Mazina'igan

A Chronicle of the Lake Superior Ojibwe

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WINTER 2024-2025

Wis Ojibwe hunters wrap up elk season early

BMIC looks to December opportunities

By CO Rasmussen
Editor

Clam Lake, Wis.—Following the hottest summer ever measured on Aki, high temperatures often in the 80s continued to billow through the Ojibwe Ceded Territory from September into early October.

But even as unseasonably warm air filtered through tall green grass in the Chequamegon-Nicolet National Forest (CNNF), staghorn sumac trees, bursting with velvety berries, painted the forest edges red and bugling elk screeched into the evening twilight. Hot or not, autumn and its promise of wild returns was moving forward.

At mandatory elk hunter orientation September 13 along Chippewa Lake, treaty hunters consulted GLIFWC biologists and conservation officers, charting out hunting plans in the 1,627-square mile Clam Lake management zone. From a CNNF base camp, hunters would spend the following weeks scouting from air-conditioned pick-up trucks or stalking tinder dry clear-cuts dressed in t-shirts and orange vests.

"It was warm alright," said Lac Courte Oreilles hunter Tom Carley. "About the only time you're going to see an animal is early in the morning or late, toward evening."

Mirroring last year's quota limit of eight bulls in the northern, or Clam Lake Elk Range, harvest tags were split evenly between state-licensed and Ojibwe hunters.

Carley, plus members from three additional tribes held permits, while four state hunt-

(see Omashkooz, page 18)

Lac Courte Oreilles elder Tom Carley with his bull omashkooz from the 2024 treaty elk season. (M. Heath photo)

Splake fishery: a lot to love over past 50 years

But new research underway to examine potential danger to parent species

By Ben Michaels, GLIFWC Fisheries Biologist

GLIFWC Great Lakes Section assessment crew kicked off their annual fall lake trout spawning survey at Copper Harbor, a picturesque coastal town nestled on the shore of Lake Superior's Keweenaw Peninsula in Michigan. While the main purpose of the survey is to monitor biological characteristics of lake trout, including their movement patterns and relative abundance, the crew also monitors the status of the splake population in this area.

A splake (top) and lake trout (bottom) caught at Copper Harbor Michigan. The GLIFWC assessment crew do not usually come across brook trout in this area.

Biologists have long evaluated stressors to Gichigami fish populations like mining waste, shoreline development, and invasive species–GLIFWC and its research partners are now setting their sights on understanding how splake fit into the life cycle of indigenous fish communities.

Splake are a hybrid fish resulting from crossing a male brook trout (*Salvelinus fontinalis*) with a female lake trout (*Salvelinus namaycush*).

They're beautiful fish composed of characteristics of their parent species and are recognizable by their combination of colors, mark-

(see Splake, page 16)

Whether you call them gooniikaa-ginebig or zhooshimaan, snow snakes heat up any biboon outdoors

keep an eye out for games near you!

GLIFWC honored with LSM Award

(see pp 12-13)

Lake Superior Committee announces major fishery management milestone: *Lake trout population is fully restored*

Ann Arbor, Mich.—A major milestone was recently reached in fisheries management on Lake Superior (Gichigami). The Lake Superior Committee (LSC) announced that lake trout (namegos) are fully recovered in most of Gichigami.

The LSC is coordinated under the auspices of the Great Lakes Fishery Commission, and consists of fishery managers from the three Great Lakes States (Minn., Wis., and Mich.) which border Lake Superior, from the Province of Ontario, and from U.S. Tribes represented by the 1854 Treaty Authority, Chippewa-Ottawa Resource Authority (CORA), Great Lakes Indian Fish and Wildlife Commission (GLIFWC), and the Red Cliff Band of Lake Superior Chippewa Indians.

In the mid-1900s, lake trout populations declined to extremely low levels in Lake Superior due to extensive overfishing and the devastation wrought by non-native, predatory sea lampreys. Through the 1954 Convention on Great Lakes Fisheries, the Governments of Canada and the United States came together to form the Great Lakes Fishery Commission; the Commission was charged with controlling sea lampreys, coordinating fishery management, and conducting Lake trout rehabilitation, which was initiated on a small Lake Superior tributary, Mosquito Creek, in 1958.

Successful control of sea lampreys allowed additional management efforts, such as strict harvest regulations and stocking of various strains of lake trout, to be implemented. Together, these efforts were successful and allowed for the LSC to substantially reduce stocking in the mid-1990s due to increased abundance of naturally reproducing lake trout populations.

"The decline and near extinction of native lake trout resulted in a drastic change to the Great Lakes ecosystem and devastated the region's economy," said Ethan Baker, chair of the Great Lakes Fishery Commission. "The recovery of this keystone species from near extirpation to the healthy, self-sustaining population was achieved through a multi-decade and multi-jurisdictional Herculean effort that required an unprecedented amount of coordination, resources, and commitment."

Dane Lagrew with a native lake troug during an assessment run on Lake Superior (B. Michaels photo)

Lake trout supported an annual commercial harvest of 4 million pounds (2 million kilograms) between 1920 and 1950. By 1964, however, only 210,000 pounds were harvested. Today's announcement of a fully restored lake trout population in Lake Superior comes after nearly 70 years of concerted rehabilitation efforts.

The LSC estimates the current abundance of naturally reproduced lake trout is at or above the best estimates of abundance prior to the sea lamprey invasion in 1938. Because of this, the LSC believes the lake trout population is restored, and has achieved the 2003 Fish Community Objective of a "genetically diverse self-sustaining populations of lake trout that are similar to those found in the lake prior to 1940, with lean lake trout being the dominant form in nearshore waters, siscowet lake trout the dominant form in offshore waters, and humper lake trout a common form in eastern waters and around Isle Royale."

Similar objectives have guided the work of the LSC since lake committees were formed in 1960.

Bill Mattes, LSC Chair said, "This is an incredible success story made possible by widespread collaboration and coordination of tribal, state, and federal governments engaged in fisheries research, monitoring, and management. I look forward to the continued cooperation amongst fisheries managers and agencies to maintain healthy, self-sustaining lake trout populations in Lake Superior through effective sea lamprey control, prudent harvest policies, and protection of the Lake Superior ecosystem, which includes prevention of invasive species and water quality protection."

Baker concluded: "Rehabilitating lake trout in the world's largest freshwater lake did not happen overnight; it required an unwavering commitment to a shared vision across multiple generations of fishery managers from Indigenous, provincial, state, and federal agencies. It is undoubtedly one of the most successful stories of native species restoration in the world. Lucky for us, we have a front row seat."

For more information contact Lake Superior Chairman and GLIFWC Biologist Bill Mattes at (715) 209-1615.

Mooningwaanekaaning treaty gathering celebrates Ojibwe lifeways

By Charlie Otto Rasmussen, Editor

LaPointe, Wis.— With the sights, the sounds, the songs melding with an ever-evolving cast of participants, Madeline Island's south shore materialized into a great Ojibwe get-together September 28-30. A celebration of Anishinaabe culture and mino-bimaadiziwin, Mooningwaanekaaning Treaty Days marked the 170th anniversary of the 1854 Treaty, which cemented Ojibwe homeland reservations around Gichigami and guaranteed off-reservation harvest rights in the Ceded Territory.

From elders to youngsters, all ages took part in feasting, playing baaga'adowewin, and gaining insights into indigenous food sovereignty—native households and communities cultivating their own foods for physical and spiritual health. School districts around Chequamegon Bay emptied out classrooms and others from around the region made road trips to attend, first trekking to Bayfield then catching a diesel-powered ferry out to the Lake Superior island widely known as the heart of the Ojibwe Nation.

Among the thousand visitors over three days, Jack Des Jarlait set up an instructional space at the LaPointe Ballfield, a centerpoint for music, food, and lacrosse games during the event. A Red Lake Band member, Des Jarlait is a longtime educator and seed keeper who places food sovereignty among his highest callings. The most cherished crops he cultivates is Red Lake flint corn.

"Red Lake people have had this corn for a long, long time going back centuries. Some say it came from North Dakota or the Southwest. I'd argue it came with us on the Migration," Des Jarlait said. "It's always been my life, my grandpa's task before me, to garden with this corn."

Red, orange, black, white, and yellow, the flint corn kernels are striking and beautiful. Des Jarlait watched over a half-dozen braided corn bundles resting on the grass, while tending a simmering pot heated with a propane tank. As people gathered round, he invited them to help prepare one of his specialties: hominy soup.

"I'm always teaching. I want this to be carried on long after I'm gone," said Des Jarlait, a US Army veteran, now 70.

Nearby on the softball field, older kids and adults struck up a baaga'adowewin match. Elders chatted across picnic tables under a pavilion and an amplifier buzzed just outside where a pair of musicians plugged in their equipment. The atmosphere felt both welcoming and inspiring.

Seed keeper Jack Des Jarlait (center) shared insights into Red Lake flint corn and led a tutorial in making hominy soup. (CO Rasmussen photos)

Earlier, tribal citizens convened an expansive talking circle at Memorial Park near the burial sites of the great Ojibwe Chiefs Biizhike and Oshoga, who helped thwart an illegal attempt by some governmental officials to move Lake Superior tribes to the west, beyond the Mississippi River in Minnesota Territory. The episode ultimately led to the 1854 Treaty between the United States and Ojibwe bands. Read the formative treaty agreement and all its provisions at *glifwc.org/TreatyRights/TreatyChippewa09301854Web.pdf*.

Ceded Territory news briefs

Early season registrations

Deer harvest remains low, bear take up from 2023

With another early dagwaagin (fall) hunting season marked by record-setting high temperatures in the 1837 and 1842 Ceded Territories, the waawaashkeshi (deer) harvest has gotten off to relatively slow start in 2024. However, the take of 48 makwag (bears) in 2024 was up from the 36 bruins registered in the previous year. From the start of the season on September 3 (the day after Labor Day) through October 30, 2024, Ojibwe off-reservation hunters registered 136 deer and 48 black bears.

Tribal hunters have the option of registering their deer in-person at tribal registration stations, remotely via phone, or online. Of the 136 deer that were registered as of October 30, 2024, approximately 80% were registered remotely, including 42 deer registered using the phone registration system and 67 deer registered using the online registration system. The remaining 27 deer were registered in person at tribal registration stations. Approximately 56% of the deer registered were antlered and 44% were antlerless deer. The peak of off-reservation tribal deer registrations typically falls over the second, third, and fourth weeks of November.

Of the 48 makwag tallied, 47 were registered remotely using the online or call-in phone system. One bear was registered in-person at a tribal registration station. Twenty-five (52%) registered bears were males and 23 (48%) were females. GLIFWC maintains detailed data on off-reservation harvests in the Ceded Territory. Animals harvested on Ojibwe reservations are tracked by individual tribal wildlife programs. **—T. Bartnick**

Order extends gathering regs on State of Wis lands

Executive Administrator Jason Schlender issued a Commission Order October 2nd, extending gathering regulations on state lands in Wisconsin. An agreement between Ojibwe treaty tribes and the state extends regulations found in Chapter 12 of the Model Off-Reservation Conservation Code to state lands within the Wisconsin portion of the Ceded Territories. The initial agreement made in 2011 was for a two-year study of these regulations, but has been subsequently extended in 2013, 2019, and now again in 2024.

The recent Order does not make any changes to the regulations that tribal harvesters must follow to gather forest products like balsam boughs. This Commission Order extends the existing regulations for one year, by which time the parties hope to have made this agreement permanent through the stipulation amendment process. The full suite of gathering regulations is available in Chapter 12 of the Model Off-Reservation Conservation Code located on the Harvest Regulations page at *glifwc.org*. **—O. Gower**

"Water Over Nickel" receives Upper Midwest Emmy

The recent video "Water Over Nickel—Protecting our water, community, and manoomin" received the Regional Emmy Award during the 25th Annual Upper Midwest Emmy Awards Ceremony in the category of Diversity/Equity/Inclusion—Short Form Content on October 19. It also received recognition at the Twin Cities Film Fest—Documentary: Passion & Purpose program, the South Dakota Film Festival—Family Friendly Day, as well as the 2024 Duluth Superior Film Festival—The Wild Within program.

Since March 2023 the Mille Lacs Band of Ojibwe, along with allied organizations, have been lifting their voices in opposition to the proposed Tamarack Mine through the Water Over Nickel initiative. Proposed by Talon Metals Corp., the nickel mine would heavily impact tribal land, waters, and cultural sites, forcing the tribe and its members to assume the environmental risks of metal mining which has been identified by the EPA to be the most toxic industry in the United States.

The video, released in January of 2024 in collaboration with 515 Productions and Beehive Strategic Communication, highlights how nickel mining threatens the band's centuries-old relationship with their homeland and the manoomin (wild rice) that grows on it. Watch the video and learn more about the Water Over Nickel initiative at *waterovernickel.com*. **—B. Paulsen**

Lampricides applied to the Bad River

During late September and early October, the U.S. Fish and Wildlife Service applied lampricides to the Bad River, Ashland and Bayfield Counties, Wis. This treatment, which takes place every three to five years for effective sea lamprey control, targets lamprey larvae burrowed in the streambed.

Before an infested stream can be treated, extensive data collection is required including water chemistry and discharge, toxicity tests, and stream flow studies. The lampricides are then carefully introduced into the stream for approximately 12 hours while predetermined sites are continually monitored for proper concentration.

The U.S. Environmental Protection Agency and the Health Canada Management Regulatory Agency deemed the lampricide poses no unreasonable risk to people or the environment in 2003. Chemical sea lamprey control, which is contracted through the Great Lakes Fishery Commission to the U.S. Fish and Wildlife Service and Oceans Canada, has been in effect since 1958 and has seen wide success. **—B. Paulsen**

Manoominikewin brings people together across the Ojibwe Ceded Territories

By Bay Paulsen, Staff Writer

With ricing season drawn to a close in the Great Lakes region and the manoomin (rice) begins to rest for the winter, harvesters are enjoying communal gatherings and relishing the smell of parching rice as they finish processing and restock their cupboards.

Harvesters were happy to see plenty of rice on select waters, including in Burnett County, Wisconsin, which had some of the most productive lakes of the season in the Ceded Territory. But climate change continues to be a concern as extreme weather patterns increase, including events spanning from heavy rain to drought.

This past spring, a few manoomin beds such as one on Sullivan Lake in eastern Minnesota, began growing during low water levels, and the unusual influx of summer storms rapidly raised the water levels, uprooting the plants and laying them flat in the water—a condition a rice bed cannot recover from until the following year.

Many harvesters also noticed an influx of "ghost husks" or rice husks that do not have a grain inside them, which occur due to improper pollination during the flowering stage of the plant. With rice being wind pollinated, there is growing concern that climate change and erratic weather might be affecting the pollination process.

Yet spirits remain high as tribal members and non-tribal members alike were able to harvest from less affected regions. Manoominikewin (rice harvesting) season is a time for gathering and community, whether that's meeting new people at a boat launch or getting together with friends and family to process a fresh harvest. Cultural events like rice camps also provide a setting to share ricing knowledge with young tribal members and the greater community.

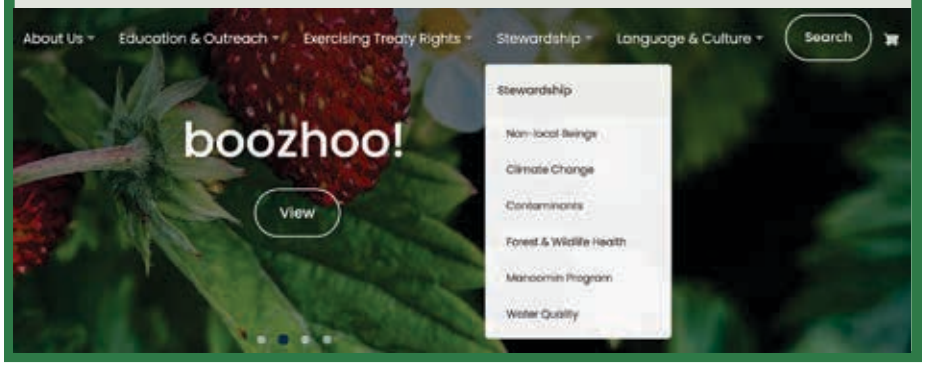
The Bad River Band hosted a rice camp open to tribal and non-tribal members on August 19-20 where attendees had the opportunity to make bawa'iganaakoon (rice knocking sticks), gaandakii'iganaakoon (push poles), and the young tribal members went out onto the waterways with mentors to harvest rice themselves.
(see Manoominikewin, page 20)

Attendees of the Bad River rice camp motored out to tribal rice beds and were given a demonstration of rice bundling. In the background, the bundlers use canoes to move through the rice as they work, and in the foreground, Dan Powless Sr., Bad River's Manoomin Oshkaabewis, talks the group through the process and answers questions. (B. Paulsen photo)

New website launching soon

One of the most important platforms available to communicate with harvesters, partners, educators, students, and the broader public isn't new but is essential. In 2025, we are launching our brand new website, a user-friendly platform that ensures our member tribes and their full communities will have an organized and effective place to find everything they need to practice their off-reservation treaty rights.

Our new site highlights harvest regulations and we've totally revamped our online shoping site so that you can seamlessly order educational materials you can trust.



