaawag on the home waters of Lac Vieux Desert Lake, Upper Michigan's largest inland lake, Lake Gogebic, yielded much of the fish tribal citizens will utilize at home, feasts, and ceremonies in the coming year.

In the south-central Upper Peninsula—from Lake Michigan tributaries, Rapid and Escanaba Rivers—Bay Mills Indian Community fishermen speared 126 ogaawag, said Justin Carrick from band's conservation department. Eastward in the Lower Michigan 1836 Ceded Territory, BMIC citizens also tagged a pair of lake sturgeon during the first week of May, he said. Harvested from Black Lake, the growing sturgeon population is rehabilitation success story between treaty tribes and the State of Michigan.

Note: All giigoonh harvest figures are preliminary.

Niizh namewag

Off-reservation lake sturgeon harvest permits are very limited and highly valued by Ojibwe fishers. At Black Lake in Lower Michigan, Jeffrey Graham from Bay Mills speared a 56. 3" lake sturgeon on May 4. A few evenings earlier Bad River's Kia White landed an equally impressive fish from Yellow Lake in northwest Wisconsin. (J. Graham & D. Seagraves photos)

Assistant Professor, Chantal Norgaard's Indigenous Studies students and Jenny Van Sickle, GLIFWC Public Information Office (far right) pose with UW-Superior's Community Partnership award following their final presentation on Ojibwe Treaty Rights.

GLIFWC received the recognition after being nominated by two university departments who work with the Commission's biological services and public information divisions through their Academic Service-Learning (AS-L) program.

The first part of the nomination reflected the environmental section's work to detect and map mercury with LSRI students. The second part of the nomination was in recognition of the treaty rights education students demonstrate by creating informational presentations for educators.

Link Center interns Lakotah Littlehawk and Isabella Lyste assisted Katelynn Baumann, Outreach Program Manager with this semester's AS-L partnerships. (L. Littlehawk photo)

At Parent Lake in Upper Michigan, Keweenaw Bay Indian Community resource technician Victoria Ripley weighs a walleye from the spring spearing harvest as Daniel Lauritsan records data. (G. Mensch photo)

Ceded Territory news briefs

Mille Lacs Lake fishery continues historic recovery

From 2013-2015, the Mille Lacs Lake walleye population hovered around its lowest point since data collection was standardized in the early 1980s. Four consecutive ogaa year-classes from 2009-2012 survived to their first fall in good numbers but became scarce before becoming adults. The food chain in the lake was undergoing big changes since the zebra mussel and spiny waterflea had recently invaded. Biologists were concerned that formerly sustainable harvest practices were no longer sustainable.

Fast forward 10 years to 2025, and the lake looks much better. Ojibwe treaty tribes and the state of Minnesota enacted conservative harvest limits to stop the decline and protect young walleye. Their survival has improved, and the food chain might be recovering as well. In 2024, big hatches of tullibee and yellow perch provided ample food for the predators in the lake. The number of adult yellow perch has also increased.

In turn, the estimated walleye population and biomass has rebounded to pre-decline levels. Good numbers of walleye hatched in 2024 and showed up looking healthy in fall assessments, providing hope for a future boost to the adult population. Minnesota Department of Natural Resources and the tribes plan to continue monitoring the fish community of Mille Lacs with an eye towards long-term sustainability. **—M. Luehring**

LCO v. Wisconsin stipulation updates

The *LCO v. Wisconsin* case, also identified as the *Voigt* case, affirmed the Ojibwe tribes' rights retained in the 1837 and 1842 Treaties. It is a living case. While a final judgement was made in this case in 1991, changing environmental circumstances and the need for adaptive management led to an amended judgement in 2001. This judgement created an avenue for the parties to negotiate changes to the stipulations, which are documents incorporated into the final judgement that detail agreements between the plaintiff tribes and the State of Wisconsin concerning the administration and enforcement of treaty rights activities.

The parties now take part in a biennial process to review and adjust these agreements, resulting in six amendments that have been filed with the court. The most recent was finalized in December 2024. This amendment included changing the tribal spring wild turkey season closing date, addition of regulations for tree stands and ground structures on state properties, and updates to the migratory bird harvest regulations.

In addition, GLIFWC's executive administrator issued two Commission Orders (Order Nos. 2025-01 and 2025-02) this spring. These Orders updated the alternative monitoring regulations, including increasing the eligibility threshold for alternative monitoring of muskellunge and making an adjustment to use the remaining quota, rather than safe harvest level, to determine eligibility for alternative monitoring.

The parties are now in the ninth biennial round of stipulation review and hope to have another filing completed by the end of this summer.

—O. Gower

Navigating future for walleyes at Ogaa Symposium

GLIFWC hosted its second Ogaa Symposium at Seven Winds Event Center at Lac Courte Oreilles, Wisconsin on February 26-27, 2025. The gathering brought together tribal biologists and representatives, GLIFWC and Department of Natural Resources staff, and university researchers from around the region. Participants shared the newest research, stewardship success stories, and ideas for improving walleye populations and habitat.

The symposium first began in 2024 as a way for participants to learn from each other and to find ways to work together to improve ogaa populations. Overall, much of the focus has been on finding ways to apply scientific findings to fishery stewardship.

Highlights from the 2025 symposium included an update on the Mille Lacs Lake walleye population in Minnesota, a discussion about using values and ecosystem objectives to guide stewardship decisions, and an overview of long-term Ceded Territory walleye population trends. **—M. Luehring**

Second consecutive mild winter leads to early maple sap runs

Following the uncommonly early start to the iskigamizigan season in 2024, some felt a tinge of deja vu this year as sugar bushers scrambled to tap trees during the warm-up that hit during the last week of January. The second consecutive season of untimely sap flow may serve as a maxim for upper Great Lakes sugar bush practitioners—look at the weather, not the date when it comes to timing of tapping trees.

The sugar maple sap run begins when temperatures are freezing at night—ideally 20 to 25 degrees Fahrenheit—and just above freezing during the day—in the 40s F. Mid-March to mid-April weather historically provides these conditions.

Like the previous season, many Ceded Territory forests south of the Gichigami snowbelt had little to no snow at mid-winter. It would be the second week of March before sugar bush operators saw consistent collections. Over several months, tribal producers saw suitable returns from a season marked by stop-and-start sap flows. **—CO Rasmussen**

Updated 1836 Treaty fishing decree approved by federal court

More than six years after negotiations began, the Sixth Circuit Court of Appeals has approved an updated fishing agreement that will govern the regulation, allocation, and management of the treaty fishery in the 1836 treaty ceded waters of the Great Lakes, including portions of Lakes Superior, Huron, and Michigan.

Like other tribes in Ojibwe Country, the 1836 signatory tribes held onto property rights like hunting and fishing when they negotiated land cession treaties with federal officials. These are commonly known as treaty rights. Representatives from the United States, State of Michigan, and four 1836 Treaty tribes have agreed to this latest decree, which will govern treaty fishing for 24 years.

While many regions in which tribes exercise off-reservation treaty rights are administered with directives handed down by federal and state courts, the 1836 Treaty tribes, Michigan authorities, and the United States have established management and regulatory frameworks through a series of formal agreements called Consent Decrees. This is the third agreement, the first having been adopted in 1985.

The Bay Mills Indian Community, Grand Traverse Band of Ottawa and Chippewa Indians, Little River Band of Ottawa Indians and Little Traverse Bay Bands of Odawa Indians have all signed onto the recent decree along with state and federal officials. In a crinkle to the proceedings, the fifth and final 1836 Treaty signatory band—Sault Ste Marie Tribe of Chippewa Indians—ultimately withdrew from the agreement and appealed to the federal court. In March, the appellate court approved the agreement; the Sault Tribe has until mid-June to appeal to the Supreme Court.

The Sixth Circuit Court's decision evaluated issues related to the equal allocation of fishery resources as well as the processes through which the State of Michigan and the tribes will manage and conserve the fishery. The court also approved to new harvest reporting requirements and gear restrictions agreed to by the tribes.

The Chippewa Ottawa Resource Authority, an intertribal agency similar to GLIFWC, assists the five tribes in implementing the Consent Decree and works with its member tribes to conduct research and management in support of the fishery. **—GLIFWC Staff**

Essential Ojibwemowin

***namegos*—lake trout**

A heartbeat rising in Gaa-miskwaabikaang

By Bay Paulsen, Staff Writer

"Women don't drum."

That phrase echoed around the talking circle, 13 women sitting solemnly, facing each other. The scent of smoke from sage and sweetgrass rested gently over the dimly lit room, and an eagle feather made its way from woman to woman as each recounted her own story.

Despite many of them hearing that phrase, "women don't drum," many times over while growing up, that didn't stop them from coming together on that late-March evening in the Gaa-miskwaabikaang (Red Cliff) library. They were seated around an eastward-facing blanket with their own drums resting on it, preparing to be feasted and sounded for the first time.

That moment had taken over a year to orchestrate, beginning even further back in 2018 when Kathy Barri became the library assistant for the Ginanda Gikendaasomin (We Seek To Learn) Library, otherwise known as the Red Cliff Library.

The job started very simply, needing only to sort books in the collection, maintain the database, and answer the phone, among a few other responsibilities.

"So, I was like, 'Well I can do that,'" she recalled. "But putting an open sign on the door doesn't mean people will come in." Seeking to increase engagement at the library, Barri expanded the role into what she describes as "the collaborating fool," aiming to bring people and programs together to be productive in the community, discussing opportunities for funds these programs might have.

"So, I will sit people down, invite them to the table, and I will come right out and say, 'You have money, and I'm not afraid to spend it,'" she said.

One such opportunity came in the spring of 2024 when Barri realized that the $4-million, 5-year long LAUNCH program grant awarded to the tribe in 2019 would be coming to an end the following September of 2024.

The grant coordinators, including Ameris Andrews, cultural engagement specialist at the time, wanted the program to leave a legacy with its last remaining dollars.

Knowing there was a growing desire among the women in the Red Cliff community to sing and play drums in ceremony, Barri and Andrews worked together to direct the remaining funds towards purchasing supplies for a drum-making class to be held at the library.

The women's hand drum group, Wiikweyaang Nagamo Ikwewag, performed again on May 14 at the Legendary Waters Event Center, opening in ceremony for the 2025 Culture Keepers event. (J. Kolonich photo)

Amaris Andrews, recently worked as the cultural engagement specialist for the LAUNCH program soaks strips of raw hide to use as ties that will secure the surface to the drum's frame. (JVS photo)

With the question of funding out of the way, there still remained the hurdle of finding someone to share their knowledge, both for building the drums and for giving the spiritual teachings that go hand-in-hand with Ojibwe drumming.

Lin Migiziikwe Gokee, interim director for the Red Cliff Library, who had experience singing with the Oshkii Giizhik Singers, a women's hand drum group based in the Fond du Lac reservation and Duluth area, stepped in to help the women learn how to put their drums together when inclement weather made it impossible for more experienced guides to attend.

Gokee laughed and described the experience as "amateurs leading amateurs," noting that they had limited experience in drum making, but each of the drums turned out beautifully, and the women all had a great time.

The drums dried for a few days, allowing the soaked rawhide stretched across the wooden frames to shrink and become rigid. Then, on the following Tuesday, the women met for their talking circle and to feast the drums.

"When I was young, I had this dream of drumming," said Anna Martineau Merrit before the ceremony. "But I was told 'No, women don't hand drum.'"

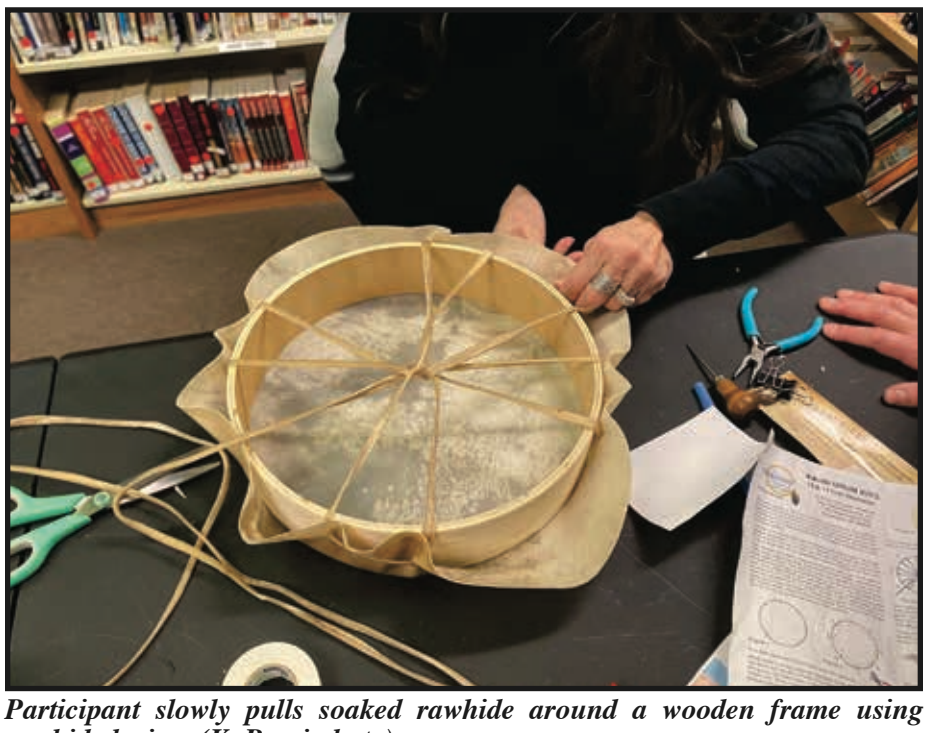
She then described a trip she took to Red Lake, Ontario with her husband. "It was really the end of the road," she said. She recounted the story, describing a little shop filled with only indigenous stuff. And when she walked in, she was amazed to find an entire wall of CDs of women hand drumming and singing.

"They can hand drum! The dream I had wasn't wrong!" she remembered thinking excitedly, and since then, she has been an eager learner of hand drum teachings, including those brought to the feasting ceremony that day by Linda Dunbar, who offered her knowledge to the newly formed group and led the feasting ceremony.

Dunbar explained that the drum was given to Ojibwe people through a woman and that women were never meant to be excluded from it. She also explained the spiritual connection they would have with their drums and with the Creator as they played.

One of the women, who asked not to be named, remarked on the spiritual experience she felt when she first sounded her drum. "I felt instant chills," she said. "I could really feel that connection Linda talked about, like a literal cord of energy from Creator to my heart to my drum."

(see Wiikweyaang, page 22)



Participant slowly pulls soaked rawhide around a wooden frame using rawhide lacing. (K. Barri photo)

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On the cover

The Ojibwe Ceded Territory is home to around a dozen frog species but only one toad—the American toad. With rough skin covered in glands that appear to be wart-like bumps, American toads are well camouflaged denizens of regional woodlands. Learn more about the toad and its frog relatives on page 8. Many of them will be singing until August. (I. Rasmussen photo)

Living with lampreys in the Gichigami watershed

The Bad River Band of Ojibwe and its resource management partners are moving beyond old notions of sea lampreys as irredeemable aquatic vampires, viewing the Atlantic-native species as a being that deserves respect and more thoughtful stewardship.

An all-ages gathering at Bad River Band's community center got an up-close introduction to Atlantic-strain sea lampreys last April in New Odanah. Host Mashkiiziibii Natural Resources Department with associates Great Lakes Fishery Commission, US Fish & Wildlife Service, and GLIFWC offered hands-on opportunities to interact with the parasitic fish first discovered in the Bad River in 1955.

"Lampreys have been here a long time now," said Jacob Rodmaker, MNRD fishery specialist. "We recognize they're part of the ecosystem and are working to find balance [with other species]."

Interagency biologists took turns fielding questions from local fish harvesters and students about lampreys, known as ginebigomeg in Ojibwemowin. Most of the public concern centered on treatments with the lampricide TFM. Noting TFM applications on the Bad River requires tribal council approval and has a long safety record, Rodmaker added that the band is increasingly looking into non-chemical treatments to help keep lampreys in check.

At the Potato River on the reservation's east side, engineers are exploring the feasibility of installing a seasonal barrier dam to prevent lampreys from reaching upstream spawning grounds. Pilot projects led by GLIFWC to physically remove metamorphosing-phase ginebigomeg from the Bad River watershed with nets are already underway.

Native to the Atlantic Ocean, sea lampreys made their way into the Great Lakes as shipping lanes were developed a century ago. Since sea lamprey predation crashed Lake Superior fish populations in the mid-1900s, resource officials have worked to restore hard-hit species like lake trout. After decades trying to eliminate sea lampreys, Bad River Band officials are implementing a stewardship approach, looking to find ways to include lampreys as part of a balanced ecosystem. **—COR**

Jacob Rodmaker, Mashkiiziibii Natural Resources Department fishery specialist, reveals the suction-power possessed by ginebigomeg to local kids. (CO Rasmussen photo)

GLIFWC Great Lakes Fisheries Technician, Patrick Lagrew, and Douglass Keiser remove sea lampreys from the trap and into a bag to bring them on shore. The sea lamprey trap is designed to easily allow the long and slender fish to enter without having a clear exit. These traps are checked daily during the sea lamprey spawning season. (B. Paulsen photo)

Sea lamprey fundamentals

With resounding success in the last decades' efforts to control the overwhelming population of sea lampreys in Gichigami's waters and the native namegos (lake trout) being fully restored, readers may wonder what post-crisis management of this non-local being looks like.

