Mazina'igan

A Chronicle of the Lake Superior Ojibwe

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FALL 2022

Multinational alliance keeps Gichigami fishery afloat

A US Fish & Wildlife Service crew member takes a water sample in Red Cliff Creek as Biological Science Technician Tiffany Opalka-Myers shares a look at sea lamprey larvae that had been burrowed in the streambed. (CO Rasmussen photo)

By Charlie Otto Rasmussen, Staff Writer

Gichigami, South Shore—The source of so much distress for the celebrated Lake Superior fishery lies in tiny Red Cliff Creek. And the sprawling Bad River watershed. And the storied Two Hearted River. Plus, dozens more tributaries in between that deliver freshwater into Gichigami. Buried in the substrate of many waterways lay tens of thousands of parasitic sea lamprey that emerge each year to drain life from just about every fish species, especially lake trout.

"The bigger the river system, the bigger the watershed, the more sea lamprey are produced," said Chris Gagnon, US Fish & Wildlife Service. "Through our work with GLIFWC, tribes, all the partners around the lake, we've been able to control sea lampreys and maintain the fishery. A lot of people today don't remember how bad it was before we started treatment."

Following their invasion of the Great Lakes, sea lamprey numbers in Lake Superior peaked around 1961 according to an interagency team of Michigan-based researchers. During that period—prior to the development of effective control measures—fish populations had bottomed out and sea lamprey abundance estimates ranged from 777,000 up to 2.5 million. More recently, adult lamprey numbers have held steady at around 110,000 over the past five years.

One Anishinaabe teaching commonly shared is that while forests, fish, and wildlife do not need humans for

(see Gichigami, page 6)

Floating on air & water

GLIFWC duo shores up manoomin preview

By Amy Cottrell, Wetland Ecologist & Kathleen Smith, Ganawandang Manoomin

As GLIFWC's new manoomin team, we began navigating Ceded Territory waters for the first time this summer. We ask for patience as we develop in this role and come to learn the many wild rice waters across the Ceded Territories. As we become familiar with the location and history of these waterbodies, we will be able to speak for the manoomin.

While visiting the manidoo gitigaan, we learn a lot by observing and collecting on-ground data, including the status of other mashkikiwan (medicines). Studying patterns of abundance in different species can provide insight into how a community functions and the role manoomin plays.

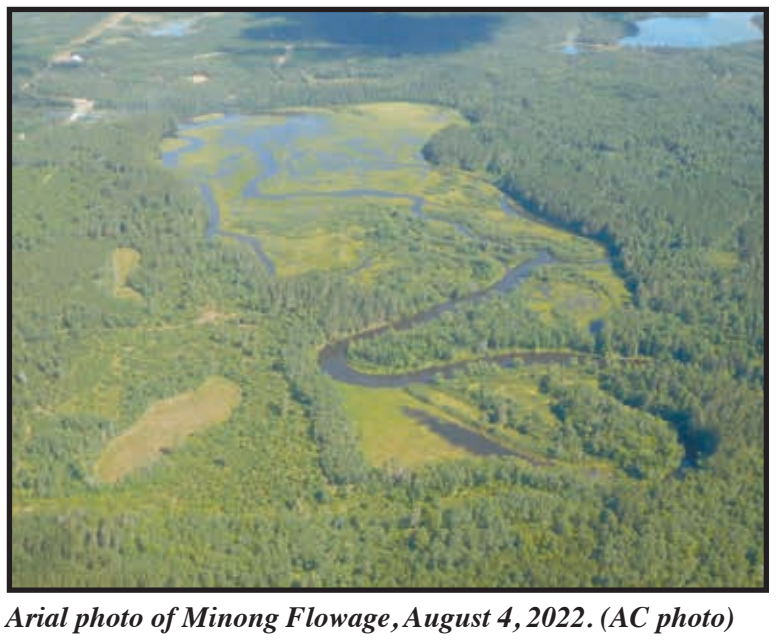
For GLIFWC, manoomin ground surveys began in mid-July and aerial surveys began first week of August. Data collected on ground includes abundance estimation, stalk density, stand height, tiller counts, water depth, sediment composition, herbivory, and brown spot presence.

From the air, we snap photos of the entire waterbody and then narrow in on wild rice beds. In an attempt to account for latitudinal variation in maturity in Wisconsin, we began surveying in Burnett, Polk, Douglas, Washburn, Vilas, Iron, and Forest counties. Date-regulated waters and those of cultural importance are priority survey sites.

In general, wild rice appears to be average or below average on most waters. Some level of herbivory has been documented on most waters, and we observed intense browsing from waterfowl in some beds on Dilly and Allequash lakes and the Minong flowage. There have been a few exceptions to the general trend thus far including Pacwawong Lake, which contains thick, dense, tall beds of wild rice through much of the lake, though some beds are intermixed with cattail and bulrush.

To the east, newly date-regulated Island Lake also looks promising. Manoomin here is quite abundant, with lots of exposed seed heads, seemingly on track for a good harvest. Male flowers were floating on water surface, having fallen

(see Manoomin, page 10)



Arial photo of Minong Flowage, August 4, 2022. (AC photo)

Ajijaak at the gateway to Moningwaane'-akaaning minis

COR

Ojibwe artist Lisa Perrin Kosmo designed a 1.5 ton, 10' tall crane, or ajijaak, sculpture.

Frank Montano, Ojibwe flutist, joined her in a dedication ceremony July 30 near the Madeline Island ferry landing.

Ceded Territory off-reservation *general hunting season openers

September 1

Michigan 1842 (KBIC)

September 6

Michigan 1836 (Bay Mills)
Michigan 1842 (LVD)
Minnesota 1837 & 1854
Wisconsin 1837 & 1842

*see your local registration station for details

Anishinaabe insights When worldviews collide

Pressing environmental challenges may benefit from knowledge synthesis

By Michael Waasegiizhig Price
GLIFWC TEK Specialist

Since graduating from college in 1988 with a degree in biology, I have been searching for the links between Western science and Indigenous knowledge, specifically the knowledge of my Anishinaabe ancestors of the Great Lakes region. I came to realize in visiting with my relatives and listening to their words that there is a deep understanding of the natural world found in the stories, songs, legends, and placenames within my ancestral language and culture.

When I was in my 20s, I heard an Anishinaabe elder tell a story about how bad spirits came to the island where our ancestors lived in northern Lake Huron, causing sickness and suffering:

Once our Anishinaabe ancestors lived on this island. Then bad spirits arrived and caused the forest to become dense with underbrush. As a result of the underbrush, the grasses, berries, and other edible plants began to disappear. The animals, the deer, moose, and rabbits, who grazed on those plants, left the island. And soon, sickness and hunger came to the Anishinaabe people, and they suffered. During this time, the medicine man of the tribe had a dream that ishkode (fire) would drive off the bad spirits that had brought sickness to the people and the forest. So, he instructed the young men to set fire to the entire island. And, so they did. They burnt the entire island in all directions. The people of the island packed up and left their home. Winter came and snow blanketed the island. Soon, spring came which warmed the air and melted the snow. Suddenly, new vegetation began to sprout amongst the coals and ashes. Over time, the new vegetation brought back the deer, moose, and rabbits. When the rabbits returned, the bears, martens, and lynxes, our clan relatives, also returned as well. When the Anishinaabe finally returned to their home island, the forest was lush and green and fruitful. Fire chased away the bad spirits and the good life, minobimaadiziwin, returned once again.

Monarch butterfly. (William Warby, CC BY 2.0)

I could plainly see that this story reflected what scientists call forest regeneration and ecological succession; Anishinaabe storytellers described this phenomenon as the intrusion of malevolent spirits. Both worldviews understood that fire has a positive transformative effect on forest ecosystems. After hearing this story, I became obsessed in finding more links between Indigenous knowledge and science.

I would have never guessed that 35 years later, in November 2021, the President of the United States would issue a memorandum for the inclusion of Indigenous Traditional Ecological Knowledge (ITEK) into federal decision-making. This White House Memorandum states that: "ITEK is a body of observations, oral and written knowledge, practices and beliefs, that promotes environmental sustainability and the responsible stewardship of natural resources through relationships between humans and environmental systems."

President Joe Biden's memorandum sent people scrambling to define what is Indigenous knowledge and how it fits into scientific policy and decision-making. Indigenous knowledge-keepers are pressured to produce an answer for every inquiry related to this inclusion. Environmental scientists and policymakers are pressured to uncomfortably delve into Indigenous cultural worldviews which, historically, were once considered primitive, superstitious, and worthy of eradication. From my perspective, this is a good awkward step in the right direction.

Upon reflecting on this memorandum, I thought about the many native elders, both deceased and living, that endured the punishing federal boarding schools and the targeted eradication of their languages and identities as Indigenous people. I thought about my mother who was conditioned by these schools to be ashamed of her Indigenous family because of their language and culture. I thought about how, in the 1960s, the AIM Warriors fought to restore our pride

(See Anishinaabe Insights, page 3)

Thirty years of marten research in Wisconsin

By Dr. Jonathan Gilbert PhD
GLIFWC Biological Services Director

"Look Rondo, the door is closed!" I said excitedly as Ron Parisien, GLIFWC technician, and I checked a trap we had set the day before. It was our first try at trapping a marten (*Martes americana*) in 1992 in the Nicolet National Forest. As we approached the trap the marten gave us a warning growl, telling us that he is powerful and we should use caution. The kind of warning that would come from waabezheshi, the warrior clan animal. It was, as we later learned, a common communication technique for trapped martens.

Ron and I gave this male a shot of immobilization drug and a few minutes later he was under the influence and we could easily take him out of the trap for measurements and collaring. "Hey look," Parisien exclaimed, "he is missing his left ear, just like me." It was true, the marten obviously had an injury that had taken his left ear. Parisien lost his ear in an accident. We placed a collar on the marten (collar frequency 148.808 mHz). "What shall we call him?" I asked. "Eight ball," Parisien said, due to the eights in the collar frequency.

Thus started the GLIFWC marten research program that has now lasted more than 30 years, produced many publications, been the subject of several graduate student studies, and continues to provide insights about this elusive species.

In the early 1990s there was very little known about waabezheshi in Wisconsin. The only published work was from the 1970s in which a student examined home ranges of martens recently released. We did not know where martens lived, the type of forests they preferred and used, where they had their young, what they ate, how well they survived, or how they died. None of these basic life history traits were known. So the GLIFWC marten project started out trying to figure these things out.

Home range and habitat use

The first studies were basic investigations into home range establishment and habitat use within those home ranges. The first college student working on this project was John Wright, a former GLIFWC intern, who had returned to graduate school at UW-Stevens Point. His graduate advisor was Ray Anderson, a longtime friend of GLIFWC. Wright found that home ranges in Wisconsin varied by sex and were about a square mile in size (3-4 sq km) with male home ranges larger than adult females. Wright also found that his collared animals

Waabezheshi "Eight ball" captured in 1992. (GLIFWC photo)

preferred northern hardwood stands (deciduous trees), not an expected result as waabezheshi are known to prefer conifer forests over much of their range. Joe Dumyahn, a student at Purdue University working with Prof. Pat Zollner, further examined habitat use within home ranges for martens on the Chequamegon National Forest and determined that they established home ranges in areas that contained more than 70% of the area in suitable habitat. For my part, I researched the types of den and rest sites martens used, indicating that these important sites were found where there was complex forest structure (that is, lots of dead and downed logs) and dense canopy closure.

This work on marten habitat use continued with Nick McCann, another student of Dr. Zollner. In McCann's unique study he examined fine scale move-

(see Waabezheshi, page 19)

Ceded Territory news briefs

Undeveloped Sherman Lake shows walleye resilience

In 2016, Wisconsin Department of Natural Resources and GLIFWC completed a study on Sherman Lake, a 123-acre undeveloped lake in Vilas County, to understand the effects of high harvest on a walleye population. The study design involved removing 50% of the adult walleye population in Sherman Lake on an annual basis. Walleye in the lake appeared to respond by increasing juvenile growth rates, maturing to spawn at shorter lengths, and showing increased survival from age-0 to age-1.

Researchers noted that while the high harvest did not crash the walleye population on Sherman Lake during the 10-year study, managers shouldn't count on being able to apply similar harvest levels in other lakes. In fact, many walleye populations in the Ceded Territory have been declining even with much lower harvest levels. GLIFWC plans to continue to closely monitor the Sherman Lake walleye population even though the harvest study has ended.

The results of the study were published in 2021 in the North American Journal of Fisheries Management. Learn more at the link *doi.org/10.1002/nafm.10716* or contact GLIFWC Research Scientist Mark Luehring.

—M. Luehring

Gile Flowage, dam finally gets formal environmental review

After more than 75-years of operation, the Gile Flowage is undergoing a thorough "integrated licensing process" expected to last into 2023. GLIFWC policy analysts and biologists are closely following the licensing on the 3,100 reservoir to make sure tribal interests are taken into consideration as Xcel Energy conducts studies during the licensing process.

The Gile Flowage is a hydro reservoir flowage located on Gakakaakwod'aazhogan-ziibi (West Fork Montreal River) near Hurley, Wisconsin. The flowage holds the unique designation as being the first inland water body in Wisconsin to house the non-native spiny water flea. It remains one of the last mostly undeveloped flowages in Wisconsin and is especially important to GLIFWC harvesters because of its robust ogaa (walleye) fishery and wild rice beds. GLIFWC scientists have invested over 30 years in studying the sprawling waterbody.

Since its construction, the Gile Dam has been maintained under a "gentleman's agreement" and has not undergone requisite Federal Energy Regulatory Commission licensing that requires consideration for environmental impacts from development. Xcel Energy, who owns the dam, also maintains the hydro-electric facilities on the Montreal River downstream including the Saxon and Superior Falls facilities. The Gile Dam is a critical contribution to the hydro-electric generation downstream and is utilized as a reservoir to maintain consistent and ideal water flows for hydro generation.

—J. Rasmussen

GLIFWC, Ojibwe tribes engage states on ma'iingan

The Bay Mills Indian Community and Voigt Intertribal Task Force spelled out their positions on ma'iingan to Minnesota and Michigan natural resource departments earlier this year as each state drafted their wolf management plans.

The tribes "fully support efforts to protect, promote tolerance, and ensure healthy and abundant populations of wolves," they wrote in formal comments to the states.

Ojibwe tribes' reserved treaty rights have been upheld in a series of federal court cases, which recognize the tribes' rights not only to take key species, but also to conserve and protect them to ensure healthy populations. Wolves protect vital ecosystems that support the exercise of treaty-reserved rights to hunt, fish, and gather other species.

The recently published 1837/1842 Ceded Territory Ma'iingan Relationship Plan provides further guidance for a reciprocal relationship with ma'iingan consistent with Ojibwe cultural teachings. GLIFWC staff is working closely with wildlife authorities in Wisconsin, Michigan and Minnesota, hopeful state wolf management plans will reflect Ojibwe values. **—J. Rasmussen**

Traditional Ojibwe foods a focus for diabetes study

Niwii-shaagoojitoomin izhi-maamawi Together Overcoming Diabetes (TOD) is a partnership between five Ojibwe communities (Lac du Flambeau, Lac Courte Oreilles, Bois Forte, Red Lake, and White Earth) and the Johns Hopkins Center for American Indian Health Great Lakes Office.

TOD focuses on intergenerational strength, cultural supports, and traditional foods from a community-based perspective, moving away from strictly westernized approaches to help prevent and manage diabetes.

Researchers are looking to work with 100 families across Ojibwe communities to assess, through survey questions and some clinical measurements (A1C), over the course of two years, if the TOD program promotes better health for Ojibwe families. Home visits range in frequency (weekly, biweekly, monthly) and there is a small incentive for participating families.

For more information contact Senior Research Coordinator Tina Handeland, MS *thandel1@jhu.edu*, 715-892-1112 and online at: *bit.ly/TOD_JHUCAIH* **—J. Van Sickle**

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 take possession of the head—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.

2022-2023 Season

NAGFA ID #: 6366 **Tribe:** BRV
Name: JON DOE
Address: 777 Traditional Way Odanah, WI 54861
Phone: 715-685-2125 **Hunter Safety #:**12345657
Remote Registration (deer, bear, turkey, crane): 1-844-234-5439 or glifwc.nagfa.net/online/
Remote Registration Instructions: glifwc.org/Regulations/remote.registration.pdf

SMALL GAME	CAMPING	CAMPING
Turkey Spring - MI/WI	National Forest Camping	Apostle Islands Camping
Stamp# 223394	Stamp# 223744	Stamp# 223745

Sample license with NAGFA ID highlighted.

Waawaashkeshi.

Anishinaabe Insights

(continued from page 2)

by fighting for justice and sovereignty. I thought about how, in 1968, the first tribally controlled community college was established on the Navajo reservation, and since then, 32 fully accredited TCUs (tribal college or university) have been established across Indian Country. I thought about the emergence of native language immersion schools that are restoring our ancestral languages and cultural ways by immersing children in non-English speaking classrooms; one of the premiere schools is Waadookodaading Ojibwe Language Immersion School located on the Lac Courte Oreilles Reservation in northern Wisconsin.

We need a new paradigm for earth stewardship. Of all the Best Available Science (BAS), we still cannot seem to curb the loss of biodiversity or the progressing effects of climate change. In July 2022, the International Union for the Conservation of Nature declared the Monarch butterfly, the most iconic butterfly species in the world, as an "Endangered Species." The endangered status of the monarch is a result of human use of pesticides, habitat destruction, and climate change. The monarch should be our Miner's Canary. What we need is Best Available Wisdom (BAW) which links best available science with an Indigenous worldview that identifies relativity, sacredness, and animacy of the natural world. As Dr. Daniel Wildcat (Muscogee) stated, TEK is science that is "value-added." The infusion of Indigenous knowledge into federal environmental decision-making may be a viable ecological solution thanks to our native elders who clung tightly to and preserved their languages and stories.

Wardens complete summer training

Seventeen GLIFWC wardens met on June 8 for a one-day training session at the Bad River Community Center. This training session incorporated various requirements that all the wardens have to complete.