Great Lakes Wolf Symposium learns about "Our Older Brother"

Ashland, Wis.—GLIFWC Wildlife Biologist Allison Carl addressed the Great Lakes Wolf Symposium on October 16, providing insights on the relationship between Anishinaabe people and ma'iingan (wolf).

The symposium, hosted by the Northland College Timber Wolf Alliance, was attended by biologists, policymakers, and others from across the Great Lakes region to share data and project updates.

With wolf populations stabilizing in the Ceded Territories, awareness surrounding ma'iingan's significance to Ojibwe people becomes increasingly important to share, as well as the importance of Ojibwe voices in decision-making about this relative.

Carl's presentation focused on the long-standing brotherhood between Ojibwe people and the wolf, sharing how the two share fates as stated in *The Mishomis Book* by Edward Benton-Banai: "The Creator said, '…What shall happen to the one of you will also happen to the other. Each of you will be feared, respected, and misunderstood by the people that will later join you on the earth.'"

Carl gave many examples from the past decades of this teaching ringing true, including the attempted eradication of both Anishinaabeg and ma'iinganag during United States expansion, as well as legal protections for each of them finally being written into law from the 1960's through 80's.

During the symposium, attendees stopped by GLIFWC's booth to pick up and read about the annual poster from 2021, "Nisayenyimi-

GLIFWC's Wildlife Biologist Allison Carl presents to over 150 people from 11 states, 2 provinces, and the Netherlands at the Great Lakes Wolf Symposium hosted by the Timber Wolf Alliance at Northland College. (B. Paulsen photo)

naan" (Our Older Brother), which further emphasized the close relationship Ma'iinganag and Anishinaabeg share.

Federal lawmakers are currently deliberating over the inappropriately named "Trust the Science" bill which would delist the gray wolf as a federally protected species in the contiguous United States. The bill would undermine the established scientific process that the U.S. Fish & Wildlife Service uses to list and delist species under the Endangered Species Act of 1973 and is strongly opposed by both tribal and non-tribal wildlife advocates.

At the symposium, Carl urged state policymakers, biologists, and private institutions to consider the perspectives of Anishinaabe people and to seek out resources to build relationships with the tribes, especially when discussing policy that deeply effects native people. Learn more about the status of ma'iinganag and the Timber Wolf Alliance at *northland.edu/centers/soei/twa* **—B Paulsen**

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(Pronounced Muh zin ah' igun)

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

On the cover

GLIFWC wildlife technicians and biologists regularly join staff from partner agencies to conduct wildlife assessments and health checks. From animals as small as waabizheshi (pine marten) to enormous 700-pound omashkooz (elk), the cooperative work builds organizational expertise and helps natural resource managers make informed decisions. Somewhere in size between marten and elk, makwag, or black bears, occupy an important place in the Ojibwe Ceded Territory. Bears are a prominent clan animal in Ojibwe communities, known as protectors and healers. During biboon, bears spend the cold months mostly in a deep sleep within forested den sites. Cubs are born right in the dens, staying close to mom to nurse and keep warm until springtime. (J. Wilmer photo)

Essential Ojibwemowin

eshkanag—horns, antlers

Register your harvest

Off-reservation hunters are reminded that harvest registration is required by tribal conservation codes for many species. Hunters have multiple registration options for deer, bear, turkey, and cranes: in-person, at a tribal registration stations (see *data.glifwc.org/registration* for a map of locations), online (*glifwc.nagfa.net/online*), or by phone (844-234-5439). Swans must be registered in-person.

The benefits of harvest registration are substantial, extending well beyond an exercise in indigenous sovereignty and self-regulation. As co-stewards, tribes work with state and federal counterparts to determine population abundance and coordinate management for a variety of fish and wildlife species. This requires an accounting of both tribal and non-tribal harvest. Having an accurate measure of off-reservation tribal harvest also helps to identify and prioritize important places for protection.

For hunters seeking chronic wasting disease (CWD) testing for their whitetail harvest, in-person registration is the first choice. Clerks will register the deer and most tribal registration stations are set up to take possession of the head for CWD testing—lymph nodes are typically removed to complete a CWD test.

Good luck to hunters of all ages. It's a great year to take a kid hunting and pass on your knowledge.

2024-2025 Season

NAGDA ID #: 6366 **Tribe:** BRV
Name: JON DOE
Address: 777 Traditional Way Odanah, WI 54861
Phone: 000-000-0000 **Hunter Safety #:** 12345657
Remote Registration (deer, bear, turkey, crane): 1-844-234-5439 or *glifwc.nagfa.net/online/*
More Information: *data.glifwc.org/regulations*

SMALL GAME	CAMPING	GATHERING
Turkey Spring - MI/WI	**National Forest Camping**	**Firewood**
Stamp # 246845	Stamp # 223744	Stamp # 223745

Sample license with NAGFA ID highlighted.

Eye on future forests

GLIFWC, LVD cache wiigwaasaatig and baapaagimaak seeds

Watersmeet, Mich.—If you happened to be driving along remote roads in the Ottawa National Forest in late summer, you may have noticed a group of people with yellow hard hats standing on the side of the road, using binoculars and craning their necks to see into the tops of tall trees.

Or maybe you saw one of them teetering under a comically tall pole pruner or crouching down to fling a beanbag over a branch with a slingshot. If so, you spotted the GLIFWC Climate Change team and the Lac Vieux Desert nursery and natural resources crews working together to collect miinikaanan (seeds) from wiigwaasaatig (paper birch) and baapaagimaak (black ash) mitigoog (trees).

Seed collecting is a sometimes-awkward endeavor that takes specialized equipment and lots of practice. Timing is important, as the seeds need to be fully developed but also need to be collected before they fall to the ground. Wiigwaasaatig catkins are collected in late July/early August, and baapaagimaak are usually collected in early to mid-September.

Once seeds are located and the timing is right, each tree is offered asemaa (tobacco) and asked for permission to share their seeds. Some mitigoog choose not to share with us, but when they do, we use one of several methods to obtain seeds depending on the size and shape of the tree.

If a tree is open grown, it is sometimes possible to hand-pick seeds. For taller trees, a pole pruner with multiple 6' extension poles will work. For the tallest trees, an arborist's slingshot can be used to throw a beanbag attached to a rope over a branch, and a pocket chainsaw can be tied to the end of the rope and hoisted over the branch. Then, the collector stands underneath the tree to saw the branch. Once the branch is cut, the seeds are picked off the branch by hand. Our team always leaves most of the seeds on the tree and takes just enough for us to keep and place in storage.

Long term viability

The climate change program has collected wiigwaasaatig and ash seeds since 2017. This year, at the suggestion of Lac Vieux Desert Tribal Historic Preservation Officer Alina Shively, Lac Vieux Desert nursery and natural resources crews joined the effort, working hard to learn the various techniques for collecting seeds.

The nursery crew, led by Brian Hockaday, are members of a new partnership between the Lac Vieux Desert Band and the US Forest Service's JW **(see Safe storage, page 14)**

Garrett Williams and Edmond Williams cutting down a wiigwaasaatig branch with a pole pruner. (B. Hockaday photo)

Ganawenindiwag team receives recognition for leadership in climate adaptation

By Bay Paulsen, Staff Writer

The team behind the popular guidebook, *Ganawenindiwag: Working with plant relatives to heal and protect Gichigami shorelines*, published by GLIFWC's climate adaptation team in partnership with Ojibwe knowledge-keepers, received an honorable mention in the 2024 Climate Adaptation Leadership Award for Natural Resources. This year's winners were announced on October 8th.

The annual award, sponsored by the Association of Fish and Wildlife Agencies, celebrates individuals, tribes, businesses, and organizations who demonstrate exemplary leadership in reducing impacts or advancing adaptation strategies for our plant, fish, and wildlife relatives in the wake of climate change.

The *Ganawenindiwag* guidebook focuses on building relationships between people and native plants to cooperatively adapt to eroding shorelines and other effects of climate change. The title, Ganawenindiwag, means "they take care of each other." It prioritizes traditional ecological knowledge as a legitimate way of understanding the world, in order to affirm Ojibwe culture, language, plant knowledge, and treaty rights; presenting plants and people as stewards of each other, rather than one "using" the other as a means to an end.

This award has been an important recognition of traditional ecological knowledge in the field of climate adaptation.

"To my knowledge, this was the first climate adaptation award given to a team led by tribal knowledge-holders," says Rob Croll, GLIFWC's Climate Change Coordinator.

The book has over 70 full-color pages of information about different shoreline habitats, a guide with Ojibwemowin and English plant names that highlights the plants' habitat, behavior, and relationship to Ojibwe people, and finally a guide to starting restoration projects using the information provided.

It is already being considered by GLIFWC's partners to inform next steps in climate change adaptation plans, including in the restoration of the Fish Creek Slough, located only six miles from the Bad River reservation. The Superior Rivers Watershed Association plans to remove cattails from the sloughs beginning in August of 2025 in order to reseed the area with plants mentioned in the guidebook. In the meantime, they will hosting opportunities for the public to offer input about the project.

Members of the *Ganawenindiwag* team include Rob Croll, GLIFWC; Hannah Panci, GLIFWC; Kathleen Smith (Gakiiwe'onaning/Keweenaw Bay Indian Community) and GLIFWC; Nisogaabokwe Melonee Montano (Gaa-miskwaabikaang/RedCliff Band of Lake Superior Chippewa) and GLIFWC; Karina Heim, Lake Superior National Estuarine Research Reserve; John Kriva, University of Wisconsin-Madison Extension (former employer); Shailah Handy, University of Wisconsin-Madison Extension; Kelly Beaster, Lake Superior Research Institute (former employer); Marisa Lee (Miskwaagamiiwi-zaaga'igan/Red Lake Nation descendant); Frank Montano (Gaa-miskwaabikaang/Red Cliff Band of Lake Superior Chippewa); Dan Powless (Mashkiiziibii/Bad River Band of Lake Superior Chippewa); Becky Lemieux (Mashkiiziibii/Bad River Band of Lake Superior Chippewa); Jeff Savage (Nagaajiwanaang/Fond du Lac Band of Lake Superior Chippewa); and Vern Northrup (Nagaajiwanaang/Fond du Lac Band of Lake Superior Chippewa).

A downloadable copy of *Ganawenindiwag: Working with plant relatives to heal and protect Gichigami shorelines* can be found at *glifwc.org/ClimateChange/ganawenindiwag.pdf*.

Juvenile namewag help drive modern science with traditional observation

By Bay Paulsen, Staff Writer

Making observations has always been a pillar of tribal knowledge—getting to know your land and the relationships between it, the plants, and the animals, and understanding how you fit into it. In today's world, traditional knowledge and modern science are seen as separate, sometimes even contradicting, but at GLIFWC, tribal knowledge and observations compliment modern science.

During the early 1980's, Mike Plucinski, a Great Lakes technician at GLIFWC, was fishing with his father for ogaawag (walleyes) at the mouth of Mashkiiziibii (the Bad River), practicing his rights as a Bad River tribal member. As he pulled his net into the boat, he noticed that he had been catching a significant number of juvenile namewag (lake sturgeons) near the mouth of the river, especially in his 4.5-inch mesh net.

Using this experience, Plucinski and fisheries biologists at GLIFWC developed a standardized yearly assessment beginning in 1994 to document trends in the abundance of the juvenile sturgeon population in the Chequamegon Bay region.

In an effort to control sea lampreys in Lake Superior, chemical lampricides are used to treat streams that flow into the lake, and there has been concern that these chemicals are harming sturgeon populations. However, the data collected by Plucinski and his team has shown that not only are the sturgeon not being affected by the lampricides, but they are also steadily gaining in population.

Initially, there was worry among the public that using gill nets would harm the fish, given that the net's design is meant to entrap a fish's gills, hence the name. But Plucinski observed the juvenile sturgeons being caught at their pectoral (side) fins, rather than the gills, which left the fish entirely unharmed.

To test this observation further, GLIFWC tested multiple kinds of nets—the 4.5-inch mesh size, smaller and larger mesh sizes, and fyke nets, which work to funnel fish rather than entangle—and biologists concluded that the original 4.5-inch mesh net was indeed the one that could catch the most amount of sturgeon with very little harm.

Additionally, conducting the assessment during late June through July avoids the walleye run and other significant fish movements in the area, greatly limiting any bycatch and harm to other species.

Noticing the success in GLIFWC's juvenile sturgeon assessments, the Lake Superior Technical Committee began conducting their own assessments across the entire lake. They modeled their procedures off of GLIFWC's, keeping the 4.5-inch mesh as the standard for juveniles and using larger sizes for assessments of older sturgeon.

Bad River tribal member and GLIFWC Technician Mike Plucinski (left), helps Summer Intern Tori Vosburg (right) gently tag a juvenile lake sturgeon with a tracking number during the summer assessments. (B. Paulsen photo)

Danger in warming waters

Now in the 2020s, a new problem is becoming apparent. After 30 years of conducting this same assessment, Plucinski is beginning to notice that some of the juvenile sturgeons are not surviving the data collection process. This process, which they have always survived before, includes being brought onto the boat, measured, weighed, and given a tracking device.

"Up until last year, we haven't had a fatality in, say 14 years," Plucinski estimated after gently lowering another sturgeon into the water and watching it struggle to recover, unsure if it would survive. "The water's just been so warm," he lamented. The vast majority of the sturgeons that go through the data collection still remain alive and well, but the few that don't have become a worrying trend to GLIFWC's biologists.

According to the Great Lakes Commission, Lake Superior is currently one of the fastest-warming lakes in the world. This adds a significant amount of stress on the bodies of lake sturgeons, as well as the lake's other cold-water fish species namegos (lake trout), adikameg (whitefish), odoonibiins (herring), and ogaa (walleye).

(see Gichigami giigoonh, page 23)

Name by the numbers

By Jenny Van Sickle, Staff Writer

Brookston, Minn.—On a mild September evening, Fond du Lac's Natural Resources Department gathered at a boat launch to release approximately 1,750 "advance stage" sturgeon fingerlings into Gichigami-ziibi (St. Louis River).

"This spring's egg-take was really healthy," said FdL Fisheries Biologist Eric Torvinen. Lake Sturgeon are known as name (pronounced nah-may in Ojibwemowin).

At four months old, some of the fingerlings already measured eight inches long, making this year's class some of strongest name the department has seen since the band started their stocking program in 1998.

This year's sturgeon class were released in two batches. FdL Natural Resources Program Manager Thomas Howes explained that the first 7,000 fingerlings were released in early August and measured 1-3 inches.

Thanks to lower river levels this year, their operation started by working with naturally spawning females from the river, collecting eggs plus milt from male sturgeon to achieve fertilization. From there the fish were hatched and raised in Genoa, Wisconsin for the first time in partnership with the US Fish & Wildlife Service to restore healthy fish populations in the region.

The process is much more efficient than the secondary method of catching newly hatched larval fish in modest numbers and rearing them in a streamside water-fed trailer.

"The past two years we had too high of flow in the river and had to opt for Plan B, which is where we go to the river and capture naturally hatched fish as they swim down river as tiny larvae, that only yields hundreds, not thousands, of fish," said Howes.

At the turn of the 20th century, name populations experienced serious decline despite the fish being able to live 100 years. The FdL Natural Resources Department estimates that 80-90% of this year's fingerlings are likely to survive. To help monitor the fish, each of the fingerlings is outfitted with a tiny PIT tag that has detailed identifying information and will alert remote antennas throughout their lifecycle.

FdL member Veronica Smith and her daughter were among a group of community members to join the effort. She said she felt lucky to be releasing the sturgeon: "I was thinking 'you're free, have a great life'" she said.

After the fish were released Fond du Lac's long-time Lead Fisheries Technician, Terry Perrault motioned to the small crowd to watch the water, "when they start to get comfortable, you'll start to see the sturgeon circle around and pop their heads up." As the staff and their families watched the sturgeon swim around, occasionally breaking the surface, Perrault added, "This is their future, this their homeland, this is a day they'll always remember."

← ***Baashkine'aanakwad, 10 carefully lowers a bucketful of sturgeon fingerlings into the St. Louis River at a Brookston boat landing. (JVS photo)***

"Tribal Bat Blitz" brings together Michigan biologists

Assessment work focuses on White Nose Syndrome

By Jenny Van Sickle, Staff Writer

Baraga, Mich.—Keweenaw Bay Indian Community (KBIC) Natural Resources Department hosted a mid-August "Tribal Bat Blitz" to share their species assessment knowledge with other resource managers. Bay Mills Indian Community Biological Services Division, plus Pokagon Band and Little Traverse Bay Band natural resources departments participated in the event to expand their understanding of bat ecology and the distressing fungal ailment, white nose syndrome.

"Late summer is an ideal time to deploy mist nets because there's a relatively short window between June/July when their pups are born and before they move to a place to overwinter," said KBIC Wildlife Coordinator Kyle Seppenen.

Seppenen has worked to preserve and restore bat populations in Michigan's Upper Peninsula for the last decade in response to the rampant devastation that white nose syndrome had on bats across large swaths of the United States. Michigan and much of the Ojibwe Ceded Territory have been affected.

Agency staff from Michigan Department of Natural Resources and the US Fish & Wildlife Service (USFWS) also joined in on the collaborative effort to partner-up with tribal staff on their data collection and skills. Biologists strategically placed 20-foot mist nets "triple-high" near wetlands, across rivers, and near areas where insects are likely to be active at dusk. Over their three nights of netting, biologists were optimistic for a good catch thanks to mild, cloudy weather; one night a full moon lit up the sky, foiling the otherwise perfect conditions.