Sea lampreys are a parasitic fish, native to the Atlantic Ocean but unintentionally introduced to the Great Lakes through man-made canals. Beginning life as larvae in rivers, they inhabit the sediment, where they filter feed. As they mature, they migrate downstream to the lakes where they feed on larger fish species by latching on with their unique suction-cup mouths and rasping tongue.

In its native ocean habitat, the sea lamprey encounters host fish that are generally larger and more abundant than those found in the Great Lakes. However, within the Great Lakes, a single adult lamprey can be a significant threat, capable of killing up to 40 pounds of fish during its lifetime.

During the larval stage when lampreys are found in river sediment, they are vulnerable to chemicals called lampricides, which are used to treat Great Lakes tributary streams annually and are a huge asset in the ongoing sea lamprey control efforts. These lampricides are harmless to most non-lamprey beings who inhabit the tributaries.

Annual lamprey monitoring

GLIFWC's biologists continue to monitor adult sea lamprey populations by performing mark and recapture surveys each spring during the lampreys' spawning season, when adult lampreys can be captured moving up those tributaries to reproduce. Traps are set during this time and checked daily. Up to 30 of the lampreys caught each day are marked on their dorsal fins and released back downstream from the trapping site. The number of lampreys with this mark that are recaptured gives biologists an estimate of the population in the tributary. Sea lampreys captured in excess of 30 each day are removed from the ecosystem.

Although current population estimates indicate lower sea lamprey numbers compared to pre-treatment levels, the fact remains that these non-local lampreys continue to be a significant threat to Great Lakes fisheries. While celebrations are in order for the restoration of the namegos fishery, it's important to remember that vigilant observation, research, and action remain important aspects in the long-term care of Gichigami. **—B. Paulsen**

Gichigami Salute!

During severe weather on the Great Lakes, GLIFWC fishery staff depend on the skills of commercial fishermen, including Red Cliff member Mike Peterson, seen here next to his vessel "Energy," to safely deploy and retrieve research and assessment gear.

Ceded Territory SCIENCE

Freshwater protected areas

Can they improve aquatic ecosystems in the Upper Midwest?

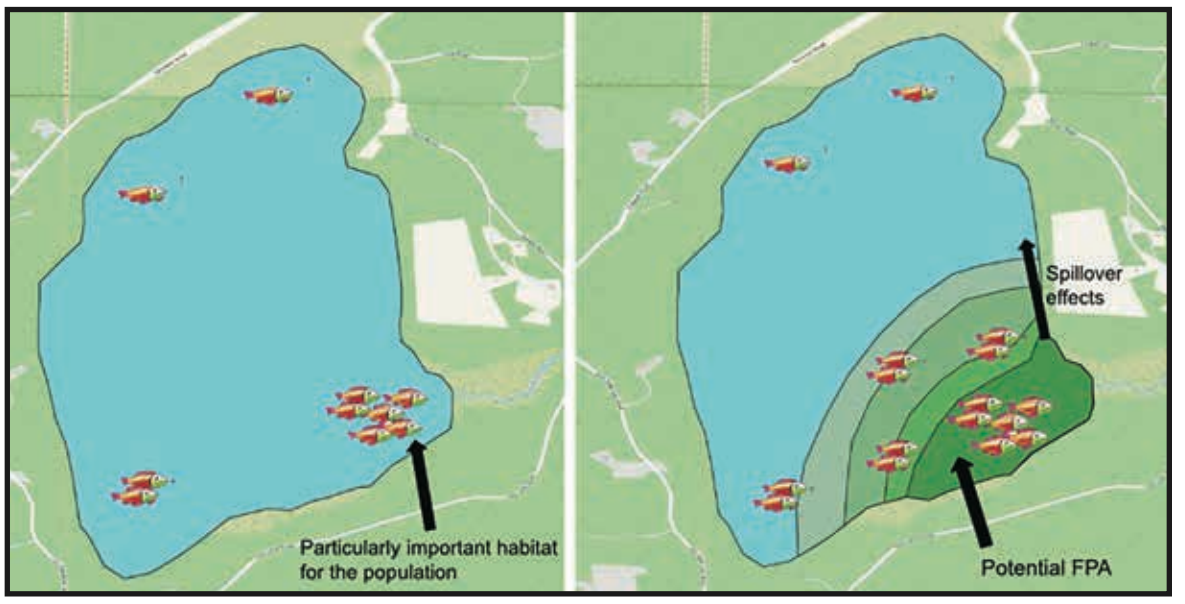


Figure 1. The population and spatial distribution in this lake displayed on the left may change to look more like the one on the right if an FPA (darkest green area) was established in the southeast bay.

By Kayla Lenz, GLIFWC Research Technician & Aaron Shultz, GLIFWC Inland Fisheries Biologist

Around the world, aquatic ecosystems are changing at a rapid rate due to a variety of stressors, including harvests of resources, land use changes, climate change, and introduction of non-native species.

Common strategies for stewards of water resources are to reduce harvest, increase abundance through propagation (for fish this means raising them in a hatchery, then releasing them into the wild), and to a lesser extent, habitat improvement for these beings. Here, we explore the creation of protected areas in water bodies that can be used in addition to, or in combination with, the aforementioned strategies.

Creating protected areas can limit activities such as angling, boating, snorkeling and diving, and shoreline development, which may help protect individual species and/or entire ecosystems.

Scientific articles, indigenous knowledge, and community support can guide the creation of protected areas, and what regulations or restrictions are implemented. Many regulations often focus on protecting fish, but they can also protect aquatic vegetation and invertebrates from being disturbed, as well as protecting the entire system from the introduction of non-native species.

Establishing protected areas often increases species density/richness (number of unique species), and biodiversity of the natural communities inside and outside their bounds ("spillover"). For example, if a lake has a bay that is particularly important for its fish population, establishing a protected area there may allow for the population to increase overall, with the areas immediately surrounding it experiencing the most positive increase (Figure 1).

However, the effects of protected areas on systems depend on several factors such as size, placement, the characteristics of the systems they exist in, and finally, enforcement.

Figure 2. Sign for a fish refuge in Cambodia that was established by the Feed for the Future initiative. This wetland provides critical habitat for fish in high water conditions, and the nearby community enforces no fishing regulations. (A. Delgado photo tinyurl.com/zud2fvva)

Climate change

As the effects of climate change continue to alter habitats worldwide, many species, especially those accustomed to cool/cold water, may move to areas that are resistant to those changes. Protected areas may help to protect threatened species for many reasons.

First, climate change can reduce how many fish may be sustainably harvested, so establishing protected areas may be effective at preventing overharvest that perpetuates population declines.

Second, selecting sites for protection based on their importance for life stages (particularly early life stages) that are more susceptible to warming or changing conditions may also help to decrease mortality at that life stage by ensuring that the habitat continues to meet the fish's needs.

Finally, certain areas act as climate refuges, where the effects of increased heat or severity of floods and droughts (among other effects) are felt less than in surrounding areas. These areas are of particular importance for protection because they may buffer threatened species against climate change impacts.

Identifying cold-water refuges has been implemented to protect many fish species, such as brook trout, gilt darters, and Pacific lamprey. The Wisconsin Department of Natural Resources is currently working on establishing and managing a network of 54 cold-water reserves to protect brook trout around the state, with four different management strategies being implemented based on the needs of each watershed. These reserves are focused on protecting the remaining cold-water stream habitat in Wisconsin so that brook trout may be more resilient to climate change. Similar strategies have been effectively used to protect threatened species elsewhere.

Existing freshwater protected areas

In Southeast Asia, freshwater protected areas (FPAs) are somewhat commonplace, especially in rivers where they are often monitored and regulated by local community members (Figure 2). They are pervasive enough that multiple, small reserves on the same rivers form networks of protected areas that result in higher biodiversity, fish density, and biomass within reserve boundaries, with benefits increasing with reserve size. These protected areas disproportionately benefit large fish, so implementing these systems may restructure the fish community and increase the size of fish harvested.

The most effective networks of protected areas in southeast Asia are those that protect a wide variety of habitats along the entire river, allowing for connectivity between the upstream and downstream areas. Many of these principles also apply to marine protected areas, sporting the thesis that these same principles would benefit inland lakes.

Though they are rare, FPAs in inland lakes do exist. In Ontario, Canada, the Rideau Lakes system is home to a network of FPAs that are closed to all fisheries activities year-round. They were established to protect the largemouth bass population, which declined due to overharvesting.

After their establishment, the density of reproductively active largemouth bass increased within and around the FPAs. Increased spawning success in these areas also drew egg predator species such as shiners and bluegill.

(see Freshwater protected areas, page 17)

Fish hatcheries: a slice of the stewardship pie

M. Verch photo

By Charlie Otto Rasmussen, Editor

After generations of relative stability, the fortunes of many fish communities seem to be settling into a fast-track toward a new future. For some, like largemouth bass, the waters appear favorable to species vitality and expansion. Other beings face choppy-looking prospects in the evolving lake country of the Ceded Territory. Among the most important swimmers for indigenous harvesters and sport anglers alike: walleyes, or ogaawag.

"Due to all the climate changes we're having, all the increases in fishing pressure, the technology that's part of everyday angling, sometimes Mother Nature just can't keep up," said Keith Wiggins, Mille Lacs Band fishery biologist. "Hatcheries are one of the tools available to support fish populations, including walleyes."

While GLIFWC, tribes, states, and federal natural resources officials are increasingly promoting aquatic habitat preservation and restoration, hatcheries remain an important piece of the stewardship puzzle in the Great Lakes region. Wiggins, who spent part of his career managing fisheries in the Pacific Northwest, said much of United States west coast would be devoid of salmon runs without fish production programs.

"In some cases, hatcheries can prevent a [fish community] collapse," Wiggins said.

Fish production can also have a role in reestablishing a self-sustaining population like at Red Lake, Minnesota. Following a mid-1990s walleye crash on the big lake comprised of two massive basins, Red Lake Tribe, US Bureau of Indian Affairs, and State of Minnesota oversaw three large releases of walleye fry from 1999-2003. Those 40-million, inch-long fish led an ogaawag comeback on Upper and Lower Red Lake that endures to this day.

Technology and the fishery

Ojibwe fishers harvest the majority of their catch for the year during the spring season with spears and nets, right after ice-out. With angling, Wiggins said one of the developments biologists are observing is year-round exploitation with the widespread use of technology like forward-facing sonar that allows fishermen to see fish and structure on all sides of their boat for hundreds of feet.

For hard water fishers, it's a matter of drilling holes through the ice wherever your sonar locates the fish. From muskellunge to crappie, Wiggins said anglers can pursue fish, schools of fish, in all seasons, presenting different lures until scoring a bite.

"Technology may have an extremely damaging effect on fisheries," he said, adding it's a trend that calls for more research.

While new technologies are making it easier to pull perch, walleyes, and muskies out of lakes, fish hatcheries typically utilize tried-and-true production methods centered on hand-harvesting eggs and milt, bell jar incubation systems, and lots of fresh water—sourced from deep wells or lakes.

Tribal hatchery managers use local fish populations to serve as brood stock to avoid introducing new diseases in waterbodies. The work yields millions of fish annually to support struggling populations and help maintain beings like ogaawag in waters that have no natural reproduction.

Paired with habitat preservation, harvest limits, and better controlling the influx of harmful non-native organisms, hatchery production is one part of healthy fishery stewardship in the Ojibwe Ceded Territory.

Tribal hatcheries released nearly three million fish into both on and off-reservation waters in 2024

2024 Tribal Hatchery Production	Ogaa (Walleye)				Maazhamegosens (Brook Trout)				Namegos (Lk Trout)	Name (Lk Sturgeon)		Ashigan (LM Bass)	Total
	Fry (hatchlings)	Spring Fingerlings (2-3")	Fall Fingerlings (6-8")	Yearling (12")	Fry (hatchlings)	Spring Fingerlings (4-7")	Spring Fingerling (coaster variety)	Retired Broodstock (adults; 15")	Spring Fingerlings (5-8")	Small Fingerlings	Large Fingerlings	Fall Fingerlings	
Fond du Lac										5,000	1,750		6,750
Lac du Flambeau			52,180										52,180
Lac Courte Orielles		40,638	29,681									712	71,031
Lac Vieux Desert		5,500											5,500
Mole Lake/Sokaogon		16,933	69,313	3,228									89,474
Mille Lacs	1,680,000	24,500											1,704,500
Keweenaw Bay	500,000	30,366			22,976	27,115	7,563	642	36,290				624,952
St. Croix	224,180	125,313	18,642										368,135
Total	2,404,180	243,250	169,816	3,228	22,976	27,115	7,563	642	36,290	5,000	1,750	712	2,922,522

Featured Study

Healing Ogaa (Walleye *Sander vitreus*) Waters: Lessons and Future Directions for Inland Fisheries Rehabilitation

Abstract

Culturally, economically, and nutritionally valuable inland fisheries face many new challenges on top of chronic disturbances. In the upper midwestern United States, declines in cool-and-coldwater fisheries have been observed, including ogaa/walleye *Sander vitreus*.

In response to population declines, agencies have implemented rehabilitation efforts, and the frequency and intensity of efforts have increased recently given declines. Evaluating intervention outcomes is critical for institutional learning and to understand strategy effectiveness but is difficult to do when multiple interventions are applied concurrently and in the absence of replication or controls.

This review documents walleye rehabilitation efforts in the upper Midwest U.S., where a rehabilitation effort was defined as a coordinated effort with the stated intention to restore a self-sustaining population such that it required limited-to-no further intervention.

We discuss: (1) strategies used; (2) similarities and differences in metrics of success; (3) factors leading to success; and (4) recommendations that may increase future successful rehabilitation. Strategies included harvest regulation changes, stocking, fish community manipulations, habitat enhancement, and partner discussions. Overall, evaluations of environmental, habitat, and fish community factors causing walleye population declines were not included in most rehabilitation plans before implementation.

This review highlights an increased need for ecosystem-based fisheries management principles and cultivating ecological conditions that favor walleye as a potential path for future rehabilitation plans. Lessons drawn from rehabilitation plans are applicable to global inland fisheries to inform the conservation of declining fish populations.

Read the full paper here: **Healing Ogaa (Walleye Sander vitreus) Waters: Lessons and Future Directions for Inland Fisheries Rehabilitation** *(tinyurl.com/yhvyjvec)*.

Authors: Holly S. Embke, Zachary S. Feiner, Gretchen J. A. Hansen, Joseph T. Mrnak, Michael Waasegiizhig Price, Christopher Rounds, Greg G. Sass, Stephanie L. Shaw & Aaron Shultz

From April to early May, GLIFWC's Inland Fisheries Section staff conduct population assessments of adult ogaa across the 1837 and 1842 Ceded Territories of Wisconsin and Michigan. Surveys began in the southwestern portion of the region on Wapogasset and Bear Trap Lakes and crews moved northward as lakes shed their winter ice. Collaborative assessments between GLIFWC, Ojibwe tribes, and the Wisconsin Department of Natural Resources each spring help biologists monitor the health and status of ogaa populations across the Ceded Territory. Data gathered during these assessments are used in developing safe harvest quotas and outlining ogaa stewardship priorities. (E. White photo)

Wetland frog songs mark seasonal change, exemplify TEK

By Zach Wilson, GLIFWC Forest Ecologist

Spring and summer months in Ojibwe Country heralds the return of vibrant amphibian activity, notably among frogs and the one species of toad, the American toad *(Anaxyrus americanus)*. Wetlands are bursting with life, and the calls of our frog friends are singing so loudly that at times they seem deafening. These species enrich ecosystems and serve as vital indicators of environmental health.

Established in 1981, the Wisconsin Frog and Toad Survey is a citizen-based monitoring program aimed at assessing the status, distribution, and long-term population trends of Wisconsin's twelve frog and one toad species.

The survey employs auditory surveys along approximately 100 permanent roadside routes, each comprising 10 listening stations situated near diverse breeding habitats such as ponds, lakes, marshes, and wooded swamps. Volunteers conduct these surveys three times annually—early spring, late spring, and summer—to capture the breeding calls of various species. Several GLIFWC member tribes conduct these surveys throughout the Northwoods, documenting changes over time.