The training included physical fitness training, which involves running, flexibility training, push-up and sit-up exercises, and more. There was also firearms training, such as completing weapons qualifications, maintenance, and a firearm policy discussion. This gathering also involved taser upgrades and updates to the radio system (portable and in-vehicle).

"Since we are so geographically separated, we have to take advantage of the time we have together to accomplish all of our annual requirements and to just enjoy each other's company," said Matt Kniskern, the Enforcement Division captain and training director. GLIFWC wardens are spread out to cover over six million acres of the Ceded Territories.

Riley Brooks and Gale Smith conduct maintenance on standard equipment including tasers. (A. Davidson photo)

In late summer, Kniskern said that the wardens plan to all meet again to complete more training requirements, including boat safety, additional water training, and more. GLIFWC wardens gather several times a year to improve their skills and expand their knowledge through these training sessions.

—A. Davidson

Christina Dzwonkowski and Holly Berkstresser take down their service weapons, giving them a thorough cleaning. (A. Davidson photo)

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(Pronounced Muh zin ah' ĭgun)

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Jenny Van Sickle ..... Staff Writer

MAZINA'IGAN (Talking Paper) is a publication of the Great Lakes Indian Fish & Wildlife Commission, which represents eleven Ojibwe tribes in Michigan, Minnesota and Wisconsin.

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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* and our *Facebook* page.

On the cover

GLIFWC Wildlife Biologist Tanya Aldred with an adult marten captured in autumn 2021 as part of a study to track fine scale movements in the Chequamegon-Nicolet National Forest using GPS collars. For more on GLIFWC's 30-year marten (waabizheshi) program see page two. (C. Scott photo)

Specter of past oil spills hangs over Line 5

By Charlie Otto Rasmussen, Editor

Ashland, Wis—The discovery of contaminated soil along the aging Enbridge pipeline Line 5 has sparked an investigation by Department of Natural Resources officials in far northern Wisconsin. At a site just west of the Bad River Ojibwe Reservation alongside a recently cropped hayfield, the unearthed oil was first reported to tribal officials August 3.

Although an Enbridge spokesperson announced that Line 5 had been temporarily shut down while the Wisconsin DNR investigation is underway, the company has for years ignored orders from the Bad River Band to completely remove the pipeline from its water-rich reservation along the Lake Superior south shore.

In addition to Bad River's 2019 federal lawsuit, Michigan Governor Gretchen Witmer also filed federal suit seeking to decommission the pipeline, which crosses a sensitive Great Lakes underwater span known as the Straits of Mackinac. Whitmer later dropped her federal case in support of an effort in state court to shut down the line, which pumps approximately 23 million gallons of crude oil through the Straits daily enroute to a Canadian refinery. Bay Mills Indian Community tribal council also issued a banishment resolution in May 2021, ordering Enbridge to remove Line 5 from the 1836 Ceded Territory.

While Enbridge continues to regularly pump oil and natural gas through the pipeline in-trespass, Bad River and GLIFWC natural resource specialists are conducting an in-depth environmental study of a proposed Line 5 reroute around the borders of the Bad River Reservation. The company is seeking state and federal permits to build the 41-mile reroute, and discontinuing use of the 12-mile Bad River Reservation segment.

With Enbridge's long history of oil spills, however, officials from tribes, State of Michigan, and other jurisdictions are intent on seeing the 70-year-old pipeline retired altogether. Enbridge presided over the worst inland oil spill in United States history at Michigan's Kalamazoo River in 2010 when more than one million gallons of Alberta tar sands oil flowed into the watershed according to the US Environmental Protection Agency.

Enbridge crews operate machinery and heavy equipment at the site of a potential Line 5 oil leak just west of the Bad River Reservation August 4. Wisconsin Department of Natural Resources reported that all the suspect soil around the pipeline was excavated and stockpiled. (CO Rasmussen photo)

Teamwork in play as Partners contend with ogaa struggle on some waters

By Charlie Otto Rasmussen, Editor

Lac du Flambeau, Wis.—After being snagged in the weeds for the last two seasons, Partners in Fishing resurfaced at its traditional time in early June this year.

With good food, good weather, and good company, a spirited comradery seemed to ribbon its way through the gathering of Ojibwe, state, and federal officials—finally able to interact on land and water under limited Covid-19 pandemic restrictions.

"The State of Wisconsin, I love it. I love to fish. I love the camaraderie of getting together and fishing with the guys," said Andre Rison, Super Bowl XXXI champion with the Green Bay Packers. A hearty applause greeted his comments from the assembly of some 160 government representatives and regional fishing guides seated above the shoreline of Pokegama Lake.

Rison and other Packers Super Bowl champions regularly join the "Partners" to share insights and experiences in team building. For Rison, and fellow retired players William Henderson and Gilbert Brown, an effective team is developed through establishing mutual goals, good communication, and spending quality time together.

The interagency Partners—a diverse cast of biologists, policymakers, and administrators—are drawing from those lessons as they contend with a walleye population struggling on some lakes in northern Wisconsin. One of the most important sport and subsistence natural resources in the region, the walleye fishery is the priority for Partners officials.

Three Green Bay Packers Super Bowl XXXI champions share a light moment during a ceremony prior to fishing on the Pokegama Chain at Lac du Flambeau Reservation. From left: Gilbert Brown, Robert Jackson (MC and Partners co-founder), Andre Rison, and William Henderson. (CO Rasmussen photo)

Eyes on ogawaag

For walleyes, good working relations among resource officials comes at a critical time. Through the cooperative efforts of the Joint Assessment Steering Committee, researchers are documenting a decline in walleye numbers on a landscape basis—a trend also observed in neighboring states.

Walleyes, or ogaawag in the Ojibwe language, are feeling the impacts of rising water temperatures, shoreline development, and invasive species that alter aquatic food webs. On some waters, natural walleye reproduction is in dramatic freefall. In their place, other species—notably largemouth bass—are increasingly dominating fish communities. It's an ongoing fish community shake-up that state and tribal resource officials are addressing through harvest reductions, targeted ogaa stocking programs, and rigorous monitoring to evaluate the effectiveness of management strategies.

"Fishing guides tell me it's an eye-opener to see how much of a role tribes have in managing the fishery," said Robert Jackson, Partners in Fishing co-founder. "The state and tribes have their individual perspectives on walleyes, but both put the health of the resource first."

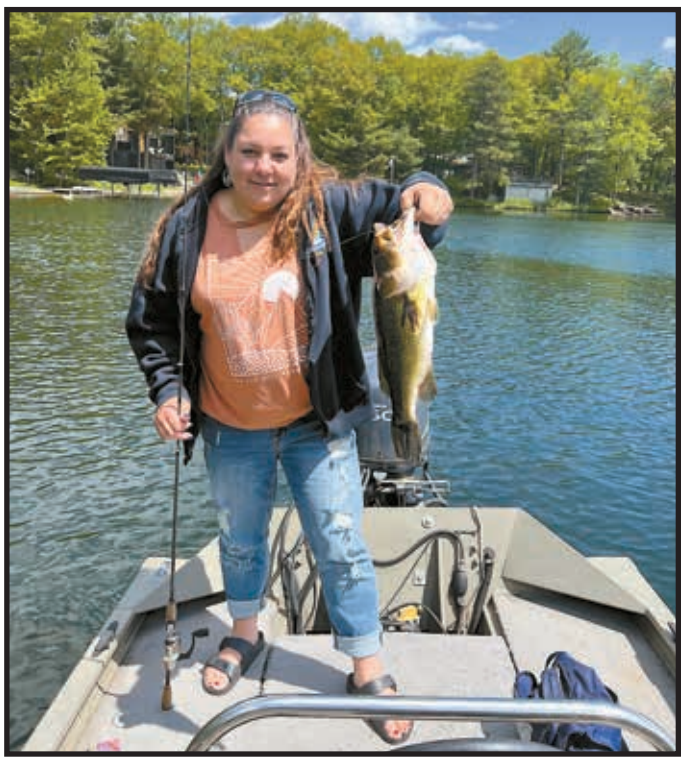
In addition to recruiting local fishing guides to help out the Partners each season, Jackson is better known as the event's longtime master of ceremonies. The retired Bureau of Indian Affairs biologist has presided over every gathering, now in its 29th year.

Event organizers altogether cancelled the 2020 gathering and in 2021 pushed the date to September to allow participants to be fully vaccinated against the Covid-19 virus.

(see Partners, page 22)

Wisconsin Governor Tony Evers addresses the "Partners" as Mic Isham, GLIFWC executive administrator looks on. (CO Rasmussen photo)

Lac du Flambeau's Joe Graveen (right) fished with Wisconsin Natural Resources Board member Sandy Naas and guide Joe Pestka. (CO Rasmussen photo)



GLIFWC's Christina Dzwonkowski reeled in a true bucketmouth from Little Crawling Stone Lake. The 21" largemouth bass netted Dzwonkowski the prize for biggest fish—a St. Croix rod. (submitted photo)

Discussing the future of manoomin alongside the shores of Nagaajiiwanaang

By Bazile Panek
GLIFWC TAM Coordinator

A Tribal Adaptation Menu (TAM) workshop was recently hosted by the TAM team in collaboration with the **First We Must Consider Manoomin / Psiŋ** *(wild rice) research collaborative. Approximately 35 people representing academic institutions, state and inter-tribal agencies, and non-governmental organizations were in attendance.*

In mid-June, 35 people representing academic institutions, state and intertribal agencies, and non-governmental organizations engaged in the Tribal Adaptation Menu (TAM) process to further integrate Indigenous knowledge, culture, language and history into their climate adaptation planning processes.

Hosted by the TAM team in collaboration with the *First We Must Consider Manoomin / Psiŋ (wild rice)* research collaborative, this was the first in-person TAM workshop since the beginning of the Covid-19 pandemic.

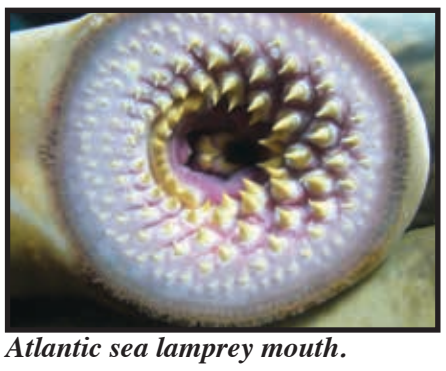
The Harvesting Manoomin Workshop took place at Nagaajiiwanaang, the location where the current slows, or what is colonially known as Chambers Grove Park in the City of Duluth. To start the workshop off in a good way, Ricky Defoe provided an opening prayer in the Ojibwe language and offered some guidance on integrating Indigenous ways of knowing into research work. He also offered the statement: "Knowledge is of the past and wisdom is of the future."

Workshop participants worked on six different projects representing a range of manoomin monitoring, restoration and research efforts. First, they considered the impact of climate change on their projects, evaluated the feasibility of those projects under climate change, and used the award-winning "Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu (TAM)" to incorporate culturally appropriate adaptation strategies and tactics into their projects. GLIFWC, along with Ojibwe knowledge keepers and partnering organizations, developed the TAM which includes 14 core menu strategies that serve as steppingstones to translate broad concepts into specific actions for putting climate change adaptation into practice, while emphasizing traditional ecological knowledge and tribal priorities.

In 2018, a tribal-university partnership and research collaborative called "First We Must Consider Wild Rice" was created. It grew to now include eight formal tribal partnerships with the Minnesota Chippewa Tribe, Fond du Lac Band of Lake Superior Chippewa, Lac du Flambeau Band of Lake Superior Chippewa, Mille Lacs Band of Ojibwe, St. Croix Chippewa Indians of Wisconsin, 1854 Treaty Authority, GLIFWC, and the Great Lakes Inter-Tribal Council. The Harvesting Manoomin Workshop helped to develop more strategies for the First We Must Consider Manoomin collaborative that align with the Tribal Adaptation Menu's strategies and approaches. According to GLIFWC's Vulnerability Assessment, manoomin is classified as "highly to extremely vulnerable" to climate change. Not only does this vulnerability expose an important food source of the Anishinaabe to ecological threats, but it also exposes threats to the spirituality of the Anishinaabe as manoomin is regarded as a gift from the **(see The future of manoomin, page 22)**

Gichigami fishery continued

(continued from page 1)



Atlantic sea lamprey mouth.

their survival, humans most certainly need them in order to live. Canal builders of the late industrial era managed to flip the script, digging waterways to connect the Great Lakes to the Atlantic Ocean. Lampreys soon followed ocean-going ships into the formerly closed Great Lakes ecosystem. Since the opening of the lakes more than a century ago, fish now require human assistance to keep a lid on the blood-sucking sea lamprey—known as ginebigomeg in the Ojibwe language. It's a massive undertaking, requiring the skills and resources of multiple governments in Canada and the United States.

Like salmon, steelhead and other ocean fishes that have relocated to the Great Lakes, sea lampreys utilize tributary streams to spawn. Since their Great Lakes arrival a century ago, lampreys have enjoyed wild success reproducing in the cold-water streams that feed the big lakes. And in these very same waterways, fishery managers have had the most success in taking a bite out of sea lamprey numbers, targeting juvenile larvae that live in riverbeds for the first phase of their lifecycle.

While fishery managers have employed several lamprey control tools over the past 80 years including dams, fish ladders, pheromones, and traps—chemical treatments known as lampricides have proved critical in reigning in the voracious Atlantic parasites, which each kill around 40 pounds of trout and other species annually. A liquid compound called TFM that's metered-out into spawning streams proved highly successful and is now the mostly widely used lampricide in the United States and Canada. Researchers learned that TFM exploits a weakness in the lamprey's evolutionary physiology, causing rapid mortality in juveniles.

"They can't metabolize the TFM like other fish do," Gagnon said. "Trout will excrete it fairly quickly, but lampreys never developed that ability."

In a sweeping territory along the Lake Superior south shore, Gagnon oversees one of two lamprey control crews, each with a dozen members, from late April to early October. A chemist operates a mobile laboratory, evaluating water conditions throughout the treatment period from a steady flow of samples. The distribution rate of lampricide into infested waterways is fine-tuned based on pH, and other factors that influence how well the chemical performs. Treatments invariably result in swarms of 3-5" larval lampreys roiling downstream after evacuating their burrows in the substrate.

"Stream trout absolutely gorge themselves on emerging lampreys during treatments," said Gagnon, noting that the chemical does not bioaccumulate in the environment. For anyone heading out to fish a Gichigami trout stream, you might as well find a different spot if you encounter USFWS's conspicuous sea lamprey control trucks. "It's probably not a very good time for fishing."

Under the leadership of the binational Great Lakes Fishery Commission, states, tribes, and agencies like GLIFWC collaborate on other pieces of ginebigomeg management. In Wisconsin, the Department of Natural Resources (DNR) maintains barrier dams on Lake Superior tributaries including the Bois Brule and Middle Rivers. Both locations are well known to GLIFWC fishery technicians as they share responsibilities with the state in monitoring ginebigomeg activity, conducting population estimates and removing trapped lampreys from the river systems. Lamprey trapping at the Bad River Falls is another important piece of the management puzzle.

"Like so many natural resources issues 'it takes a village' to get the work done," said Paul Piszczek, DNR fish biologist. "The local knowledge that tribal partners bring is really valuable and helps these programs work more effectively."

With assistance from GLIFWC and DNR technicians, Piszczek monitors and maintains the Brule River Lamprey Barrier and Fishway positioned about six miles upstream from Lake Superior. A low head dam and waterfall dominates the site with an aquatic ladder engineered on the east riverbank that contains jumping pools for fish migrating upstream. The innovative structure is designed to steer spawning-run lamprey into a trap, where technicians collect them for university research projects or disposal. Fishery managers learned early on that extension "lips"were necessary on the crests of the low head dam as well as the adjustable gate in the fish ladder adjacent to the trap opening. This modification created an air pocket to prevent the most determined lamprey from bypassing the trap .

"Turns out lamprey are climbers," Piszczek said. "They can use their suction mouth to climb and move up the ladder and the dam."

Even with all the challenges the sea lamprey invasion has presented, interagency resource managers continue to generate solutions, supporting valuable fisheries in Lake Superior and other Great Lakes. Completely eliminating sea lampreys from the region is beyond our reach, Piszczek said, but the tools are there to keep them in check.

Unlimited chronic wasting disease testing opportunities during waawaashkeshi season

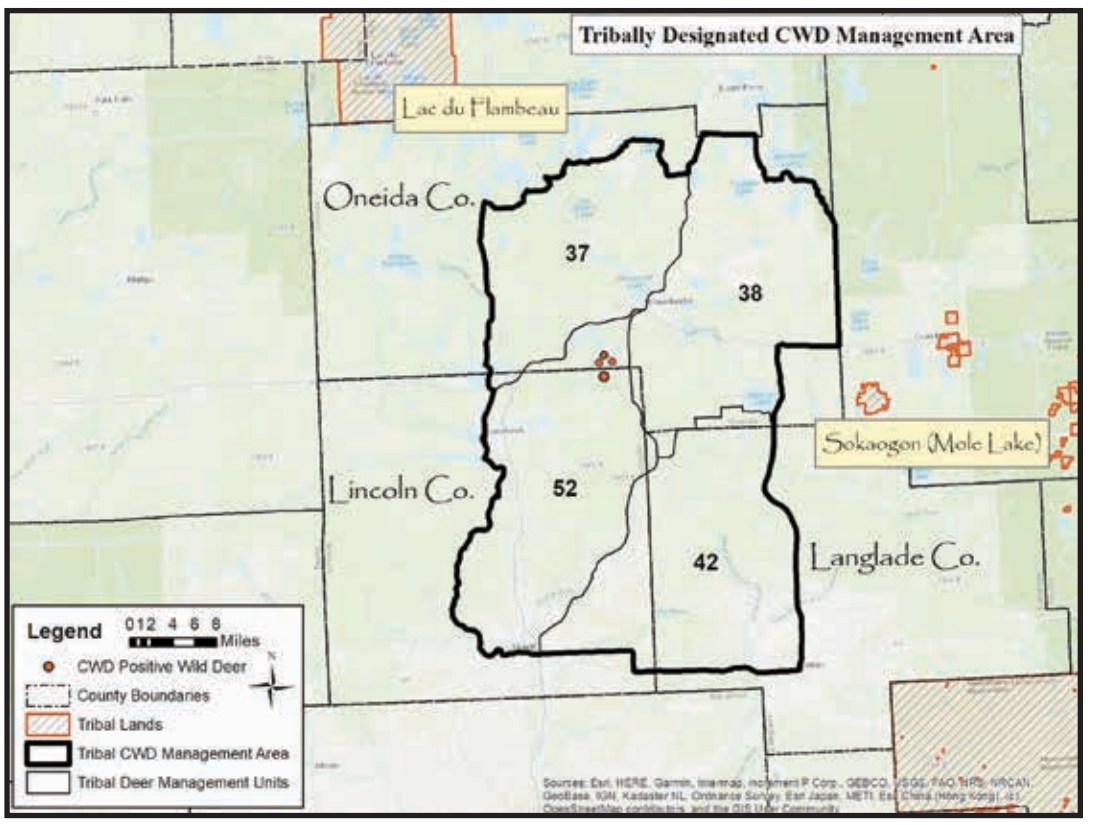
By Travis Bartnick, GLIFWC Wildlife Biologist

Chronic wasting disease (CWD) remains a growing threat to waawaashkeshi (deer) and omashkooz (elk) herds in the Ceded Territories. CWD is a neurodegenerative disease that has been spreading throughout North America for several decades and infects members of the Cervidae family (cervids), such as white-tailed deer, mule deer, elk, moose, and caribou. CWD has been detected in both wild deer herds and captive cervid (deer and elk) herds within or near the Ceded Territory.