Researchers were hoping to catch northern long eared or tricolored bats; both species were added to the US Fish & Wildlife Endangered Species list in 2022. Bats are protected in Michigan, and it is illegal to kill or harm them. Pictured biologists examine a big brown bat during the Tribal Bat Blitz. (K. Seppenen photo)

"Bats have excellent eyesight, the moonlight or too much wind can expose the nets, explained Seppenen.

While hopes of tagging the endangered northern long eared bat didn't materialize, researchers were able to collect data on four of the seven species native to the Upper Peninsula area: the silver-haired bat, red bat, big brown bat, and little brown bat. For USFWS staff, the August netting presented an opportunity to capture bats to explore genetic testing.

"From what we can tell the little brown bat might be better resistant to white nose syndrome," said Seppenen. The USFWS researchers took a small wing punch (which heals quickly) from the little brown to search for any potential natural immunity, or genetic properties that can be duplicated.

In part, the Bat Blitz served as an important step in building professional capacity in the region. Seppenen is earning his Endangered Species Permit in order to handle bats in a mist net without being accompanied by another permit holder.

"Agencies typically only have one or two bat biologists on staff to cover an entire state," Seppenen said.

White Nose Syndrome is a fatal infection for bats and still spreading. Yet biologists are seeing some stabilization in recent population surveys, and they **(see White Nose Syndrome, page 22)**

US Forest Service, Ojibwe tribes convene for MOU review

By Charlie Otto Rasmussen Editor

Carlton, Minn.—More than a dozen US Forest Service Region 9 staff officers met with GLIFWC-band representatives at the annual meeting to review progress and hurdles with their 1998 Memorandum of Understanding (MOU).

A lengthy document with an equally massive title, *Tribal—USDA Forest Service Relations on National Forest Lands within the Ceded Territory in Treaties of 1836, 1837, and 1842*, the MOU details Ojibwe treaty guidelines for harvest and use of four National Forests in Wisconsin and Michigan.

The Nov 6 agenda at Fond du Lac Band's Black Bear Event Center encompassed collaborative work on everything from law enforcement investigations to habitat enhancement projects. That long MOU title also came up.

"It may be time to consider some updates," said Ann McCammon Soltis. "The title is a mouthful, and it would be appropriate to use the Ojibwe language in the title."

McCammon Soltis, director of intergovernmental affairs at GLIFWC and a MOU co-chairperson, introduced the Commission's language instructor Michael Waasegiizhig Price who shared title language for consideration.

In addition, the parties expressed interest in reviewing general wording within the MOU document to determine if, after 26 years, a fresh analysis would generate appropriate revisions to National Forest land use guidelines.

Issues with implementing no-fee camping for treaty-tribe citizens and utilization of decommissioned USFS campgrounds rose to the fore during a day of far-reaching discussions.

Sokaogon Mole Lake's Wayne LaBine called for a more user-friendly camping reservation process and reminded Forest Service officials that Wisconsin tribes remained very much interested in repurposing one the Chequamegon-Nicolet National Forest's decommissioned campgrounds as site for an Ojibwe harvesting and cultural camp. Tony Dixon the new USFS Region 9 supervising forester set a 90-day goal for his agency to respond with a land-use proposal for the tribes to consider.

In Upper Michigan, a research and mitigation project between the USDA Northern Research Station and Keweenaw Bay Indian Community (KBIC) is off to strong start.

MOU partners in coordination with academic institutions are using phytoremediation to clean up legacy mining known as stamp sands on the band's L'Anse Reservation. Specialized trees planted by tribal and USDA staff in the sands—dumped a century ago along the Lake Superior shoreline—are expected to breakdown or otherwise "clean" the site of toxic heavy metals.

Agency leaders provided an update to the Voigt Intertribal Task Force on November 7 following the annual Tribal/Forest Service MOU meeting. Photo from left: Tony Dixon, US Forest Service Region 9 Forester; Ann McCammon Soltis, GLIFWC Director of Intergovernmental Affairs; and Cindi West, Northern Research Station Director. (CO Rasmussen photo)

"These stamp sands are impacting cultural resources right around the corner of the lake," said Chris Swartz KBIC representative. "I look forward to the future and those stamp sands being cleaned up."

For more than a quarter-century, implementation of the MOU continues to be successful because of the shared commitment of the tribes and the Forest Service. See Celebrating 20 Years of Implementing Tribal Treaty Rights *tinyurl.com/3cd45vr2* for more information.

Recent arrival packs a nasty punch (but only if you eat it)

Poison "hemlock" and its native relatives

By Steve Garske, GLIFWC Invasive Species Coordinator

Readers may have heard the story of how the Greek philosopher Socrates drank poison hemlock tea to avoid execution. In July 2024 a small colony of this notable plant was found along the Waterfront Trail in Ashland, Wis. by the Northwoods Cooperative Weed Management Association (NCWMA) invasive plant control crew. Native to Europe and Asia, poison hemlock *(Conium maculatum)* is widely established in North America.

This population was a bit of a surprise though, as it was one of the few known from the Lake Superior watershed, and the only one in northern Wisconsin. Another, somewhat larger colony was found in late August by GLIFWC staff, near the town of Turtle Lake in northwest Wisconsin.

Just to be clear, poison hemlock (also known as spotted hemlock or fool's parsley) is not related to the familiar hemlock tree! Instead, it is a member of the carrot or parsley family (Apiaceae, formerly Umbelliferae).

It is typically a biennial—the plants germinate and form non-flowering rosettes their first summer, and bolt, flower, produce seeds and die by the end of their second summer. It often colonizes moist, disturbed, sunny to partly shaded habitats such as roadsides, fields, ditches, river and stream banks, as well as pastures and borders of plowed fields.

Second-year plants produce a branching, greenish stem with dull reddish blotches, and can reach more than eight feet tall. The upper branches are topped with circular clusters of small white flowers, similar to those of the familiar Queen Anne's lace. The stem and leaves have a pungent, unpleasant odor when crushed.

Poison hemlock in bloom. (Ansel Oommen, Bugwood.org). Inset: Poison hemlock leaves are highly dissected, and resemble Queen Anne's lace or cultivated carrot leaves. (SG photo)

Poison hemlock stalks with seed. Inset: The plants produce these hollow, red-mottled green stalks their second year. (SG photos)

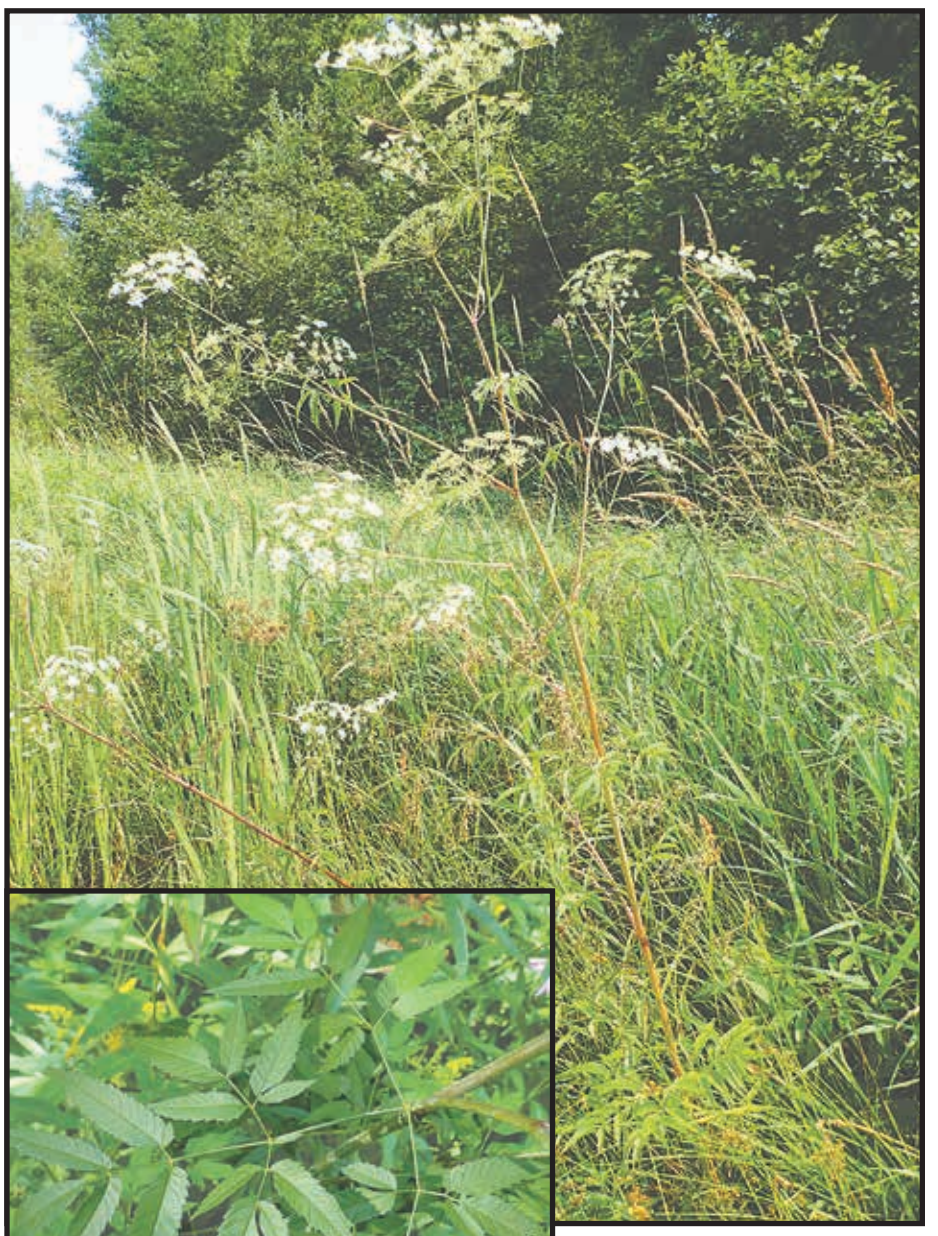
Poison hemlock plants produce chemicals called piperidine alkaloids, which are highly toxic if ingested. The most lethal of these are coniine and coniceine. Both are powerful neurotoxins that attacks the central nervous system, causing death via respiratory paralysis. They are also known to cause congenital birth disorders in the young of pregnant deer and other grazing mammals.

Bulblet hemlock has wispy, compound leaves. Inset: Mature plants produce tiny bulbs along their upper stems. (SG photos)

Poison hemlock has several close relatives that are native to Turtle Island. Common water hemlock (*Cicuta maculata*, Ojibwe apaakwazigaans, other names include apagwasî'gons or abagwasî'gans) and bulblet water hemlock (*Cicuta bulbifera*, Ojibwe apaakwazigaans) are both fairly common in bog edges, swamps, marshes, wet meadows, shorelines, and ditches. Both are perennial herbs.

Both produce a set of toxins that include cicutoxin, which make them perhaps the most poisonous plants in the northern hemisphere. These toxic compounds are found in all parts of these plants, with the underground parts and seeds being the most toxic.

Like poison hemlock, they are highly toxic to nearly all mammals (including humans) and some birds, including chickens and turkeys. Symptoms include delirium, stomach pain, nausea, vomiting, convulsions, seizures, suffocation and death. **(see Poison, page 15)**



Common water hemlock in bloom. Inset: This species has doubly compound, more or less triangular leaves. (SG photos)

Community unites for reseeding effort on Lake Lac Vieux Desert

↑11-year-old Blessing Shively from Lac Vieux Desert throws manoomin into Rice Bay. This is her first year aiding in the tribe's reseeding efforts and is excited to participate again.

➔Just over 6000 pounds of green rice, purchased from the Leech Lake Band of Ojibwe, sit just under the water at the tribal landing on Lake Lac Vieux Desert to be spread across Rice Bay.

(B. Paulsen photos)

By Bay Paulsen, Staff Writer

In the early morning of September 16, 6000 pounds of fresh, green (unprocessed) manoomin rested in large white sacks, sitting gently under the water's surface on the shore of Lake Lac Vieux Desert.

Just a short walk away, a buzz of excitement and anticipation hung in the air as volunteers and community members of the Lac Vieux Desert Band of Ojibwe gathered in the community's roundhouse. The day that followed would be a busy one, playing a key role in the tribe's effort to restore wild rice to their homeland.

Historically, Rice Bay, located on the northeastern part of the lake, held an abundance of manoomin (wild rice). But the traditional crop has suffered since a hydroelectric dam on the southwest corner of the lake built in 1907 began manipulating water levels, a process which can damage entire rice beds, especially during the plant's vulnerable growing season.

On top of this, the manoomin of Rice Bay experiences the same factors driving down rice abundance in the rest of the Great Lakes region, including climate change, pollution, and the spread of non-local species. Because of this, Lake Lac Vieux Desert has not seen stable rice growth since the early 2000's, and even then, it was only a few good years in a row.

So, in conjunction with efforts to establish favorable water levels and discourage the growth of non-native species, the band reseeds Rice Bay every year during manoomin harvesting season when kernels would naturally be falling off the stalks and into the water.

The Lac Vieux Desert Band purchases unprocessed rice from tribes further west in Minnesota who have not experienced as severe of a decline in their rice beds, then hand scatters the seeds across the bay in order to encourage reestablishment.

Seeking success in ceremony

Gathering that morning in the roundhouse located on tribal land on the lake's north shore in the historic Getegitigaaning Village, the community sang drum songs, smoked a pipe, and had a feast to offer to the rice before it would be scattered over the water. Elders who attended the morning ceremony in support of the reseeding efforts gave encouragement, shared memories of the village, and offered words of spiritual wisdom.

Putting down asemaa to ask for safety on the water, the group set off, paddling six canoes and driving two flatbottom motorboats, plus a pontoon. Those in the canoes focused their efforts on throwing seeds between the dense stands of lily pads while the larger boats served mainly as restocking stations outside of the dense weeds, carrying 400 pounds of rice or more in each trip. While the canoes repeatedly came back to resupply, volunteers in the large boats joined in by tossing seeds as well!

Alan Shively, Lac Vieux Desert Conservation Committee's chairman, explained his strong belief that the decline of manoomin in the region began when tribal members started to lose sight of the relationship their ancestors had with it.

"We stopped using the rice," he said while talking about the history of the tribe and the hardships they have faced. "We hardly ever use rice in feasts—no fish. So, the Creator looked at us and said, 'You don't want this rice anymore? I'll grow you a lake full of lily pads then.'" He urges tribal members to get out

(Manoomin reseeding, page 14)

Joseph Rainey, 16, Lac du Flambeau tribal member, holds up a handful of unprocessed rice before tossing it into the water. (B. Paulsen photo)

1.9 Million dollar grant secured for intergovernmental manoomin stewardship in Wis

By James Rasmussen, GLIFWC Policy Analyst

In a significant stride towards preserving a crucial cultural and ecological resource, GLIFWC, Menominee Nation, Lac Courte Oreilles Ojibwe Band, and the Wisconsin Department of Natural Resources secured a 1.9 million grant through the National Fish and Wildlife Foundation's America the Beautiful Challenge funded by President Biden's Bipartisan Infrastructure Law.

This grant aims to foster intergovernmental collaboration for the shared caretaking responsibility of manoomin in Wisconsin.

Manoomin, known as wild rice in English and manomaeh in Menominee, holds profound spiritual, cultural, and nutritional significance for the Anishinaabeg and Menominee peoples. It is a staple food and central element to traditional stories and way of life. Manoomin wetlands also provide a critical habitat for fish, waterfowl and other more-than-human relatives.

Despite its importance, the abundance of manoomin has significantly declined over the past century due to climate change, habitat degradation, and other environmental stressors. This decline poses a threat not only to biodiversity but also to the cultural identity and traditional practices of the Ojibwe and Menominee tribes.

The grant, totaling $1,904,400.29, with an additional $278,896.00 in matching contributions by partners, will fund key objectives including:

1. Strengthening Relationships: Building stronger partnerships among state and tribal nations across the Ceded Territories to ensure cohesive and collaborative management of manoomin resources in Wisconsin.

2. Conducting Research: Investigating the many stressors affecting manoomin to develop informed management strategies. This includes understanding the plant's variability in abundance and the factors driving this variability.

3. Educational Outreach: Promoting awareness about the traditional and modern value of manoomin. This involves educating both tribal and non-tribal communities about the importance of wild rice and the need for its preservation.

4. Implementation Actions: Developing and executing detailed action plans and recommendations for the restoration and protection of manoomin among a diverse set of stakeholders who impact manoomin caretaking that will be identified as part of these efforts.

(see Manoomin stewardship, page 23)

Ceded Territory SCIENCE

Small mammal research project expands

By Jackson Tenney, for Mazina'igan

Beginning last summer, GLIFWC expanded its ongoing research of small mammal communities to new locations throughout the Ceded Territory.

Since 2018, GLIFWC has partnered with researchers at UW-Madison and other organizations to study the diversity and abundance of small mammal populations in the Great-Divide District of the Chequamegon-Nicolet National Forest, which intersects with the Bad River, Red Cliff, Lac Courte Oreilles, and Lac du Flambeau reservations. The program now includes sites in the Eagle-River/Florence District near the Mole Lake Sokaogon and Lac du Flambeau reservations.