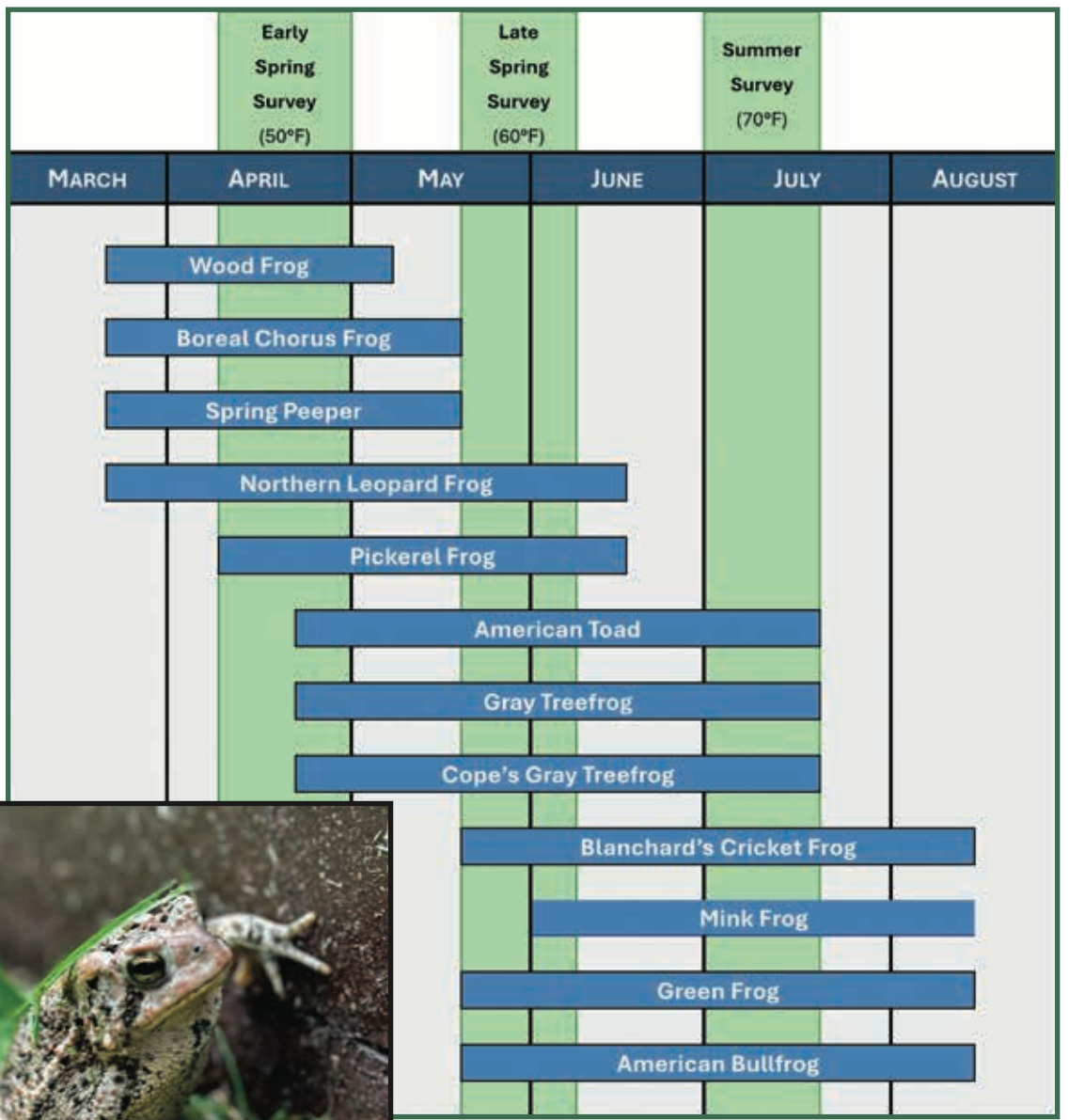
Listening to the forest beings is part of traditional ecological knowledge (TEK) and marks the changing seasons. Ojibwe elders have long advised that when spring peepers start calling in ziigwan, the walleyes are spawning and it's time to go spearfishing.

Amphibians, including frogs and toads, are often termed "indicator species" due to their sensitivity to environmental changes. Their permeable skin and aquatic breeding habits make them susceptible to pollutants, habitat alterations, and climate variations. Monitoring their populations provides invaluable insights into ecosystem health.

The extensive data collected by volunteers has unveiled several noteworthy trends:

- **American Bullfrog *(Lithobates catesbeianus)***: Once a species of concern, recent data indicate increasing populations, suggesting successful conservation efforts.
- **Northern Leopard Frog *(Lithobates pipiens)***: The survey has documented a long-term decline in their numbers, highlighting potential environmental challenges affecting their habitats.
- **Blanchard's Cricket Frog *(Acris blanchardi)***: Citizen scientists have reported new populations along the Mississippi River and areas where they hadn't been observed in over three decades, pointing to possible habitat recovery and conservation successes.

Incorporating TEK with conventional scientific approaches enriches our understanding of amphibian populations. TEK emphasizes the value of local and indigenous knowledge systems, fostering a deeper connection to the land and its inhabitants. In Wisconsin, community engagement through programs like frog and toad monitoring exemplifies this integration. Volunteers, often referred to as
(see Omakakii, page 22)



This chart shows when you might hear different frogs and toads calling throughout the year. (WDNR graphic)

Inset: Reds, browns, greens, yellows, and shades in between, the American toad displays an impressive range of coloration in the Ojibwe Ceded Territory. (IA Rasmussen photo)

2024-25 Furbearer trapping season summary

The fur trapping season for most furbearer species wrapped up March 31 in the 1837 and 1842 Ceded Territory. The two exceptions were the nigig (otter) and amik (beaver) season in Wisconsin which ended April 30.

Throughout the season, GLIFWC keeps track of the Ojibwe tribal harvest in the Ceded Territory for ojiig (fisher), gidagaa-bizhiw (bobcat), nigig (otter), and waabizheshi (marten). During the 2024-2025 furbearer season, tribal harvesters registered 35 ojiigag, 14 gidagaa-bizhiwag, and 7 nigigwag.

Waabizheshi are listed as tribally endangered in Wisconsin and harvest is typically low even in the northern reaches of Ojibwe Country that contains the best marten habitat.

Current 2025 numbers do not include furbearers registered at Keweenaw Bay Indian Community in Upper Michigan or Fond du Lac harvest in the Minnesota 1854 Ceded Territory, which were not yet available at press time.

The off-reservation fur take continues to fall below the ten-year average with some variations for individual species. The ojiigag harvest doubled, half of the gidagaa-bizhiwag were taken, and a similar number of nigigwag harvested compared to last season. **—A. Carl**

Season	Ojiig	Nigig	Gidagaa-Bizhiw	Waabizheshi
2020-21	48	27	18	5
2021-22	38	33	17	3
2022-23	6	6	13	4
2023-24	17	8	26	3
2024-25	35	7	12	0
10-Year Average	**45**	**22**	**25**	**7**

Tracking omashkooz

(continued from page 1)

Arrival on the Landscape

Sometime in the late spring of 2021 (likely between mid-May and mid-June), a very pregnant cow elk sought out a location where she felt safe and protected in the dense forest surrounding the Clam Lake, Wis. area and gave birth to a 30–40-pound male calf.

The newborn calf sported reddish-brown hair with numerous white spots to provide a natural form of camouflage which helped it blend in with its northern forest surroundings. In addition to the survival adaptation associated with its spotted pelage, the calf also had very little to no scent, limiting its detectability by any passing predators with their superb olfactory systems.

The calf's mother, likely somewhere in the range of 500-600 pounds, stood next to the calf, scanning for signs of danger as her newborn breathed its first breaths in the new and large world outside of the womb. Over the next several weeks the calf rapidly gained weight from its mother's rich milk, sometimes putting on upwards of a pound or two per day. After several months, the white spots eventually faded to reveal the more solid rusty brown color typically seen on mature elk.

For the next year and a half, the young bull elk roamed the greater Clam Lake area, learning how to survive from its mother and through socializing with other elk in the subgroup. Elk are social animals and often form subgroups ranging from 10-40 individuals. Eventually, the young bull elk would venture off on his own as he matured, spending less time with the cow-calf group and more time on his own or in bull elk bachelor groups.

GLIFWC and Wisconsin Department of Natural Resources wildlife specialists conducted health checks on bull #527 and other omashkooz inside a corral trap near Clam Lake, Wis. (T. Bartnick photo)

Time for a check-up

On March 8th, 2023, the same young bull elk, now just shy of two years old, found itself in a strange situation—trapped in a corral trap with 10 ft. walls, after being enticed to enter by an easy, calorie-rich food source placed in the trap by biologists. The trap had been set up by the Wisconsin Department of Natural Resources (WDNR) earlier in the winter and several elk had started making a habit of visiting the site for the nutritious reward waiting for them in the corral.

The WDNR biologists and staff from other partner agencies, including GLIFWC and the Lac Courte Oreilles Band of Lake Superior Chippewa worked together that day to place tracking collars on several trapped elk. The GPS-enabled tracking collar would help biologists learn from the elk by monitoring its movements across the landscape.

After WDNR biologists used a dart gun to safely administer a sedative to immobilize the elk, the interagency group of biologists and technicians entered the trap, with small teams of 2-3 people assigned to monitor each elk that had been immobilized in the enclosure.

Two GLIFWC wildlife technicians assisted with monitoring the vital signs (heart rate, breathing rate, and temperature) of the young bull elk as the WDNR staff fitted several elk with GPS tracking collars. There was a number written in large, bold black numbers on the wide orange band of the GPS collar of the young bull elk.

This number "527" was assigned to the bull elk to keep track of the individual collared animals over the years for herd monitoring. After several additional measurements were taken and an orange-colored ear tag was applied to the elk's left ear, also with the number "527," the elk was given a reversal drug, and it was back up on its feet within a few minutes. Eventually, once all the captured elk were back up and moving around inside the trap, state technicians opened up the gate and the elk ran off into the vast Chequamegon-Nicolet National Forest.

Tracking collar know-how

Biologists have been fitting tracking collars on a subset of elk in this area since the omashkooz reintroduction efforts began in 1995. That was the year 25 elk were trapped from a restored elk herd in Michigan's lower peninsula and released into the Clam Lake area.

Community members from local tribes were at that original release and organized a welcoming ceremony signifying the return of omashkooz to the landscape of what is now northern Wisconsin.

Elk had once roamed most of Wisconsin until the mid-late 1800s when they were extirpated from the state due to lack of harvest regulations, market hunting, loss of habitat, and from other effects of colonization by settlers.

The early elk tracking collars were fitted with VHF (very high frequency) radio transmitters, which emitted a signal that could be picked up by a receiver device tuned to the frequency emitted by the collar. Using that technology, a biologist would have to spend a great deal of time and effort to track and determine the approximate location of each collared elk.

One way of finding the location of the collared elk was achieved by conducting aerial flights in small aircraft to locate the collared individuals, or the biologists would have to use triangulation methods to estimate the location of the elk from the ground.

The triangulation methods were described in more detail in a Mazina'igan Ceded Territory Science article ("Omashkooz in Wisconsin") in the Biboon 2022 edition (*tinyurl.com/34mcesy4*).

In more recent years, the WDNR has transitioned to using collars fitted with GPS technology, allowing the location of the individual to be transmitted automatically to a database and mapping application to give biologists close to real-time, extremely accurate locations of the elk on the landscape.

These collars operate on a rotating set schedule, versus only during the staff's work schedule. The GPS collars have also allowed biologists to be much more efficient with obtaining fixed locations of the elk and have allowed them more time to focus on other aspects of the elk program.

Elk tracking collars assist biologists with learning about elk behavior, such as how they move across the landscape, what habitat types they frequent or target at different times of the year, what types of habitat pregnant cow elk seek out when they give birth to their calves each spring, and much more.

An additional benefit of having some of the elk collared is that it can help biologists gain valuable insight into the various causes of mortality of the collared elk. Each collar is programmed to emit a different type of signal, known as a mortality signal, when the collar has not moved for a set duration of time. When the collars start to emit the mortality signal, biologists are alerted to the signal and can mobilize to access the area the mortality signal is coming from. This allows biologists to conduct field investigations of the mortality events and can help them determine the cause of death.

In the relatively short time the elk have been reintroduced to northern Wisconsin, they have taught us a lot, and there are many more lessons to learn about their behavior and how they interact with their surroundings.

Omashkooz hunting in northern Wisconsin

Elk 527, fitted with the GPS collar in early 2023, continued to roam the greater Clam Lake area until the fall of 2024, when the tribal elk hunting group from Sokaogon harvested 527 during their off-reservation elk hunt.

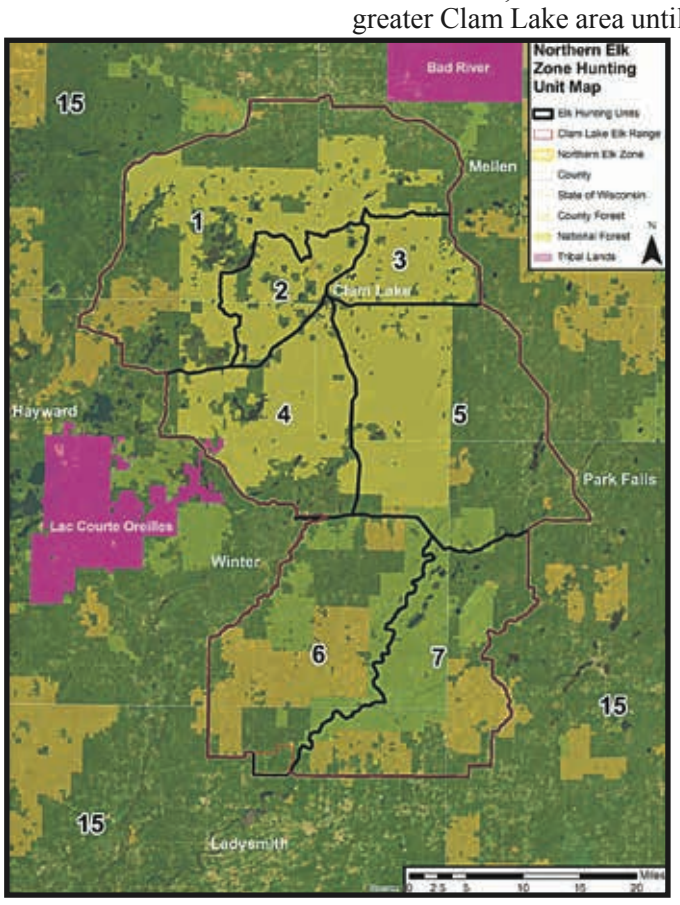
Each year since 2018, a relatively small number of bull elk have been harvested by state and Ojibwe hunters from Wisconsin's Northern Elk Range. The total number of bull elk that have been harvested has typically been between eight and 10 bull elk each season. The Ojibwe tribes who exercise their off-reservation rights within the 1837 and 1842 Ceded Territory in northern Wisconsin can take up to 50% of the number of elk that are available for each season's harvest.

This conservative level of harvest has served as an indication of the success of the reintroduction efforts over the past 30 years, and the tribes have been celebrating and honoring the return of elk to the landscape after a century of absence from the region. The tribes have been approaching the elk hunts in an intertribal, ceremonial manner.

At the end of each season, the Ojibwe tribes share the elk meat among their community members, using the meat for community feasts, and distributing meat to elder nutrition programs within their communities. Elk hides are processed and used for various crafts, for drumheads, and for other purposes.

After elk are harvested, the tribal elk hunters assist biologists with taking biological samples from the bull elk. The samples include things like

(see Elk, page 17)



Elk hunting units in the Northern Elk Management Zone.

It takes teamwork!

Wisconsin DNR Forest Health Team Leader and GLIFWC staff discuss non-local forest beings and threats to northern forests

By Steve Garske, Invasive Species Coordinator

In mid-April GLIFWC staff met with Wisconsin Department of Natural Resources Forest Health Team Leader Rebecca Gray in New Odanah. Gray detailed what the DNR was doing to address problems resulting from the influx of non-local beings, and to talk about ways that GLIFWC and the state can work together to minimize the threats they pose to local beings and their habitats. Topics ranged from a DNR-supported remote sensing project to locate emerald ash borer-resistant ash, to the non-local beings that threaten the health of the region's forests.

Since the arrival of the emerald ash borer (EAB) in solid wood packing material three decades ago, more than 100 million ash trees have been killed across the eastern half of the United States, disrupting ecosystems and causing billions of dollars in damage. In an attempt to reduce the impact of this insect, state and federal agencies have focused mostly on releasing four tiny parasitoid wasps (whose larvae feed on EAB eggs or larvae), and on finding individuals or stands of ash that appear to be resistant to the EAB, and collecting seeds or cuttings from them to use in breeding programs.

The Wisconsin DNR is working with the US Forest Service Northern Research Station in Ohio to test the resistance of black and green ash strains from their breeding program. Seedlings from this program are scheduled to be planted at the DNR's Griffith State Nursery in Wisconsin Rapids soon. The goal is to plant as many resistant strains of black ash as possible. Once ash mortality has progressed to the point that lingering black ash can be detected in northern Wisconsin, these will be brought into the breeding program as well. While similar screening trials are likely to be implemented for resistant *aagimaak* (white ash) and *emikwaansaak* (green ash), finding and breeding resistant *baapaagimaak* (black ash) is a top priority for the DNR's tree improvement program.

Part of the discussion dealt with non-local beings that are just moving into the Ceded Territory, or that are likely to arrive in the next several years. A particularly colorful introduction is the spotted lanternfly (scientific name *Lycorma delicatula*). First found in Pennsylvania in 2014, this leafhopper-like insect has spread to at least 18 states including Lower Michigan. Adults are up to one inch long, with a 1.5-inch wingspan. The juveniles (nymphs) and adults feed on plant sap. Hosts include maple, willow, poplar, and many types of fruit trees. But their favorite foods are grape vines (*Vitis* spp.) and tree-of-heaven (*Ailanthus altissima*). While feeding they excrete a sticky, sugary fluid that sticks to plants and anything else it drops onto. Both tree-of-heaven and the spotted lanternfly are introduced from Asia.

Spotted lanternfly females behave similarly to spongy moth (*Lymantria dispar*, formerly known as gypsy moth) females, in that they lay large, irregularly-shaped egg masses on just about any hard surface including outdoor furniture, vehicles, camping equipment, and firewood. In this way they effectively enlist unsuspecting humans into helping them spread. This insect is all but certain to show up in the Lake Superior region - it's just a matter of time. It is hoped that the region's colder climate and the near-absence of tree-of-heaven will keep its numbers in check.