The infectious agent associated with CWD is a form of misfolded protein known as a prion (pree-on). Disease experts are confident that CWD is not caused by a bacteria or virus. There is no known cure, vaccine, or treatment for CWD, and it is always fatal. It is believed the prions can be transmitted several ways, including through contact with infected saliva, urine, and feces.

Cervids infected with CWD will often show no signs of being sick when they are in the incubation stage, which can last a minimum of 16-17 months. During this time, infected individuals continue to shed the infectious prions into the environment where it can spread to others in the herd.

Although there is no evidence that CWD can infect humans, the Centers for Disease Control and Prevention (CDC) recommends against the consumption of any animal that tests positive for CWD or shows signs of being sick. The World Health Organization (WHO) recommends keeping the agents of all known prion diseases from entering the human food chain.



Tribally designated Chronic Wasting Disease management area.

How tribal hunters can help

GLIFWC will continue to facilitate CWD testing of deer and elk harvested by tribal members within the Ceded Territories in 2022. GLIFWC biologists will collect CWD samples from all elk harvested by tribal members during the 2022 elk season in the Wisconsin Ceded Territory. Tribal hunters are encouraged to submit deer heads for CWD surveillance efforts. Surveillance can help biologists track where the disease is on the landscape, which then helps with implementation of more targeted surveillance, research, and management actions.

Tribal hunters are encouraged to bring their deer to a tribal registration station and request to have their deer tested for chronic wasting disease.

In 2022, there will be GLIFWC CWD sampling sites located at tribal registration stations. The station will have a set of instructions, a head collection bin and/or freezer, garbage bags, data forms, a bone saw to assist with removing deer heads and antlers. Removing the antlers is important to minimize space used in the freezers and to prevent antlers from poking holes in the garbage bags. It is important to keep the head and about 3-5 inches of the neck intact and stored at cool temperatures (at least as cool as a refrigerator). Freezing the head is also an option.

When dropping off a deer head for CWD sampling, it is important to follow the directions provided at the CWD sampling station, and to complete a CWD surveillance data form, including the hunter's contact information and the location of where the deer was harvested.

Other ways to sample hunter-harvested deer

Minnesota, Wisconsin, and Michigan state DNRs will also be conducting CWD surveillance and offering CWD testing for deer hunters in those states. It is best to check with the local state DNR biologist or visit the DNR CWD website to get the most up-to-date information on CWD testing locations.

Tribal members who get their deer tested through state agency CWD testing programs will generally receive their results in 1–2 weeks. Testing through GLIFWC can take about two weeks, depending on the location of the registration station and time of year. Test results may take longer during and immediately after the state gun deer seasons when most samples are sent to the diagnostic laboratories. Some individual tribal communities might also be offering CWD testing for their members, so be sure to check with your tribal natural resources department for more information.

Tribes active in disease management

The Voigt Intertribal Task Force approved the establishment of a tribal CWD management area in 2018, which will remain in effect in 2022. The tribal CWD management area has special regulations concerning the transport, disposal, and registration of deer harvested within the tribal CWD management area. The purpose of the special regulations is to prevent hunters from transporting whole deer or deer parts with a higher risk of being infected with CWD back to their communities. Deer harvested within the tribal CWD management area must be registered remotely to prevent whole carcass transportation outside of the management area. Parts of the deer, including the spinal column and head, cannot be transported outside of the area. Carcass waste must be disposed of in a landfill or carcass waste collection site within the management area.

The tribal CWD management area consists of tribal wildlife management units 37, 38, 42, and 52, in portions of Oneida, Lincoln, and Langlade Counties of Wisconsin (see map), between the Lac du Flambeau and Sokaogon (Mole Lake) tribal communities. The Wisconsin DNR will have CWD testing drop-off sites located within the tribal CWD management area. All state DNR agencies have developed CWD websites with maps and additional information on the location of testing sites and carcass waste collection sites.

There have been relatively few detections of CWD within the Ceded Territories across portions of what is now Minnesota, Wisconsin, and Michigan. The most recent detection of CWD in a wild deer was within the city limits of Eagle River, Wisconsin in late 2021. Given this recent detection, tribal hunters who harvest deer within 10 miles of Eagle River, Wis. are strongly encouraged to submit their deer head for CWD testing in 2022. The Wisconsin DNR is planning to have additional CWD testing sites and carcass dumpsters for the disposal of deer carcass parts within a 10-mile radius surveillance area surrounding Eagle River.

Please visit GLIFWC's CWD webpage (*data.glifwc.org/cwd*), which includes an interactive map of known locations of CWD-positive wild deer and captive cervid facilities that have tested positive for CWD. There are also safe handling and disposal recommendations, answers to frequently asked questions, and links to a video series that covers safely field dressing and boning-out deer meat using methods to avoid areas where CWD prions accumulate in deer.

We need your input!
Tribal Deer Hunter CWD Survey

A collaborative team led by the University of Minnesota, GLIFWC, and tribal partners in Minnesota, Wisconsin, and Michigan have developed a survey to gain a better understanding of tribal hunters' deer harvest practices, knowledge of CWD, and support for various CWD management actions.

The survey results will help guide the development of community-specific CWD outreach materials and the development of a CWD response plan that reflects tribal priorities. Please consider taking the survey and sharing this with others within your community.

Your feedback is important and the survey takes approximately 20-30 minutes to complete. Anyone interested in participating in the survey can access it here: *umn.qualtrics.com/jfe/form/SV_3WTxr1nmsNgPMcC*

In addition, the survey can be accessed by scanning this QR code with your smartphone.

Ceded Territory SCIENCE

Appraising walleye homes:

How much would a walleye want to live in a lake near you?

By Mark Luehring
GLIFWC Inland Fisheries Biologist

Walleye populations across the Midwest are in decline. Scientists, fisheries managers, and fishers are looking far and wide to try to determine the causes of the decline, and to bring walleye populations back in places where they once thrived. Broadscale concerns have been raised about overharvest, changing climate, and shoreline development, but standardized surveys measuring in-lake walleye habitat have not been developed.

Aaron Shultz and the GLIFWC inland fisheries section have been working to develop methods to measure walleye habitat within lakes. While the main concern for walleye habitat has traditionally been whether there is adequate cobble or gravel substrate for spawning, the GLIFWC surveys are intended to cover habitat necessary for all walleye life stages.

"We need to consider all life stages from egg to adulthood when measuring the quality of walleye habitat," Shultz said.

Standardized surveys could be helpful in identifying habitat shortcomings in individual waters, and could provide a basis for habitat improvements to be part of current and future walleye rehabilitation efforts.

"So far, our rehabilitation efforts have primarily focused on harvest reductions, fish community manipulations, and stocking, but habitat is likely to be a main driver of what type of fish community is present," Shultz said. "We would like to move habitat to a more prominent role in our rehabilitation approaches,"

Turtle-Flambeau Flowage on a fall evening. The Flowage contains a wide diversity of habitat including shoreline cobble, woody structure, islands, bays, and open water areas. (M. Luehring photo)

GLIFWC scientists are likely to use sonar to help map habitat on walleye lakes. Sonar technology has improved to the point where vegetation maps can be created from sonar logs (Figure 1). The field work involved in creating these maps is fairly simple: drive a boat around the littoral (or light-penetrating) zone with the sonar on and record. Scientists suspect that walleye are less likely to be the main predator fish in clearer lakes with more aquatic vegetation since they have light sensitive eyes that give them an advantage in dark water.

Overall, the surveys are intended to follow scientific guidance, attempting to measure lake attributes that have been identified in the scientific literature as important for walleye.

"We don't expect the methods that we use initially to be the final methods, but we want to work towards a standardized method that does a good job of measuring the things that walleye need most," Shultz said.

If the habitat surveys work well, one likely outcome is that GLIFWC will join with partner agencies to share results and collaborate on methods for future surveys. For Shultz, the project represents a step in the right direction: "We're excited to finally get boots on the ground for this project, and hope to move it forward in a good way."

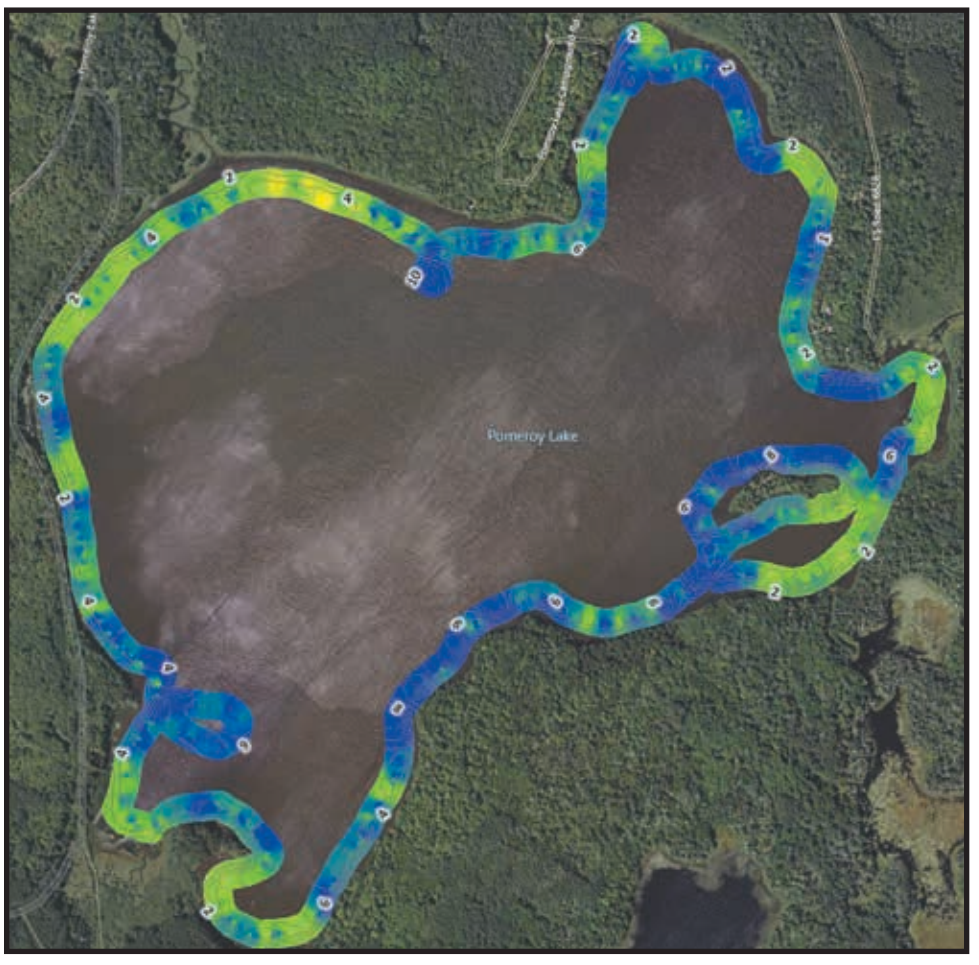


Figure 1. Vegetation map based on sonar logs of Pomeroy Lake, Michigan. Blues and dark greens represent areas of less vegetation, light greens, reds, and yellows represent areas of more vegetation. (Map created by BioBase software)

A walleye rehab case study

GLIFWC staff, in consultation with tribal representatives recently published an article in **Fisheries Management and Ecology** titled: *Case study: Applying the resist–accept–direct framework to an Ojibwe Tribe's relationship with the natural world.*

Region-wide declines in ogaa have been attributed to many stressors such as overharvest by state-licensed anglers, invasive species and climate change. We retroactively applied the *resist–accept–direct* (RAD) framework to the process used to create an interjurisdictional rehabilitation plan for the Minocqua Chain of Lakes. Specifically, we cover the following: progress to date on the rehabilitation plan; subsistence, cultural and spiritual challenges associated with resisting ecosystem change; unforeseen obstacles to rehabilitation; re-evaluation of the relationship with ogaa; unknowns; and contingency plans from a tribal perspective. Lastly, we discuss how the RAD framework could become more useful to tribes in the region.

To read the case study, visit *doi.org/10.1111/fme.12568*

GLIFWC, lake association collaborate on Big Portage Lake walleye survey

By Mark Luehring, GLIFWC Inland Fisheries Biologist

Land O'Lakes, Wis.—Quiet and clear Big Portage Lake in northern Vilas County was due for a walleye population estimate since the most recent one was conducted in 2016. Pandemic related work delays and worker shortages, however, were making it difficult for Wisconsin Department of Natural Resources or GLIFWC to get the 638-acre naturally reproducing walleye lake on the survey schedule.

After some late winter discussions, GLIFWC staff and Big Portage Lake Association decided to make the best of limited resources to work together to get the survey done. Big Portage Lake Association members stepped up in a big way to work with GLIFWC to complete the work. Members helped with the survey work, bringing boats, local knowledge, and great interest in the walleye population.

The survey consisted of a marking phase, during which GLIFWC and lake association members lifted fyke nets three days in a row to fin clip adult walleyes. This phase started immediately after the spring ice out. The late ice out in 2022 meant that walleyes were ready to spawn immediately, and the fyke net catches declined quickly after the first day.

In addition to the fyke net marking, GLIFWC took another few passes on the spawning grounds with an electrofishing boat, just to make sure that the fyke nets were not missing substantial portions of the spawning population. Following the standard protocol, a one night recapture survey of electrofishing around the entire shoreline followed the marking phase. This electrofishing survey is used to estimate the proportion of walleye that were fin clipped.

Overall, over 400 walleyes were handled in the survey, and the resulting population estimate was around two adults per acre. The crews also observed a few yellow perch, northern pike, smallmouth bass, and an abundant population of white suckers. Unfortunately, the survey indicated a decline in the walleye population from previous estimates, a result that was not entirely surprising to the lake association members, many of whom had seen lower fishing success in recent seasons. The data from the survey is being finalized GLIFWC and WDNR fishery biologists. Further discussions are likely to take place on actions that can be taken to return the walleye population to historic levels.

GLIFWC staff and Big Portage Lake Association volunteers work together to transfer walleyes from a fyke net to a work-up tank during the marking phase of the Big Portage Lake walleye survey. (L. Nielsen photo)

New study highlights fish consumption awareness

Harvesters, consumers, governments all play a role

By Hannah Arbuckle, GLIFWC Outreach Coordinator

Giigoonh (fish) are a staple for the Ojibwe people and have been since time immemorial. Giigoonh have gifted the Ojibwe people with health, spiritual wellbeing, and cultural lifeways such as spring spearfishing and more.

Similarly, communities celebrate fish in many ways, such as attending Friday fish frys, organizing the cherished annual fishing trip, and creating the world's largest maashkinoozhe (muskie) sculpture housed in Hayward, Wisconsin, to name a few.

Unfortunately, all our love for giigoohn can't save us from the reality that our freshwater fish absorb and accumulate contaminants, such as mercury, polychlorinated biphenyl (PCBs), perfluoroalkyl and polyfluoroalkyl (PFAS) from pollution.

Contaminant consumption and exposure can cause adverse impacts on the human body and are of particular concern for sensitive populations including children, women who are pregnant, and woman who could become pregnant.

Fish consumption advisories are put in place to keep us safe from the adverse health impacts caused by these contaminants. The advisories offer advice on how much fish to consume based on its size, species, and often the lakes they are harvested from. The purpose of this information is not to deter folks from consuming fish, because including fish in our diets has many health benefits, but rather to be more intentional about the lakes we harvest from and the fish we choose to eat.

A new study published in June of this year from the Science of the Total Environment (*sciencedirect.com*), found that only about 50% of Great Lakes residents know about safe fish consumption advisories. Women, people of color, and the youth were the least likely to be aware of the risks associated with consuming contaminated fish—many of the same groups who are most at risk to adverse impacts of chemical contamination. This study highlights gaps in how we receive and share health information in ways that are appropriate to age, gender, language, and culture.

Although, closing gaps to how and who is receiving reliable information is and has been a challenge for many years, entities such as tribal nations, GLIFWC, US Environmental Protection Agency, and state Departments of Natural Resources, among others, are working together to gather, develop, and efficiently disseminate data to the public.

While long term solutions to these informational gaps is a continued priority for GLIFWC and its partners, short term solutions can also be impactful when it comes to protecting our loved ones today. Taking social responsibility to protect ourselves, friends, and family when we share a meal together should include discussions about safe fish consumption. When that fresh fish is placed on your plate, as a consumer we can ask about its origins such as size and location of harvest.