One of the primary reasons GLIFWC studies small mammals is because of their role in the diets of waabizheshiwag (martens).

Waabizheshi is a clan animal (doodem) that represents community warriors. These valuable fur-bearing predators were driven extinct in Wisconsin by the 1930s, but thanks to over 40 years of reintroduction efforts from GLIFWC, the Wisconsin DNR, the US Forest Service, and others, they are beginning to make a recovery in the state.

Unfortunately, waabizheshi populations have been recovering more slowly than expected, and they are still considered endangered in Wisconsin. Researchers believe that one reason for this slow recovery could be a lack of their preferred small mammal prey, particularly southern red-backed voles.

Red-backed voles are among the highest quality foods available for waabizheshiwag, and can make up a significant portion of their diets in areas where their populations are stable. In Wisconsin forests, however, researchers have found that waabizheshiwag are consuming significantly more northern short-tailed shrews, which are believed to be an inferior food source.

Findings from this project indicate that populations of red-backed voles are lower than expected, while northern short-tailed shrews appear to be common. This observation is consistent with other research conducted throughout the Great Lakes region which shows that species which historically lived in the south are becoming more common in the north and may be starting to push northern species out of their traditional habitats. Southern red-backed voles are one of several species that reach the southern limit of their range in Wisconsin, and scientists are unsure what the future holds for it in the state as the climate continues to warm.

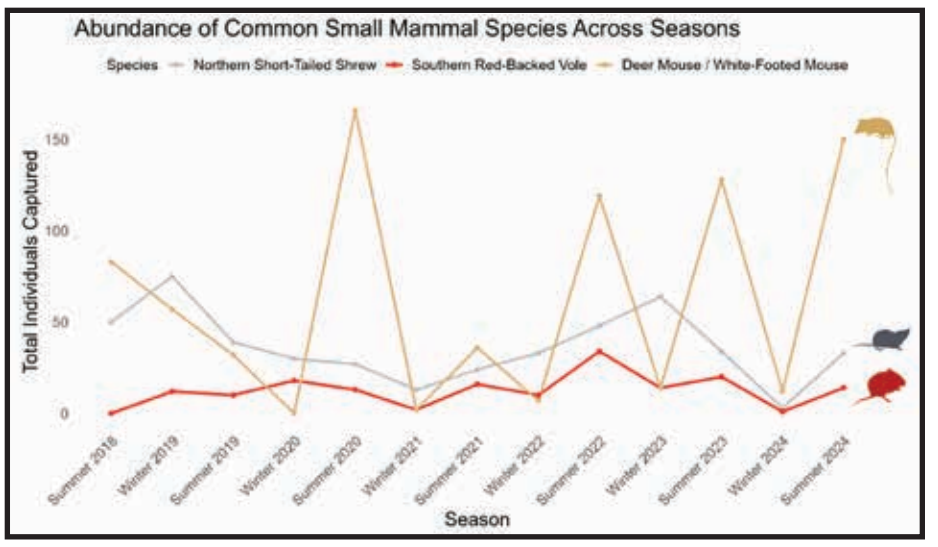


Figure 1: Researchers captured more northern short-tailed shrews than southern red-backed voles across all seasons. Red-backed voles are believed to be an important factor in the recovery of waabizheshi populations.

Southern red-backed voles are an important food source for waabizheshiwag (martens). They are one of several species whose ranges may shift northward from Wisconsin as the climate continues to warm. (B. Khadka photo)

White footed mice were historically found in southern Wisconsin, but have become increasingly common in the north, where they may be starting to displace the closely related deer mice that were historically more common here. (J. Tenney photo)

Afield in the Ceded Territory: Jon Pauli, professor of wildlife at the University of Wisconsin, GLIFWC's Jonathan Gilbert (with waabizheshi), and PhD candidate studying martens, Carly Scott. (Submitted photo)

Changes in small mammal communities affect more than just waabizheshiwag. Small mammals such as red-backed voles and deer mice are also a key food source for many other animals and play important roles in structuring forest communities.

Many species, for instance, bury seeds in caches to help themselves survive the harsh winter. When they fail to relocate these caches or when they die before they can recover them, the seeds have an opportunity to grow into new trees. Other kinds of small mammals, including red-backed voles, tend to specialize on mushrooms, and may help spread their spores to new locations where they can form new colonies.

Some scientists believe that small differences in behavior and food preferences among different species could lead to big changes in the types of forest communities that grow in an area.

The past seven years of data are helping GLIFWC identify habitats likely to have sufficient food supplies for waabizheshiwag and are also generating an important baseline that will help researchers monitor future changes in the ecosystem. Until this summer, however, only a small portion of the Ceded Territory had been surveyed.

By expanding the project, researchers aim to determine whether different factors are driving populations in different parts of the forest. Preliminary data from this year indicate that the small mammal populations in the two regions could be quite different, but it will take time to determine what factors are causing these differences and what they might mean for waabizheshi populations and for the future of the forest.

Ceded Territory SCIENCE Bonus

"Natural Selection": Mille Lacs ogaawag reveal preferred spawning locations

By Kayla Lenz, for Mazina'igan

Ogaawag (walleye *Sander vitreus*, plural) are part of the cultural identity of Ojibwe tribes that live in the Ceded Territories of the Upper Midwest, United States. They rely on giigoonyag (fish) and particularly ogaawag to meet subsistence, cultural, and spiritual needs.

It is important for the Ojibwe Anishinaabeg to protect all of their relatives for the next seven generations to come, so it is imperative that action be taken to preserve ogaawag.

Mille Lacs Lake, located in the 1837 Ceded Territory in central Minnesota offers a unique site for assessing the movement of giigoonyag (fish) throughout a large temperate lake. Ogaawag, though once abundant in Mille Lacs, have seen decreases in their population since the 1980's due to poor survival of juveniles from hatching to the second year of life (recruitment).

Several factors, including warming waters due to climate change, human activity in the lake and along the shoreline, invasive species, and overfishing contribute to poor recruitment. All of these threats can be observed in Mille Lacs Lake, and, given the changes in the ecosystem, ongoing habitat alteration, and uncertainty about ogaa recruitment, it seems prudent to investigate all aspects of spawning, specifically site fidelity.

In other large lake systems, ogaawag display spawning site fidelity, a behavior in which individuals aamiwag (spawn) at the same site for multiple years, making them especially reliant on a relatively small spawning area. It is estimated that anywhere from 70-95% of ogaawag will return to the same general location during the annual spawning period.

Starting at around three or four years old, ogaawag spawn shortly after ice-off in the ziigwan (spring) in the shallows, over rocks or gravel. This typically occurs concurrently with observations of the first spring peepers.

A female ogaa (walleye singular) will deposit as many as 100,000 eggs each year, but only 5-20% of them will hatch. Even fewer individuals will survive the fry stage. Identifying and protecting these critical sites may maintain annual recruitment of Mille Lacs ogaa.

GLIFWC and the Mille Lacs Band of Ojibwe seek to identify ogaa spawning sites over time, characterize habitat type, and quantify spawning site fidelity of adult ogaawag in Mille Lacs Lake by using a telemetry array. A total of 61 receivers examined the movements of 70 tagged adult ogaa during the spawning periods of 2019, 2020, and 2021.

Biologists surgically implanted ogaawag with acoustic transmitters that continuously "pinged" and information on their location, body temperature, and depth were recorded by receivers in the lake (Figure 1). This information was used to determine the proportion of ogaawag that displayed spawning site fidelity, and which areas of the lake were "hot spots" for spawning.

The results of this study provide strong evidence that ogaawag in Mille Lacs display spawning site fidelity at high rates (96%) and identified areas with rocky and/or hard substrate, lots of wind/wave action, and that are nearby to undeveloped shoreline to be hotspots of ogaawag activity during the spawning season. These "hotspots" included areas near Malmo Bay, Isle Bay, and Rainbow Island.

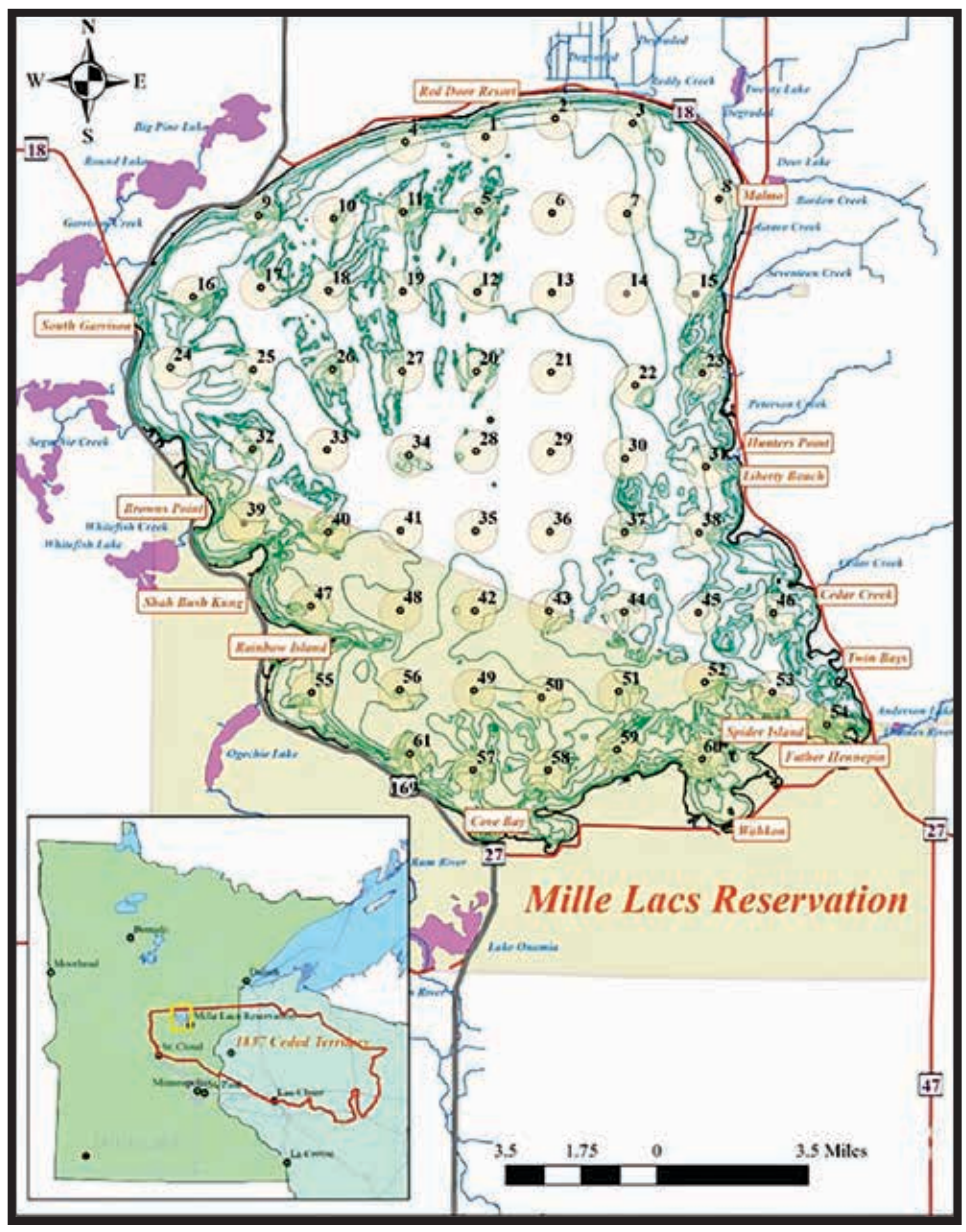


Figure 1. Map of Mille Lacs Lake, located in central Minnesota showing the Mille Lacs Reservation (beige boundary; main map) as well as the 1837 Ceded Territory (thick red line; smaller inset map). All 61 receivers are shown as well as their 800-meter detection ranges (tan circles around dots). Areas where ogaawag were tagged are indicated by orange text bubbles. Connected lakes and streams are labeled in blue.

This study also observed what is likely an occurrence of skipped spawning in a female ogaa. Female ogaa have long been theorized to periodically skip spawning, likely due to the large energy expenditure and/or decreasing lipid production as the fish ages. This phenomenon has rarely been observed with telemetry data prior to this study.

The findings presented in this study may be used to create new stewardship plans to protect in-lake, shoreline, and upland habitats near spawning aggregation sites in Mille Lacs Lake and these approaches may be applicable to other large lake ecosystems.

Findings from this research identify areas of the lake that are critical for ogaa spawning activities, increase knowledge held by stewards/managers about the reproductive ecology of this being, which may feed into decisions about Mille Lacs' ogaa fishery, and guide protection and conservation efforts in the lake and in adjacent terrestrial habitats.

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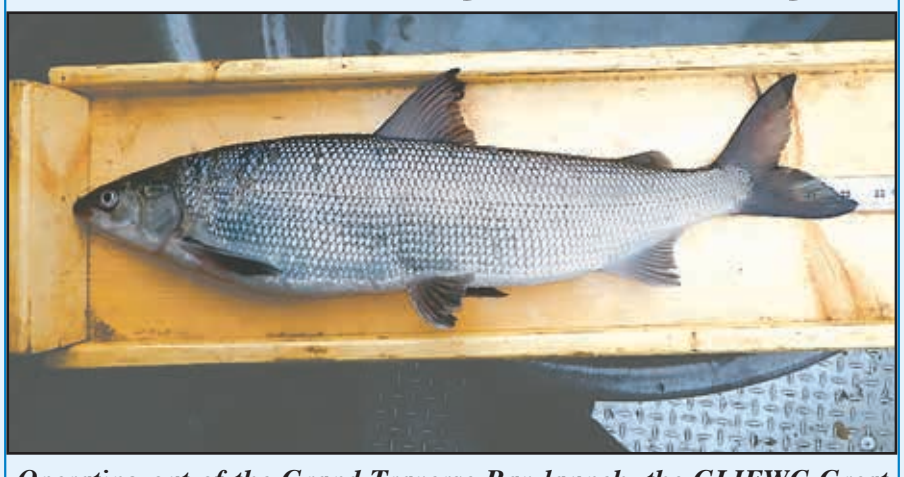
Assessment crew "in hot water" on fishery survey



Operating out of the Grand Traverse Bay launch, the GLIFWC Great Lakes Section assessment crew observed unseasonably warm temperatures this fall while conducting fall gill net assessments for spawning lake trout and whitefish. Nearshore water temps during the first week of November typically drop to around 40 degrees on the eastern side of the Keweenaw Peninsula, however the crew saw water temps as high as 51 degrees on November 7, 2024. The crew also generally sees higher numbers of whitefish getting ready to spawn nearshore around that time, but this year it appears that whitefish are behind on their spawning schedule, likely due to the abnormal water temperatures. —B. Michaels

At 40 years, GLIFWC in high form with sights set awasajiw

Regional award spotlights mature agency with "long commitment to cultural and environmental preservation"

2024 Lake Superior Magazine **Achievement Award**

Since its creation in 1984, Great Lakes Indian Fish & Wildlife Commission has continually increased its capacity to support member tribe's goals of environmental protection and enhancement, preserving Anishinaabe cultural values, and maintaining access to traditional resources reserved in treaties negotiated with the United States in the mid-1800s. Building on its original mandate, GLIFWC has expanded its services to include Ojibwe language and traditional foods programs, plus climate change adaption and traditional ecological knowledge capabilities. As a staff and an agency committed to doing our best work for Ojibwe tribes, for the Ceded Territory, we're honored for the recognition.

In honor of GLIFWC, its staff, and member tribes of Gichigami region

By Konnie LeMay
Lake Superior Magazine

Lake Superior Magazine Editor Konnie LeMay presented the 2024 Achievement Award to GLIFWC representatives during the Voigt Intertribal Task Force's (VITF) November meeting on the Fond du Lac Ojibwe Reservation. From left VITF Chairman Conrad St. John, LeMay, and GLIFWC Executive Administrator Jason Schlender.

For 30 years, *Lake Superior Magazine* has given out its annual Achievement Award to individuals or organizations that have made significant contributions to the well-being of Lake Superior and its peoples.

The award has been given to authors and photographers, to historians, to those who bring people together for the good of community and those who bring people together for protection of the Lake and the wild residents of its shores. We've even had the privilege of honoring a grandmother—Josephine Mandamin—who was the first Water Walker and who started her journey to protect water by circling Lake Superior.

Now I have the honor of presenting our 2024 award to an organization that covers a range of issues almost as far reaching as the lands covered by its member tribes. Its experts untangle questions of science and environment, treaties and law. It provides law enforcement and delivers education about the health of all the Lake's inhabitants. It promotes preservation and proliferation of the Ojibwe culture. Water—Air—Land—Heritage—all the basics of life fall into one or another area of concern for GLIFWC and its member communities.

It's so appropriate that one of GLIFWC's cooperative projects is called Ganawenindiwag because what the organization represents and reflects is exactly that—They Take Care of Each Other.