Gaagaagimish (eastern hemlock) is also threatened by non-local beings. The hemlock woolly adelgid (*Adelges tsugae*, or HWA for short) is native to central and eastern Asia and the Pacific Northwest. Within this range the adelgid is only a minor problem for its hemlock hosts, which are naturally resistant to it. Eastern hemlock has little natural resistance to the HWA though, and natural HWA predators are absent from its range. So when a HWA lineage from Japan showed up in Virginia in 1951, the writing was on the wall. Since then the HWA has spread through much of the eastern hemlock's range, as far west as western Lower Michigan. Along the way it has caused extensive hemlock mortality. Unfortunately, the HWA is also likely to show up in the Lake Superior region at some point.

An adult spotted lanternfly with open wings is a colorful sight. (Pennsylvania Department of Agriculture, Bugwood.org)

INSET: Female spotted lanternfly (wings folded) with crusty gray egg masses. (K. R. Law photo, USDA APHIS PPQ, Bugwood.org)

Hemlock woolly adelgid females feed at the bases of the needles, and cover their eggs in white waxy material that looks like tiny cotton balls. (S. Katovich photo, Bugwood.org)

Another hemlock-feeding insect is also established in the eastern US, and is headed west. The elongate hemlock scale (*Fiorinia externa*) belongs to a group of aphid relatives called "scale insects". They suck the sap from the needles of the tree, and deposit hard wax on their surfaces. First found in North America in New York in 1908, it has been slowly spreading west, reaching southern Lower Michigan by 2010. While these insects are not as much of a threat to hemlock as the HWA, they can weaken the trees, and heavy infestations over several years can even kill them.

Elongate hemlock scale on hemlock needles. These insects feed on the undersides of the needles and secrete a hard waxy coating. (E. Day photo, VA Polytechnic Institute, Bugwood.org)

Meanwhile oak wilt continues its decades-long advance into northern Wisconsin. This fungal disease clogs the water-conducting tissue of oak trees, starving them of water and nutrients. Oaks in the red oak group including *mashkode-miizhimizh* (red oak) and pin oak are usually killed in a month or two, while those of the white oak group (like bur oak and swamp white oak) may persist for years, and *mitigomizh* (white oak) may even recover. Because the beetles that spread the spores are only out through mid-summer, the best thing people can do to avoid spreading oak wilt is to not cut or prune oak trees between April 15 and July 15 (or better yet, August 1). See *dnr.wisconsin.gov/topic/foresthealth/oakwilt* for more information.

Other overseas introductions include the viburnum leaf beetle and cottony ash psyllid. The larvae and adults of the viburnum leaf beetle (*Pyrrhalta viburni* feed on the leaves of *aniibiminagaawashk* (highbush cranberry) and other viburnum species. The beetle prefers plants that are in shade, and shrubs in full sun seem to be mostly spared. (Look on shaded lower branches for damaged leaves.) The cottony ash psyllid (*Psyllopsis discrepans*) feeds on the sap of black ash leaves, causing them to pucker and curl, and eventually fall off the tree. For more on these two beings, see the Niibin (Summer) 2023 and Biboon (Winter) 2023-2024 issues of the Mazina'igan, respectively.

Finally, the Asian longhorned beetle (*Anoplophora glabripennis*, or ALB) is a major threat to North America's forests, orchards and landscape trees. This insect first showed up in Brooklyn, New York, in August 1996, before wood packing material regulations were enacted. Since then, this infestation and others in Chicago, New York City and outside Toronto, Ontario have been eradicated. Eradication efforts continue in Long Island, New York, Massachusetts, Ohio and South Carolina. The ALB tunnels through the wood of a wide variety of tree species, weakening and eventually killing them. Its favorite trees are maples, including *ininaatig* (sugar maple). See *www.aphis.usda.gov/plant-pests-diseases/alb*.

(See Threats to northern forests, page 16)

Changing role for GLIFWC in assessing the impacts of crude oil pipelines in the 1836, 1837, 1842 & 1854 Ceded Territories

By GLIFWC Pipeline Team

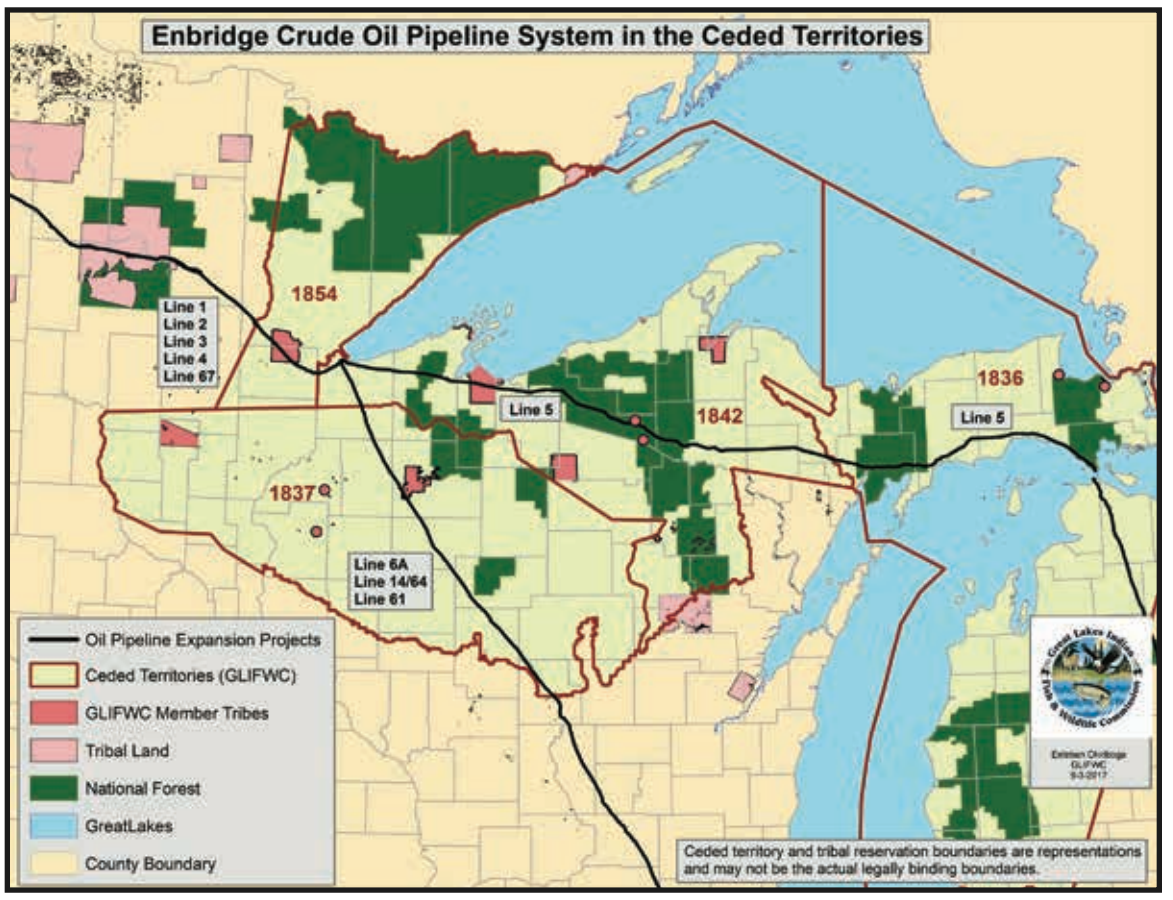
There are approximately 1,277 miles of crude oil pipeline and 21 pumping stations in the 1836, 1837, 1842, and 1854 Ceded Territories. Each pipeline varies in carrying capacity, but the estimated maximum capacity of the Enbridge mainline system that connects through the Enbridge Terminal in Superior, Wisconsin is approximately 5 million barrels per day (bpd).

Since 2013, GLIFWC has worked to characterize the past, present, and reasonably foreseeable impacts of existing and proposed crude oil pipelines to the beings (natural resources) tribes harvest, and the environments upon which those beings depend for survival.

GLIFWC's research on spill risk and cumulative impacts of pipeline construction has been used in our ongoing reviews of proposed pipelines. Specifically, we have evaluated risks and impacts of the Line 5 reroute around the Bad River reservation and the Line 5 tunnel under the straights of Mackinac. Most of this information can be found in our online story map *(tinyurl.com/3r9rj7h7)*.

For the proposed Line 5 reroute around the Bad River reservation, GLIFWC has participated in the technical review of an Environmental Impact Statement developed by the Wisconsin Department of Natural Resources (WDNR). GLIFWC has also provided comments on the WDNR permits that were issued for the project.

At this time, GLIFWC staff are providing technical assistance to the Bad River Band as they challenge those permits. Bad River is asserting that the proposed reroute would violate tribal water quality standards and GLIFWC staff are providing analysis to support that assertion.



Crude oil pipelines crossing the Ceded Territories of GLIFWC member tribes.

Recent events are forcing some changes in GLIFWC's ability to provide information on the regulatory agencies' review of proposed pipeline projects. On January 20th, 2025, the new President declared a national energy emergency which stated that the integrity and expansion of the nation's energy infrastructure is "an immediate and pressing priority." The declaration directed the heads of agencies of the executive branch to "facilitate the identification, leasing, siting, production, transportation, refining, and generation of domestic energy resources, including, but not limited to, on Federal lands." Across the United States, pipeline projects have been identified as suitable for fast-track permitting to comply with the directives in the energy emergency declaration. The Army Corps of Engineers, which is the agency that often leads federal environmental review and permitting in the Ceded Territories, has selected the Line 5 Tunnel project for fast track permitting.

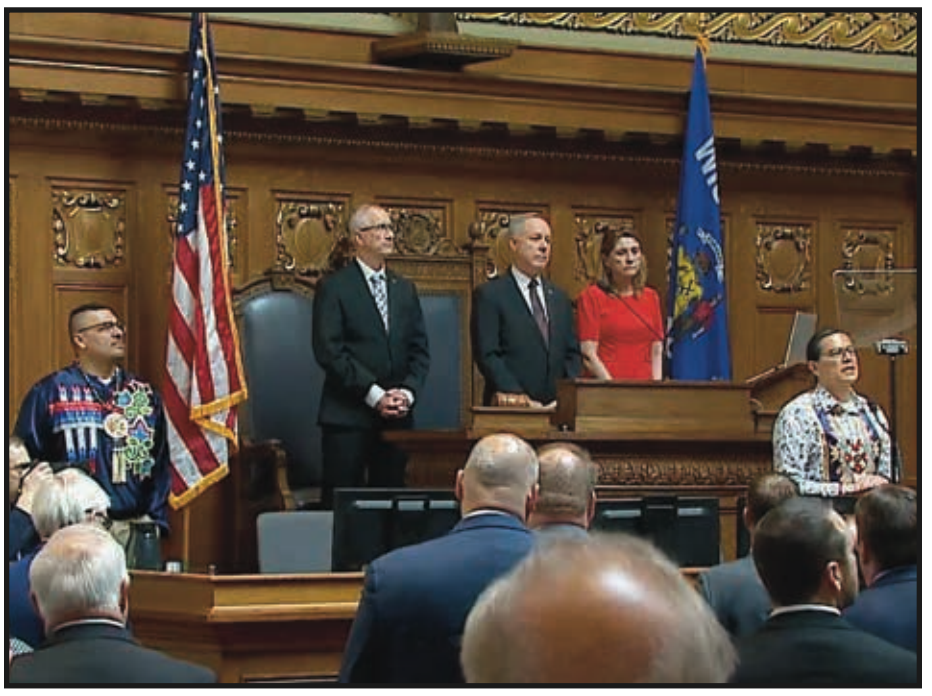
(see Ceded Territory pipelines, page 23)

Wis: St Croix Band chairman delivers State of the Tribes address

By Jenny Van Sickle Staff Writer

Madison, Wis—Tribal leaders from all across Wisconsin convened for the 21st annual State of the Tribes address in Madison, Wisconsin. The address reminded those in attendance that treaties began the trust relationship and the trust responsibilities.

This year's speaker, St. Croix Tribal Chairman Thomas Ogimaawajiweb Fowler began by thanking his family, recognizing tribal leaders both in the room and those across his community who helped inspire and mentor him. Joining Fowler this year was Keller Paap, Red Cliff Band of Lake Superior Ojibwe who opened the address with an invocation in Ojibwemowin and young Traejan Reynolds of St. Croix who led the audience of state supreme court justices, executive officers, and members of the legislature in the Pledge of Allegiance.



St. Croix Tribal Chairman Thomas Ogimaawajiweb Fowler (left) looks on as Keller Paap, Red Cliff Band of Ojibwe (right) speaks to the audience ahead of his State of the Tribes address in Madison, Wis. (PBS photo)

Following nearly an hour-long pause between the pledge and Fowler's introduction to conduct legislative business, the address got underway. The audience greeted him with a standing ovation. Fowler spoke about practices that can strengthen tribal longevity. In 2023, the St. Croix Band amended their tribal membership requirements to include those with lineal descent rather than just blood quantum. As a result, 765 people were able to officially enroll in the Band.

Fowler's speech touched on important points of government-to-government work and stressed the importance of preserving tribal sovereignty and recognizing the difference between tribal membership and ethnicity.

"We are the legacy of all negotiations that came before us," said Fowler. "Ancestors knew that a positive relationship between tribes and the state and federal governments could only strengthen our communities," he continued.

He also read directly from a passage from the Wisconsin Department of Administration's, Division of Intergovernmental Affairs (*tinyurl.com/34d6b2cb*) on Tribal Relations: "'Tribal members are not racial minorities.' We are citizens of our own tribal nations; to speak to citizens of tribal governments as a minority is insulting and inappropriate," said Fowler.

The handbook goes on to explain that historically, a lack of follow through, appropriate respect, and broken promises have led to strained relationships. Fowler emphasized listeners can be mindful of these facts and that protocols can help people looking to work with tribal nations, "Our similarities, differences, values, expertise, culture and traditions enrich each other's lives," he concluded.

The annual address is organized by the Great Lakes Inter-Tribal Council (GLITC). To watch the full address, please visit 2025 State of the Tribes on PBS at *tinyurl.com/ykfrd2ec*.

Interest in mineral resources surges across Ojibwe Country

A Ceded Territory mining update

By John Coleman, Environmental Section Leader; Esteban Chiriboga, Environmental Specialist; and Dawn White, Treaty Resource Specialist

In recent years GLIFWC staff have observed an increase in mining and exploration activity due to higher metals prices and government initiatives to promote domestic sources for strategic minerals used by the military and in electric vehicles. There was money in the Infrastructure Investment and Jobs Act of 2021 for agencies mapping and promoting exploitation of minerals deposits in the U.S. In addition, federal grants have been given to exploration and mining companies for mineral development. However, with the new administration it is unclear how federal funds will be spent for developing minerals.

The Earth Mapping Resources Initiative (Earth MRI) program to explore for critical minerals continues to be funded through the USGS (*usgs.gov/special-topics/earth-mri*). There have been recent Executive Orders such as "Immediate Measures to Increase American Mineral Production" (*tinyurl.com/2cc9jket*), which has identified some projects in the region for fast-tracking. However, several mining projects in the area remain stalled due to lack of private funding.

Exploration and mining projects by state

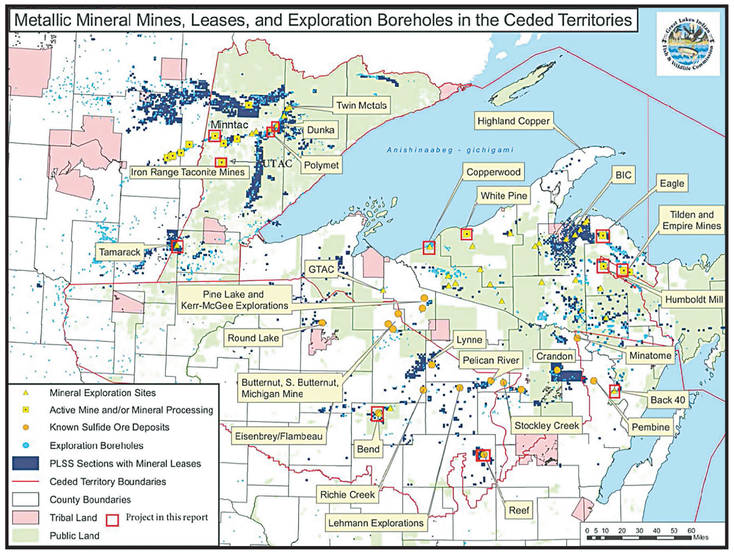


Figure 1: Map of existing and proposed mines, known mineral deposits and exploration activity. Many mineral deposits will not be developed into mines Interest in deposits depends on demand and the price of metals. Mines or mineral deposits with recent activity are highlighted with a red square and reviewed in the text. (E. Chiriboga map)

Michigan:

Lundin Eagle Mine

This mine has been operating in the Yellow Dog Plains since 2014. The mining was originally scheduled to end in 2019, but Lundin Mining got an extension until 2029 to exploit additional ore. This extension is to mine lower grade ore that was not economic until metals prices increased recently. Lundin has begun refining its tailings for use as paste backfill in the underground mine after ore is removed. A mining permit amendment to allow for use of this refined tailings as backfill is under review by the state and tribal staff are developing comments on the new approach. In general, GLIFWC staff have been supportive of backfilling mines with tailings when it poses little risk to groundwater.