As harvesters, we have a responsibility to those who consume our catch to relay information on its possible contamination. Knowledge is power, and we encourage everyone to become familiar with environmental contaminants in their area and share that information with others.

To find fish consumption advisories and maps in your area, go to *www.glifwc.org/Mercury/index.html*, or your local tribal registration office. For more information on the study mentioned, go to *sciencedirect.com*, and search for "Fish consumption and advisory awareness in the Great Lakes basin."

Navigating trade and travel on the Flambeau Trail

By Cathy "Cat" Techtmann
UW Extension Environmental Outreach Specialist

"Let's take a trip from Mooningwanekaaning-minis [Madeline Island] to Waaswaaganing [Lac du Flambeau]." Similar words may have been spoken by Ojibwe living on Madeline Island and other Lake Superior villages who travelled to distant areas to harvest, trade, and visit. How were they able to make such long journeys?

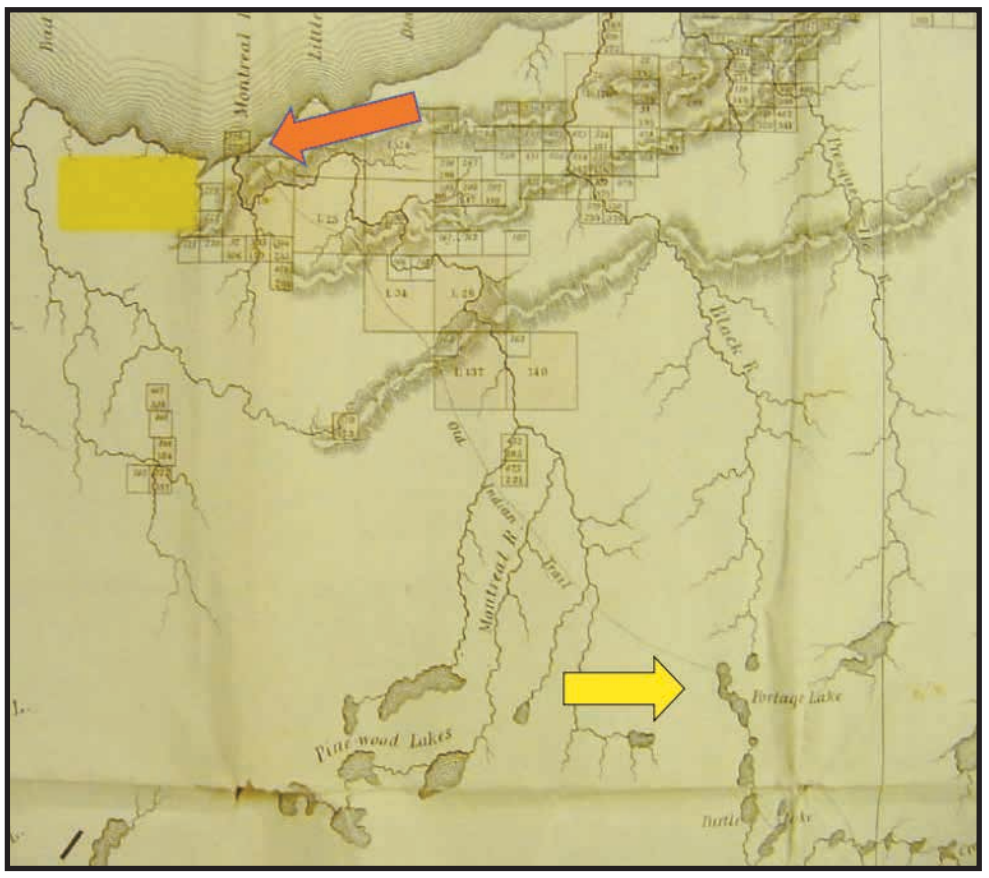
Before cars, highways, and Google maps, the Ojibwe used a network of overland trails and navigable waterways to connect them with people and cultures far beyond the Lake Superior region. This was part of an international transportation network as evidenced by copper trade items from Michigan's Upper Peninsula being found as far away as South American and the Island of Crete.

What came to be known as the "Flambeau Trail" was one of the many native trails that crisscrossed the Lake Superior region. The trail was a 45-mile portage that spanned the length of what is now Iron County, Wisconsin and connected Ojibwe communities on Lake Superior with those inland. For travelers, it was a transcontinental link between the Great Lakes watershed whose waters flow north through the St. Lawrence River to the Atlantic Ocean, and the Mississippi watershed whose rivers flow south to the Gulf of Mexico.

Departing Madeline Island for Lac du Flambeau and points south, the journey started with a 26-mile paddle along Lake Superior's coast to the mouth of the Agaawaa-zaasijiwan-ziibi (Montreal River in Iron County). Because the north-flowing Montreal River is not navigable, the jiimaanan (canoes) were cached here for the return trip. Depending on conditions, it would take 2-7 days of cross-country travel to reach navigable waters where easier travel by canoe is possible.

Leaving the lake, the Ojibwe trail starts with a steep climb to the top of the shoreline's red clay bluffs. The route follows the river's upstream course, skirting a 90-foot waterfall (Superior Falls) and continuing south along the edge of a 300-foot-deep canyon (Montreal River Canyon).

"Near this river (the Montreal)…we started to proceed overland by a well-worn trail to their village about the source of the Chippewa River….—seeking to 'win the shortest route to their nation at Lac du Flambeau.'" **—Diary of Pierre-Esprit Radisson, fur trader, 1661**



An 1846 map by geologist AB Gray. The Flambeau Trail is labelled the "Old Indian Trail. The red arrow shows the trail head at the Mouth of the Montreal River (northern Iron County). The yellow arrow shows the trail head at Portage Lake (now called "Long Lake" north of Mercer, Wisconsin). Access to the Turtle River and points south continue south from that point.

European fur traders who later used this trail started inland from Lake Superior at the mouth of Gichi-ziibiwishenhyan (Oronto Creek-Saxon Harbor) one-quarter mile to the south. The shoreline here is gradual making it easier to carry heavy packs up from the lake.

The trail continues south, first climbing the rugged Keweenaw Trap Range, and then the Penokee Mountains. The terrain is rocky, punctuated **(see Navigating trade & travel, page 17)**

Manoomin preview 2022

(continued from page 1)
off after pollination. The beds here extend into the Manitowish River; be aware of deadhead logs if attempting to harvest here.

So far, most waters are looking average from the air. None of the waters we photographed are completely void of wild rice, but that doesn't mean they are harvestable. With enough cloudless sunny days, surveys will continue through August. We need clear skies to get the migizi point of view.

The view from a canoe. GLIFWC's new manoomin team covered the Ceded Territory over land, on the water, and in the air to evaluate wild rice resources for the coming season. Little Turtle River Flowage on July 11, 2022. (A. Cottrell photo)

Manoomin considerations for harvesters

Giimiigwechiwendam, (we are thankful) to all those that had previously responded and sent in their past harvester summary surveys. Harvest summary surveys are sent out after the wild rice season. Data gleaned from these are appreciated and help us better understand harvest pressure, priority waters, wild rice abundance or lack thereof, and harvester opinions. In effect these data help manoomin and allow us to better assist harvesters.

A reminder that the updated list of date-regulated waters is official under NR 19.09 (4) and is in effect for harvest season this year. Make sure to check GLIFWC's Manoomin Outlook website *data.glifwc.org/manoomin.harvest.info* prior to harvesting on date-regulated waters. Consult with your local rice chiefs for any further concerns.

Need help processing your manoomin? You can get to know other ricers and see how they process rice by building a community of knowledge. Or you can attend a manoomin camp. Over Labor Day weekend, Keweenaw Bay Indian Community (KBIC) is holding a rice camp open to everyone. It may be a bit of a trek to Baraga, Mich. But it is one opportunity of learning from knowledge-holders how to process this precious gift.

All of this work is very important to Anishinaabeg. Elders tell stories about when they were young teenagers, they would hit the rice fields to sustain their way of life. They would knock all day and come back "nut brown," they say. It was important to bring home sustenance and it was important as it was a way of making money to pay for school clothes. How some things have changed. As we continue to build our relationship with communities and with the manoomin, we will do our best to give a voice to the medicines as they cannot speak for themselves.

Manoomin knocker & push-pole workshop

When: August 31 & September 1 9:00 AM–5:00 PM, September 2 9:00 AM–Noon
Where: Ojibwa Recreation Area, Baraga, Michigan
Registration is recommended: *forms.gle/KZxqJxh95FH5mXvM8*
For more information: Erin Johnston, ***ejohnston@kbic-nsn.gov***
Please bring your own food and water for the day

Hands-on cultural activities central to GLIFWC internship

Birch bark harvest inspires basketmaking, elder gifts

By Augustin Rasmussen, Planning & Development Intern

Washburn, Wis.—On June 30th, GLIFWC staff and their summer interns travelled to the Chequamegon-Nicolet National Forest for their annual birch bark harvest and basket making day. This would be the first time returning to the birch woods since the onset of the COVID-19 pandemic.

From left, Robin Armagost and Ma'iingan Wolf Garvin with fresh rolls of birch bark (A. Rasmussen photo)

The group began by gathering red-osier dogwood stems down at Thompson West End Park, which would later serve as the rims on the birch bark baskets. Led by Miles Falck (Wildlife Section Leader), Dawn White (Treaty Resource Specialist), and Kathleen Smith (Ganawandang Manoomin), the group headed northwest of Washburn to forestland filled with birch trees. As other staff and interns observed, Falck, White, and Smith showed which trees were ready for harvest and how to properly remove the bark—a construction material used in a variety of items.

"I used to watch my grandmother make all kinds of cool stuff. She made everything. She'd create all kinds of containers with lids, and even a percolating coffee pot," White reminisced. "It was just something that I've always wanted to experience the way my grandmother experienced it."

The harvesting was a fairly new adventure for all the GLIFWC interns. Ma'iingaan Garvin, who is a member of the Ho-Chunk nation and works in the Planning & Development Division as a Traditional Foods intern, reflected on her experience: "I think it's super important that we get the chance to exercise our treaty rights at our place of work. I don't think there's a lot of opportunities at jobs to keep culture at the front of what we do. When I think of a job, I don't think of things like going out and harvesting birch bark, making baskets, and getting those teachings. When I think of work, I think of a desk job. So overall, GLIFWC does an amazing job of emphasizing treaty rights and culture."

Robin Armagost, who is a member of the Red Cliff Tribe and also works in Planning & Development as the ANA Language intern, reflected on the importance of non-tribal members getting the kind of experience that comes with harvesting birch bark. "I think it's very important for non-native people to get a firsthand experience on what it's really like and what treaty rights really mean to Anishinaabe people. Not only that but getting an unbiased experience that teaches proper knowledge."

After harvesting the birch bark, the GLIFWC ensemble took their gathered materials to nearby Long Lake where they began collating their baskets. Baskets of all shapes and sizes began to take shape, some small and shallow, some tall and deep. Charlotte Way, who is a non-tribal member in GLIFWC's Biological Services Division, crafted an impressive tall container and reflected on her experience.

"It's awesome. I love getting to experience the cultural side of things. Being able to use the land in this kind of way, getting to use what we gather to craft or make medicines. I think gathering, the feasts, and participating in ceremonies is just a great way for me to be connected to the work I'm doing. It's not just me going out and doing field work. I'm able to get directly involved. I'm participating in this kind of cultural practice," said Way, who also attended a Red Cliff language camp with other interns.

The completed baskets were used as gifts for elders on July 27 at the Mikwendaagoziwag Ceremony at Sandy Lake, Minnesota. In addition to making elder gifts, interns assisted in feast preparation, clean-up, and served as all-around helpers during the events at Sandy Lake.

Cooperative program makes gains for Iron County plant communities

By Abby Davidson, Public Information Office Intern

GLIFWC biologists and the Iron County Conservation Department have been working together for over five years to control and monitor several species of invasive plants. On June 16, GLIFWC biologists and wildlife staff met with employees from the Iron County Conservation and Northwoods Cooperative Weed Management Area to combat two different invasive species–the European marsh thistle, and wild parsnip. The group worked on control efforts of European marsh thistle along the right of way of US Highway 51 between Hurley and Mercer, Wisconsin and focused on wild parsnip along Highway 77 near Upson.

One of the biggest concerns with wild parsnip is that it poses a potential human health hazard with its toxic sap which causes phytophotodermatitis. This means that the toxic sap makes human skin sensitive to ultraviolet light, causing a burn on the skin.

Cooperation and coordination are key elements of the invasive species program. The collaborative effort to remove the wild parsnip every year used to be a multiple-day effort, but now after years of progress to reign in roadside populations, it is down to about a two-hour job. The control method used to be primarily herbicide application but has since shifted to a combination of mechanical removal and a little herbicide application. Compared to European marsh thistle, natural resource managers in northern Wisconsin are more familiar with the wild parsnip, an invasive species that has been in the Great Lakes area longer–since the late 1800s.

The team also spent a half day working with the European marsh thistle, a relatively unknown newcomer to the region. "Understanding this species is very important to our work because there are very few records of it in the Ceded Territory of northern Wisconsin," said Travis Bartnick, GLIFWC Wildlife Biologist. "We wanted to spend time with this species to become familiar with identification, document photos for the development of outreach materials, and work collaboratively on controlling this population on Highway 51."

GLIFWC, Iron County Conservation and Northwoods Cooperative Weed Management Area collaborated to combat invasive species. (AD photo)

With the success of this joint work to reduce the impacts that non-local beings have on human health and native plant species, Bartnick said wildlife officials hope to continue collaborating in the future.

Science, professional skills, and culture:
Students experience full GLIFWC internship in '22

By Abby Davidson, Pubic Information Office Intern

This year GLIFWC's various divisions welcomed eleven student interns from different parts of the country. There were a range of opportunities offered this summer and GLIFWC is very thankful to be able to continue the internship program.

Planning and Development

An enrolled Hoocak and descended Bad River Ojibwe, Ma'iingan Wolf Garvin spent her summer as a traditional foods intern. She plans to use what she learned during this internship in her own community by advocating for food sovereignty and environmental education. Wolf Garvin will be starting her sophomore year at Brown University in the fall.

Robin Armagost, a Red Cliff tribal member, is about to start her senior year at Northland College as a Native American Studies major. She worked as the Administration for Native Americans Language Grant intern this summer, loving to have the chance to work with tribal communities and hoping to do so in the future. Her favorite thing she did this summer was harvesting amazing-smelling sweet grass in the upper peninsula of Michigan.

Augustin Rasmussen, a second year GLIFWC intern is about to start his senior year at University of Wisconsin Superior as a double major is exercise science and community health. He is very glad he decided to come back for a second summer at GLIFWC and get the full experience that he was not able to receive last year due to the pandemic and medical conditions. Rasmussen plans to use what he learned about traditional foods and nutrition to continue to educate others on how to live a healthy lifestyle as a potential future dietitian.

Biological Services

Working in Biological Services this summer was a lot of fun for Kansas resident and Rosebud Lakota Sioux tribal member Alexis Dutro. About to finish the last year of her associate's degree in environmental science at Tohono O'odham Community College, spending the summer at GLIFWC was a great experience. Her favorite part of the summer was going to Lake Mille Lacs to help with data receivers and loggers, used in a long-term fishery research project.

Manoomin

During her experience as the wild rice intern, Charlotte Way spent the summer visiting the water bodies in the area with manoomin (wild rice), identifying its growth stages, and studying the other flora and fauna on the water. Way is starting her junior year at Northland College in the fall, hoping to continue doing ecology work using the different perspective she gained this summer.

Fisheries

Inland Fisheries interns Kayla Lamson and Tyler Turcotte spent time with aquatic species, including sea lamprey, conducting various aquatic-related research.

Lamson is about to start her fifth year at Northland College as a water science and Native American studies major. She plans to use this internship to further her education, hoping to conduct more research in communities directly impacted by climate change.

Turcotte, a Hancock, Michigan native, is about to start his senior year at Finlandia University. He hopes to use this internship to help eliminate and control sea lamprey. Both inland fisheries interns are excited for their futures, hoping to continue working within the umbrella of fisheries.

(see 2022 GLIFWC interns, page 14)

Tyler Turcotte.

Samson Wood.

Ursula Charles. (COR photo)

Ma'iingan Wolf Garvin. (A. Rasmussen photo)

Robin Armagost.

Augustin Rasmussen.

Karen Johnson.

Abby Davidson. (J. Van Sickle photo)

On behalf of GLIFWC staff, Chi-Miigwech for your help this summer!

Great Lakes Indian Fish & Wildlife Commission

Intern photos by Abby Davidson

Alexis Dutro.

Charlotte Way. (A. Cottrell photo)

Kayla Lamson.

Interns are required to present their findings and experiences on a tri-fold posterboard to the Board of Commissioners and Voigt Intertribal Task Force. It is the culumination of the summer internships at GLIFWC. (M. Rasmussen photo)

"You're Native?"

By Abby Davidson
Public Information Office Intern

"How are you Native, if you look so white?"

I hear this at various events by being President of the Native American Student Association, all throughout high school, and most recently working a GLIFWC information booth at the Northern Wisconsin State Fair. This is when I sometimes feel obligated to show my tribal ID, like there's some rule that I have to prove my ethnicity and show people that I am what I say I am. Does how I look make me any less of a strong Indigenous woman?

I am a proud member of the Bad River Band of Lake Superior Chippewa. Both of my parents are enrolled members. My dad, now passed on, was a member of Bad River. My mom is a member of the Lac Courte Band of Lake Superior Chippewa.

I grew up my whole life immersed in the culture, always wanting to learn more about myself and my ancestors. I go to powwows, I am active in my tribal community, I'm always trying to learn more, I speak out for my tribe and our inherent rights, I fish and gather. But there seems to be an issue with some people because I do not look like their stereotype of Native American women.


M. Davidson

My father was a very light-skinned man, and so are his brothers. He grew up on the reservation and was always practicing his culture. My brother and I are very light-skinned Native Americans. We've grown up our whole lives being doubted when we tell people our heritage and they question how this is possible if we look so "white."