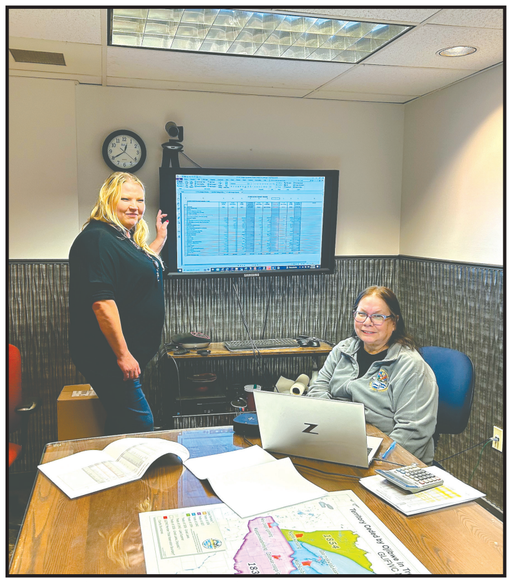
Through its publications, though its programs of education, through its partnerships with other environmental and cultural guardians, through working with a variety of governmental and private agencies, through its original research and monitoring—through all of its long reach and high goals—the Great Lakes Indian Fish & Wildlife Commission has become an organizational elder. It holds and can share wisdom and has become respected far beyond its original vision.

The organization gets the award, but it is the people within it, who created the honor.

Representing *Lake Superior Magazine*—and the four shores of the watershed we cover—I have the honor of announcing our annual Achievement Award to the Great Lakes Indian Fish & Wildlife Commission—along with its staff and its tribal members—for its long commitment to cultural and environmental preservation, to promotion of understanding and generous sharing of information of not just the Big Lake region, but the Great Lakes basin.

Chi-Miigwech—Thank you from the depths of our hearts and from the depths of the Lake.

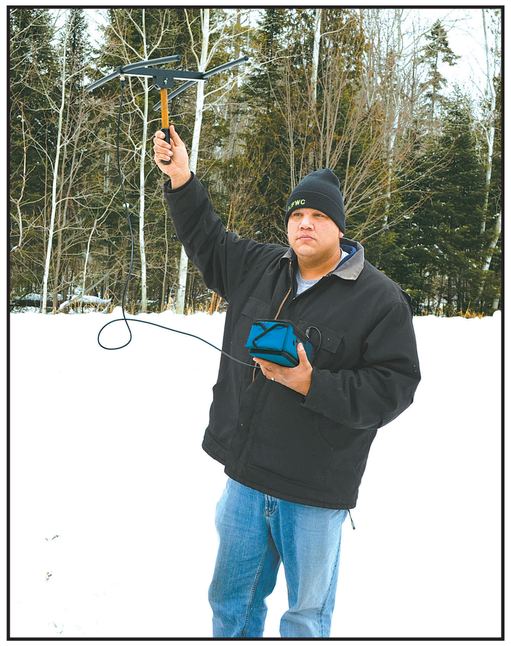
Editor's note: Near-verbatim, the author delivered these words to the Voigt Intertribal Task Force at Black Bear Event Center on the Fond du Lac Ojibwe Reservation, Minnesota on November 7, 2024.



Julianna Saari and Annette Crow are leaders in the accounting department where they oversee budgets, in addition to payrolls not only for GLIFWC permanent staff but hundreds of seasonal employees who help monitor natural resources across the Ceded Territory.

Fisheries Technician Ed White invests much of his time surveying fish populations and also encounters other beings like mikinaak.

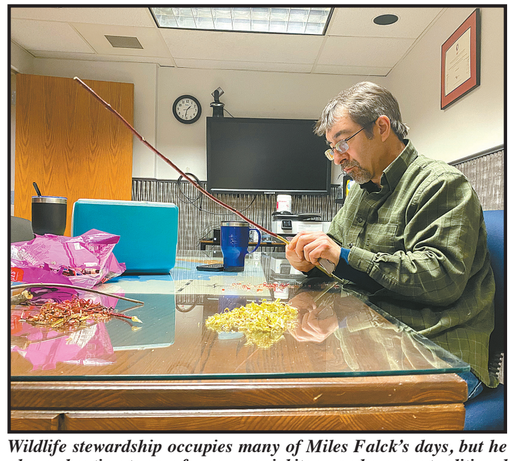
(D. Lagrew photo)



Adam Oja and other wildlife researchers track fur-bearers in Ceded Territory forests through radio telemetry to help determine population dynamics and important habitats.

On inlands lakes and Gichigami, Conservation Wardens Dan North and Jonas Moermond conduct safety patrols and enforce laws established by tribal codes.

Policy Analyst Ann McCammon Soltis provides legal expertise to GLIFWC and its member tribes and also participates in annual events like the Mikwendaagoziwag Ceremonial Paddle at Big Sandy Lake.



Wildlife stewardship occupies many of Miles Falck's days, but he also makes time to care for ceremonial items and prepare traditional asemaa blends.

(CO Rasmussen photos)

Habitat recovery, cultural preservation planning begins at Wisconsin Point

By Charlie Otto Rasmussen, Editor

Superior, Wis.—Seven years after the reacquisition of an historic piece of riparian ground, Fond du Lac Band resource planning officials are calling for proposals to restore approximately 11-acres of land at Gisbiskising Minis, or Wisconsin Point.

"Maybe it needs some prescribed fire. Maybe we want to abandon some rogue trails. Those are the kinds of things that I've heard," said Thomas Howes, FdL resources manager.

Following consultations with Fond du Lac Ojibwe leadership, the US Army Corps of Engineers turned the property over to the Minnesota tribe in 2017. A recent federal grant award is now providing funds to help move forward with restoration planning on the brownfield site that forms a gateway between Gichigami and the St Louis River estuary. While the band retains ownership and management authority of the parcel, which once served as a US Coast Guard station, public access to the sand dunes and swimming areas are expected to remain open.

"We're all sharing this space anyway. It's not about the ownership of the land so much as it is the caretaking of it," Howes said.

Support from organizations including GLIFWC and restoration project partner Lake Superior National Estuarine Research Reserve are among a host of resources available to Fond du Lac Band as planners consider cultural and ecological goals. The area is known for its network of rare Lake Superior coastal dunes.

"We'll be planning over [the next] two years. It will include a cultural survey and an archaeological survey that tells us what areas might be sensitive or that we need to stay away from," said Deanna Erickson, Lake Superior Reserve director. "This is a beautiful and important place that I think we all value. It's high time that it is cared for."

Ojibwe people are longtime stewards of the region surrounding the far western end of Gichigami, including the upstream territory of Gichigami-ziibi, or St. Louis River, home to Fond du Lac's 101,500-acre reservation. Located in the 1842 Ceded Territory amid the largest metropolitan area on Lake Superior, Wisconsin Point yields a rare natural canvas to collaboratively enhance habitats that hold both great historical and cultural value and provides a setting for future peoples to share responsibility for its well-being.

Situated at the western tip of Wisconsin Point, the 10.9-parcel once served as a US Coast Guard station. The Fond du Lac Band and Lake Superior National Estuarine Research Reserve are now spearheading planning to conduct cultural surveys and implement ecological restoration projects. (T. Howes image)
Inset: At a public gathering on Wisconsin Point September 18, Lake Superior National Estuarine Research Reserve Director Deanna Erickson invited input on restoration ideas for the brownfield site. (COR photo)

One of 30 coastal sites around the United States under the direction of the National Oceanic and Atmospheric Administration, Lake Superior Reserve has extensive local connections to educational and natural resource management organizations. Reserve staff and interagency scientists conduct research and monitoring across 16,000 acres of public lands and waters throughout the year. To learn more or provide input on Gisbiskising Minis, contact Erickson by email at *deanna.erickson@wisc.edu*.

Safe storage: Wiigwaasaatig & baapaagimaak seed collection

(continued from page 5)

Toumey Nursery, where they will be learning valuable skills in nursery and greenhouse operations.

The program is part of the broader Gete-Miinikaanan project, which aims to record the knowledge and memory of the band regarding their plant relatives to target vulnerable species for conservation, promote their establishment on treaty lands and increase access opportunities for gathering by tribal members.

The seeds collected by band crews will be stored in a tribal seedbank and cultivated in a tribally administered greenhouse, both hosted by Toumey Nursery.

The GLIFWC climate change program has focused on collecting seeds from wiigwaasaatig and baapaagimaak because GLIFWC member tribes have close relationships with these beings, and both are highly vulnerable to climate impacts.

Part of the LVD nursery crew and GLIFWC seed collecting crew. From L to R: Hannah Panci, Rob Croll, Lilly Newsome, L Wilkins, Edmond Williams, Garrett Williams, Brian Hockaday. (B. Hockaday photo)

While many people know about the emerald ash borer (EAB), it is the nonlocal cottony ash psyllid (CAP) that has been impacting baapaagimaakoog in northern Wisconsin and Upper Michigan for the past two years.

Warm winters allow both nonlocal beings to overwinter in higher numbers. Wiigwaasaatig is very susceptible to drought, and the pattern of hot, dry summers and warm, dry winters is also stressful for this being.

Seeds collected by GLIFWC staff are dried, cleaned, and shipped to the National Laboratory for Genetic Resource Preservation in Fort Collins, Colorado and stored in their facility at -18° C. In those conditions, wiigwaasaatig seeds can remain viable for 100 years or more, and baapaagimaak can remain viable for 40 years or more.

The seeds remain the property of GLIFWC and its member tribes, to be withdrawn when needed. With seeds in storage, there is hope for a continued relationship with baapaagimaak and wiigwaasaatig on the landscape.

—GLIFWC Climate Change Team &
Brian Hockaday, Ethnobotanist, Lac Vieux Desert Band of Lake Superior Chippewa Indians

Manoomin reseeding

(continued from page 9)

and harvest and to begin using the rice in the Ojibwe Ceded Territories as well as other traditional foods again. He hopes to set a good example by using traditional ceremonial elements like songs, pipes, and feasts to ask for the return of healthy manoomin beds in a good way.

And the efforts are beginning to pay off! Charles McGeshick, a Lac Vieux Desert tribal member and experienced knowledge-holder, stated how happy he was to see rice growing on the water this year. It wasn't yet abundant enough for harvest, but having even this meager growth has been a very welcome improvement.

It brings hope to tribal members that their prayers and efforts will successfully bring rice back to the lake for future generations.

Poison "hemlock" and its relatives

(continued from page 8)

Toxic native and non-native plant beings

Of course, these so-called "hemlocks" don't make these highly poisonous chemicals just to be mean. Coniine draws pollinating flies to the flowers, and also paralyzes some insects that may eat the plants. The parts of the plant that are most important for reproduction (underground parts and seeds) are also the most poisonous. Simply touching or brushing against these plants is OK, but it's a good idea to wear gloves and protective clothing if handling them, and to wash your hands before handling food.

Most human poisonings have occurred when people are out harvesting what they think is wild parsnip (*Pastinaca sativa*, Ojibwe pigwe'wûnûsk). The ancestor of the cultivated garden parsnip, wild parsnip is introduced from Europe.

Wild parsnip in bloom. (S. Garske photo)

For Ceded Territory foragers, the biboon off-season is a good time to study and prepare for upcoming harvest opportunities. Review printed and online plant guides and as always, consult experienced foragers about the nuances in the appearance of toxic v. innocuous plants.

Wild parsnip locally abundant along roads, pastures, power line corridors, and open woods. The most obvious difference between this plant and its poisonous relatives is that wild parsnip has yellow flowers, not white flowers! It also has pinnate leaves (similar to ash leaves), with wide, ragged-edged leaflets.

Unfortunately, the white taproot of first-year poison hemlock closely resembles that of wild parsnip. Also, chemicals in the sap of wild parsnip can cause serious burns when exposed to sunlight, so wear long pants, sleeves and gloves when handling this plant!

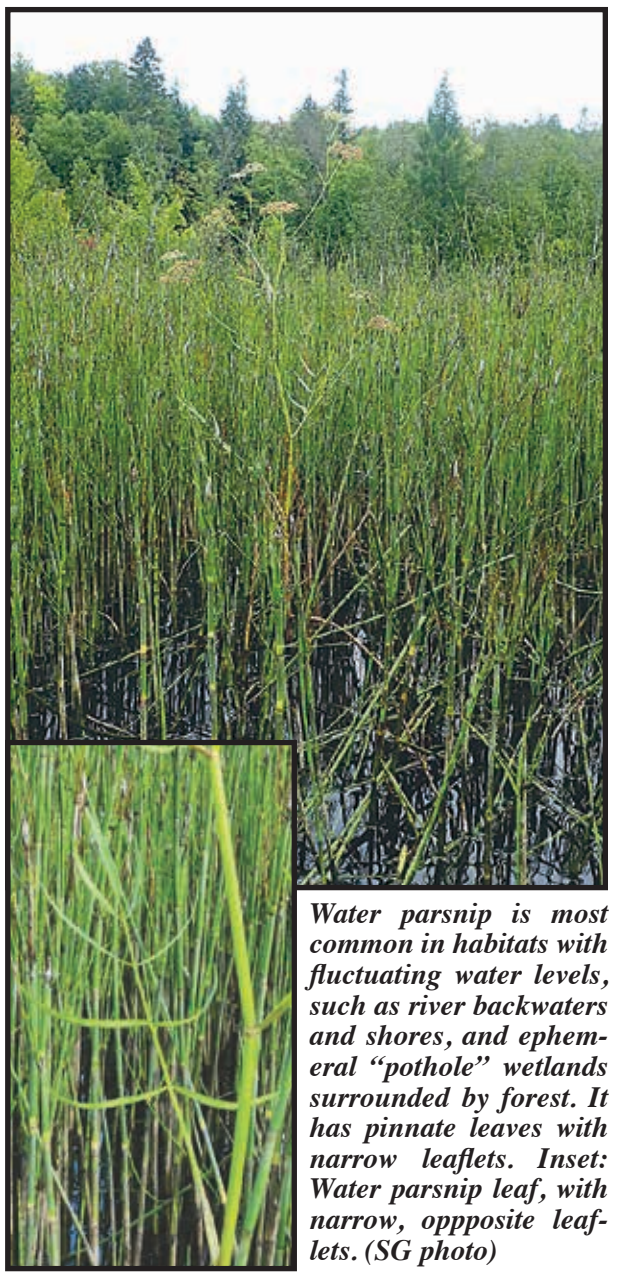
Another European introduction, Queen Anne's lace or wild carrot (*Daucus carota*, Ojibwe okaadaak), is also occasionally sought by foragers. Queen Anne's lace is the wild ancestor of the cultivated carrot. Like the poison and water hemlocks, it produces circular clusters of white flowers. And like poison hemlock, first-year wild carrot plants consist of a taproot with a rosette of lacy, deeply dissected leaves.

The leaves and stems of Queen Anne's lace are pubescent (covered with short hairs) though, while those of poison hemlock and both water hemlocks are hairless. Except for their carrot-like scent, the first-year taproots of wild carrot are unfortunately almost identical to those of poison hemlock.

Queen Anne's lace is a familiar plant of roadsides and fields. Inset: Deeply dissected leaves of Queen Anne's lace. (SG photos)

Indigenous look-alikes

The native water parsnip (*Sium suave*, Ojibwe maniwegoons or wane´mîgons) grows in similar habitats as the water hemlocks. It often grows as an emergent plant in shallow water as well. Water parsnip is reputed to be edible, though its close resemblance to the water hemlocks makes it a risky target for those whose plant identification skills may not match their enthusiasm for wild plant foraging!



Water parsnip is most common in habitats with fluctuating water levels, such as river backwaters and shores, and ephemeral "pothole" wetlands surrounded by forest. It has pinnate leaves with narrow leaflets. Inset: Water parsnip leaf, with narrow, oppposite leaflets. (SG photo)

Finally, two more native species—cow parsnip (*Heracleum maximum*, Ojibwe bibigwewanashk) and common angelica (*Angelica atropurpurea*, Ojibwe aanzhenii)—might be confused with poison hemlock. Both are usually much more robust than the "hemlocks", and both lack reddish blotches on their stems. (Angelica often has unblotched, deep reddish-purple stems.)

The impact of poison hemlock's spread into the Ceded Territory could be significant. Poison hemlock is well-adapted to disturbed habitats, which are common wherever humans live. Unlike the native "hemlocks" which generally grow in wet areas, poison hemlock also colonizes upland areas. It often forms dense stands, crowding out native species.

For more information and photos of these plants, check out these websites! Just type the common or scientific name into the appropriate box. (Both sites often require a dash in the common name, for example, "poison-hemlock.")

Wisconsin State Herbarium (Wisflora):
wisflora.herbarium.wisc.edu/index.php
University of Michigan Herbarium:
https://michiganflora.net/search

Finally—if anyone is looking to get out and harvest wild parsnip or wild carrot and isn't totally familiar with their potentially dangerous look-alikes, it is highly recommended that they start out with someone who is familiar with them, and consult a reliable source before heading out.

One good, printed source is "*Nature's Garden*," by Sam Thayer (2010, Forager's Harvest Press, Bruce, Wis.). This book includes excellent photos, along with a table listing the differences between wild carrot and poison hemlock. The table is posted at *permies.com/t/36733/Sam-Thayer-Chart-wild-carrot*.

Sustainable zhingob harvest yields long term benefits

Common in many northern Ceded Territory forests, the balsam fir, or zhingob, traditionally filled utilitarian roles in Ojibwe communities and remains valued for its medicinal properties. For recent generations, balsam provides seasonal income though the collection and sale of boughs to holiday wreath and garland manufacturers.