Lundin Humboldt Mill

Near the Michigan town of Humboldt is where Lundin processes the ore from the Eagle Mine. The spent tailings are discharged into an old iron mine pit that is full of water. That pit-lake overflows and is treated by Lundin before being discharged to the Middle Branch of the Escanaba River. GLIFWC has monitored waters downstream of the mill since 2011. In 2023 GLIFWC cooperated with the USGS to install water quality monitoring upstream of the mill on the Escanaba River. Having water chemistry monitoring both upstream and downstream of the mill discharge enables us to determine the impact of the discharge on water chemistry.

Figure 2: Dawn White, GLIFWC Treaty Resource Specialist taking water samples in the Saint Louis River of Minnesota. The upper Saint Louis River is adjacent to open pit iron mines and proposed heavy metals mines. (J. Coleman photo)

Talon Metals exploration

Talon Metals applied to the State of Michigan to lease 23,288 acres of state-owned minerals in the western Upper Peninsula. Talon has also acquired rights for exploration on approximately 400,000 acres of land owned by UPX Minerals (Sweetwater Royalties). Those private mineral rights are in an area south and east of the Keweenaw Bay Indian Community (KBIC). Talon began exploratory drilling in 2023 and that exploration continues in 2025. Some of that drilling is immediately adjacent to KBIC. Of particular focus is the Boulderdash site just east of the KBIC reservation. At that site Talon and Lundin's Eagle Mine have partnered up to conduct exploration.

Tilden Iron Mine

Cleveland-Cliffs has submitted an application to the Michigan Department of Environment Great Lakes and Energy (MI-EGLE) for an expansion of the waste rock disposal areas at its iron mine at Tilden, near Negaunee. After withdrawing the application in 2023, Cleveland-Cliffs resubmitted a revised application in 2024. Based on tribal and state input the company had reduced the footprint of its waste rock disposal areas substantially. Groundwater and surface water contamination concerns remain, in particular selenium contamination of surface waters. A final permit from the state has not yet been approved.

Copperwood

Owned by Highland Copper, this deposit was described and permitted in the 20-teens. Just west of the Porcupine Wilderness Area and near the shore of Lake Superior and Black River Harbor, tribal staff have monitored and commented on this project for years. In what appeared to be an effort to convince potential investors that the project is viable, the company re-routed Gypsy Creek which is necessary for future construction of a tailings basin.

This project appears stalled, but in February it obtained renewal of the permit for air discharge from mine facilities. In February, the Gogebic County Board of Commissioners again approved a resolution supporting a $50 million state grant that has been rejected by the Michigan legislature in the past.

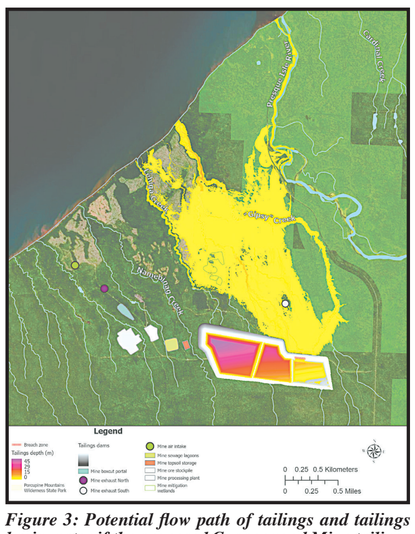


Figure 3: Potential flow path of tailings and tailings basin water if the proposed Copperwood Mine tailings basin dam should fail. Modeling of spill flowpath conducted by Scott Cardiff and GLIFWC staff. The proposed Copperwood Mine is next to Lake Superior and on the western border of the Porcupine Mountains Wilderness State Park. (S. Cardiff map)

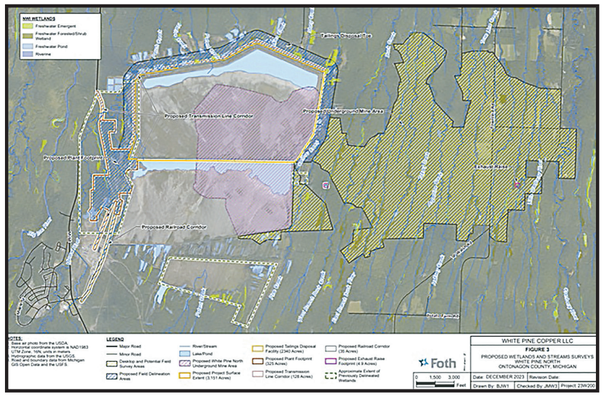


Figure 4: Proposed expansion of the White Pine Mine to the north-east (green outline). This underground mine would use the existing tailings basins that continue to discharge water to Lake Superior.

White Pine Mine North

In 2023 Highland Copper and Kinterra Copper partnered to create the White Pine North project to exploit the minerals to the north-east of the historical White Pine Mine (Figure 1: Proposed White Pine North in green). That project is within 3 miles of Lake Superior and immediately adjacent to the Porcupine Mountains Wilderness. In 2024 the owners conducted environmental monitoring to establish baseline conditions and continued to drill exploration holes to characterize the mineral deposit. In 2025 the company hopes to develop a mine plan and apply for permits from the State of Michigan.

Back-40 Mine

While there was a Scoping Environmental Impact Assessment meeting for this project in 2022 with the Michigan EGLE and EGLE released a final Scoping Environmental Impact Assessment in 2023, there have been no further developments on this project. It appears that the owner of the project, Colorado Springs-based Gold Resource had a financial meltdown in mid-2023.

Wisconsin:

Green Light Metals, Bend Deposit Exploration

Green Light Metals is pursuing exploration permits for the Bend site on the Yellow River in Taylor County. This site is on Forest Service property within the Chequamegon-Nicolet National Forest. The Forest Service, Bureau of Land Management (BLM), and the State of Wisconsin are reviewing applications for exploration. The WDNR has granted permits and this summer Green Light may begin drilling up to 6 sites on the 40 acres where private mineral rights exist, called the "Soo Line 40".

In addition, a portion of the site contains federally owned minerals that are leased to Green Light Metals. For those areas, the exploration (prospecting) permit application is being reviewed by the BLM, which manages federal mineral rights. The exploration proposal for the federal minerals will be reviewed by BLM and Forest Service in 2025 through an Environmental Assessment (EA). Staff will work with the BLM and Forest Service to ensure adequate stipulations so that nibi and forest beings are protected.

Green Light Metals Reef Deposit exploration

This gold deposit is on private property in Marathon County between Wausau and the Menominee Reservation. Green Light Metals has not reapplied for drilling permits at this site in either 2024 or so far in 2025.

Minnesota:

Talon Metals at Tamarack Deposit

Talon Metals submitted a revised Environmental Assessment Worksheet (EAW) in December 2024 and GLIFWC and other tribal staff submitted comments on that project description. Talon continues to drill exploration holes near the town of Tamarack, Minnesota to characterize the nickel, copper, and other metals in the bedrock. There are two mineral deposit areas about a mile apart, Tamarack North and Tamarack South. While the south deposit is in the 1854 Treaty Ceded Territory, the north deposit is in the 1855 Treaty area and upstream from Big Sandy Lake, the site of the Sandy Lake Memorial. The mine would be underground and ship its ore to Mercer County, North Dakota for refining. Talon's proposal is new for the mining industry in that almost all mining facilities would be enclosed in buildings where precipitation and dust could be controlled.

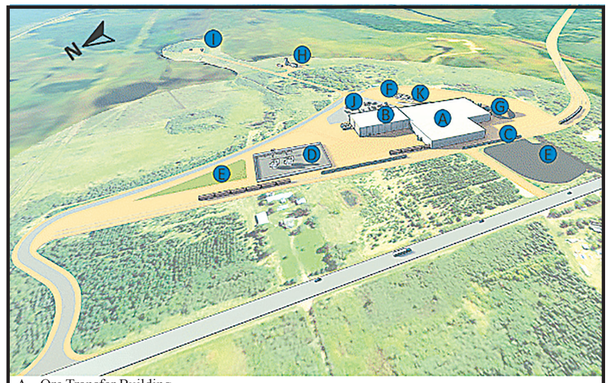


Figure 6: The proposed Tamarack Mine located between the Fond du Lac and Mille Lacs Reservations. This heavy metals mine would be underground and proposes to ship its ore to North Dakota for processing.

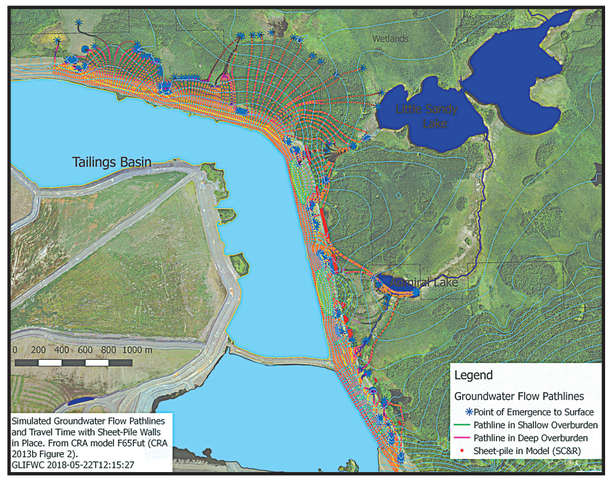


Figure 5: Modeling of the east side of the Minntac tailings basin conducted by GLIFWC staff. Modeling shows the flow paths of contaminants from the basin to surrounding wetlands and waterways. Large rice beds in the Twin Lakes (Little Sandy and Sandy Lakes) have been killed off by high sulfate water from the basin. (J. Coleman map)

U.S. Steel Minntac Iron Mine

The Minntac mine tailings basins have been discharging wastewater to the Sand and Dark Rivers since mining began in the 1960's. That discharge has killed off extensive manoomin beds in the adjacent Twin Lakes and on the Sand and Dark Rivers. The high mineral content of the wastewater, particularly sulfate, has eliminated rice despite reseeding attempts.

The Minnesota Pollution Control Agency (MPCA) issued a water discharge permit for the tailings basins in 2018 with goals for water quality but so far U.S. Steel **(see Ceded Territory mining, page 16)**

Let's braid wiingashk together!

Wiingashk, or sweetgrass, is one of the four sacred medicines. Picking and braiding sweetgrass is a beautiful, peaceful, feminine activity, but both boys and girls can do it!

When harvesting sweetgrass, always put down asemaa, or tobacco, first to ask permission to harvest and to thank the spirits for the good medicine.

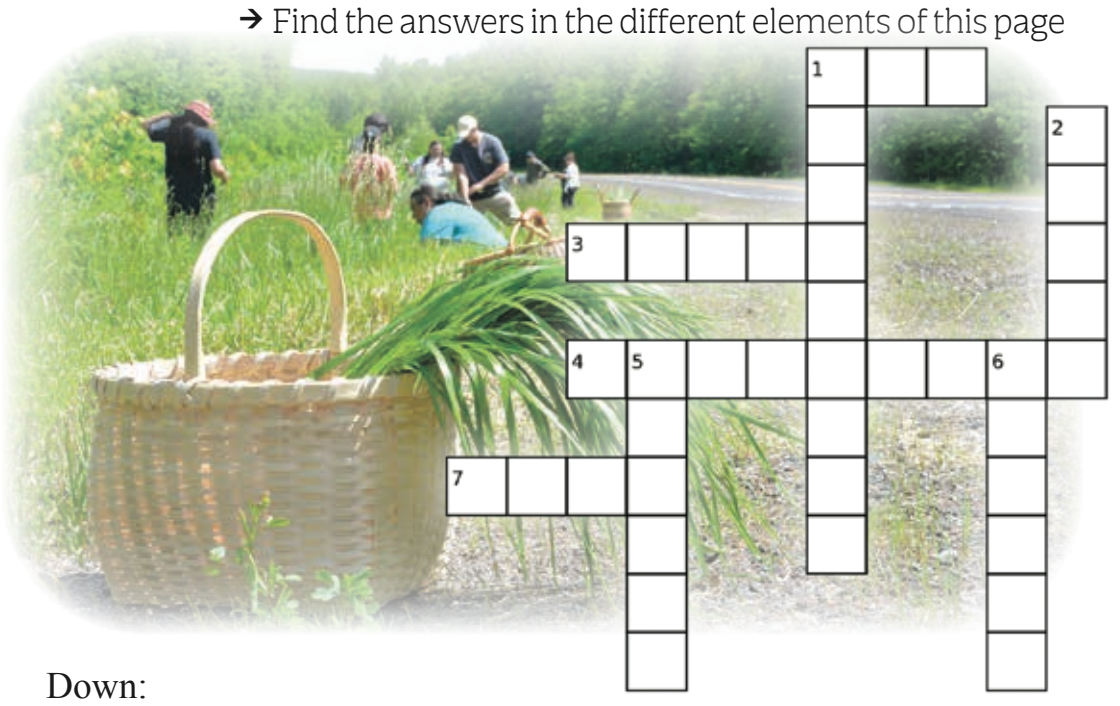
If a piece of sweetgrass has brown spots on it or has bite marks in it from bugs, leave it alone because that medicine is already claimed. Harvest the clean pieces only.

Smudging using sweetgrass is healing, calming, and cleansing. It welcomes good energy.

Color the rest of the braid! Add a tie to the end to make sure it doesn't unravel.

Complete the crossword!

➔ Find the answers in the different elements of this page



Down:
1. The Ojibwe word for Sweetgrass
2. You shouldn't harvest any with ____ spots or bite marks.
5. The hint of color the stems might have near the ground
6. What should you put down before picking Sweetgrass?

Across:
1. The type of soil Sweetgrass grows in
3. The author of *Braiding Sweetgrass*, ____ Wall Kimmerer
4. The Ojibwe word for "braid it"
7. The number of sacred medicines

Crossword puzzle answers, page 21

↑ *Photo by Matt Lavin*

"But the sweetest way is to have someone else hold the end so that you pull gently against each other, all the while leaning in, head to head, chatting and laughing, watching each other's hands, one holding steady while the other shifts the slim bundles over one another, each in its turn."

—Robin Wall Kimmerer in *Braiding Swetgrass*

Sweetgrass can be braided by yourself by tying one end of the grass bundle to a surface or holding it in your mouth while you braid away from yourself, but many women recommend that you braid with a friend.

The long blades of sweetgrass are dark green and shiney, but as you look down the strand towards the ground, it becomes lighter and lighter until it's almost white. Then, just a couple inches above the ground, there might be a hint of dark purple in the white, silvery stem.

Its name, "wiingashk" means delicious, or fragrant, grass because it has a sweet, vanilla-like smell.

Sweetgrass likes wet soil. It grows near ponds, wetlands, or anywhere that the ground stays damp, like on the edges of wet woods or in meadows.

Ojibwemowin

wiingashk—sweetgrass
apikaadan—braid it
asemaa—tobacco

Braiding sweetgrass. (CO Rasmussen photo)

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

Aaniin, Boozhoo! Gidashwii na? Gaye niin, nindashwii. Ashwiiwag na? Gii-siigwan. Idash noongom niibin.
Aandi waa-izhaayan omaa? Aandi waa-izhaawaad imaa? Niminwendam, niibing omaa Akiing.
Mawinzo nimaamaa. Mawinzodaa! Niwii-pagiz zaaga'iganing! Bagizodaa!
Gego gashkaasoken! Anishinaabemodaa! Ojibwemodaa!
Anishinaabekaa! Aaniin ezhi-ayaayeg? Mii'iw.

(Greetings, Hello! Are you ready? Also me, I am ready. Are they prepared/ready? It was spring. And now it is summer.
Where will-go you here? Where will-go they there? I am happy as it is summer here on Earth.
S/he picks berries, my mom. Let's all pick berries! I want to go swimming at the lake. Let's all go swimming!
Don't get sunburn! Let's all speak Anishinaabe language! Let's all speak Ojibwe language!
There's a lot of people. How are you all? That's all.)

Zaasijiwan
•It Ripples•

Bezhig—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
Bine—as in tin
Niizho—as in only

—A glottal stop is a voiceless nasal sound as in A'aw.

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

—English can lose its natural flow in language translations.

Gabeshi.—S/he camps.
Gabeshiwin—Campsite
Ziigwang: Iskigamizigan.—
When it's spring: Sugar camp.
Niminwendam gabeshiyaang.—
I am happy/glad, when we camp.
Niibing, ginanda-gikendaan.—
As it is summer, seek to know it.
Ziigwang/Niibing maniwiigwaasewag.—
Spring/summer they gather birch bark.
Eya'! Ginandamawinz. Nimawinz.—
Yes! You look for berries to pick. I pick berries.
Ezigaa(g)—Wood tick(s)
Odezigaami a'aw animosh.—
S/he has woodticks, that dog.
Zagime(g). Zagimekaa. Zazagimekaamagad.—
Mosquito(s). There are many. TOO many

Niizh—2

Circle the 10 underlined Ojibwe words in the letter maze. (Translations below)

A. Nimbimose gitigaaning. Ningitigaadaanan miinikaanan.

B. Mandaamin, mashkodesiminag idash ogosimaan.

C. Nimbiigwakamigibidoon akiing. Ningitigaadaan.

D. Niizho-nishiimeyag idash niin ningitigaadaamin omaa dash imaa.

E. Ninaadoobii. Nibi daga. Eya'!

F. Apegish waa-kimiwang noongom.

G. Wah! Okogiwag.

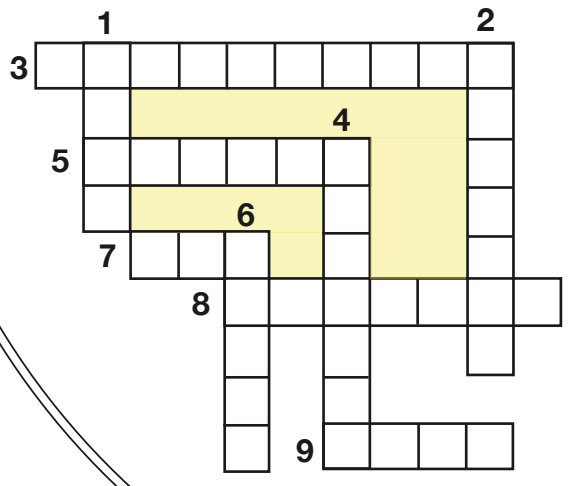
H. Wah! Gimiwan! Mii'iw!