This is getting more and more common as time goes on, Native people not fitting the expectations of the stereotypical Native American that appear in Hollywood movies and television programs. This is mostly caused by colonization and differing skin complexions. I don't blame people for being surprised when they find out I am Native, but that doesn't make it hurt any less when people question my ethnicity.

If you don't know what someone identifies as, ask them without being rude. Being interested and respectful. We need to stop adhering to a social construct that is race and appearance. I'm not going to ask someone why they don't look Swiss, Danish, etc., so try not to ask someone why they don't look Native American.

I write this article to say that the next time someone tells you they are Native, think about how you react. What you say about someone's identity matters. The composition of a person beneath the skin, of life experiences, the connections to one's ancestors—these are much truer ways to appreciate who an individual is.

GLIFWC partners with Wisconsin Sea Grant on internship

Maya Reinfeldt, Wisconsin Sea Grant's summer intern, centered her summer projects on "expanding voices" heard at UW-Madison's Wisconsin Water Library (WWL).

Supervised by Anne Moser, senior special librarian, WWL, Reinfeldt collaborated with GLIFWC in planning the upcoming fall session of "Maadagindan!," (*go.wisc.edu/Maadagindan*) the popular Indigenous children's literature book club. If you would like to get added to the book club mailing list, email *akmoser@aqua.wisc.edu*.

In consultation with GLIFWC TEK Specialist Michael Waasegiizhig Price, she added Ojibwemowin vocabulary to the library's loanable educational kits, and also compiled credible resources for librarians interested in expanding their work with Great Lakes Indigenous literature and knowledge.

"The goal is to both increase the presence of and emphasize the necessity for Ojibwe voices at the WWL," said Reinfeldt who also attended several outreach trips–notably the Northern Wisconsin State Fair to staff the GLIFWC booth. She also traveled to Barron and Polk Counties to help run Great Lakes Literacy library programming for children. Finally, Reinfedlt transcribed and provided metadata for a Ho-Chunk oral history interview, which will be housed at the UW-Green Bay Archives.

Maya Reindfelt (right) with Public Information Office Intern Abby Davidson at the Northern Wisconsin State Fair in Chippewa Falls. (J. Van Sickle photo)

Reindfelt said she hopes that her work will lead to a more intentional focus on Indigenous authors and voices at the WWL and emphasize the importance of libraries in helping with Indigenous cultural and linguistic revitalization. Reinfeldt is a 2022 graduate who earned her BA in International Studies & Russian literature at UW Madison.

—J. Van Sickle

Dagwaagin book club schedule

Save an hour on the second Wednesday of the month, September–December. Beginning September 14 at 4:00 PM CT we kick off our children's book club featuring these Great Lakes centered selections.

Join us virtually for discussions, teachings, and kinship for kids and families. We are so excited to share these books and learn more from our guest speakers and even the authors themselves!

Date/Time	Book Title/Author	Guest
September 14 4:00 PM CT	**Indigenous People's Day** By Dr. Katrina M. Phillips	Dr. Katrina M. Phillips Red Cliff
December 14 4:00 PM CT	**The Little People and the Water of Life** By Ronda Snow	Ronda Snow
**	**It's a Mitig!** By Bridget George	**
**	**Morning on the Lake** by Jan Bourdeau Waboose	**

***The last two dates are pending author/guest confirmations.*

GLIFWC 2022 summer interns

(continued from page 12)

Great Lakes fisheries interns Samson Wood and Ursula Charles spent the summer out on Lake Superior doing various studies.

Wood is a sophomore at Northland College majoring in natural resources. He felt this internship gave him a quick rundown of his aspired future career of working in fisheries with tons of experience gained. The Toledo, Ohio native enjoyed setting gill nets off the Houghton, Michigan shoreline as part of the annual siscowet survey.

Charles got to have a hand in both Great Lakes fisheries work as well as inland fisheries work on the rivers and streams. She enjoyed setting nets outside the mouth of the Bad River for juvenile sturgeon. Ursula goes back to Northland College in the fall as a sophomore majoring in ecological restoration.

Division of Intergovernmental Affairs

A St. Croix tribal member, Karen Johnson spent the summer in the Division of Intergovernmental Affairs practicing the very things she just finished studying with her newly obtained Bachelor's degree in tribal administration and governance from University of Minnesota-Duluth. Her favorite thing she did this summer was participate in the Healing Circle Run, which allowed a different perspective behind all the meetings and collaborations with other entities. Johnson felt it was rewarding to work on projects that had a very real meaning and impact to tribes, the states, and the nation.

Public Information Office

As for me, Abby Davidson, I had an amazing summer spent with the Public Information Office. As a Bad River member, this was a great opportunity for me to learn more about my culture through numerous opportunities provided by GLIFWC. My favorite part of the summer was being able to spend time with the other interns, sharing experiences right alongside them. I go back to Carthage College as a sophomore in the fall majoring in allied health science looking to go onto an athletic training master's program, hoping to use everything I learned about communication, collaboration, and culture this summer.

Healing Circle Run connects ten communities

By Jenny Van Sickle, Staff Writer

After two years of exercising caution due to the COVID-19 pandemic, more than 300 people hit the pavement for this year's Healing Circle Run. Participants traveled approx. 700 miles connecting 10 communities across seven days.

Each leg of the run begins with a ceremony and a talking circle before the roughly 70 miles are divided up for the day. Host communities greet runners with volunteers, feast, lodging and support for participants.

"This run is all about community" said Administrative Assistant to Biological Services, Jenny Kreuger-Bear who has been actively involved and co-organizing the run since 2012. "This year I was truly heartened and blown away by how many young people committed to and completed miles." She pointed to the Lac du Flambeau Waaswaagoning youth boxing group who helped to tally up miles on the first and second days as a prime example.

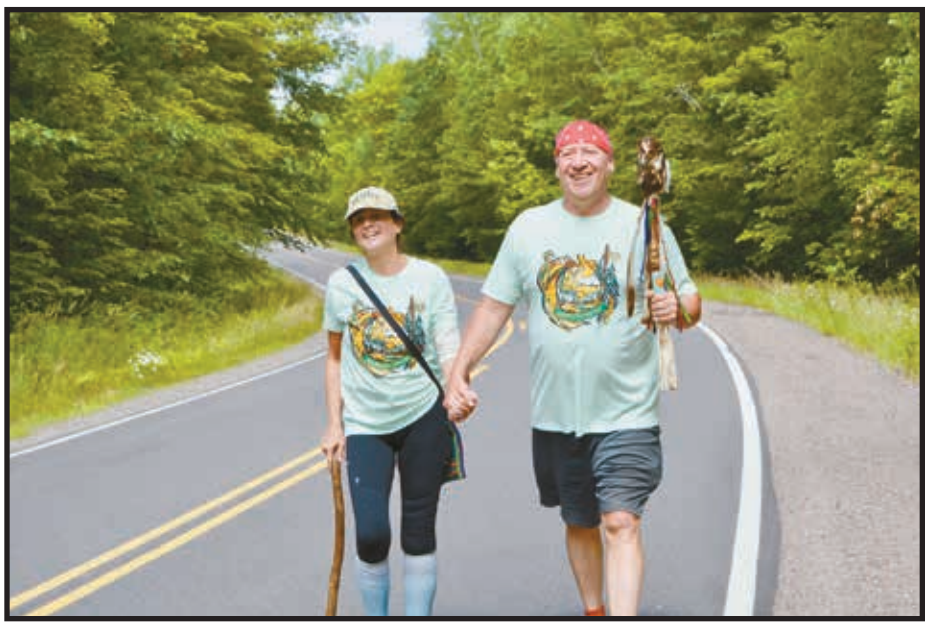
It is a tradition that the run starts off in a good way on the Lac Courte Oreilles Reservation at beautiful Pipestone Falls. With its historic quarry, the area holds a lot of importance for the Ojibwe people in the Ceded Territories. Community was experienced here that included introductions, a pipe ceremony, and a powerful talking circle. The time spent together before the start of the Healing Circle Run really brings everything into perspective and helps show how participating can change your life.

In attendance for the kickoff was LCO member Jason Schlender. Schlender, whose family has a long connection to the run, spoke at the opening ceremony at Pipestone Falls near Lac Courte Oreilles, proudly acknowledging his children Aandeg and Zaagate Jayda Schlender who were participating as core runners (running every day of the week-long prayer run). Additional honored core runners were Allen Bear, Amber Hoon (GLITC), Opitchee Mushkooub and her children—Waate and Cyann, Karen Johnson, and her family—Geno, Andrew, Preston, Courage and Moose, Alexis Dutro, Giiwedini'binesiik Jenny Krueger-Bear, Marcus Bear, Molly Krueger, Savannah Krueger, Waabishki-Makwa Miles Falck, GLIFWC's Manoomin Ganawandang Kathy Smith.

"The Healing Circle Run is a personal journey of prayers and healing whether that's for yourself, family, or community," said Wildlife Section Leader Miles Falck who credits the run as a major reason for his spiritual healing and sobriety.

The Healing Circle Run promotes physical, emotional and spiritual healing in response to violent, racist protests that dominated treaty spearfishing landings in Wisconsin from 1986-1990, setting a course that unifies tribal communities in the Treaty Ceded Territories.

—25th Anniversary of the 1989 Anishinaabe Solidarity Relay
2014 *Mazina'igan* Supplement



GLIFWC Executive Administrator, Mic Isham and Heather Carney kick off the Healing Circle Run by completing the first mile at Pipestone Falls near Lac Courte Oreilles. (A. Davidson photo)

Falck spoke about the power of not only the run but the strength that participants get through the connections gained at each stop. A highlight for Falck and many this year was the traditional baaga'adowewin (lacrosse) game at Fond du Lac organized by FdL Natural Resource Program Manager Thomas Howes. Howes wanted to help build a new tradition into the run. "All those kids and adults laughing, moving, learning outside—we did that together—it was awesome," said Howes.

Reflecting on the run, Kreuger-Bear said hands-on organizers like Red Cliff band member (and former GLIFWC intern) Sasheen Goslin from the American Indian Community Housing Organization (AICHO) has been "really uplifting, we can't do this work without our community and we're so grateful for their passionate support this year."

Krueger-Bear and Falck both stressed how thankful they were to everyone who participated in the run/walk and offered their prayers, tribal leaders who provided support, lodging and meals, community organizers who got the word out, and those who cooked and prepared food, pipe carriers and others who helped with ceremonies, chi-miigwech.

(see Healing Circle Run, page 23)

Lac Vieux Desert Tribal Historic Preservation Officer Alina Shively and her daughter Blessing, 7 walk together near Lac Vieux Desert. (JKB photo)

AICHO's COVID Community Coordinator, Shasheen Goslin of Red Cliff and granddaughter of Grandma Genny walks from Superior to St. Croix Turtle Lake, Wis. with her arm outstretched to feel the "wind in her wing." (I. Vainio photo)

Three generations: Opitchee Mushkooub, East Lake community, recognized with the Mille Lacs Tribe of Minnesota, stands with her daughter Cyann Mushkooub, age 10 and her mother, Winnie LaPrairie brought together in healing over the Fond du Lac-St. Croix leg. (JVS photo)

Natural Resources Manager Thomas Howes leads baaga'adowewin lessons, a traditional lacrosse game, at Fond du Lac during a stop on the HCR. (JVS)

Lac Vieux Desert and Core runners gear up to start day four of the run. (M. Falck photo)

From tragedy, the preservation of Ojibwe homelands

A view from Sandy Lake

By Charlie Otto Rasmussen, Editor

Whether by force or through deception, Ojibwe people would not abandon their homelands in the woods and water of Lake Superior country. Furthermore, the region's newest residents—white settlers—voiced full support for their native neighbors. Those positions became crystal clear to the United States government in the 1850s following the catastrophic attempted westward removal of Ojibwe bands living in Michigan and Wisconsin.

Over the winter of 1850-51, the Sandy Lake Tragedy claimed the lives of some 400 Ojibwe men, women, and children after government officials hatched an illegal resettlement scheme. Minnesota Territorial Governor Alexander Ramsey had hoped he could lure Ojibweg far from their home communities, trap them over winter, and coerce them (and their annual cash-flow from recent treaty land sales) to live permanently in his future state. The entire plan was a deadly miscalculation. This ghastly period left deep scars in the collective hearts of native people. It would also lead to the preservation of Anishinaabe bimaatiziwin—the native lifeway—in tribal communities across vast swaths of modern-day Michigan, Wisconsin, and Minnesota.

"When you talk about intergenerational trauma, take the same amount of time to talk about intergenerational blessings," said Chairman Mike Wiggins Jr, Bad River Band Ojibwe. For the first time since summer 2019, nearly 300 people gathered at the Mikwendaagoziwag Monument July 27 for the annual ceremony to remember the Ojibwe who suffered, died, and ultimately secured permanent tribal reservations.

Wiggins was among around a dozen speakers at the 2022 Mikwendaagoziwag Ceremony along the northwest shore of Big Sandy Lake near McGregor, Minn.

He spoke to the duality of an event like the Sandy Lake Tragedy—one that exacted an immense toll, produced great sacrifice, and then went on to help shape a future for successive generations where Ojibwe culture is alive and well in tribal homelands across the Great Lakes region. In the aftermath of Sandy Lake 1850-51, Wiggins said, Chief Buffalo and other leaders would take bold action to strike up a better path for the Anishinaabe.

Chief Bizhiki descendant Robert Buffalo speaks following a ceremonial feast. (CO Rasmussen photo)

When word of government efforts to remove Ojibwe people from their homelands reached white residents, ministers, and business leaders of the Lake Superior region, people rallied in support of the tribes. Newspaper editors across the south shore shared the widespread community resentment, making clear that resettlement was "uncalled for by any interest of the Indians."

—Lake Superior News, Sault Ste Marie, June 12, 1850

Nearly 300 people attended the July 27 ceremony at Big Sandy Lake, Minn., including (from left): Gerry DePerry (Red Cliff Band), Jim Merhar (White Earth Band), Curt Kalk (Mille Lacs Band), Jeff Steere (ACOE), and Randy Urich (ACOE). (CO Rasmussen photo)

Following the Sandy Lake experience, the great Ojibwe Chief Bizhiki, or Buffalo, made an epic journey to Washington DC, and met with US President Millard Fillmore in 1852. Buffalo reinforced tribal refusals of abandoning their villages and harvest grounds for substitute homes west of the Mississippi River. Two years later, Buffalo and other chiefs inked the 1854 Treaty with US negotiators, locking in both Ojibwe homelands in Wisconsin and off-reservation harvest rights. For many eastern Ojibweg at that time, Sandy Lake was a bitter graveyard—a place they would never revisit.

"Mikwendaagoziwag is an opportunity to reflect on the past. I see generations of native people coming together, remembering, inspiring us all," said Tamara Cameron, chief of operations, US Army Corps of Engineers—St Paul District, at the recent ceremony. "Future generations of [Corps] staff and visitors will never forget what happened here."

Centered among the resting places of the 1850-51 Ojibwe, the Mikwendaagoziwag Monument is located near a dam and recreation area operated by the Army Corps of Engineers. Since meeting ACOE's Jeff Steere, Big Sandy Lake site manager at the turn of the millennium, GLIFWC has developed a strong relationship with the Corps, working closely during the siting and construction of the monument from 1999-2001.

Mikwendaagoziwag—they are remembered

Tamara Cameron, US Army Corps of Engineers chief of operations, guides a canoe to the Mikwendaagoziwag landing with GLIFWC Division of Intergovernmental Affairs Director Ann McCammon Soltis. July 27 started with morning ceremony on the Big Sandy Lake east shore and four-mile-paddle across the lake. (CO Rasmussen photo)

In memoriam

GLIFWC staff and other visitors were saddened to learn that local Ojibwe leader Sandra Skinaway had walked on in September 2021. She was a strong supporter of intertribal efforts to remember the Sandy Lake Tragedy and conduct the annual ceremony at the Mikwendaagoziwag Monument. Skinaway also stood up for ma'iingan, brushing aside the notion that wolves needed to be controlled by hunting seasons.

A group of Fond du Lac Band Ojibwe elders formed part of the talking circle at the Mikwendaagoziwag Memorial ceremony. (COR photo)

Farming for the Good Life

Ma'iingan Wolf Garvin, Planning & Development Intern

Twelve sets of hands plunged into the earth this past June to help plant over 1,000 seedlings of species native to the Great Lakes Region. GLIFWC interns Abigail Davidson, Robin Armagost, and myself had the opportunity to accompany Traditional Foods Coordinator Laurie White to Red Cliff's tribal farm Mino Bimaadiziiwin.

The farm, which was transferred into tribal management a little over six years ago, called for volunteers to help transplant seedlings into a garden bed in the center of the farm. Mino Bimaadiziiwin collaborated with members of the Xerces Society to prepare the land for planting, and select native plants that would specifically benefit pollinators of the area. The garden bed is located in a low spot, making it susceptible to pooling after rain, and providing conditions too wet for growing vegetables. Mino Bimaadiziiwin took advantage of this area, and together 12 volunteers worked to put in 1,200 seedlings from mountain mint, to milkweed, to blue flag iris, plus different varieties of sedges, and more.

Planting native species is important for a multitude of reasons. They provide habitats for local wildlife, increase biodiversity, conserve water, and bolster pollinator populations. The Xerces Society, which works to conserve invertebrate populations and protect pollinators, worked with a grant in 2021 to help local farms increase the native species in their gardens. Funded by the grant, Sarah Foltz Jordan and Micah Kloppenburg of the Xerces Society consulted with Mino Bimaadiziiwin to decide what plants would be best suited for the garden. They traveled to Red Cliff for planting day and provided the seedlings to make the garden bed possible.

As a community farm, Mino Bimaadiziiwin has been making strides in food justice and accessibility efforts. Starting this year, the farm is authorized to accept SNAP/EBT benefits and operates on a sliding pay scale to sell its produce and Community Supported Agriculture boxes (CSA's.) Fish is also offered as an option in CSA boxes, as a collaboration with the local fisheries. Produce is distributed through tribal programs to Red Cliff's elderly center, and to Bayfield School, whose population is 85% Red Cliff youth.