Following hard frosts in mid-October, balsam wholesalers have snapped up 20-28" boughs from hand-harvesters across the northern range. Prices are ranging from $.40-.50 per pound depending on the volume and quality of boughs. Although the market is smaller, white pine boughs are also being purchased. For both forest products, appearance is key to making a sale.

"You want to bring in nice green branches. No dead or diseased boughs," said Mike Bell, a buyer at Bad River reservation's Aspen neighborhood. "You can run your hand down the length of the branch to get any brown needles off."

Balsam boughs stacked in approximately fifty-pound bundles, bound in twine, is a standard technique to package the harvest, Bell said. At that size, bundles are easy to handle and load onto delivery trucks for shipment to holiday wreath and garland workshops. Bell said the balsam he purchases from local pickers ends up at a facility in Beloit, Wis. The

Balsam bundles awaiting shipment. (COR)

balsam bough season generally wraps up around the end of November, depending on consumer demand.

"Sometimes we'll get an order for a truckload late in the year," he said. "That's usually when bough prices are the highest."

For zhingobaandag pickers, the most important consideration is harvesting sustainably. Don't harvest from trees under five feet tall and always leave at least the upper half intact. Also, avoid cutting back to the tree's trunk and leave a segment with green needles for regeneration. Balsam is a renewable resource and can provide benefits for careful harvesters, wildlife, and all peoples long into the future. **–CO Rasmussen**

Splake fishery

(continued from page 1)

ings, and tail shape. Their coloration can vary, but they typically have a pale gray or olive-green background color with reddish-orange spots, like brook trout.

One of the most distinguishing features of a splake is its slightly forked tail, inherited from the lake trout parent. This sets them apart from brook trout, which have a squarer tail, whereas a lake trout has a more strongly forked tail. Splake fins can be a combination of red, orange, and white—another trait they share with brook trout.

Raised in hatcheries, splake were first introduced into Lake Superior in the 1970s as part of an effort to create a fast-growing fish species that could be harvested before succumbing to sea lamprey mortality, providing additional fishing opportunities for sport anglers.

Dane Lagrew, GLIFWC Fisheries Aide, picks a splake from an assessment gill net at Copper Habor. (B. Michaels photo)

With the splake's beauty, aggressive, feisty behavior and great taste, it's no surprise that anglers from the local area and beyond frequent the Copper Harbor area to try their luck at angling these prized fish.

While splake are propagated by stocking to diversify the sport fishery, there isn't evidence of interbreeding of wild lake trout and brook trout, possibly due to differences in habitat preference during the fall spawning season.

However, stocked splake have been observed to spatially overlap with lake trout and brook trout, drawing concerns from fisheries managers that the hybrid's presence may be posing a risk to their parent species through competition of limited habitat and food resources.

For example, the GLIFWC assessment crew frequently observes lake trout and splake exhibiting spawning behavior within the same rocky shoals at Copper Harbor; researchers from other agencies have observed splake coinciding with brook trout in various Lake Superior tributaries.

Because splake share similar habitat as its parent species in the wild, there are questions about whether splake interbreed with lake trout and brook trout, potentially leading to genetic introgression, meaning that genes from splake may be incorporated into the gene pools of brook trout and lake trout.

The effect of this means that unique genetic traits and adaptations that are currently present in lake trout and brook trout could be bred out of their populations, possibly affecting the parent species' ability to adapt to ever-changing environmental conditions.

In response to that concern, various tribal, state, and federal agencies, in cooperation with Michigan State University (MSU) and Wisconsin Department of Natural Resources Les Voigt State Fish Hatchery, are collaborating on a study that looks at this possibility.

The team is collecting fin tissue samples from brook trout and lake trout in Lake Superior while researchers at MSU are currently extracting and sequencing DNA from these samples to determine if there is evidence of genetic introgression in lake trout and brook trout. Results of the study could impact management decisions regarding future stocking of splake in Lake Superior waters.

By closely monitoring these fish populations, fisheries managers aim to ensure the long-term health and sustainability of Lake Superior's valuable fisheries resources.

Open house: history, status of the St. Mary's River

By Jenny Van Sickle, Staff Writer

Bay Mills Community College hosted the Bi-National Public Advisory Committee or BPAC, to engage the community and provide updates on the St. Mary's Area of Concern (AOC) while highlighting their work to restore the health of the waterway and habitats that have been underway since the late 1980s.

The BPAC is a multi-disciplinary group with broad membership from Tribal and municipal representatives, agency staff, public health and academic entities; following the AOC's designation in 1987 the BPAC was founded the next year to work with the public, inform decision makers, and help implement a clean-up strategy.

The St. Mary's River (in goldenrod) continues to recover from industrial activities.

"When I was a kid, I distinctly remember a line right through the river where one side was blue and the other was bright orange," recalled Canadian Co-chair Mike Ripley. Ripley spent his career working for the Chippewa Ottawa Resource Authority (CORA) until retiring in 2022.

The St. Mary's River is the shipping channel for the Soo Locks, separating Sault Ste. Marie, Michigan from Sault Ste Marie, Ontario and Lake Superior from Lake Huron.

On the river's Canadian side is the 2nd largest steel plant in the country. The Algoma Steel plant was one of the major contributors to the degraded water quality and orange (iron) hue prior to Ontario's industrial regulations that took effect in the mid 1990s.

Ripley emphasized that without active efforts to protect the water from pollution, the river's ecosystems are at risk, "There's an entire generation that has grown up being able to swim and catch fish in the St. Mary's River, and it's important for people know it wasn't always that way."

For more information, please visit *bpac.algomau.ca/?page_id=2809*. Or contact BPAC's US co-chair, Aubrey E. Maccoux-LeDuc *AMaccoux-LeDuc@baymills.org* environmental, water quality biologist with Bay Mills Biological Services.

White appointed to the IJC Great Lakes Water Quality Board

In an ongoing effort to elevate native voices on the health of shared water resources, the International Joint Commission (IJC) appointed Lac Courte Oreilles citizen and lifelong Twin Ports area resident Terry White to the Great Lakes Water Quality Board.

"We must do everything in our power, to do our part, in keeping our water and lands protected and clean for our future generations," White told Mazina'igan after his IJC selection.

Recognizing the importance of coordinated use and management of border waters, the governments of Canada and United States minted the Boundary Waters Treaty in 1909, leading to the creation of the IJC. The organization regulates projects that may affect water levels and investigates transboundary issues that impact the aquatic health of the region.

White's September 2024 appointment as a U.S. member of the Great Lakes Quality Board begins a three-year term for the longtime conservationist. He also serves as an appointed member of Douglas County's Land Conservation Committee and Board member of St. Louis River Alliance. The St Louis River empties into Lake Superior between the Twin Port cities of Superior, Wis and Duluth, Minn.

—CO Rasmussen

Monthly trainings maintain warden readiness

By Bay Paulsen
Staff Writer

GLIFWC wardens and Red Cliff PD maintain their rifles, zero in their sights, and practice shooting targets. (B. Paulsen photo)

GLIFWC wardens and the Red Cliff Police Department gathered at a Bad River reservation shooting range in October to perform handgun qualifications, refresh their emergency first aid training, and practice safe handling and operation of tasers.

"We really pride ourselves in keeping up with our trainings to be competent law enforcement officers for the tribes and the community," says GLIFWC's Lieutenant Steven Amsler who often organizes these trainings.

Occurring at least once per month, training days keep GLIFWC's officers proficient in the gear you'd expect law enforcement to carry such as handguns and tasers, as well as in emergency first aid like how to use a tourniquet, pack a wound, and perform CPR. This keeps them well equipped to enforce tribal codes within the Ceded Territories, but they are also trained to be assets in emergency situations. Urgent care may be required for tribal members while they are practicing treaty rights, such as cold-water rescues while ice fishing or gunshot wounds while hunting. They are also trained in safe vehicle operation, including snowmobiles and patrol boats.

Some trainings occur outside of the regular monthly meetings, such as working with the U.S. Coast Guard to practice in boat operation and rescues.

Many GLIFWC wardens are also certified instructors, which qualifies them to teach these skills to other wardens, tribal departments, or the broader GLIFWC staff such as in CPR trainings. GLIFWC's law enforcement officials are also skilled communicators, many of them conducting classes in hunter safety, trapping, archery, and canoeing, as well as attending career fairs.

"We definitely have the best job at GLIFWC," says Amsler. "Every day is a little bit different."

GLIFWC wardens are certified law enforcement officers who follow the Law Enforcement Standards Board under the Wisconsin Department of Justice and operate within the Ceded Territories across Wisconsin, Minnesota, and Michigan.

Field Warden positions and other employment opportunities can be found at *glifwc.org* under the employment tab.

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

PLACE STAMP HERE

Tape and stamp this form and return to GLIFWC by June 30, 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:

data.glifwc.org/phenology.calendar

Please print return address clearly:

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

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 June 30, 2025.

Great Lakes Indian Fish & Wildlife Commission

Ceded Territory omashkooz season

(continued from page 1)
ers were granted once-in-a-lifetime Wisconsin elk tags.

South of the Ojibwe Ceded Territory in Wisconsin's Central Elk Range, state hunters were issued an additional four bull-only tags. For the first time, the state opened elk hunting in the management unit centered in the Black River State Forest in 2024.

Across the Clam Lake area landscape—dominated by the CNNF—active timber management and permanent forest openings form a mosaic of rich omashkooz habitat. Here, Ojibwe hunters have experienced much of their success over the past seven seasons. In 2024 tribal tag-holders collected bulls on memorable hunts shared with family and friends from late September into the third week of October. But for Carley, elk encounters were fleeting.

"I probably burned 150 bucks in gas," Carley said with a chuckle. "But I saw a lot of nice country."

For more than two weeks, he racked up the miles on his Sierra pick-up truck driving across the northern zone from end-to-end. Carley restricted his trips to weekdays only, a strategy to avoid the black bear and grouse hunters that roved the woods on the weekends. Occasional cow elk sightings finally gave way to an encounter with a bull in the hardwoods of the Flambeau River State Forest.

"This one bull was a big one; over by the Conners Lake area," Carley said. "I had my scope on him and then it turned. I didn't want to take a chance on that shot and it walked away. Now that was a whopper."

An opportunity revisited Carley days later back in the CNNF east of Clam Lake. Down a logging trail, past blocks of clear-cuts and mixed pine stands, five cows and a bull elk grazed in a grass meadow. Two well-placed shots later, Carley had his omashkooz.

"You've just got to keep trying. Don't give up," advised the LCO elder.

Late season in the '36

In the Lower Michigan portion of the 1836 Ceded Territory, warm weather and heavy leaf cover played into an unsuccessful early omashkooz season for Bay Mills Indian Community. Capt. Don Carrick said tribal hunters hold five tags valid for the late season, which runs from December 14-22. With three off-reservation cow elk permits and two bull permits, the late season is poised to be productive BMIC citizens. Carrick said hunters will have one more opportunity to connect with omashoozoog during the limited tribal season at the end of the year.

At the Chippewa Lake omashkooz camp hunter orientation, GLIFWC Biologist Travis Bartnick reviews post-harvest guidelines. Successful hunters are required to submit biological samples from their elk for health testing. (CO Rasmussen photo)

While Michigan is home to a well-established, mature elk herd, state and tribal wildlife officials in Wisconsin restrict harvests to bulls-only to help grow the population. Recent estimates put the Lower Michigan herd at 1,200, while Wisconsin's Clam Lake elk range located within the 1837 and 1842 Ceded Territories contains around 380 animals. Another 140 animals make up Wisconsin's Central Elk Range.

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 June 30, 2025. Miigwech!

Biboon / Winter — Date/Location

- First white coat seen (snowshoe hare, ermine) _____
- First snowfall _____
- First snow that sticks _____
- First temperature below zero _____
- Ice storms/unusual storms _____
- Lake freezes (specify lake) _____
- First walleye caught through the ice _____
- First musky speared through ice _____
- First eagles at nests _____
- First snow fleas _____
- First ski / snowshoe _____
- First deer antlers dropped _____
- Last deer with antlers seen _____
- First day above freezing (32°F) _____

Other biboon observations:

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Ziigwan / Spring — Date/Location

- First flowers on trees _____
- First leaf buds bursting on trees _____
- First new needle growth on trees _____
- First maple sap flowing _____
- End of maple sap season _____
- First plants (species) _____
- First leeks harvested _____
- First wildflowers blooming (species) _____
- First fiddleheads harvested _____
- First deer fawns _____
- First bear _____
- First frogs calling (species) _____
- First walleye speared (lake) _____
- Walleye spawning (lake) _____
- First fish caught (species) _____
- First fish spawning (species) _____
- First suckers running (river) _____
- First arrivals of birds (species) _____

_____

- First woodcock mating call _____
- First grouse drumming _____
- First turtle laying eggs (species) _____
- First tick _____
- First mosquito _____
- First hummingbird _____

- First dragonfly _____
- First rain _____
- First thunderstorm _____
- First crusty snow _____
- Last snow before summer _____
- Last frost before summer _____
- First night above freezing (32°F) _____
- Ice out (specify lake) _____
- First canoe (lake/river) _____
- First mushrooms harvested _____

Other ziigwan observations:

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Zaasijiwan
•It Ripples•

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

Wiidookaage. Giwiidookaage na? Omashkikiikazhaas, mashkikiiwinini/mashkikiiwiniikwe. Bami'iwewag.
Nimiigwechiwenimaa. Gaye wiibidaakewinini/wiibidaakewikwe. Izhi, "Gichi-miigwech!"
Gaye, gimaamaa dash gidede. Maagizhaa gekinoo'amaaged, dakoniwewinini dash dakoniwewikwe, dash
mazina'iganiiwinini/mazina'iganiiwikwe. Gaye, giinawaa, gimiigwechiwenimininim!
Apegish menoseyeg gaye waawiyebii'iganing. Mino-giizhigad noongom. *Mii'iw, gichi-miigwech.*

(He or She helps people. Do you help people? S/he treats them/people, a medicine/doctorman/doctor-woman.
They heal/take care of people. I thank him/her. Also a dentist/dentist woman. Tell him/her! "Great/big-thanks!"
Also, your mother and your father. Maybe to "one who teaches," a policeman and a policewoman,
and paper/postal man/woman. Also, you all, I give thanks to you all!
I wish you all goodness/wellness also, in the circle. It is a good day today. *That's all, great-thanks.*)

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—ii as in seen
Mooz—as in moon

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

- A glottal stop is a voiceless 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.

Speak it!
Anishinaabemon!

Minwendan!—Like it!
Niminwendaa**n**.—**I** like it.
Giminwendaa**n**.—**You** like it.
Ominwendaa**n**aawaa.—**They** like it.

Add any Noun Inanimate (NI) that you like.
aanakwad(oon)—a cloud(s)
waabooyaan—blanket
bashkwegin—a hide or leather
aasaakamig—moss
onaagan—dish/Plate
mazina'igan—book

Try the VTI: Ayaan—Have/own it!
Nindayaan…add NI. I have it_____.

Pluralize the verb and noun (add -n -an, -oon)
when speaking of more than one thing.
Nindayaanan waawanoon.—I have eggs.

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

A. Ambe omaa! Nindoday. Niijii izhinikaazo. Mino-ayaa.

B. Niijii ozaawizi. Gagaanwaanikwe. Mino-izhiwebizi.

C. Niijii daga namadabin omaa. Gigiishkaabaagwe *na*?

D. Biiminakwaan nindayaan.

E. Nimbimosemin endaso-giizhik

F. Giwiida'adoomiminaam ina?

G. Gidede, Niijii, dash niin nimino-izhi-webizimin.

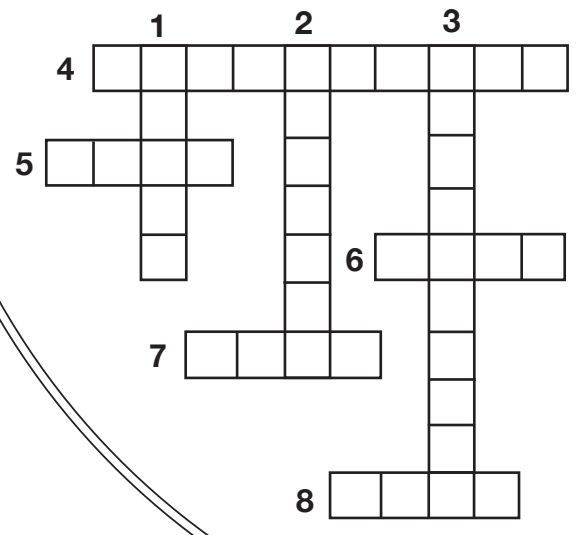
H. Miigwech, mii'iw.

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

mamaangipon
there are big snowflakes

Niswi—3

IKIDOWIN ODAMINOWIN (word play)



DOWN:
1. have/own it
2. plate/dish
3. moss

Across:
4. blanket
5. here
6. also, and
7. good
8. please

zoogipon
it snows

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

Niiwin—4

Aaniin—Greetings! or How...? What way...? Why...?

Aaniin ezhi-ayaayeg?—How are you all?
Aaniin ezhinikaazod?—What's h/h name?
Gii-maajaawaad ina?—Did they leave?
Amang iidog.—I am not certain maybe.
Giga-waabamin.—I'll see you/bye.

Mino-nibaa-anami'e giizhigad!—Happy-sleeping-praying day! (Christmas greetings!)