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

ode'imin—strawberry
ode'iminan—strawberries

Niswi—3

IKIDOWIN ODAMINOWIN (word play)



Down:
1. that (animate)
2. dog
4. s/he camps
6. where

Across:
3. Let's all pick berries!
5. on earth
7. question marker
8. I wish/hope
9. there

ode'imini-baashkiminasigan—strawberry sauce or jam

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

Niiwin—4

Eya'! Giigoonyikedaa!—Yes! Let's all go fishing!
Gabeshidaa!—Let's all go camping!
Noongom.—Today.

Biidoon i'iw jiimaan idash abwiin!
Biidoon i'iw babagiwayaanegamig gaye!
Nindayaan waasigani-bimide-gizhaa-biibikizigan.
Iidog ina nindabwe? Eya, naadinisen!
Gaye ozagaskwaajimeg idash mooseg.
Ojibwemodaa!

Bring it that canoe+paddles! Bring it that tent also! I've a propane stove. Maybe I cook over a fire? Yes, go get firewood! Also leeches and worms. Let's all speak Ojibwe!

Mii'iw! Howah!—
That's it! Wow!

Asaawe(g)
Ogaa(wag)
Bapakine(g)
Omakakii(g)
Aandeg(wag)

1. _____ gwaashkwaniwag.
2. _____ ninzegi'igog!
3. Inashke! Nimbakazhaawe noongom _____.
4. Waabamag imaa _____, waasikozi.
5. Nindede_____. Gaye i'iw jiimaan.
6. Gabe-niibin, apegish menoseyeg gabeshiwining.

Translations:

Niizh—2 **A.** I walk to the garden. I plant them seed. **B.** Corn, beans, and squash. **C.** I break up the earth/plow. I plant it. **D.** My two sisters and I we plant them here and there. **E.** I get the water. Water please. Yes! **F.** I hope it will rain now. **G.** Wow! They grow in a bunch. **H.** Wow, it is raininig!

Niswi—3 **Down: 1.** A'aw **2.** Animosh **4.** Gabeshi **6.** Aandi **Across: 3.** Mawinzodaa! **5.** Akiing **7.** Ina **8.** Apegish **9.** Imaa

Niiwin—4 **1. Frogs**, they jump. (Omakakiig) **2. Grasshoppers** they scare me! (Bapakineg) **3.** Look! I am cleaning fish here, **perch**. (asaawe) **4.** When I see him/her there, **crow**, s/he is shiny. (aandeg) **5.** My dad, he likes them **walleyes**. Also that boat. (ogaawag) **6.** All summer, I hope you all have good luck/happenings at the campsites.

There are various Ojibwe dialects; check for correct usage in your area. The grammar patterns may help a beginner understand and voice inanimate and animate nouns and verbs correctly, as well as create questions and negate statements. 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*.

Edited by Michael Waasegiizhig Price

Threats to northern forests: get the word out

(continued from page 10)

The US Department of Agriculture—Animal and Plant Health Inspection Service Plant Protection and Quarantine program (USDA-APHIS-PPQ) is responsible for preventing the introduction, establishment, and spread of animal and plant "pests" and diseases and invasive plants to the US. The agency routinely intercepts destructive invasives such as the Asian longhorned beetle. Unfortunately funding cuts to the USDA are likely to negatively impact its ability to stop the introduction and spread of non-local species that impact forests and crops. This makes early detection and rapid response by individuals and tribal, local and state agencies even more critical!

Adult Asian longhorned beetle. The tunnels in the cut tree were excavated by the larvae. Not to be confused with the native white-spotted pine sawyer! (E. R. Hoebeke photo, Cornell University, Bugwood.org) Inset: Asian longhorned beetle larva. (K. R. Law photo, USDA APHIS PPQ, Bugwood.org)

This white-spotted pine sawyer (Monochamus scutellatus) is a native beetle that feeds on dying balsam fir and other conifers. It is a bit smaller than the ALB, and has a white spot behind its "neck" where its wing covers meet. (S. Katovich photo, Bugwood.org)

If you happen to come across any of these insects (except the white-spotted pine sawyer), take a few good photos and/or gather some samples (in a sealed container), note the location and report it! You can contact your Tribal Natural Resource Department, or contact GLIFWC at *steveg@glifwc.org* or at 715-682-6619 ext. 2126.

You can also report your find to the state agencies. In Michigan, call the Department of Agriculture and Rural Development (MDARD) at 800-292-3939, or email them at *MDA-Info@Michigan.gov*. In Wisconsin, call DATCP at 866-440-7523, or email *Renee.Pinski@wi.gov*. (You don't need to report EAB sitings in Michigan, or in areas of Wisconsin where EAB is already known.) The future of the region's forests depends on it!

Ceded Territory mining update

(continued from page 13)

has not met water quality standards. The MPCA is currently revising the basin discharge permit to conform with the Supreme Court's ruling on the Maui case. That case specified that discharges to a holding pond that then leaks to a water of the U.S. needs a water discharge permit. Staff continue to monitor water quality at the site and in the Sand River.

In 2023, GLIFWC cooperated with the USGS to have a stream gage installed in the Sand River just downstream of Minntac's discharge (*tinyurl.com/2x4t63cd*).

United Taconite Fairlane Plant

United Taconite (UTAC) continues to expand its tailings basin near Fairlane, 10 miles south of Virginia. The tailings basin was designed in the 1970's to have three separate cells. They were designed to leak water to surrounding wetlands and waterways in order to maintain structural stability. Therefore, polluted tailings basin water flows into nearby rice waters.

Figure 7: UTAC tailings basin proposed expansion as Cell 3 (green and purple). Rice lakes to the south-west of the existing basins have already been impacted by high sulfate water. The expansion is expected to impact additional manoomin lakes to the east and south-east of the basin.

The current expansion is to construct the third of the three basins using the 1970's design. Staff have been working with Fond du Lac to monitor water downstream of the existing basin.

UTAC applied for an exception from the wild rice water sulfate standard of 10 mg/L for one of the lakes downstream of the existing basin because sulfate levels from its existing tailings basin exceed state water standards. That application was rejected by the state. Staff are investigating the availability of water quality data for the other lakes that surround the existing tailings basin and have asked UTAC for its data.

However, that data either does not exist or UTAC is unwilling to release it. Tribal staff have strenuously objected to construction of the third tailings basin cell using the 1970's leaky design but the state refuses to halt the construction and wants to address the water quality issue in future years. Unfortunately, at that point the basin will have been constructed and it will be difficult to control the highly mineral water effluent.

Cleveland-Cliffs Northshore Mine and Silver Bay Tailings Basin

The company's proposed tailings basin expansion at Milepost-7 near Silver Bay, was permitted by state and federal agencies. Details are available at: *tinyurl.com/3k9c2fjj*. The state decided that no Environmental Impact Statement was needed for the expansion but a court in early February reversed that decision. Unless Cleveland-Cliffs appeals the court decision there will be an EIS developed in the next year or two. The expanded tailings basin is needed because the mine pit, which is south of Babbitt, is being expanded and deepened. That mine pit currently discharges polluted mine pit water to Birch Lake.

Polymet & Teck Merger

NewRange Copper Nickel was formed by the merger of Polymet Mining and Teck Resources. This places an approximately 12-mile long deposit under single ownership. That deposit is just south of Cleveland-Cliffs' Northshore iron mine pit and underlies the 100 Mile Swamp. It has been proposed as a very large open pit mine. Tribal staff have been reviewing and comment on the Polymet portion of that deposit, called Northmet, for almost 20 years.

Currently, permitting for mining of the Northmet deposit is held up by multiple court cases on wetland and water quality permits and a state proceeding related to tailings disposal at a nearby existing iron mine tailings basin. Staff continue to be involved in assisting the Fond du Lac Band in characterizing risks to tribal resources from this project. There has been very little activity on this project and the state has delayed review of the company's Permit to Mine until late 2025. However, the project has gotten the attention of the current administration and is on the White House's "Fast-41" to be considered for fast-tracking.

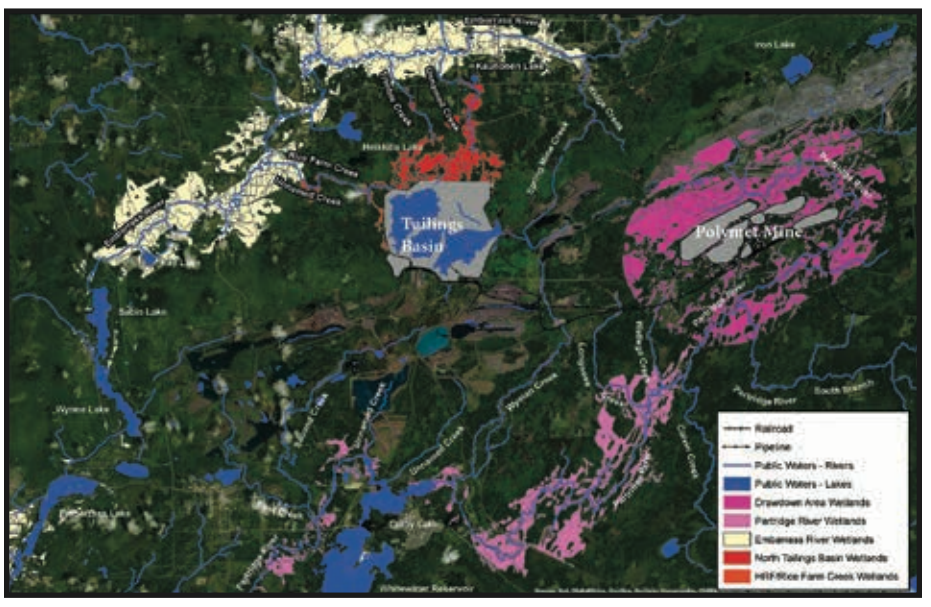


Figure 8: Wetlands and waterways likely to be impacted by the Polymet (Northmet) proposed mine and tailings basin. Polymet recently merged with Teck Resources to form NewRange Resources. Teck Resources owns the large mineral deposit to the north-east of the proposed Polymet Mine. The combined mineral deposit extends approximately 5 miles north-east/ south-west and is underneath the Hundred Mile Swamp at the headwaters of the Partridge and Dunka Rivers. (E. Chiriboga map)

What are you observing in the Ceded Territories? Ozhibii'an ezhiwebak noopiming.

PLACE STAMP HERE

GLIFWC—Climate Change
72682 Maple Street
PO Box 9
Odanah, WI 54861-4861

Please print return address clearly:

Tape and stamp this form and return to GLIFWC by December 31, 2025. Make sure to include the information below:

Name:_____

Address:_____

_____

Tribal affiliation (if any):_____

_____

Phone number or email:_____

Are you a:

☐ Youth observer

☐ Adult observer

To submit observations via our online submission form or for additional copies of this form, go to:

glifwc.org/phenology.calendar

Aaniin ezhiwebak Anishinaabe-akiing?

Please Help GLIFWC Observe Seasonal Events in the Ceded Territories

GLIFWC is trying to understand how environmental changes could be affecting treaty resources.

Help us study phenological and seasonal changes by writing down your observations on this form. Keep it on your bulletin board or refrigerator. Share your knowledge by mailing it back to GLIFWC by December 31, 2025.

Freshwater protected areas

(continued from page 6)

The abundant food allowed their populations to thrive as well. These FPAs are considered pivotal in the recovery of these three species across the three protected lakes in this system. Elsewhere, seasonal FPAs have been successfully used to protect smallmouth bass from overharvest, allowing them to increase their reproductive success across the population.

FPAs have also benefited lake trout populations in Lake Huron, Lake Michigan, and Lake Superior by protecting their spawning habitats. These examples provide evidence that FPAs are effective at facilitating the recovery of threatened species in lakes.

Applications in the Upper Midwest

So we ask folks who love to fish and recreate on water bodies in the Upper Midwest: should freshwater protected areas be considered for lakes and rivers? If so, which activities should and should not be permitted in these water bodies (may vary by waterbody)? What steps need to be taken with which agencies to implement an FPA? Is there community support for this approach?

Anglers, conservationists, and tribes all want the resource to be able to persist, but priorities and values that inform decision-making differ. Finding solutions that benefit all users of a resource is one of the barriers that might prevent action from being taken. Additional barriers to establishing protected areas may include fostering public support, acquiring funding for research and enforcement, and working with local governments to implement necessary zoning changes.

However, if we as caregivers of the resource are interested in pursuing an FPA, then we can overcome these barriers by starting conversations with community members and organizations that protect natural resources (e.g., tribes; intertribal, state, and federal agencies; local government, and non-governmental organizations).

For example, in Minnesota's Mille Lacs Lake, a network of FPAs could be considered for all life stages of walleye. Recent studies make clear that juvenile and adult fish use certain areas throughout the year, and adult fish frequently visit the same spawning areas near Malmo, Isle, Garrison, and Rainbow Island year-after-year. Sharing this information with interested parties (e.g., anglers, Minnesota Department of Natural Resources, Mille Lacs Watershed Group, Mille Lacs Band of Ojibwe, the Mille Lacs Fisheries Advisory Committee, and others) may spark conversations about which areas could be protected and the benefits and drawbacks of doing so.

Whatever form FPAs take, the benefits are likely to extend beyond a single species (walleye in this case) to the entire ecosystem and benefit the local communities that rely on these gifts from mother nature.

Elk hunting

(continued from page 9)

blood, liver and lung tissues, a tooth for accurate aging, and a small patch of skin for genetics analyses.

These samples provide biologists with an important baseline record of the overall health of the harvested elk. It is a unique opportunity to collect such data from healthy elk, often in their prime. Otherwise, such biological samples have typically come from elk that have died of old age, disease, injury, and other causes of mortality.

Collared Clam Lake elk.

Elk that are harvested during hunts are also tested for chronic wasting disease (CWD), which can infect members of the deer (Cervidae) family, such as white-tailed deer, mule deer, elk, and moose. CWD is a growing threat across the Ceded Territory, and it is important to sample deer and elk to better understand how and where the disease has been spreading over time.

Fortunately, none of the wild elk in the Northern Elk Range have tested positive for CWD, even though the disease has continued to spread throughout Wisconsin in wild and captive white-tailed deer since it was first detected in far southwestern Wisconsin over 20 years ago.

Every creature experiences a unique life history, although very few of their stories are accessible to us. But if you happen to spot an elk with a tracking collar, you can bet it holds all sorts of interesting information about living in the wild lands in the Ceded Territory.

What are you observing in the Ceded Territories? Ozhibii'an ezhiwebak noopiming.

Please record the date, location, and species (if applicable) for each observation. Return to GLIFWC by December 31, 2025. Miigwech!

Niibin / Summer — Date/Location

Dates/amounts of heavy rain events (>1" in 24 hrs) _____

First monarch butterfly _____

First firefly _____

Deer seen with summer coat _____

First birch bark harvested _____

Flowers on berry plants (species) _____

Berries ripe (species) _____

Loons nesting _____

Loon chicks _____

Wild rice in floating leaf stage _____

First wild rice ripe _____

First wild rice harvested _____

Other niibin observations: _____

Dagwaagin / Fall — Date/Location

First grouse harvested _____

First duck harvested _____

Last ducks on the lake/river _____

Last loons on lake _____

Bucks in rut _____

First polished deer antlers _____

Deer have winter (gray) coat _____

First deer harvested _____

First princess pine harvested _____

First apples harvested _____

First cranberries harvested _____

First leaves changing color (species) _____

Peak fall color _____

First leaves falling (specify tree species) _____

Nighthawks migrating _____

First fire in the woodstove _____

Sandhill cranes flying south _____

First frost _____

First day temperature stays below freezing (32°F) _____

First snowfall _____

First snow that sticks _____

Lake frozen solid (specify lake) _____

Other dagwaagin observations: _____

Manoomin for all seasons

By Esiban Parent, GLIFWC Manoomin Wiidookaage

Manoomin is a traditional food that can stay good to eat for a long time. This makes it an excellent nutritional source year-round. When cooking with manoomin in the springtime and early summer, we can consider using a few of our seasonally available foods such as giigoonh, ziinzibaakwad, and bagwaji-zhigaagawaanzhiig.

Cooking Manoomin 101

A simple wild rice recipe that leads to great results:

1. Rinse 1 cup of manoomin until water is mostly clear.
2. Combine manoomin, salt to taste (a pinch for less, 1 tsp for more. Substitute smoked salt to elevate), and 4 cups of nibi (water) in a saucepan.
3. Bring nibi to a boil. Reduce heat to a simmer and cover. Continue to simmer for around 30 minutes to 1 hour, depending on needs, stirring as needed.