"To me, food sovereignty means choice," said Shea Schachameyer, Food Sovereignty Coordinator at Mino Bimaadiziiwin. "It means having access to traditional foods, foods grown organically, and food you grow yourself. And it's tied into the belief that everyone deserves food security and access to fresh, healthy food regardless of income." Schachameyer said Red Cliff's commitment to food sovereignty has been "inspiring," and the emphasis on mutual aid at the farm is strong.

Lending sugarbush equipment, helping elders establish garden plots, hosting workshops on soil tending, composting, medicinal usage of plants, assisting youth participation in spear fishing and manoomin harvesting, and hosting seed giveaways are just a few examples of the farm's community engagement.

Every day, we see the ripple effects human hands make across ecosystems, and after the trip to Mino Bimaadiziiwin, GLIFWC interns saw up close how it can start with just a few seeds. Mino Bimaadiziiwin works to provide healthy options and make conscious decisions about how it can serve all living beings of the community, from plants, to wildlife, to people. Land stewardship and food sovereignty both rely on community and collaboration, but start with awareness and engagement.

GLIFWC intern Robin Armagost loads up a planting box during a community project at Mino Bimaadiziiwin farm. (A. Davidson photo)

To volunteer, learn, pick up produce, or just walk around, visit the farm at 63735 Aiken Rd, Bayfield, Wisconsin. Follow the farm for updates and volunteer opportunities @redclifftribalfarm on Instagram, or Mino Bimaadiziiwin Gitigaanin on Facebook (*facebook.com/RedCliffTribalFarm*).

Navigating trade & travel on the Flambeau Trail

(continued from page 10)

by dense swamps. After a river crossing is made at Gakakaakwad'aazhogan-zibi (West Branch of the Montreal River) at what is now called the Gile Flowage, the trail angles southeast and reaches the Continental Divide.

At this point, travelers pass from the Great Lakes to the Mississippi watershed where rivers flow south and most are navigable. The overland trail ends at Mikinaasko-zaag'igan (Long Lake-Mercer) where canoes cached by previous travelers were used.

Except for short portages, the remainder of the journey is by canoe on highways of water following the Mikinaako-ziibi (Turtle River) to the Manidowiish-ziibi (Manitowish River) and upstream on what is now called the Bear River to Waawaaganing (Lac du Flambeau).

Into the modern era

By the time Europeans arrived in the Chequamegon Bay region in the 1650's, native people had used this trail for centuries. Recognizing Madeline Island's importance, the Europeans established it as a major fur trading center. They quickly appreciated the trail's function as the most efficient route for connecting Madeline Island to fur trade posts they placed in interior communities, like Lac du Flambeau. They named the overland portage route, the "Flambeau Trail."

During the fur trade era, voyageurs carried 90-packs loaded with trade goods across the Flambeau Trail to resupply the posts and carried out furs in exchange. It was called the "worst portage in the Northwest Territory" due to its length and the difficulty of traversing the terrain with such heavy loads.

White pine dugout canoe at Ojibwe Memorial Park on Madeline Island. (COR)

The Flambeau Trail served as a major transportation route in the Lake Superior region until the mid-1800's. As demand for beaver fur dwindled, the trail was abandoned. Other modes of transportation, such as roads and railroads, replaced travel by canoe and trail.

Almost 150 years later, Ojibwe would again traverse the Flambeau Trail. Beginning in 1994, for three summers Iron County partnered with the Lac du Flambeau School to retrace the historic trail as the "Flambeau Trail Trek."

The trek started at Madeline Island with Lac du Flambeau middle school students and teachers paddling a historic 36-foot birchbark canoe to Saxon Harbor. Iron County participants followed in kayaks and canoes. From there the group hiked and a biked pathways as close to the original Flambeau Trail route as possible until they crossed the Continental Divide.

At Long Lake,they paddled canoes following the old water highway route to Lac du Flambeau. The journey took the "trekkers" six days. Each night featured a different camping location where communities welcomed the travelers with food and special events. As part of the event, the Flambeau Trail was re-dedicated at Lake of the Falls on August 7, 1994. Once again, the Flambeau Trail connected people and cultures.

There are many more stories the Flambeau Trail has to tell. Historic records and research on the Flambeau Trail, plus photos and remembrances from the 1966 and 1994 Flambeau Trail dedications and the Flambeau Trail Trek are available from the Mercer Library's Flambeau Trail Documents *mercerhistory.org/collections/browse*.

Deep dive for annual siscowet survey

By Abby Davidson, Public Informatoin Office Intern

Houghton, Mich.—During the week of June 13, GLIFWC fisheries biologists and interns from Northland College made their way to Michigan's Keweenaw region to perform the annual siscowet lake trout survey on Lake Superior. The team has done this study every spring/summer at Point Abbaye since the 1990s to look at the abundance and health of the lake trout which are often found in deep water.

In order to complete the intensive study, the GLIFWC team collaborates with Bad River Tribe fishery specialists who conduct research near Eagle Harbor. The teams come together to share information from recording stomach samples and ear bone analysis. The stomach samples show what the fish are eating, at what depth, and how (or if) their diets have changed. Like counting tree growth rings, they observe the lake trout ear bones under a microscope to document the age structure of the species.

Samples are taken from a variety of size groups at different depths. During this study, the team set five gangs at 2700 feet each, all at different depths ranging from 50-800 feet. The Bad River team set seven gangs at 2700 ft. each in Eagle Harbor.

A day on the water

The study starts early as the team heads onto the water by seven in the morning. The first net is set at 50 ft. deep. The crew then lifts the nets they had set two days prior. As each net is lifted, fish are collected. Going on the boat for a day of study is dependent on good weather and favorable winds.

This particular day was clear, beautiful, and perfect to conduct the study. Before we left the lake, one more net was set into 500 feet deep water to complete the day. Siscowet are a type of lake trout that GLIFWC studies in order to help monitor the effects of climate change on Lake Superior and the species that call it home.

GLIFWC Great Lakes Interns Ursula Charles (left) and Samson Wood lift an assessment from Lake Superior. The siscowet survey is done each year in collaboration with the Bad River Tribe.

Inset: GLIFWC Fisheries Biologist, Ben Michaels, holds a siscowet captured in an assessment net set on Lake Superior. (A. Davidson photos)

Public input opportunities on deck for Great Lakes Water Quality Agreement

By Hannah Arbuckle, GLIFWC Outreach Coordinator

Accountability is an essential part of good management. The Great Lakes Water Quality Agreement (GLWQA) provides that the federal governments of the United States and Canada have important responsibilities to be transparent and inclusive in their implementation of the Agreement.

The GLWQA gives the International Joint Commission (IJC) a vital role in assessing how the governments are doing in meeting their responsibilities. During this year, the IJC will hold a series of public engagement activities in which you can participate.

The GLWQA is a binational agreement and commitment of the US and Canada, to restore and protect the waters of the Great Lakes. This Agreement provides that the IJC undertake an assessment every three years of the how the federal governments are performing in their implementation of the agreement. This assessment is known as the Triennial Assessment of the Parties (TAP). The next TAP will be due in 2023, with the IJC planning to spend the remainder of 2022 engaging with communities and drafting the TAP report.

The basis of the IJC's triennial assessment are two reports: the Progress Report of the Parties (PROP) and the State of the Great Lakes Report (SOGL), each of which are also completed in three-year cycles.

The SOGL report details the present ecological state of each of the Great Lakes based on the Parties' assessment of 40 specific ecosystem indicators regarding the status of each lake's ecosystem health status and trend. The PROP is a summary of the programs, policies, and actions that the federal governments have undertaken across the basin.

The IJC engages its advisory boards on Great Lakes water quality policy, science, and health to review the PROP and assess the extent to which government programs are achieving the objectives of the GLWQA. Additionally, the involvement and participation on the PROP extends to other jurisdictions, such as states, provinces, municipal governments, First Nations, Metis, tribal governments, watershed management agencies, local public agencies, and the public.

During this year, the IJC will host a series of engagement activities, including in-person and virtual public engagement sessions, Indigenous listening sessions and engagement opportunities. Part of this engagement will take place at the Great Lakes Public Forum, to be held from September 27 to 29, 2022 in Niagara Falls, Ontario. There will also be a survey released this Fall season, where anyone can share their thoughts and provide input to the IJC on the Parties' progress with regards to the Agreement.

The Parties are due to publish the 2022 Progress Report of the Parties and the State of the Great Lakes reports in late summer. These reports will be published on binational.net. This is an opportunity for anyone to participate in the accountability of our governments to sustain healthy waters in the Great Lakes.

Upcoming information on engagement activities, the survey, and other opportunities to submit comments will be posted to the *IJC.org* website and the *Great Lakes Connection* newsletter.

Bare Bluff offers panoramic views of Gichigami and the Keweenaw Peninsula. (USFWS photo)

Ongoing stream monitoring valuable for understanding pipeline, climate impacts

By Kayla Lamson, Inland Fisheries Intern

Throughout the summer of 2022, GLIFWC scientists conducted surveys on Ceded Territory waterways adjacent to the proposed reroute for the Enbridge Line 5 pipeline. Summertime sampling included substrate collections, along with documenting macroinvertebrates, fish, and butterfly species.

This research aims to help prevent further degradation of the Lake Superior Water Basin. Ongoing sampling within the Bad River watershed collects baseline data of the proposed pipeline reroute to evaluate the potential impacts if constructed.

The Lake Superior watershed is one of the most vital freshwater ecosystems on the globe, containing 21% of the earth's surface freshwater. The basin hosts the last remaining extensive coastal manoomin beds and is home to fish that support one of the most abundant freshwater ecosystems in the region. These ecosystems are important to sustaining the health of Great Lakes communities as well as providing sustenance to GLIFWC member tribes.

Data collections also allow scientists to monitor and understand the impacts of broad and local-scale climate changes in the Lake Superior watershed. Water quality has an impact on all life, including species of fish, amphibians, and macroinvertebrates.

This type of monitoring compliments *Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu* (TAM) published by GLIFWC. One of the strategies encouraged in the TAM documents includes observing environmental cues for harvesting and gathering amongst Ceded Territory waterways. These cues are integral with what happens on the landscape both on a broad-scale (as with climate change) and a local-scale (as with the pipeline crossing freshwater ecosystems). Long term monitoring of these waterways will allow GLIFWC to detect changes in these environmental cues, which could alter the future for sustenance gathering.

In 2019 the Bad River Band of Lake Superior Ojibwe sued Enbridge, demanding the company shut down and remove the pipeline from its reservation.

A GLIFWC monitoring crew sorts through macroinvertebrates captured in kick nets from Vaughn Creek. The survey documented creatures like dragonfly larvae and many organisms that live in high quality aquatic habitat. (A Davidson photo)

"When considering climate change, all relations must maintain dynamic relationships in their ever-changing landscape."

—Dibaginjigaadeg Anishinaabe Ezhitwaad
A Tribal Climate Adaptation Menu

Waabezheshi research in Wisconsin

(continued from page 2)

ment data in various habitats. During this study McCann found that the preference for northern hardwood "stands" found by Wright was a result of generalized cover-type maps that did not capture the more complex makeup of forests in northern Wisconsin (that is, forests with small conifer pockets within a matrix of deciduous hardwood forests). In fact, as martens moved through the deciduous stands, they encountered these conifer pockets that did not show up on the generalized maps, explaining why Wright found what he did.

Survival and mortality

Waabezheshi mortality rates were examined by McCann as well. As a Ph.D. candidate, McCann found that adult marten survival was relatively high at about 81% survival (this means that during any year, an adult marten has 19% chance of dying). This was consistent with martens found elsewhere and did not explain why martens in Wisconsin were not doing well, and were, in fact, the only state endangered mammal in the state.

The study found that martens are often killed by fishers (in winter) and raptors (during kit rearing). Perhaps the lack of recruitment to adults (ie juvenile mortality) explained why martens were rare. However, determining juvenile mortality rates remains very difficult and as of yet we have been unable to test this hypothesis.

Translocations to augment populations

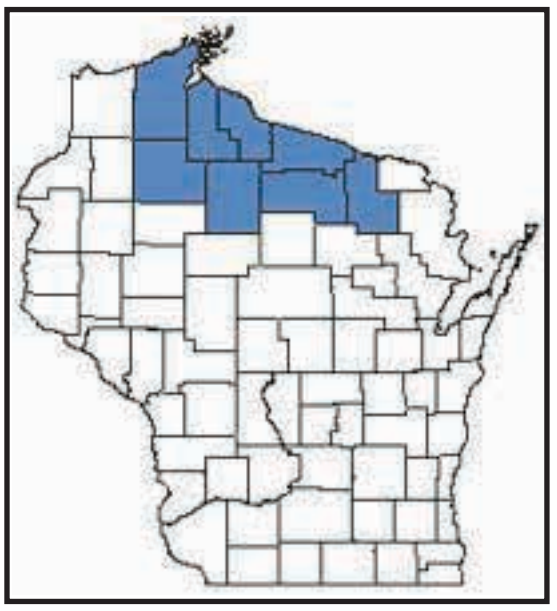
In an attempt to increase the population of martens on the Chequamegon National Forest, martens were trapped in northern Minnesota and translocated to Wisconsin between 2008 and 2010. There was interest in determining if these translocated martens would hunt and establish den sites differently than resident martens.

Tanya Aldred, GLIFWC biologist, undertook this study as part of her Master's degree program at Purdue. She found that translocates and residents hunted and found rest sites in similar ways, thus martens moved from Minnesota to Wisconsin were able to find food and shelter in their new environments.

How is the food?

Perhaps martens in Wisconsin are not able to find enough food (energy) to meet their needs? I, in conjunction with Adam Green, a student working with William Karasov at UW-Madison, used doubly labeled water to assess energy use in fall versus winter. Contrary to our initial hypotheses, we found that martens used less energy in the winter than in the fall, largely because their resting time in winter was significantly more than in fall, thus conserving their energy despite increased energy costs of locomotion and thermoregulation.

What were martens eating? Since they get their energy from the food they eat, was food in short supply? Jenna Carlson, a student of Jonathan Pauli at UW-Madison, used scat samples and stable isotopes to determine waabezheshi diets. She found that these agile predators were eating a large amount of either shrews or scavenging on dead deer, two suboptimal food items. Shrews did not provide much energetic supplies and were found in marten diets elsewhere when preferred food items were rare. Deer carcasses were a dependable source of food, but they attracted other species including rival predators such as fishers, thus creating a risky source of nutrition.



Waabezheshi range in Wisconsin. (WDNR)

Why were martens eating shrews? Are other more preferred prey items just not abundant? To answer this question a small mammal study was started on the Chequamegon-side of the National Forest. Ally Scott, another student of Dr. Pauli, started this work and found that marten's preferred prey, red backed voles, were not abundant at all. Most small mammals found in her study were Peromyscus (mice) or shrews, thus potentially answering the question as to why martens were eating shrews. However, this study was done over a short two-year period and a longer-term study was needed. So, another student Sam Jolly is continuing this work until 2023.

Competition and niche overlap

As McCann documented, ochigwag (fishers) kill waabezheshi. In the early 1990s ochigwag were increasing in abundance and perhaps this source of mortality was a cause of the marten's failure to recover. Phil Manlick, a student of Jonathan Pauli at UW-Madison, found that competitive overlap between martens and fishers has increased dramatically since settlement times due to the simplification of forest ecosystems reducing the niche separation between fishers and martens. Currently the niches of fishers and martens overlap considerably. We know that when competition is strong between two species there is usually only one winner. If martens are unable to avoid, or reduce, competitive overlap with fishers their long-term viability is greatly reduced.

Martens in Wisconsin are found in two small population centers, one near Eagle River on the Nicolet side of the Chequamegon/Nicolet National Forest (CNNF) and the other near Clam Lake on the Chequamegon side of the CNNF. Ecologists know that small populations are subject to extirpation events at higher rates than species with large populations.

Manlick and Jennifer Grauer (another student in the Pauli lab at University of Wisconsin) used genetic analyses to assess the viability of these two small populations. They found that the risk of extirpation was high for both, but with a small amount of immigration (as little as one per year) from the Upper Peninsula (UP) of Michigan, viability increased dramatically. The trick was to establish such immigration routes to each population.

Through the woods and on the ice

The Nicolet population is immediately adjacent to the UP marten population. But the Chequamegon population needed a corridor from Michigan through Wisconsin's Iron County to reach the marten population there.

(see Marten research, page 22)

Zaasijiwan
•It Ripples•

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

"Aandi gaa-ayaayeg? Dagwaaging, niwii-manoominikemin. Niwii-naajimiijimemin da-mino-wiisiniyeg. Gidoozhiitaa na? Biinaagamin ina o'ow zaaga'iganiing? Gidayaan ina manoominike-mazina'igaans? Ozhiitaan! Ozhitaadaa! Maajitaadaa! Akawe indaa-asemaake. Gibawa'am gaandakii'igeyaan. Nibiinitoomin ozhaawashko-manoomin. Nigaapizigemin. Anishinaabe bawishkam mimigoshkaman. Ninitam. Niwii-nooshkaachige. Nindayaan o'ow wiigwaasi-nooshkaachinaagan. Akawe nibagindinaan wiikondiwin. Mii dash wiinetawaa ingiw gichi-aya'aag miijiwaad manoomin. Mii dash wiisiniyaang. Minopogwad! Mii'iw. Howah!"

("Where have you all been? When it is fall, we want to harvest wild rice. We want to get food so that we can eat well. Are you ready? Is the water clean in this lake? Do you have a wild ricing license? You get ready! Let's all get ready! Let's all start! First I should offer tobacco. You knock rice as I pole the boat. We clean the green rice. We parch wild rice. A person threshes rice as s/he dances (on the rice). My turn. I will winnow wild rice. I have this birchbark winnowing basket. First of all I offer a spirit dish. And then only the elders eat the wild rice. And then we eat. It tastes good! That's all. Wow!")