Aaniin ezhiwebak agwajiing?—
What's the weather?

Zoogipon!—It snows!

Gaa-miskojaaned adikoons.
—A red nosed reindeer!

–yeg

–wag

nin– min

Mino

Verb, **T**ransitive-action transfers to an **I**nanimate thing.

1. _____-giizhigad noongom!
2. Aaniin ezhi-ayaa_____?
3. Aandi ezhaawaad? Zhooshkwaagime_____.
4. Aandi wenjibaayeg? _____zhooshkwaagime_____!
5. VTI is a: _____.

Learn VTI "root verbs" & patterns to speak about non-living things.

Translations:

Niizh—2 **A.** Come here! I have her a dog. Niijii–my friend, she is named. S/he is good. **B.** Niijii is yellow. She has long hair. She is well-behaved. **C.** My friend please sit here! Are you thirsty? **D.** Rope, leash, I have it. **E.** We walk everyday. **F.** You walk on the trail with us? **G.** Your dad, Niijii and I, we fare well. **H.** Miigwech. that's it.

Niswi—3 ***Down:*** **1.** ayaan **2 .** onaagan **3.** aasaakamig ***Across:*** **4.** waabooyaan **5.** omaa **6.** gaye **7.** mino **8.** daga

Niiwin-4 **1. Good** day now/today! (Mino) **2.** How are **you all**? (yeg) **3.** Where are they going? **They** are going skiing. (-wag) **4.** Where are you all going? **We** ski! (Nin- -min) **5.** VTI is a **V**erb—It's action/feeling. Action **T**ransfers to an **I**nanimate thing. Root VTI's are commands! The prefix/suffix patterns for actions/feelings are used when speaking about I, You, S/he, They, and We/We all. Example: Minwendan!—Like it! **Ni**minwendaa**n** i'iw onaagaans.—**I** like **it** that cup. Niminwendaan o'ow Mazina'igan.—I like this Paper.

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

Edited by Michael Waasegiizhig Price

Asabikeshiinh-wanii'igan (dream catchers)

[1] Mii dash omaa waa-ni-dazhindamaan i'iw asabikeshiinh-wanii'igan iko gaa-agoojigaadenig omaa odikinaaganing ingiw giniijaanisinaanig. Mii o'ow asabikeshiinh-wanii'igan wenji-wiindamaan iniw, mii iw ezhinaagwak. Mii ingiw mindimooyenyibaneg gaa-ikidowaad, gaawiin gii-ayaamagasinoon gaa-izhi-anishinaabewinikaadeg iniw. Niin igo nimichi-giizhitoon. Mii dash gaa-inaabadadinig a'aw abinoojiinyens eta-go wenaajiwaninig akeyaa da-izhingwashid. Mii dash i'iw iko awiya zegingwashid, mii imaa ani-baataasininig imaa egoojigaadeni godikinaaganing. Mii dash gaawiin da-zegingwashisiin a'aw abinoojiinyens. Mii dash i'iw enaabadak.

[2] Mii iw wayeshkad gaa-onji-miinigoowiziyang iniw asabikeshiinh-wanii'iganan ezhinaagwakin da-naadamaagod a'aw abinoojiinyens eta-go wenaajiwaninig akeyaa da-inaabandang. Ishke dash i'iw noongom niwaaban-daanan anooj inaabadak iniw. Wawaaj igo biinji-odaabaan agoojigaadewanoon. Maagizhaa gaye wii-zazegaatood imaa endaad a'aw bemaadizid, mii imaa aasamisagong wawaaj egoojigaaden iginiw.

[3] Gaawiin gidaa-wii-baapinendanziimin gaa-izhi-miinigoowiziyang anishinaa-bewiyang. Gaawiin i'iw anooj daa-inaabadasinoon iniw Manidoo-aabajichiganan gaa-miinigoowiziyang anishinaabewiyang. Ishke mii imaa wanitood a'aw bemaadizid i'iw wayeshkad gaa-izhi-gikinoo'amaagoowiziyang da-inaabadak iniw asabikeshiinh wanii'iganan. Mii i'iw wayaabishkiiwed ezhi-wiindang *Dream-catcher*.

[1] What I want to talk about are the dream catchers that were hung on the cradleboards of our babies. The reason I call them spider webs is because that is what they look like. Those old ladies had said there was not an Anishinaabe name for those dream catchers. I was the one who created that name for them. It was used to help the baby to have only good dreams. When someone is having bad dreams, the bad dream gets stuck in the dream catcher that is hanging on their cradleboard. So as a result the child or baby will not have bad dreams. That is how the dream catchers are used.

[2] We were originally given the dream catchers to help filter the baby's dreams so that the baby will only have good dreams. Nowadays I see dream catchers used in different ways. They are even hung inside of cars. People are even using them as decoration placed on the walls of their homes.

[3] We should not disrespect those things that were given to us as Anishinaabe. We should not use our spiritual items that were given to us as Anishinaabe in ways that were not intended. This is where Anishinaabe have lost the original teaching of how to use a dream catcher. This is what the white man calls a *dream catcher*.

Reprinted from
GAA-IZHI-MIINIGOOWIZID A'AW ANISHINAABE
(What We Were Given as Anishinaabe)
By Lee *Obizaan* Staples
As told to Chato *Ombishkebines* Gonzalez

Biboon. Mii o'apii aadizookewaad Anishinabewakiing (Anishinaabe-akiing). It is winter time. That is when they tell the sacred stories in Indian Country.

Visit *glifwc-inwe.com/biboon.html* to listen, read along, and see the winter activities of bizhiw and friends.

Manoominikewin

(continued from page 3)

On the second day of the event, Bad River tribal members took a group of kids and interested adults out to the abundant on-reservation rice beds to demonstrate a traditional harvesting practice—rice bundling. This is used to protect the grains from being foraged by waterfowl and other beings, and it allowed families to harvest rice at once, rather than have to come back to the same spot several times.

The method involves using thin, papery strips of wiigob (basswood) to gently bind a cluster of the plants together, wrapping up the stalks and still-developing seeds in a tidy cocoon.

Kathleen Smith, GLIFWC's Ganawandang Manoomin "she who takes care of the rice" (left), was invited to learn rice bundling at Bad River. She and Aiyana Perry from Bad River (right) carefully gather rice stalks and gently bind them in thin basswood strips. Rice bundling is a traditional gathering method of manoomin; each family tied their bundles differently to mark which bundles were theirs. (B. Paulsen photo)

Each family had their own way of tying off the basswood strips to designate which bundles were theirs, according to Dan Powless Sr, who explained the process to the onlookers as the bundlers demonstrated behind him.

Kathy Smith, GLIFWC's Manoomin Ganawandang ("she who takes care of the rice") and member of Keweenaw Bay Indian Community was invited to take part in the rice bundling demonstration in order to learn the technique and bring that knowledge back to her community. Smith has worked together with Bad River to help bring traditional knowledge of manoomin to the youth on the reservation and the surrounding area.

"I have much gratitude to Bad River for including me in all of this," she said while talking about all the opportunities she's had to teach and share her knowledge with the community.

Manoomin for everyone

This year, Smith was inspired by a cultural event in her hometown of Baraga, Michigan in which a big drum was brought into the local elementary school.

As the drum songs rang across the auditorium, little Ojibwe kids along with little non-Ojibwe kids danced their hearts-out together, breaking down cultural barriers that kids often find themselves growing up with.

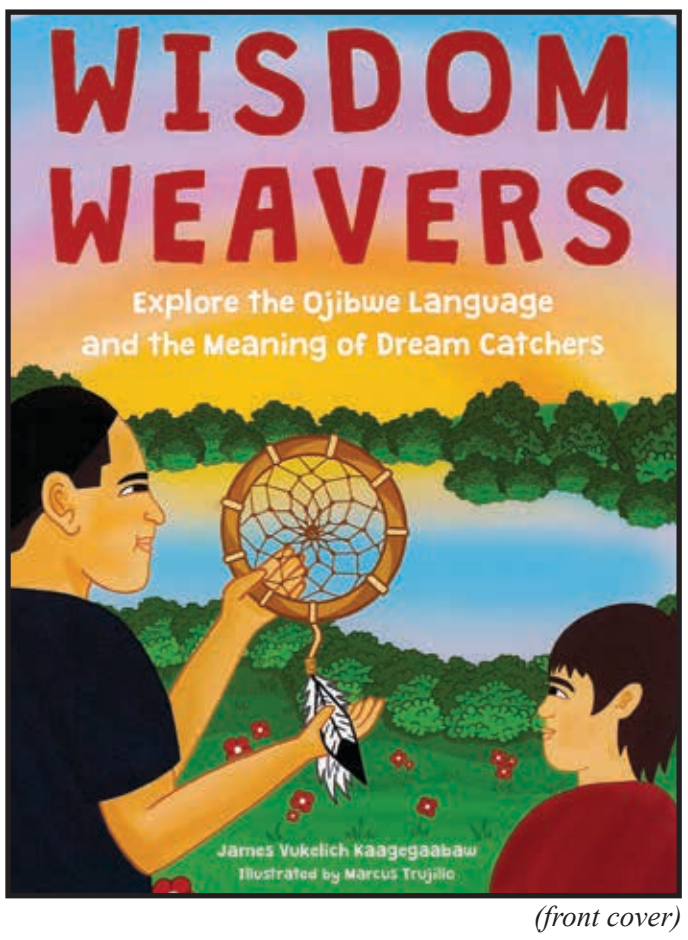
With this event as inspiration, Smith and event planners decided that the manoomin workshops usually offered only to tribal members in the Ashland, Wis. Middle School would be opened up to all students who were interested. The workshop's hosts and partners: Bad River Natural Resources Department, Bad River Food Sovereignty, and SPARK Ignite! all made it possible to take students to the Minong Flowage for a water ceremony, a lesson in canoe safety, and finally, rice harvesting.

Some of those students had attended the workshops in previous years, and they began to help and share their knowledge with those who were there for the first time. The young kids are building relationships with their communities and their non-tribal peers.

"We've really come a long way in building those connections," said Kathy Smith as she reminisced about her early life growing up in the region. She is very hopeful for the future where those children will grow up to harvest food on the landscape and continue to teach those who come after them where good and healthy food comes from.

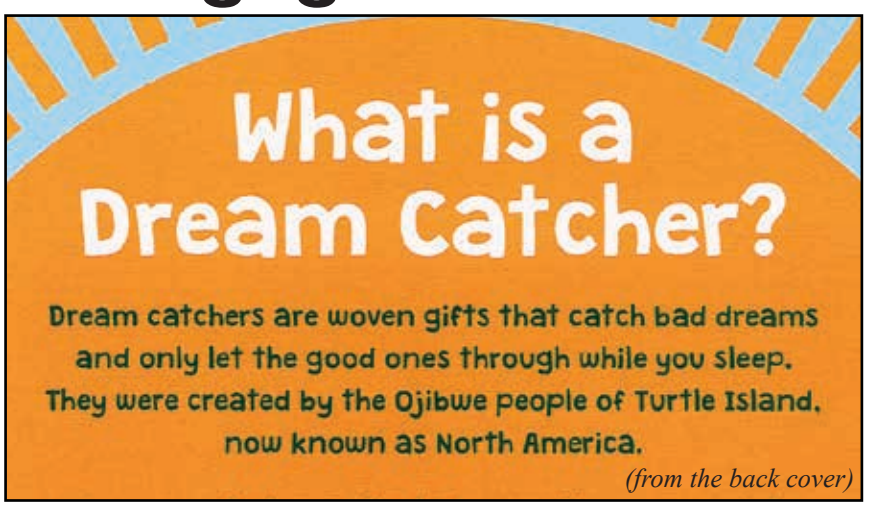
Wisdom Weavers

Learn about Dream Catchers with James Vukelich Kaagegaabaw!



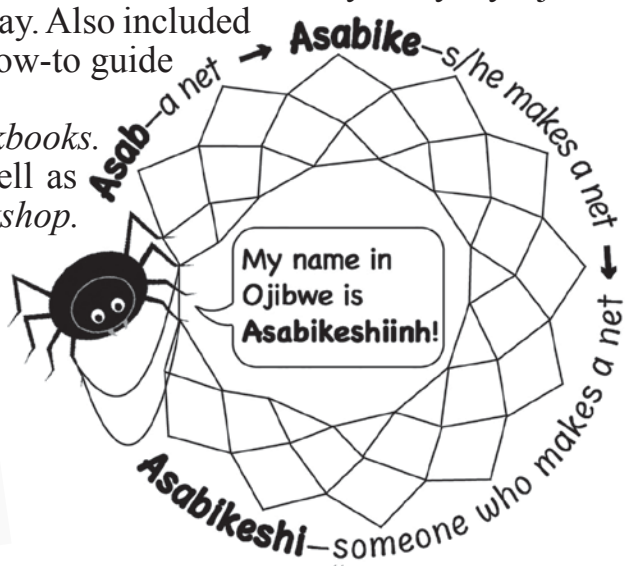
(front cover)

In the new children's book, *Wisdom Weavers*, by James Vukelich Kaagegaabaw, we follow young Jack throughout the day as he is taught by his dad how to make an izhi'on (dream catcher). Jack grew up with a dream catcher hanging above his bed, as is tradition for many Ojibwe families. His dad shows him teachings from the dream catcher while they make one together!

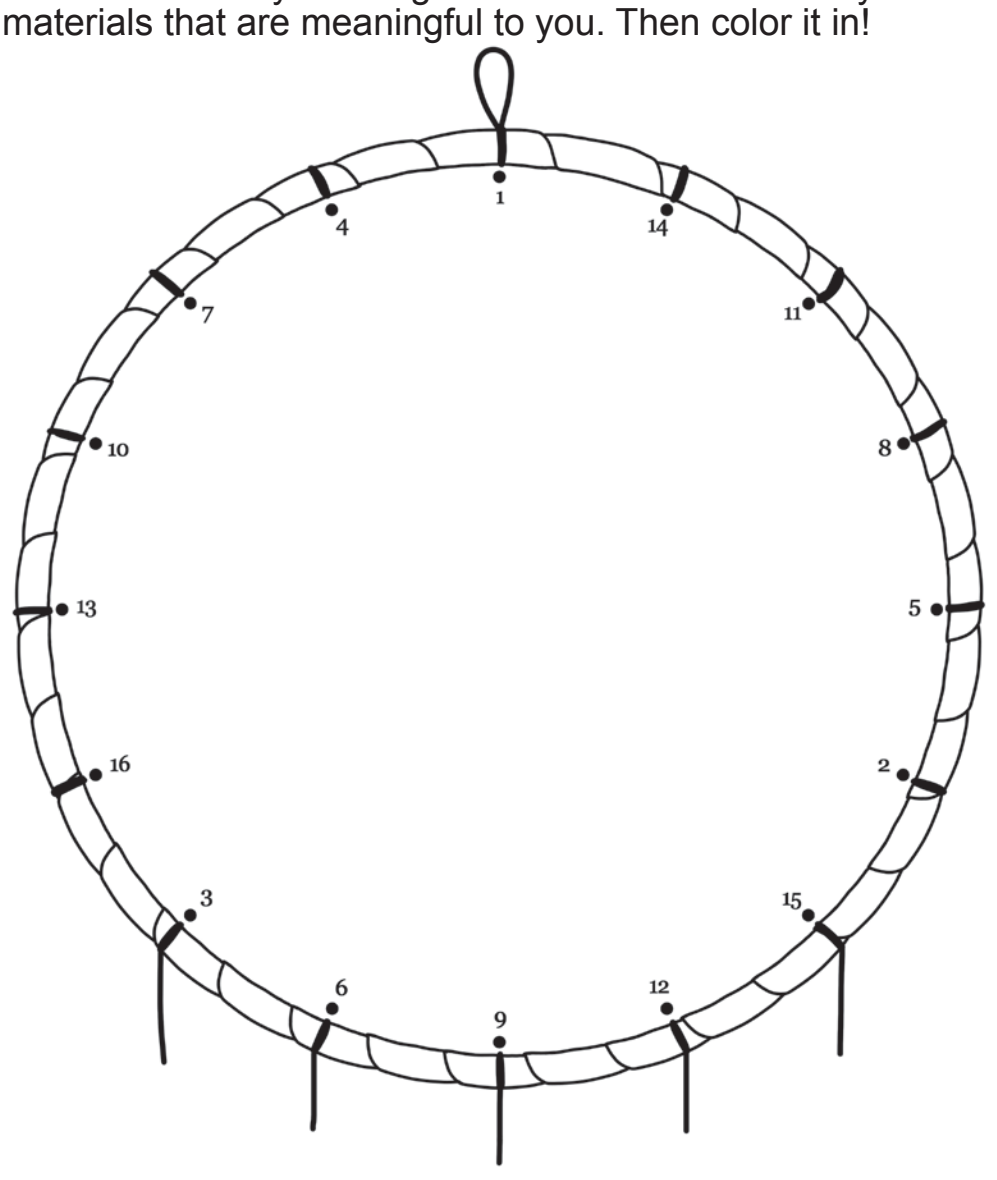


You can learn along with Jack, as well as see and hear many everyday Ojibwe words as Jack takes you through his day. Also included in the book is a culturally accurate how-to guide for making your own dream catcher.

The book is available at *birchbarkbooks.com/products/wisdom-weavers* as well as Amazon, Barnes and Noble, and *bookshop.org*.