Tip: Cooking manoomin for less time (30 minutes) will produce a firmer rice. Cooking for around 45 minutes will make manoomin grain that is more tender but still has a little crunch; this is considered ideal. Cooking for an hour or more will produce a mushy rice—this technique is useful for dishes such as Manoomin Porridge.

Notes: Not all manoomin is the same. There are differences between paddy-grown manoomin and wild-harvested. Often all black in appearance, paddy rice takes longer to cook and is grown in cultivated fields. Even in wild-harvested manoomin, grains of wild rice are highly variable and differences in processing techniques lead to variable cook times. Monitoring manoomin as it cooks, and regular stirring will ensure better results.

Manoomin Giigoonh-Bakweshiganens (Wild Rice Fish Cakes)

Ingredients:

24 oz giigoonh (fish) skinless fillets diced to ¼ inch.
1 cup of cooked manoomin
1 cup of Japanese panko (substitute commod crackers if desired)
2 Tbsp sumac powder
2 waawanoon (eggs)
½ cup mayo
2 Tbsp mustard (use stone ground to elevate)
1 medium sized onion diced small or to brunoise size
1.5 stalks of celery diced small or to brunoise size
4 cloves of garlic finely minced
¼ cup chopped Chives (substitute wild harvested Leaks/Ramps to elevate)
¼ cup chopped Parsley
salt and pepper to taste
any oil you prefer (sunflower oil and olive oil are good choices)

1. Mix all ingredients in a bowl except cooking oil.
2. Form patties.
3. Heat pan, then line bottom with preferred cooking oil. Fry each side until golden brown.
4. *Wiisinidaa!* Let's eat!

Many giigoonh species from north country waters are great additions to Wild Rice Fish Cakes. Try locals favorites including asawe (perch), maashkinoozhe (muskellunge), ginoozhe (northern pike), and ogaa (walleye).

Stewardship snapshot with Dawn White

By Jenny Van Sickle Staff Writer

Dawn White, Lac Courte Oreilles member, co-leads binational partnership subcommittee to characterize potential impacts of mining and energy transportation through the Lake Superior basin.

The Transportation and Resource Extraction Committee (TREC) identifies objectives that are then folded into the Lakewide Area Management Plan (LAMP), an ecosystem-based strategy for restoring and protecting Gichigami and its vast system of tributaries.

The Lake Superior Partnership Working Group (LSPWG) formerly, the Lake Superior Binational Program, is a collaborative group of academic and agency scientists and staff from federal, state and Tribal governments, working in partnership to protect and restore the Lake Superior ecosystem through collective and coordinated action.

The partnership meets twice a month and then alternates their annual in-person meetings between US and Canadian locations. Their scope of work is led by the Great Lakes Water Quality Agreement, a commitment the by U.S. and Canada to work together to protect, restore, and enhance water quality and stop further degradation in the Great Lakes.

White has served on the mining subcommittee of the LSPWG since she joined GLIFWC in 2013. More than 10 years later, the program and subcommittee have been renamed but the mission that ties their research efforts together, remains strong.

"For the longest time, I was too shy to speak in front of people during meetings, it was really painful," recalled White. The Working Group has both a Canadian delegation and a United States delegation that come together to plan research and discuss issues or specific projects on behalf of their shared interests in protecting all beings who depend on the world's largest body of fresh water. In 2017, she was selected by her peers to serve as the committee's US co-chair.

At the University of Great Falls, White majored in biology while earning her Bachelor of Science degree; she went on to graduate from the University of Montana with her master's in Organismal Biology and Ecology. After graduate school, White worked as a Botanist for the Bureau of Land Management in Oregon and then went on to teach Intro to Geographic Information Systems and added Research Specialist to her title at LCO Ojibwe Community College working on bringing attention to blueberries at LCO. She then worked for the Chippewa Cree Tribe's Rocky Boy's Reservation as a water quality specialist through their Section 106 water pollution control program.

"Maps are my favorite way to communicate information. I'm more of a visual person, and a well-designed map can speak a thousand words," explained White. Her first (and favorite) story map was created for Bad River's 106 NHPA consultation with the USACE for the proposed Copperwood Project Ontonagon Area Historical Use.

Water quality sampling on inland lakes is part of the summertime work schedule for Dawn White, GLIFWC treaty resource specialist.

Formally known as the Mining Committee, the TREC analyzes the potential impacts of metallic mining and oil and gas transport often through a cumulative impact lens.

The TREC subcommittee tracks mineral development and pipeline projects throughout the basin, supports baseline data gathering, scientific modeling, identifies projects and improved technologies that reduce impacts to the environment and shares this information with agencies in the broader LSPWG working group.

White emphasized that there are many people working hard to make ecological gains but stresses the need to develop smarter plans moving towards the future, "The United States has not reformed their mining law on public lands since 1872."

The previous administration's Department of Interior (DOI) issued a press release detailing their commitment to empowering tribal voices and to reform mining laws. The DOI assembled a (now temporarily suspended) Interagency Working Group (IWG) and in late 2023 the department released the group's report that included more than "60 steps to improve permitting" processes and public land mining regulations.

Notable changes in the IWG report include improving transparency, eliminating the option to perpetually treat water, creating opportunities to re-mine waste piles, and prioritizing a circular economy where materials never become waste and mining, milling, manufacturing, remanufacturing, refurbishing, reprocessing, and recycling all happen in one facility or plan. There simply aren't enough mines to keep up with our mineral needs therefore we need new and sustainable technologies to offset these needs.

White is hopeful that all of us take up some of what changes need to take place to consciously demand and change the way we do business and consume, some of those are outlined in the IWG report and some of these changes are our own personal choices and educating ourselves to consider what we use and where it comes from, how it is produced and the impact we are having on our ecosystems. She added, "Our push forward can be built without the emphasis on extraction and disposal."

To learn more about GLIFWC's role in TREC within the Lake Superior Partnership Working Group please visit *arcg.is/19XaS90*.

Staff on the move

A career at GLIFWC offers opportunities to take on a wide range of responsibilities, both in the office and afield. Through promotions and lateral transfers, several employees are stepping into new roles, embracing exciting experiences and professional growth.

In Conservation Enforcement, **Steven Amsler** of Ontonagon County, Michigan has been promoted from lieutenant to captain. **Ben Michaels** in Biological Services takes the helm as Great Lakes section leader afer 15 years as fishery biologist. For **Brandon Byrne**, his tenure in wetland ecology ends with a transfer to an inland fishery biologist position.

Finally, at it's May 1 meeting in Danbury, Wis., the Voigt Intertribal Task Force passed a resolution recognizing **Julie Ante** for 25 years of service. Ante was an accountant with extensive experience managing GLIFWC financial systems.

—COR

A salute to GLIFWC staff

Veteran conservation officers, seasoned fishery technicians, plus experts in natural resources, office logistics and Ojibwemowin–a noteworthy cross-section of GLIFWC professionals were recognized February 20 at the annual All Staff Day.

On five-year employment anniversaries, full time staff receive gifts of appreciation from Commission leadership. Staff Day 2025 convened at the Bad River Community Center with virtual attendance from a handful of staffers.

From left: Ben Michaels (15), Jason Higgins (5), Alexandra Bohman (15), Travis Bartnick (10), Dan North (25), Jonas Moermond (20), Edward White (35), Riley Brooks (15), Brad Kacizak (15), and Dara Unglaube (20). Additional award recipients not in attendance: Michael Price (5), Jacob Aufderheide (5), William Soulier III (10), Hannah Panci (10), Julie Ante (25), and Michael Plucinski (40).

—CO Rasmussen

Chi miigwech for your service!

On an even keel: retired Great Lakes fishery pros helped GLIFWC stay the course

By Ben Michaels, GLIFWC Great Lakes Section Leader & Charlie Otto Rasmussen, Editor

The Great Lakes Indian Fish & Wildlife Commission bids a warm giga-waabamin to Bill Mattes and Mike Plucinski, whose contributions leave a positive and lasting influence on Lake Superior's fisheries resources. Their combined 71-year tenure working for Ojibwe tribes has helped shaped Great Lakes fisheries management and research practices.

Mattes, a leader in Gichigami tribal representation, and Plucinski, an expert in the lake's demanding and unpredictable conditions, exemplify the connection between policy and field work. Their combined experiences, from regulatory victories to challenging lake adventures, offer a reflection on the ongoing effort to protect Lake Superior's future.

GLIFWC's first research/enforcement vessel Ojibwa Lady was a 24-foot Boston Whaler. (GLIFWC photo)

A Bad River Ojibwe, Plucinski went to school in Chicago, spending summers and extended stays with family on the northern Wisconsin reservation. In 1985, upon securing an opening as a fisheries technician with GLIFWC, Plucinski left Chicago construction trade work for a career on the water. For Mattes, a Lower Michigan native, he worked on the Yukon River in the Yup'ik community of Emmonak and completed his graduate school research on the Navajo Nation which focused on assessing fish populations in the Grand Canyon. This eventually led him to the Great Lakes as a GLIFWC fishery biologist in 1993.

The pair would spend many seasons aboard the Commission's first research vessel Ojibwa Lady, a 24-foot Boston Whaler, conducting research along the Gichigami south shore. In those early years together, a pair of particularly harrowing experiences elevated their respect for the big lake and the dangers that come from fish survey operations. During a windy day pulling research nets near Big Bay, Michigan, increasingly tall waves crashed into the boat and the motor on the net-lifter clunked to a stop. As a fishery aide struggled to find his footing and refuel the lifter, a super-heated metal panel on the motor ignited his jacket on fire. Mattes quickly grabbed a bucket of water and put the fire out.

On another occasion chaos escalated when below deck a net anchor snagged on some rocks on the lake bottom. The anchor line snapped taut, pulling the boat sideways. In the lurching waters, the line caught a fishery aide across the chest, pinning her to the boat's pilot house. With no time to lose, Plucinski produced a knife and cut the anchor rope amidst the towering waves. A frantic minute later, one of the boat's motors flooded with water and shut off. Thankfully the crew recovered and were able to complete the assessment and return to shore in one piece.

The greatest risk is for people to dig into their points of view and not compromise.
—Bill Mattes

Following a solstice ceremony welcoming biboon, GLIFWC staff celebrated the careers of Gichigami researchers Bill Mattes (Great Lakes Fishery Section Leader) and Mike Plucinski (Great Lakes Fishery Technician) with gift-giving, feasting, and stories from working on the big lake. As the two mates enter retirement after more than 70 combined years of Lake Superior fishery stewardship, GLIFWC hails a hearty chi-miigwech to them both! (CO Rasmussen photo)

A natural progression

Mattes' influence on Ceded Territory fisheries extended well beyond fieldwork. As his career led him from boat deck to boardroom, he played a crucial role within the regional agency, Great Lakes Fishery Commission. The transition accelerated during the contentious *Minnesota v Mille Lacs* litigation when Neil Kmiecik, then Biological Services Director, had to step away from Great Lakes issues to focus on Mille Lacs Lake.

"Neil was the Lake Superior Committee rep, but had to pull back, giving that responsibility to me," Bill explained. This led to a dual role as a GLIFWC representative on Lake Superior Committee (and its technical committee) and eventually led to a seat on the Council of Lakes Committee (CLC), which addressed aquatic invasive species and other broad Great Lakes issues.

As his administrative experience grew, elevating indigenous representation in Great Lakes fisheries management as Chairman of the Council of Great Lakes Fishery Agencies became a priority for Mattes. "Just prior to my role, 1854 Treaty Authority petitioned to be signatory to the Joint Strategic Plan [JSP] as a management authority," he said. The appeal to join the JSP—dominated by Canadian and American governments—sparked a discussion among the various agencies about management authority and representation of individual tribes. The issue was ultimately resolved through a process Mattes helped develop, ensuring tribal voices were heard. "Tribes should have their own voice at the table," he said.

Work on the Sea Lamprey Research Board further illustrates his commitment to integrating tribal voices into scientific research. "We developed a way to evaluate research proposals differently so that tribal proposals have equal footing with the others," Mattes said. This led to the inclusion of a TEK (Traditional Ecological Knowledge) theme in research proposals, a significant step forward.

Reflecting on the future of interagency Great Lakes management, Mattes stressed the importance of finding common ground. "The greatest risk is for people to dig into their points of view and not compromise," he cautioned.

Mattes's three-decade tenure with the GLIFWC is marked by an ability to cultivate strong working relationships among staff and partners. His extensive work conducting fish surveys on Lake Superior and its tributaries demonstrates his hands-on commitment to resource management. Mattes consistently championed tribal priorities within various intergovernmental bodies, notably the Great Lakes Fishery Commission, earning respect from multiple agencies for his collaborative approach to protecting fisheries resources.

Furthermore, Mattes played a critical role in sea lamprey control, directly benefiting tribal interests. His dedication to GLIFWC and its member tribes has supported the preservation of treaty rights and the health of fisheries resources.

Winds of Change

In the moment, wind and weather can have significant impacts on the success of field work when crews are handling fish and assessment gear. Years after the anchor-line-cutting-episode, Plucinski and a pair of aides underwent a harrowing trip with a commercial fisherman while collecting data as 12-14-foot waves pounded the boat. On a much longer scale—Plucinski sees wind **(see Winds of change, page 21)**

Mattes and Plucinski collect biological samples from Lake Superior fish aboard a tribal commercial fishing tug. (GLIFWC photo)

Building better relationships with new Manoomin Wiidookaage

Lac Courte Oreilles (LCO) tribal member, Esiban Parent joins GLIFWC's Wildlife Section in the Biological Services Division as the Manoomin Wiidookaage, (Wild Rice Helper). Parent grew up practicing his treaty rights and is looking forward to the position's purpose: help to restore and strengthen healthy relationships between people and manoomin.

Parent studied agriculture and natural resources at Lac Courte Oreilles University and in 2017 he earned an Associate Degree in Journalism. He added a second Associate Degree in 3D Digital Animation at Washtenaw Community College in Ann Arbor, Mich in 2019. While at school he worked as a teacher's assistant and was a contributor to the student newspaper, The Washtenaw Voice. Born in New Post, Wis. and raised on the LCO reservation, his K-12 education was split between Waadookodaading, Hayward elementary school and LCO high school.

Parent spends his free time fishing, eating good food, exploring natural spaces with his family and he tries to draw and read as much as possible. "I love this area most because of lake Gichigami; it's where I love to fish, explore, and I'm still close to home," he said.

Parent helped develop the Ojibwemowin language immersion video game project Reclaim! by Grassroot Indigenous Multimedia and has experience as a youth crew leader while interning at LCO's Conservation Department, "As a crew leader, we worked closely with the US Forest Service and Wisconsin DNR staff," he said. Most recently Parent worked with traditional indigenous foods ingredients at Owamni by the Sioux Chef in Minneapolis, Minn.

Parent is most looking forward to contributing to tribal communities, "I want to build a better relationship with manoomin as best I can, so that it may be here flourishing for many generations to come." **—J Van Sickle**

Environmental toxicologist focuses on health of all beings

Louisiana native Joshua Salley, Ph.D. joins GLIFWC as a scientific and technical expert for ecological issues associated with Gichigami's watershed and treaty rights. The work includes collaborating on remedial action/binational plans, and with the International Joint Commission to assist tribes in meeting their nutritional and cultural needs.

Within the Biological Services Division's Environmental Section, Dr. Salley is responsible for maintaining the contaminant database, investigating ecosystem and habitat issues, and working to understand the potential effects of PFAS on human health through environmental exposures. Dr. Salley is also researching and developing recommendations for water quality standards.

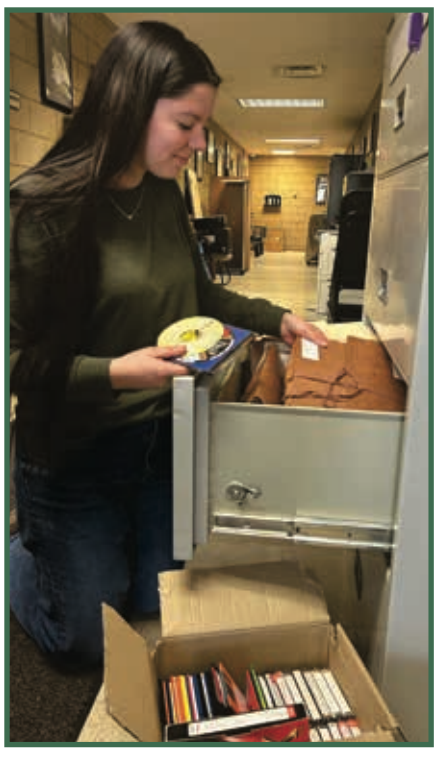
Joshua Salley earned his B.S. in Toxicology from University of Louisiana at Monroe in 2014 before graduating from his alma mater again with a Ph.D. in Toxicology four years later. Previous work experience centered on general toxicology, human risk assessments, food safety, and product stewardship. Joshua Salley was born and (mostly) raised in Farmerville of Union Parish and in Monroe of Ouachita Parish in Louisiana (with a brief stint in Raleigh, NC from age 10 to 13) until Wisconsin officially became home last March.

Prior to relocating to the Ojibwe Ceded Territory, Dr. Salley coordinated a program called, Cans-4-Vets that was focused on bringing more recycling to the South by turning aluminum cans (trash/litter) into proceeds to benefit veterans. In his off-time he enjoys metal-detecting, chemistry, music, woodworking, hiking, and mushroom foraging.