Bezhig—1 OJIBWEMOWIN (Ojibwe Language)

Double vowel system of writing Ojibwemowin.
—Long vowels: AA, E, II, OO
W**aa**booz—as in f**a**ther
Miigw**e**ch—as in j**ay**
Aan**ii**n—as in s**ee**n
M**oo**z—as in m**oo**n

—Short Vowels: A, I, O
D**a**sh—as in **a**bout
Ingiw—as in t**i**n
Niizh**o**—as in **o**nly

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

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

Aawan.—
(VII) It is a certain thing.
Ziibi(wan)—River(s)
Gizhiijiwan. —It flows fast.
Manoominitigweyaa.—It's a wild rice river.
Zagaakwaa.—It is a dense woods.
Zaaga'igan(an)—Lake(s)
Aanikegamaa.—It is a chain of lakes.
Ginoogamaa.—It is a long lake.
Waawiyegamaa.—It is a round lake.
Dakate.—It is a cold house/room.
Dakaagamin.—It is a cold liquid.
Wii-**takibiisaa**.—It will be-a cold rain.
Gizhoobiisaa.—It is a warm rain.
Giizhoosagaa.—It is a warm floor.
Gii-**aabawaa**.—It was-warm weather.

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

A. Besho Gichigamiing noongom gichi-noodin.

B. Niwaabandaamin ishkode-jiimaanan Gichigamiing.

C. Noongom mamaangaashkwaa. Madweyaashkaa.

D. Gaye iwidi, niwaabandaanan iniw ningaasimoo-jiimaanan.

E. Aaniin minik asiinoog jiibigiig? Gichi-asinikaa. Maamakaaj.

F. Wiikwedong imaa indoozhim jiime.

G. Gaye, niningaasimoon

H. Iwidi onanda-gikendaan.

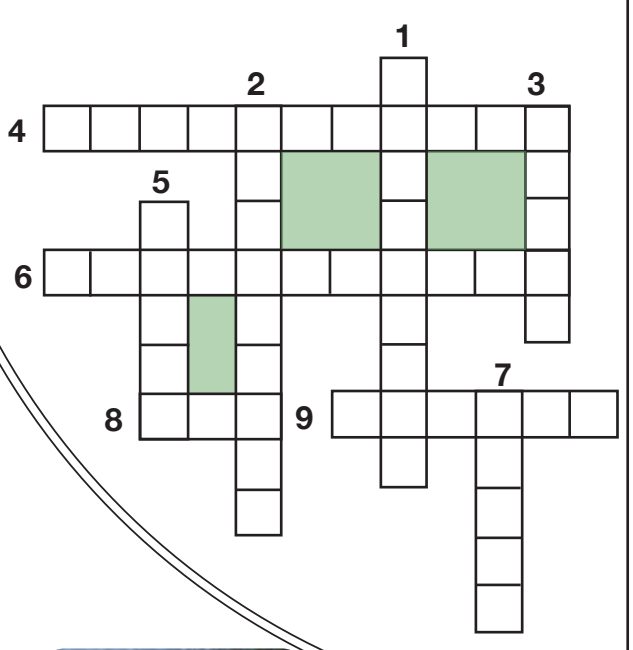
E	N	O	O	I							
A	G	J	W	A	M						
N	S	A	G	I	K	J					
I	Z	I	Y	D	W	I	Z				
N	O	O	N	E	C	I	A	N			
I	H	S	M	I	B	M	D	K	A		
W	C	I	N	J	K	A	O	I	G	E	
G	I	C	H	I	G	A	M	I	I	N	G
J	G	D	O	O	W	N	A	I	B	K	O
M	A	A	M	A	K	A	A	J	N	E	W
I	Y	E	Y	H	B	N	S	D	A	I	G
N	E	S	I	N	O	O	N	G	O	M	K

Niswi—3

IKIDOWIN ODAMINOWIN (word play)

DOWN:
1. I have it.
2. Get ready!
3. First
5. Where?
7. It is a thing.

Across:
4. Spirit dish
6. Let's all start!
8. Yes/No question marker
9. It is a cold room.



Wiigwaasi-Jiimaan (an)
—Birchbark-canoe(s)

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

Niiwin—4

Pronunciation: Syllables & more

If a vowel begins a word, say vowel alone.
Like: *O ji bwe mo win*: Ojibwemowin
Then voice each syllable: a consonant/cluster & vowel (zhi, zha, zho, zhii, zhaa zhoo, zhe).

Glottal stop hesitation ' is a consonant:
Ma zi na 'i ga n**an** = paper**s**

Pluralization (more than one) ends in "**n**" is an **inanimate** object. If ends in "**g**", is **animate being**/living.

Regional differences are normal, celebrated & respected. Tenses: Think of **gii-** as **did-** and **wii-** as **will-**. They are spoken prior to the verb & after personal pronoun: **(N)ingii-**, **Gigii-**

' Glottal stop
-wag
gii-
Gii-
Ga-
wii-
-an

1. _____-aabawaa, ganabaj.
2. Biijinaago zaaga'iganing _____-dakibiisaa.
Nin_____-manoominikemin.
3. Zaaga'iganing nindayaan niizho-jiimaan_____.
4. Zaaga_____iganing. Mazina_____iganing. Gichi-aya_____aag.
5. Ginooji'aag ina waawashkeshii_____ miinawaa bine_____?
6. Dagwaaging, ni_____-giikajizidewaj. Howah

Translations:

Niizh—2 **A.** Near Lake Superior today, it is very windy. **B.** We watch the steam ships on Lake Superior. **C.** Today there are big waves. Waves can be heard. **D.** Also over there, I see those sailboats. **E.** Along the shore here are a lot of huge rocks. Amazing. **F.** In the bay there, my nephew (sister's son) paddles/kayaks. **G.** Also, he sails in a boat. **H.** Over there he seeks to learn.

Niswi—3 ***Down:*** **1.** Nindayaan ***2.*** Ozhiitaan ***3.*** Nitam ***5.*** Aandi ***7.*** Aawan ***Across: 4.*** Wiikondiwin ***6.*** Maajitaadaa ***8.*** Ina ***9.*** Dakate

Niiwin-4 **1.** It **will** be warm and mild, maybe. [We do not pretend to know the future.] (Ga-) **2.** Yesterday at the lake, it **was** a cold rain. We **were** ricing (gii-) **3.** At the lake, I have two canoe**s**. (-an) **4.** At the lake. In the paper. Elders. (Glottal stop ') **5.** Do you hunt deer **(plural)** and partridge**s**? (-wag) **6.** In the fall, I **will** have cold feet. Alright! :-)

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*.

Dark skies and bright stars

Michael Waasehiizhig Price. *RevolvingSky.com/starstories*

August–Manoominike-Giizis
Ricing Moon

September–Waatebagaa-Giizis
Leaves Changing Color Moon

October–Binaakwii-Giizis
Falling Leaves Moon

GLIFWC's Traditional Ecological Specialist Michael Price explains that "the most well-known group of stars is the **Big Dipper**. To the Anishinaabe, the Big Dipper is part of the constellation "**Ojiig'anung Fisher Star**." that emerges near the horizon in December. Throughout the long winter, it makes its way across the night sky."

The Anishinaabek knew that spring was close when "Ojiig'anung" was directly overhead in the early evenings.

Winona Ominika of Great Lakes Guide retells one version of **Ojiig**'s cleverness:

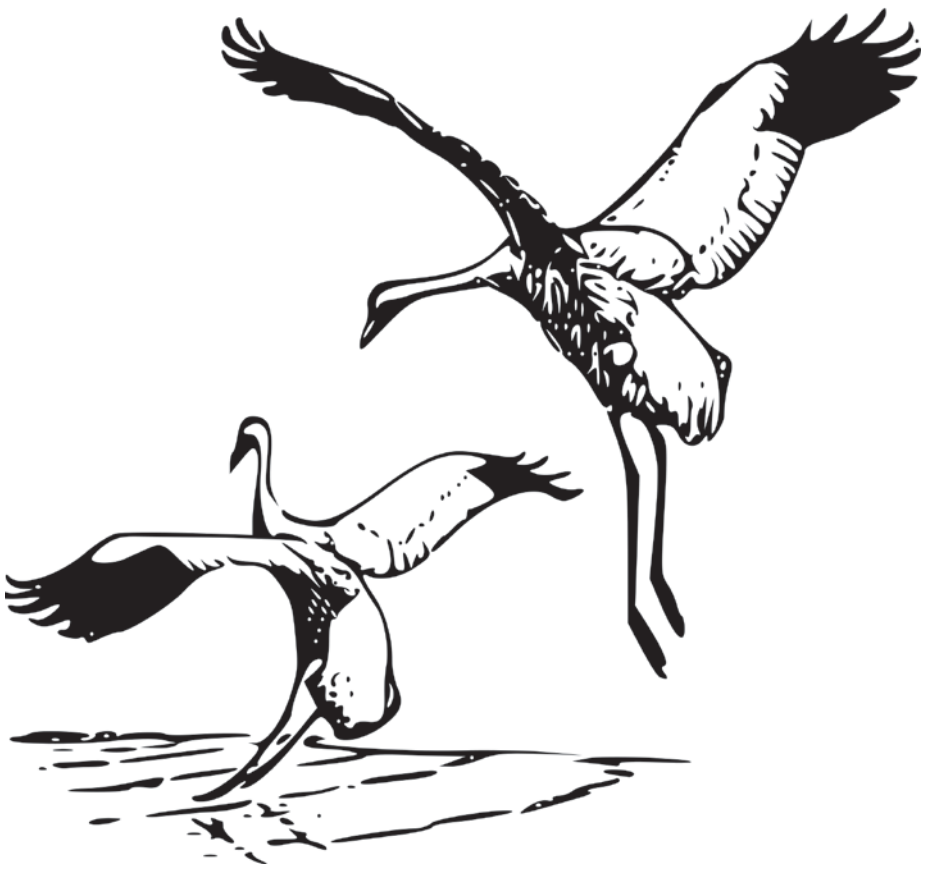
"The story of the fisher tells of when the birds and spring were held prisoner by spirit monsters. Because of this, the birds were not able to share their songs to let everyone know spring was coming. Of all the animals, it was only the Fisher that was able to trick the spirit monsters into freeing the birds so spring could come.

The **Fisher** released the birds, saving everyone with his cleverness and wit. The spirit monsters were upset with him. They were never going to give up tracking him, so Fisher ran and ran from them, avoiding their arrows.

He thought he could trick the spirits by climbing the highest tree and jumping into the sky world, but the spirit monsters shot arrows at Fisher as he jumped. The arrows pinned his tail to the sky, and Fisher has been a part of the constellations ever since."

Read more at *greatlakes.guide/ideas/ojibwe-astronomy*

The **Ajijaak** (crane) constellation leads the Ojibwe people and helps them to stay strong.



Traditional knowledge can evolve across time, geography & families.

Explore a story from "Our Universes: Traditional Knowledge Shapes Our World" at si.edu/es/object/yt_bH2mCcivliQ from the Iroquois Nations. ***The Never-Ending Bear Hunt*** *is a story about three hunters who follow a bear into the sky and become the stars forming the handle of the Big Dipper.*

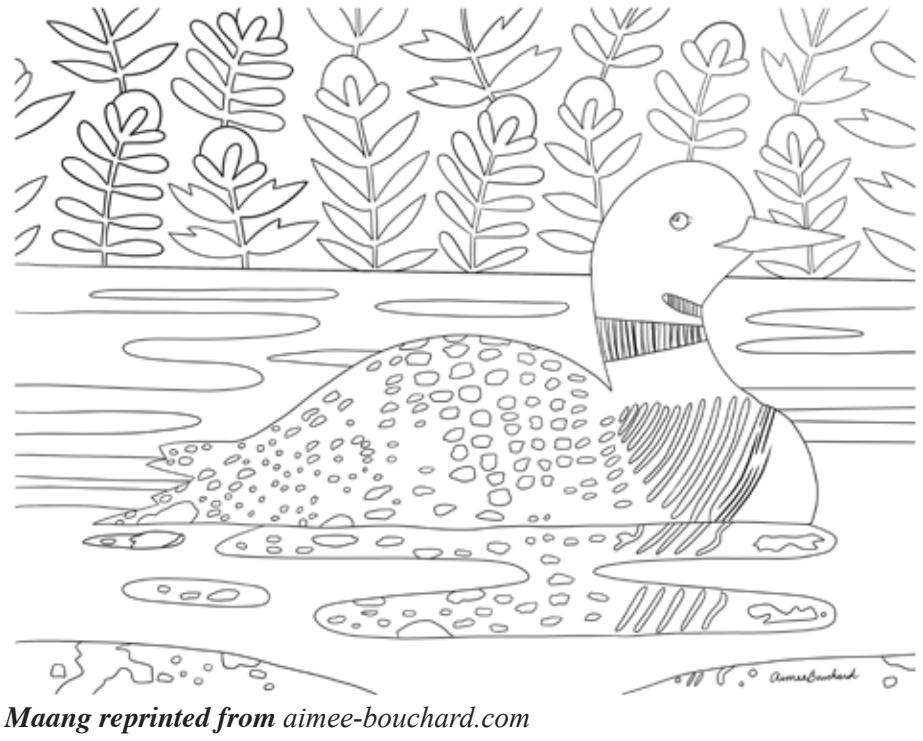
To view all nine stories created by the National Museum of the American Indian visit:

www.si.edu

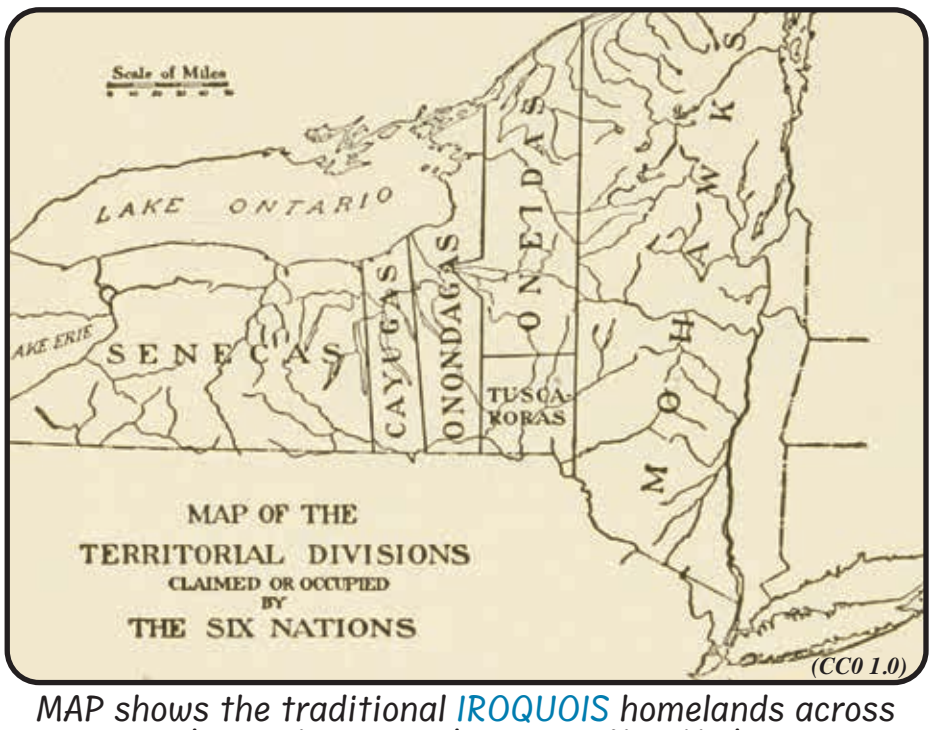
YouTube Channel: SmithsonianNMAI

COLOR these popular STAR CONSTELLATIONS

Maang (Loon)



Maang reprinted from *aimee-bouchard.com*



MAP shows the traditional IROQUOIS homelands across the territory now known as New York.

Look for "Stories of the Flyers" this fall from GLIFWCs language program

GLIFWC's ANA Language Preservation and Maintenance project is now in its third and final year. The ANA grant project was extended to March 2023 to allow for more time to complete the fourth book set, *Giiwedinong: Stories of the Flyers*, as well as outreach sessions with project partners including tribal Head Start and other early childhood programs.

Wesley Ballinger of the Mille Lacs Band of Ojibwe, the illustrator of the first three sets of books, *Waabaanong: Stories of the Four-legged, Zhaawanong: Stories of the Plants,* and *Ningaabii'anong: Story of the Swimmers*, will be sharing stories and assisting with the Ojibwe language work and translations for the Giiwedinong: Stories of the Flyers theme set.

Outreach sessions and distribution of the *Ningaabii'anong: Stories of the Swimmers book* sets are being scheduled this fall. The set will include books featuring, Amik (beaver), Giigoonyag (fish), and Mikinaak (snapping turtle). The companion Teacher/Caregiver Supplemental Documents and coloring book will also be included with the book sets.

Check GLIFWC's Facebook page (*facebook.com/GLIFWC*) and website (*glifwc.org*) for updates!

—R. Armagost

Partners

(continued from page 5)

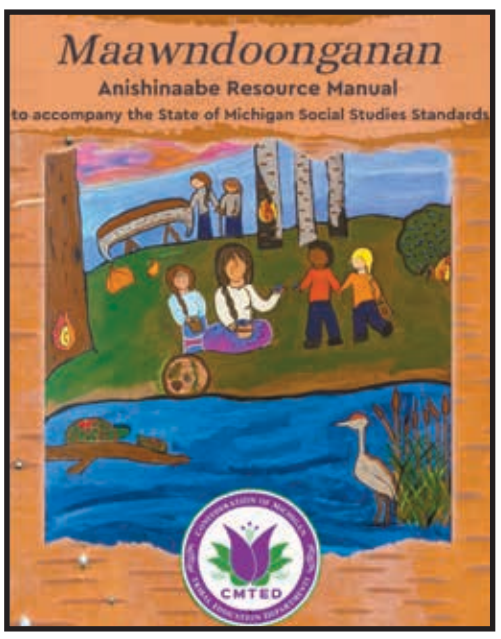
Starting off in a good way

A song from the hometown Wiigwam Juniors Drum led off the June 9 Partners event that included shore lunch, fishing, and lots of networking between agency representatives. Jackson introduced special guests and speakers including Wisconsin Governor Tony Evers, GLIFWC Executive Administrator Mic Isham, and Lac du Flambeau President John Johnson, who welcomed participants to the tribe's homeland, Waaswaaganing.