Connect the dots! Weave the dream catcher by connecting the dots from 1 to 16, then back to 1! Be sure to adorn your dream catcher by drawing feathers and beads or any other materials that are meaningful to you. Then color it in!



Have you ever seen an asabikeshiinh's (spider's) web catch the morning sunlight? Your dream catcher does the same thing!

Throughout the night, your dream catcher tangles up all the bad dreams in the web and lets the good dreams trickle down to you.

So while you're sleeping, you see the good dreams, and in the morning, when the dream catcher feels the first rays of sunlight, all the bad dreams burn right up!

To make your own dream catcher, ask a tribal member or elder from your community to show you how to use traditional materials and skills to weave your own izhi'on.

Ojibwemowin

izhi'on—a ceremonial charm
bawaajige—s/he dreams
asabikeshiinh—spider

Joe Dan Rose reels in a distinguished career

GLIFWC staff threw a surprise party luncheon for Rose near his home on the Bad River reservation. (COR)

From the earliest years of off-reservation walleye spearing right up to the 2024 inland lakes assessment seasons, Joe Dan Rose has played a role in looking out for the Ceded Territory fishery.

For the past 27 years he served as a GLIFWC fishery biologist, heading up the inland lakes section. Rose, a Bad River Band citizen named Nigig in Ojibwemowin, retired October 22.

Voigt Intertribal Task Force representatives expressed appreciation for his dedication to tribal fisheries November 7 in Carlton, Minn. and reflected on his growth from Bad River Band community leader to a leading figure in regional fisheries management. Rose received a framed resolution from the task force and, on behalf of GLIFWC, Miles Falck presented him with buckskin moccasins and a blue ribbon shirt.

"You have a gift for bringing clarity to complex situations, helping people understand the treaty fishery," said Kelly Applegate, Mille Lacs Band of Natural Resources commissioner.

Applegate, Sokaogon's Chris McGeshick and others said they appreciate his knack for helping tribal spearfishers understand the science and decisions that tribes make in supporting sustainable fisheries. Rose has attended dozens of pre-season meetings across the Ceded Territory to explain harvest declarations and provided annual consultations for Voigt Intertribal Task Force representatives as they evaluated ogaa lakes for open water fishing.

"It's easy to work hard when you care about what you're doing," said Rose, an eagle clan member. An Odanah-area resident residing with his family near GLIFWC's central office, Nigig plans to maintain a connection to tribal fishery management programs, moving into a Commission emeritus role known as gechi-apiitendaagozid. **—CO Rasmussen**

GLIFWC staff on the move

Following the recent retirements of veteran employees and the addition of a position to better serve nibi, a trio of GLIFWC central office staff are taking on new roles. Longtime fishery biologist Mark Luehring moves up to inland fisheries section leader. Since 2007 Luehring has built experience in all aspects of Ceded Territory mainland fishery assessment and management, especially walleye stewardship. Lac du Flambeau citizen Caren Ackley has transitioned from environmental biologist to a new position at GLIFWC, hydro ecologist, where she will help foster healthy watersheds associated with National Forests. And Bad River's Travis Swanson transfers to forest ecology program coordinator where he'll represent tribal perspectives on forest stewardship across jurisdictions in the Ceded Territory. **—COR**

Forest ecologist treads familiar trails with GLIFWC

Zach Wilson brings more than 25 years of experience studying the endangered waabizheshi (American Marten) and forest ecology. Beginning last fall, Wilson joined the Biological Services Division to work closely with the USFS in jointly upholding and carrying out the Tribal/US Forest Service Memorandum of Understanding.

Wilson grew up in the woods of Wisconsin hunting, trapping, fishing, and generally exploring everything the wildness has to offer. He is married with three children

In 2000, Wilson graduated from Northland College in Ashland, Wis. earning a Bachelor of Science in Outdoor Education & Natural History with a minor in Environmental Education.

Most recently, Wilson worked as a Conservation Specialist for Iron County's Land & Water Conservation Department, focusing on education and outreach, non-native species (non-local being) and water quality monitoring programs. He also has experience working with the Board of Commissioners of Public Land where he worked part time as a forest ecologist.

Wilson's passion to learn about environmental issues, sustainable farming, and forest and wildlife practices has led him to 15 countries where he also got to experience some of the most diverse and vibrant cultures of the world.

His love for the environment eventually brought him back to Northern Wisconsin, where he started his career as a naturalist for a small non-profit nature center, North Lakeland Discovery Center. At the Center, he developed nature-based programming and coordinated citizen-science monitoring projects. These projects focused on American Marten, the Common loon, birds and bat research, carnivore tracking and wolf howling surveys.

Wilson said he's looking forward to meeting and listening to GLIFWC member tribes; he's interested to learn more about weaving together Traditional and Scientific Ecological Knowledge while "building the interconnectedness between humans and non-human beings as is shown in many stories and ceremonies with which Ojibwe people have maintained relationships for centuries," he said. **—J Van Sickle**

White Nose Syndrome

(continued from page 7)

are working to identify and protect summer roosting trees, over wintering hibernacula, and working to modify those areas to discourage the fungus from growing.

A regional effort

Just below the Mackinaw Bridge, the Little Traverse Bay Band of Odawa Indians are building out their bat monitoring efforts. Little Traverse Band Wildlife Biologist Kevin Haynes was on-site for the netting work: "In addition to our Garden and High Island acoustic monitoring (within the Beaver Island Archipelago) we're using detection dogs to search for guano to hopefully identify summer roosting areas," said Haynes.

Earlier in June, Seppenen set out four ultrasound recording devices that detect high frequencies, a technique called acoustic monitoring as a part of their bat assessment program. Seppenen explained that building on existing acoustic monitoring is beneficial: "Some bat species have similar echolocation call structures and when looking at recorded data you can only tell presence or absence; with mist netting you can tag, track, measure, examine and count separate individuals."

On an individual level, scientists are studying the correlation of identified "fat bats" and how they may have increased their ability to resist the symptoms of WNS, which often involves the bats experiencing irritation in their wings from the fungus; that sensation drives them out into the winter environment to search for food and leads to exhaustion and starvation.

From a broader perspective, scientists are also looking at the efficacy of drilling surface holes to modify underground hibernacula temperatures and moisture levels, which may be able to reduce the fungus spore's ability to thrive and spread.

Seppenen hopes to encourage more tribal and non-tribal natural resources departments to look into the emerging funding, research, and equipment opportunities to get or restart their monitoring programs, "Bats are such an important part of pollinating our natural world and every night they help us avoid spraying insecticides into the watershed," he said.

For more information about bats or to report bat roosting areas, please contact Kyle Seppanen, wildlife coordinator, at *kseppanen@kbic-nsn.gov* or 906-524-5757 ext. 4235.

To get involved

batcon.org/about-bats/bat-gardens-houses

batmanagement.com/blogs/bat-roosts/how-to-choose-a-bat-house-location

GLIFWC Inland fishery crews remember coworkers, complete fall surveys

By Mark Luehring
GLIFWC Inland Fisheries Biologist

When GLIFWC Inland Fisheries crews set out on another season of electrofishing surveys for juvenile walleyes last fall, things were a bit different. A late summer heat wave extended into September, causing water temperatures to be above normal for much of the season. Leaves on the trees around the lakes seemed to change color a bit slower, and late summer algae blooms hung on along with the warm water temperatures. The crews still completed the work, surveying lakes in Wisconsin, Michigan, and Minnesota—around 80 in total. The hatch of age-0 walleye appeared strong in some lakes, and weak in others.

But the crews will remember dagwaagin 2024 for other reasons as well. This fall marked the first time in over 20 years that long-time crew member Shane Cramb was not out netting walleye. Shane passed away shortly after the spring adult walleye field season in May.

Crew leader Butch Mieloszyk, who often had Shane on his boat said: "It was different not having Shane out there with us. He loved going out electrofishing, and was a skilled netter. We appreciate all the years that Shane worked with us, and missed him this fall."

Shane Cramb with walleye on a fishery survey. (B. Mieloszyk photo)

Shane was well built, and known for having abnormal strength. Butch recalled one day when they were trying to switch out generators on one of the electrofishing boats: "He picked up the generator weighing north of 250-lbs and tried to hand it to me. I told him to set it down until I could get another person to help me hold it."

The crews experienced another loss when crew member Terry Roy passed away unexpectedly. Terry was new to the electrofishing team, having worked at Mille Lacs Lake in spring of 2024 both documenting the harvest and electrofishing. "Terry had a love for the outdoors and had a great attitude at work. He was retired, and only took a break from hunting and fishing to work with GLIFWC as a fisheries aide and creel clerk," said GLIFWC Fisheries Biologist Ben Michaels.

As the season progressed, the inland fisheries section remembered both Terry and Shane by working hard and finishing the surveys as they would have. Having two of the team unable to be out doing the surveys puts things in perspective. Checking up on walleye populations and reproduction is important for trying to sustain healthy populations into the future, but the people that give a part of themselves to help along the way are an irreplaceable part of that story.

We miss you Shane and Terry, and will continue to remember you whenever we go to the lakes.

Taylor, a fiery advocate for the St. Croix Band

Ojibwe treaty rights ogichidaa and longtime Bikoganoogan community leader Lewis Zhinawise Taylor passed away Saturday, September 28 at age 80. Taylor was elected to the St. Croix Band tribal council after the 1983 *LCO Voigt* Decision and was reelected many times over the following decades—often serving as tribal chairman. Affectionately known by his nickname Peewee, Taylor represented the St Croix Tribe on both the Voigt Intertribal Task Force and GLIFWC Board of Commissioners.

In September 2023, at Lac Courte Oreilles (LCO) reservation, Taylor participated in a leadership panel session at GLIFWC's *LCO Voigt* 40th Anniversary Celebration; the federal court ruling upheld Ojibwe reserved rights to fish off-reservation, sparking a widespread backlash. Zhinawise joined other prominent leaders to recall the volatile boat landing protest era (1986-1991) when Ojibwe fishermen were under siege by non-natives during the spring walleye season.

"There were many nights that should not have been," Taylor said. "We had to band together."

Taylor heralded the native groups that came to support spearfishermen at darkened boat landings populated by wrathful protestors—many fueled by alcohol. The Menominee Warrior Society stood in solidarity with the Ojibwe in the Lac du Flambeau region and American Indian Movement members from Minneapolis made their presence felt in the St. Croix region of northwest Wisconsin, especially Balsam Lake, Taylor said.

"I'm proud to be a part of this Anishinaabe group after 40 years," he said.

—CO Rasmussen

Law expert, reconciliation leader walks on

Univ. of Manitoba website photo

Winnipeg, Man.—The Honorable Murray Sinclair walked on November 4 at age 73. A leading figure in Canada's Truth and Reconciliation Commission (TRC), Murry oversaw efforts to document the abuse and cultural suppression of indigenous people by church and federal programs—expressly through the residential school system, which tore families apart and led to the nearly 4,000 documented deaths of native children in Canada.

"Mazina Giizhik helped lay the groundwork for First Nations people and non-natives around the world to come to terms with the dark history of colonization and the deadly legacy of residential boarding schools. Miigwech for your courage, love, and pride for the indigenous people from this part of the world," said Jason Schlender, GLIFWC Executive Administrator.

Born in Manitoba, Sinclair was a citizen of Peguis First Nation. Known by his Anishinaabe name Mazina Giizhik, he built upon a law degree to become a judge and Canadian Senator before an appointment to chair the TRC from 2009-2015.

—CO Rasmussen

Gichigami giigoonh

(continued from page 6)

Continued warming could mean big changes for Lake Superior's fisheries, including the catch for tribal and state anglers, who may begin witnessing declines in those highly desired fish, including lake sturgeon. Stakes are high for tribal fisheries and sport anglers.

GLIFWC and its partners will continue to monitor and observe Gichigami fish and share research data.

Manoomin stewardship

(continued from page 9)

The project will focus on manoomin waters and wetlands in northern Wisconsin, including the Wisconsin Ceded Territory (Treaties of 1837 and1842) and the Menominee Reservation.

A collaborative approach will be adopted, involving multiple organizations and stakeholders contributing to the conservation goals.

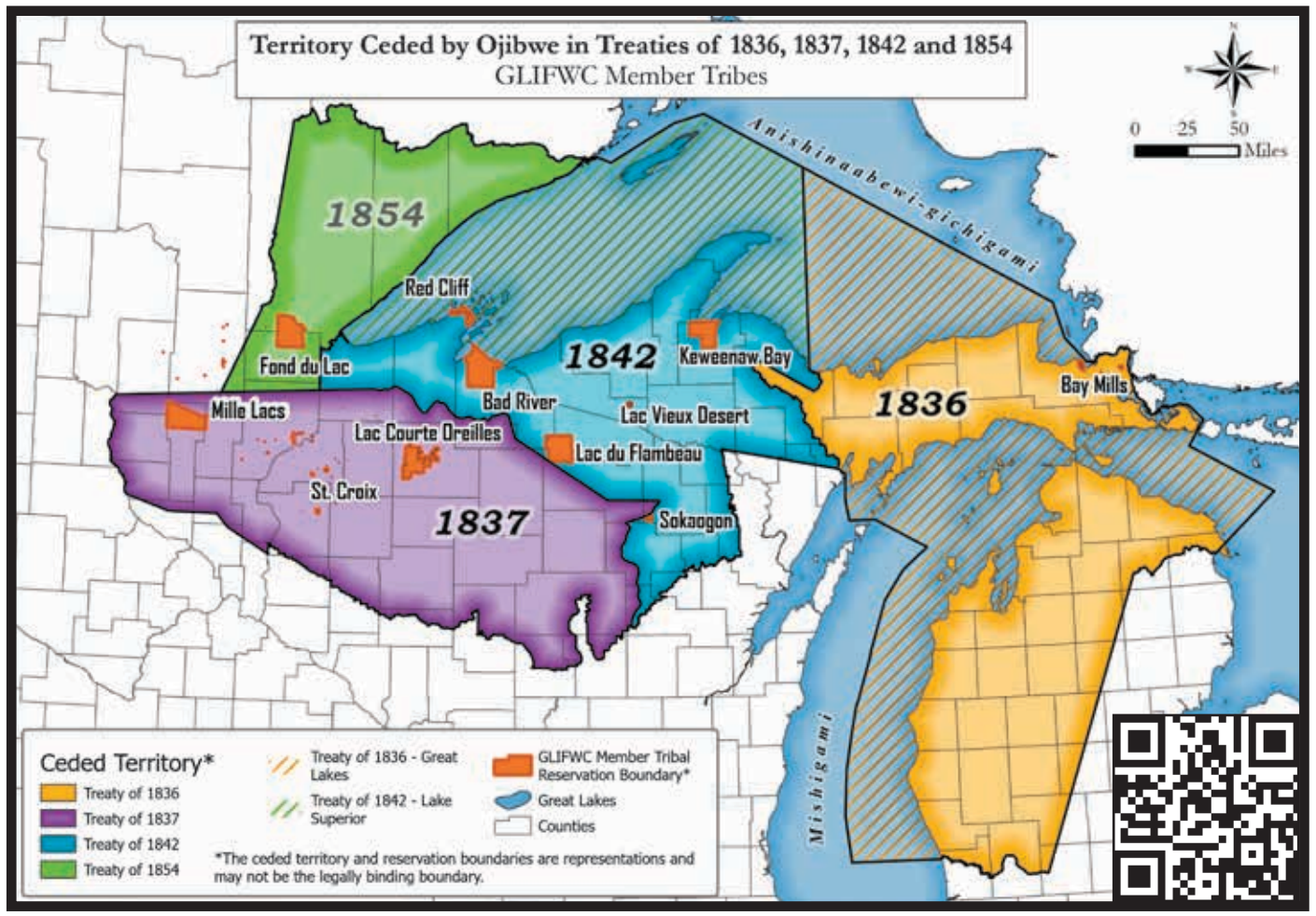
Through fostering intergovernmental collaboration and conducting strategic research, the initiative hopes to create a sustainable framework for manoomin stewardship that can be a model for similar efforts elsewhere.

The project aims to enhance the institutional capacity for wild rice management in Wisconsin, ensuring that the unique cultural and ecological value of manoomin is preserved for future generations.

The grant will also provide resources to organize outreach events and project meetings to engage the community and stakeholders and build future caretaking direction for manoomin caretaking among the Tribes and State of Wisconsin.

This significant investment in the future of manoomin and the cultural heritage of the Ojibwe and Menominee tribes recognizes the need and importance of collaborative efforts in addressing environmental challenges and preserving critical natural resources like manoomin.

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



Pocket-sized or online: updated regulation booklets

One of our most requested items is heading to the printer soon and will be available for the 2025 harvest seasons.

The revised booklets now include additional harvest unit maps, a contact list for tribal natural resources departments, and will include quick reference sections. The regulation booklets will also be digitally available to download and print when GLIFWC's new website goes live in 2025. Regulation booklets summarize off-reservation harvest rules and are the minimum regulations that apply to tribal members primarily in the 1837 and 1842 Ceded Territories across Minnesota, Wisconsin with some provisions for the Michigan 1836 and 1842 Ceded Territory. Always check with your tribe to learn the full and current rules; the summary booklets do not include tribal ordinances in their entirety and members are responsible for knowing their tribe's regulations, which are subject to change and/or be more restrictive. **—JVS**