Dr. Salley hit the ground running for Ojibwe tribes, already working on fish consumption advisories and water quality standards. He said he's excited to be at GLIFWC to share knowledge that helps teach people that the environment is something we are all a part of and intertwined together with: "If the environment is treated poorly—we all will suffer. If it is properly cared for—we all will benefit." **—J. Van Sickle**

Media specialist manages website, digitization

After helping build and create content for the new GLIFWC website as an LTE in the fall of 2024, Mikayla Swanson has joined GLIFWC as the new Website and Media Digitization Specialist. In this new position, she will continue to work on maintaining and updating the website but will also begin digitizing Traditional Ecological Knowledge interviews and other historical materials from the 1980's—2000's that are currently stored in a wide range of media formats, including cassettes, VHS tapes, and microcassettes. This will involve using specialized equipment and software to preserve and enhance the quality of this knowledge. Many elders and other tribal members have contributed knowledge to GLIFWC over the years, and we want to ensure this knowledge will be preserved for future generations. Interviews will be shared with families or relatives after being digitized and transcribed.



Mikayla is a Bad River tribal member and earned her bachelor's degree in multimedia journalism from the University of Wisconsin-Superior. She has been an avid filmmaker her whole life, and recently her latest documentary won an award at the Big Water Film Festival and won best short film at the Ely Film Festival in March. When she's not at work you can find her at home reading, playing with her two dogs, or creating content on her own social media pages. Welcome Mikayla!

Winds of change

(continued from page 20)

and weather playing an outsized role in annual fishery surveys on the Great Lakes, especially in the habitat-rich waters surrounding the Keweenaw Peninsula.

Over the past dozen years, wind has emerged as a constant adversary. "Weather has been getting worse and worse over the years," Plucinski observed. "Our ability to get on the water is more limited by high winds." Even with the switch from the Ojibwa Lady to the stout research boat, Mizhakwad, high winds now routinely interfere with safely operating on the big lake.

He also noted changes over the years with lamprey spawning patterns on Lake Superior tributary rivers, attributing them to wonkier weather. "Lamprey spawning seems to start later in the spring than it used to and there seems to be more variation in spawning time," he said.

Plucinski's memories weren't all about fieldwork. He recalled the challenges of assisting with public outreach, particularly the hostility toward tribal treaty rights encountered at hunting and fishing sports shows in the late 1980s. He said that negative attitudes toward tribal fishing have diminished in recent years but have not gone away.

Plucinski's four decades of service to the Great Lakes Indian Fish and Wildlife Commission have been defined by his commitment and contributions. \As the Great Lakes Fisheries Technician, he skillfully navigated Lake Superior, captaining the Ojibwa Lady and Mizhakwad through diverse weather conditions, ensuring the safety of numerous GLIFWC assessment crews. His deep knowledge of the lake proved invaluable to assessment projects, and he mentored dozens of interns, encouraging their pursuit of careers in fisheries science.

In addition to his technical proficiency, Plucinski played a crucial role in sea lamprey control efforts, benefiting native fish stocks. His engaging storytelling and dedication to the Commission's goals will leave a lasting impact.

Both Mattes' and Plucinski's narratives illustrate the dedication and knowledge required to manage Great Lakes resources. Their experience and stories serve as a testament to the enduring connection between tribal communities and the Great Lakes, and the vital role they play in its stewardship. We wish them well in their future endeavors!

Miigwech from all of us at GLIFWC.

Changing Worlds: Ojibwe treaty rights Ogichidaa Mike Tribble

Mike Tribble, *Animikii Bines*, began his journey to the spirit world on March 21 at the age of 85. A deeply respected elder of the Lac Courte Oreilles Band and a powerful voice for indigenous justice, Tribble was a treaty rights warrior whose legacy stretches far beyond the boundaries of his community.

GLIFWC shares heartfelt condolences with Mike's family and friends, including his brother Fred. Together, the Tribble brothers made history that still shapes the lives of tribal members across the Great Lakes and beyond.

In 1974, as students at the College of St. Scholastica, Mike and Fred took action to protect Ojibwe inland harvest rights—bringing their fight to court and helping spark nearly a decade of legal battles. Their courage played a key role in securing the *LCO v. Voigt* Decision in 1983, a landmark federal court ruling that affirmed tribes never gave up their rights to hunt, fish, and gather on the lands and waters ceded in 19th-century treaties.

The LCO Voigt case did more than secure harvesting rights—it reinforced the legal foundation of tribal sovereignty across the United States. It proved that treaties are binding, living agreements, and that tribal nations possess the right to govern themselves, manage their resources, and protect their ways of life. The case has since been cited in courtrooms across the country, helping to uphold Indigenous rights well beyond Wisconsin.

Mike Tribble's leadership extended into tribal governance and economic development. As Economic Development Coordinator for the Lac Courte Oreilles Tribe, he secured the means to build the necessary infrastructure still serving the community today including the tribal clinic, schools, and tribal gaming property. Through these efforts, Tribble helped grow a foundation of self-sufficiency and tribal empowerment, creating jobs, services, and opportunity for generations to come.

He was also a small business owner and later served as Director of Table Games at the casino, where he continued to support community growth with a steady hand and a generous heart.

Though he was known across Indian Country for his activism, Tribble remained grounded as a lifelong harvester, culture bearer, and family man. He raised eight children and leaves behind 24 grandchildren and 23 great-grandchildren—each carrying forward his teachings, values, and pride in their Anishinaabe identity.

In 2016, GLIFWC featured the Tribble brothers in the short film *Crossing the Line*, which told the story of their early defiance against unjust state suppression of treaty rights.

"We had all our fish shacks up on the north end of Chief Lake," Mike Tribble recalled. "And in Chief Lake, there's an imaginary line right down the middle of the lake: this is off-rez, this is on-rez."

The brothers crossed that line—fishing outside the reservation boundary, where they were issued citations. But what they really claimed was space: space to assert sovereignty, to uphold treaty rights, and to pave the way for all who would come after.

Chi miigwech, Animikii Bines, for your strength, your clarity, and your commitment to the people. You've left a legacy written into law, community, and memory—and it will never be forgotten.

—GLIFWC staff with Kari Tribble

Changing Worlds: Celebrated culture and language educator Obizaan Lee Staples

On March 6th, 2025, Obizaan Lee Staples, St. Croix Ojibwe elder, began his journey to the next world, leaving behind a legacy of advocacy for Ojibwe language and culture. He dedicated his life to transferring traditional teachings, knowledge, and ceremonies to future generations for the advancement and benefit of his people.

GLIFWC sends its condolences to the family and friends of Obizaan, recognizing his invaluable role in his communities as a spiritual advisor and first-language speaker.

Obizaan authored three books for the preservation of Ojibwe knowledge, each presenting cultural and ceremonial teachings in Ojibwemowin with an English explanation, rather than translation, featured alongside it. In doing this work, he will be able to continue passing on his knowledge of sacred ceremonies for many generations to come.

As a language-keeper, Obizaan shared a phrase to be used in GLIFWC's work, featuring prominently in the "Ogichidaa Storytellers" series: Mii'iw Anishinaabe-izhitwaawin. Giishpin ani-bima'adooyaang miinawaa giga-mashkawizimin miinawaa. "This is our way of life. If we follow this path again, we will be strong again."

His generosity and influence are beyond measure, and through his selfless efforts to share knowledge and assist people, all Anishinaabeg are more equipped to live stronger and healthier lives. His legacy as an unapologetic advocate for the survival of the Ojibwe people will carry on with those he worked with and loved.

Wiikweyaang Nagamo Ikwewag

(continued from page 4)

In the following weeks, the drummers called themselves "Wiikweyaang Nagamo Ikwewag," roughly meaning "Women Singing at the Bay." The word wiikweyaang is a phonetic spelling of how those in Red Cliff used to refer to the reservation, recalled Barri. Readers of the language will recognize the standardized orthography, wiikwedong, meaning "at the bay." The women, most of whom are from Red Cliff, knew they had to incorporate the word into the group's name.

Meeting at least once per week, Dunbar guided the group in learning the songs. They were looking ahead to their first public appearance where they would sing in a ceremony for Missing and Murdered Indigenous Women and Relatives, often referred to as MMIW, in Ashland, Wis. on May 4.

This event finally allowed the women to bring to fruition the dream they had from the start. It marked a major milestone in the group's journey as they dedicated themselves to the healing of their community, especially the women, who are so often taken advantage of and whose voices are often subdued.

Looking to the future, the women are eager to continue offering their voices in song and ceremony, but they know the road isn't clear of obstacles.

"You will face controversy," Dunbar repeated, harkening back to the familiar phrase: "women don't drum." But she assured them that they didn't find themselves in that circle by coincidence; they were there for a reason beyond just themselves or those who would disapprove of their being there.

Throughout the weeks, words given by Lin Gokee during the first feasting ceremony's talking circle rippled across the group's work: "Who really benefits when women stay silent?" **—J. Van Sickle contributed to this article**

With May 4th being a cold and windy day, the drums were kept warm by the fire so they could resonate brightly during the ceremony. (A. Kolonich photo)

Omakakii

(continued from page 8)

(B. Gratwicke, CC BY 2.0)

"froggers," contribute to scientific research while strengthening their bond with nature. This participatory approach ensures that conservation strategies are culturally relevant and locally supported.

Springtime in Wisconsin offers a symphony of amphibian calls, each note a testament to the health of our environment. Through initiatives like the Wisconsin Frog and Toad Survey, combined with the principles of Traditional Ecological Knowledge, we gain a comprehensive understanding of these species' roles and the broader ecological narratives they represent.

To learn more about conservation efforts and wildlife monitoring, see the Wisconsin Frog and Toad Survey at *wiatri.net*, or check with your local tribal natural resources department and volunteer to assist in conducting surveys.

Upcoming events

BOATER SAFETY

May 30th, 31st and June 1st

Lac du Flambeau Youth Center
13708 Youth Ctr Ln, Lac du Flambeau, WI 54538

REGISTER at www.gowild.wi.gov

1. Create an account or log in
2. Click "Manage Safety Education"
3. Click "Search for Class"
4. Enter course type "BOAT" and county "VILAS"
5. Click "Enroll" on the course in Lac du Flambeau

Course fee is $10.00

Friday	Saturday	Sunday
May 30th	May 31st	June 1st
4pm - 8pm	8am - 12pm	8am - 12pm

Andrew Snow
andrew.snow@ldftribe.com
(715) 588 - 4213

Mikwendaagoziwag

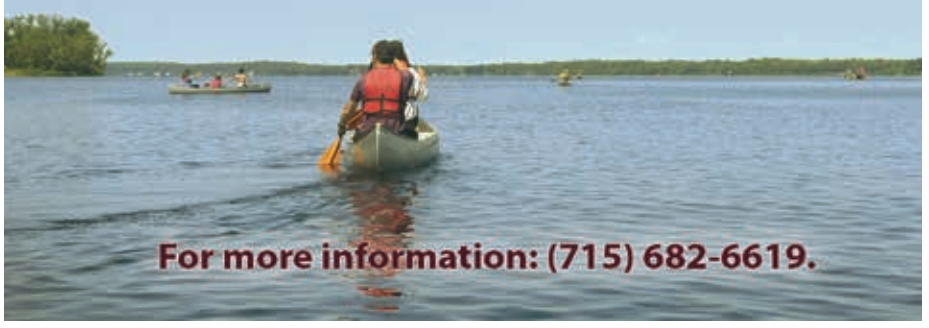
They are remembered

July 30th

Sandy Lake Memorial

Opening ceremony and canoe launch at 9:00 a.m.
Savanna Portage State Park boat landing
East side of Sandy Lake

Ceremony and feast to follow.
Army Corps of Engineers Sandy Lake Recreational Area • McGregor, Minnesota



For more information: (715) 682-6619.

GLIFWC's SUMMER DAZE GOLF BENEFIT

Proceeds will go towards educational programming for youth across 11 Ojibwe tribal nations. $500/team.

26 JULY 2025 || 8:00 REGISTRATION

4 PERSON SCRAMBLE || 9:00 AM SHOTGUN START

- PRO VS. JOE
- HOLE IN ONE COMPETITION
- $12,000 IN CASH PRIZES /RAFFLES!
- HOLE PROXIES

Lac Vieux Desert *Golf Course*

For more information facebook/glifwc
or Jennifer Krueger Bear 715-292-9140

CAMP ONJI-AKIING

Natural Resource Summer Camp for youth ages 10-14 and junior counselors 14-18

Fishing, canoeing, archery, nature, ropes course, crafts, games, new friends and fun!

AUGUST 11-15, 2025
Camp Nesbit • Watton, MI

Applications on glifwc.org/calendar
Completed app due July 1, 2025
Questions: Jill Miller
715-292-9638 • ConservationOutreach@glifwc.org

Kid's page crossword answers

Across: 1. wet **3.** Robin **4.** apikaadan **7.** four
Down: 1. wiingashk **2.** brown **5.** purple **6.** asemaa

Ceded Territory pipelines

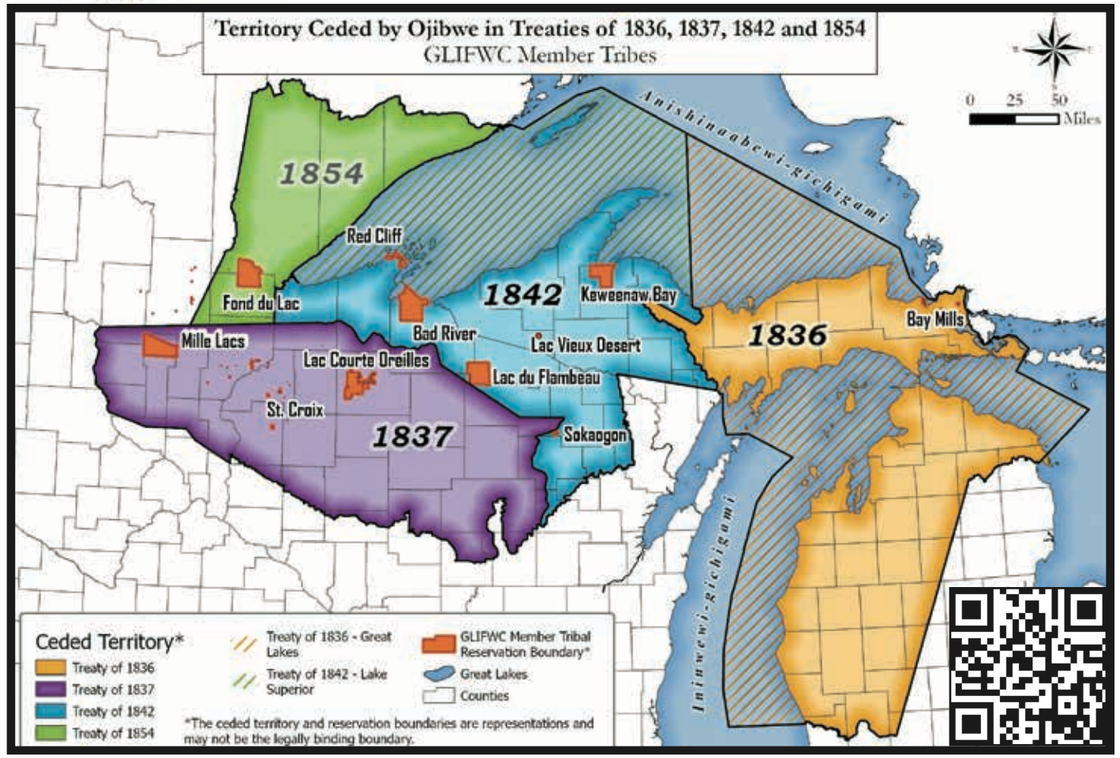
(continued from page 11)

GLIFWC is concerned that expedited permitting timelines will hinder staff ability to provide accurate and meaningful information that regulatory agencies can use to inform their permit decisions. Proper environmental analysis and data collection take time and shortening the review periods reduces GLIFWC's ability to effectively participate.

At this time, GLIFWC staff are working to understand the full implications of shorter environmental review and permitting timelines and how best to adapt, if necessary.

RETURN ADDRESS:
GLIFWC
P.O. BOX 9
ODANAH, WI 54861

CHANGE SERVICE REQUESTED



GLIFWC environmental specialists updating mercury, PFAS guidelines

For GLIFWC's fish contaminants monitoring program, the spring 2025 walleye collection season has wrapped up. GLIFWC works mainly with tribal fishermen, and occasionally with tribal and state Department of Natural Resources crews on overlapping population assessments to collect walleye from inland lakes across the Ceded Territories.

The fillets are tested for mercury and PFAS concentrations. The results are used to update fish consumption advice and to inform future monitoring activities for water quality standards.

GLIFWC Fisheries Biologist Ben Michaels (center) conducts a contaminant sampling tutorial. (C. Ackley photo)

This year, GLIFWC collected nearly 450 walleyes from over 30 lakes for testing. The results will be used to update the Spring 2026 lake-specific Mercury Maps that display "at-a-glance" fish consumption guidance that informs tribal fishers on best practices for safe fish consumption.

GLIFWC began testing walleye fillets for PFAS in 2023. To date, all PFAS results show nondetectable or very low levels. Development of PFAS informational maps and materials is being considered as more data is collected.

—C. Ackley & J. Salley