"This morning I did my prayer thinking about the day we were going to have," Johnson said. "When we're out there getting ready to fish, I'd like each one of you to take some of that asemaa and put it into the water for the spirits we have here in the lakes."

Mixed agency personnel paired off in fishing boats enjoyed blue bird weather and an all-around safe day on the water. Among dozens of successful fishers, GLIFWC Officer Christina Dzwonkowki landed the largest fish—a largemouth bass, and a St. Croix fishing rod prize.

Guide to Michigan tribes lays goundwork for educators



In Michigan, there's a new education standard in motion. On June 27 the Confederation of Michigan Tribal Education Departments hosted a webinar to introduce *Maawndoonganan: Anishinaabe Resource Manual* to accompany the State of Michigan Social Studies Standards.

Created in partnership with Michigan's 12 federally recognized tribes, the resource guide empowers professionals to design and evaluate curriculum that supports teachers in crafting a clearer understanding of Indigenous history with students.

At 91 pages the manual takes no shortcuts, yet remains easy to follow: content is first sorted by grade levels (K-4, 5-8 & 9-12) and then into categories that include books, videos, vetted social media accounts, teacher guides/activities, websites, and podcasts that can help build out a fuller, more accurate education for Michigan students. Especially valuable are the included glossary, resource evaluation guide, and scholarly articles.

The manual prominently features original art by children, reinforcing their perspectives, identities, and the responsibility to uphold the highest standard of education for learners of all ages and backgrounds. *Maawndoonganan* is available for no charge at: *cmted.org/michigan-social-studies-standards-guide.*

—J. Van Sickle

The future of manoomin

(continued from page 6)

Creator. A workshop dedicated to manoomin such as this one is important as it allowed for a devoted conversation of the climate adaptation of manoomin.

Drawing on Ricky Defoe's guidance, centering Indigenous ways of knowing and emphasizing reciprocal relationships has been and will continue to be the wisdom that is practiced within this project.

For more information on the Kawe Gidaa-naanaagadawendaamin Manoomin: First we must consider Manoomin / Psiŋ (wild rice) research collaboration, visit the website at *manoominpsin.umn.edu*. For more information on the Tribal Climate Adaptation Menu, contact Bazile Panek, TAM Coordinator at *bpanek@glifwc.org*. Access a digital copy at *data.glifwc.org/download/archive.bio/Tribal%20Climate%20Adaptation%20Menu.pdf* or order your very own physical copy of the TAM through *great-lakes-indian-fish-wildlife-commission.constantcontactsites.com/store* and click on Climate Change.

Tran, J., Davenport, M., Smith, S., Croll, R., Montano, M., Sorensen, H., Peroff, D., Dockry, M., Kaeske, M., Vogt, D. (2022) Culturally centered approaches to climate adaptation and resilience in the Great Lakes region. [Poster].

Marten research in Wisconsin

(continued from page 19)

Casey Day, a student of Dr. Zollner, modelled this potential movement through Iron County forests. He found that movement through the landscape was possible but the configuration of lakes and forests in the eastern portion of the county presented a bottleneck to this immigration corridor. This lack of a dependable corridor from the UP to Clam Lake presented a threat to the long-term viability of the Chequamegon population.

American Marten. (USFWS, Public domain, via Wikimedia Commons)

The Apostle Islands is an archipelago off the northern coast of Bayfield County in Lake Superior. Waabezheshi had been present on the islands in the past but no sign of them had been made since the early 1970s. Then, in 2008 a photo emerged of a marten on one of the islands. Julie Van Stappen (Apostle Islands National Lakeshore), Tim Van Deelen (UW-Madison) and Eric Olson (Northland College) started a camera survey on the island and found that martens were distributed among several islands.

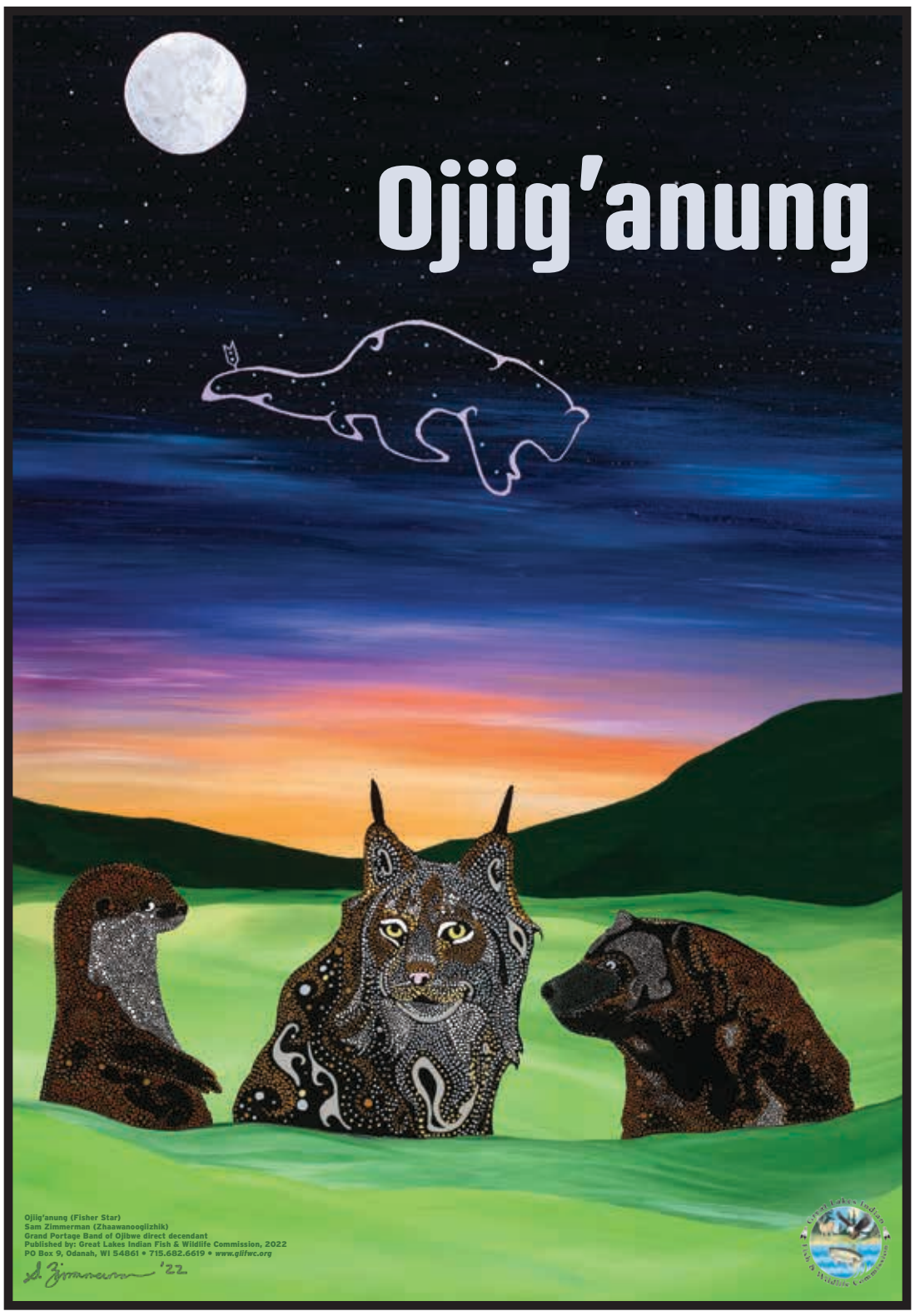
How did they get there? How many were on the islands? Did they move among the islands or from islands to mainland? Matt Smith working with Jon Pauli at UW-Madison used non-invasive genetic techniques to answer these questions. He found that martens inhabit seven islands within the archipelago and that martens moved from island to island. They seemed to be doing quite well. He also found that martens moved from the islands to the mainland, and he hypothesized that the Apostle Islands could be acting as a refuge for martens and a source for martens to colonize the mainland, quite a surprising result.

Coincidentally, Red Cliff Natural Resources Department found martens on the mainland just opposite the islands and with subsequently collared animals found that martens move from the mainland to the islands and back again with some regularity. It is interesting that martens will move along more than two miles of ice-covered lake to get to these islands. We generally do not think of martens being out in the open like that.

After more than 30 years of marten research there is much more known now about Wisconsin waabezheshi than when we began. However, all this knowledge does not translate into marten recovery. They are still rare and still not fully viable. There is a lot yet to do. Issues such as prey abundance, forest homogenization, isolated populations, competition with fisher, and effects of climate change are still poorly understood offering plenty of opportunity for future studies.

GLIFWC and our partners at universities, the US Forest Service, and Wisconsin DNR have had a rich history of collaboration and cooperation on marten ecology research. People like Dan Eklund of the CNNF, Jim Woodford of Wisconsin DNR, Zack Wilson of Iron County Forestry along with all the students and professors discussed have helped to varying degrees over these many years. These collaborative efforts have led to increased understanding of martens and the Ojibwe relationship with these more-than-human beings.

Ojiig'anung
(Fisher Star constellation)



GLIFWC's 2022 Poster

With the emergence of summertime in Ojibwe Country, the Fisher, or Ojiig, constellation—appears upright in the northern sky.

Artist and Grand Portage Ojibwe direct descendant Zhaawanoogiizhik Sam Zimmerman celebrates niibin (summer), recalling Ojiig's efforts to end the long winter with friends Nigig (Otter), Bizhiw (Lynx), and Gwiingwa'aage (Wolverine).

Led by Ojiig, the four held a feast and discussed how to bring warm weather back to their community. They decided to travel westward to a mountain, climbing to the top where they took turns leaping into the sky, using their sharp claws to tear open a hole that they hoped would release the warmth of summer. But when the Sky People saw what was happening, they fired arrows at the four friends to stop them from completely opening up the sky. An arrow—represented by two stars—struck Ojiig, pinning down his tail. And so it is, the Hole in the Sky is large enough to bring in enough warm air for part of the year, while for another part of the year, cold air remains during the winter season. While there are any number of variations to the Ojiig'anung story across Ojibwe communities, it is most often associated with the rise of niibin.

Zimmerman applied thousands of hand-painted acrylic dots to adorn the dark summer sky and the figures resting in the green summer landscape. Ojiig occupies a space in the sky popularly known as Ursa Major, or the Big Dipper, a seven-star Mediterranean constellation. In Zimmerman's night sky, Ojiig'anung includes 13 stars, displayed as soft blue dots in the sky of the painting.

Ojiig'anung posters measuring 18"x26" are available from GLIFWC, PO Box 9, Odanah, WI 54861; by phone at 715.685.2108; or by email ***pio@glifwc.org****. No charge for the first copy; additional posters are $2.50 each plus postage. Checks should be made payable to GLIFWC and mailed to the address above.*

	# copies	Price	Total Price
Ojiig'anung poster	1	FREE	FREE
Ojiig'anung poster		$2.50	
Postage (see below)			
Order total			

Order Amount		US shipping Charge
$ .01	— $ 4.99	= $ 3.00
$ 5.00	— $ 29.99	= $ 5.25
$ 30.00	— $ 59.99	= $ 9.25
$ 60.00	— $ 99.99	= $11.25

Name_____

Address_____

City_____ **State**____ **Zip**_____

GLIFWC welcomes Panek to help coordinate climate adaptation

As a recent graduate of Northern Michigan University with a B.S. in Native American Studies, Bazile Panek comes to GLIFWC aiming to "honor my ancestors and those who came before me, honor my people here today, and become an honorable ancestor for future generations."

Panek is the Tribal Climate Adaptation Menu Coordinator for GLIFWC under the Climate Change Program.

His work will involve collaborating with tribal communities to develop methods for adapting to climate change in ways that respect and encourage the inclusion of cultural values and practices.

Panek was born and raised on the Red Cliff Band of Lake Superior Chippewa Indian reservation. His grandparents are Frank and Midge Montano, and his parents are Melonee Montano and Damon Panek. Panek has always been heavily involved in culture and ceremonies; he recently began teaching others how to play makizinataagewin, a moccasin game.

While in high school and college, Panek began presenting to various tribal organizations, academic institutions, and non-profit organizations on topics such as "Decolonizing Entrepreneurship," traditional perspectives on power and leadership, and Indigenous perspectives on the environment. Across Turtle Island, he has presented in Minnesota, Wisconsin, Michigan, Illinois, New Mexico, Arizona, and Oklahoma.

At GLIFWC, Panek is looking forward to beginning the difficult but needed work that is climate change adaptation.

—J. Van Sickle

Healing Circle Run

(continued from page 15)

For more information on the history of the Healing Circle Run, please see 2014 *Mazina'igan* supplement 25th Anniversary of the 1989 Anishinaabe Solidarity Relay at *data.glifwc.org/download/archive.maz/run.pdf*.

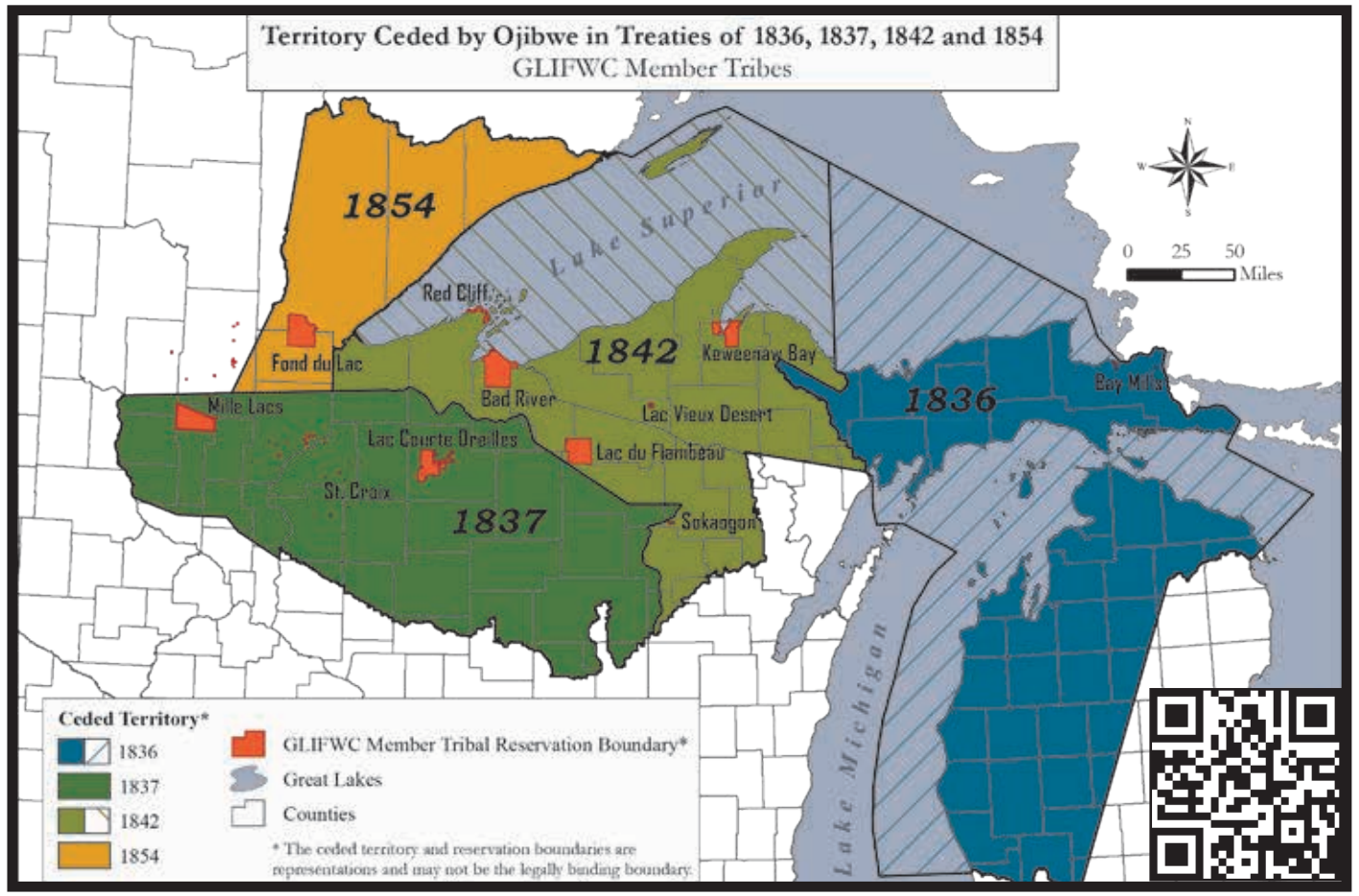
For additional information on how to get involved please contact *hcr@glifwc.org* or (715) 682-6619.

Abby Davidson contributed to this article.

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

CHANGE SERVICE REQUESTED

Dagwaagin 2022



Get to know your local oak trees this dagwaagin

As you begin scouting new hunting grounds or plan a return to familiar haunts, take note of where oak trees are growing in your local forests. You can bet that the whitetails, wild turkeys, and squirrels know where they are. The Ojibwe Ceded Territory is home to number of oak varieties from the red and white oak families. Oaks are widely distributed from Rush City, Minnesota to Raco, Michigan, oftentimes mixed with other hardwoods and white pines. The northern red oak, known wiisagi-mitigomizh in the Ojibwe language, is a strong, tall-growing variety with a range of medicinal uses. For wildlife, red oak acorns serve as a primary food source, becoming more important later in the season when greens and other browse are no longer available. Take note of acorns on the ground and in the trees (binoculars are helpful). Red oaks do not drop their acorns every year, but the sound of them plunking onto the ground in dagwaaggin can be music for both wildlife and hunters.

—CO Rasmussen

Mazina'igan
A Chronicle of the Lake Superior Ojibwe

DAGWAAGIN 2022

INSIDE:
30 years on the waabizheshi trail
Strong showing for GLIFWC interns
Rise of Indigenous Knowledge