

Mazina'igan

A Chronicle of the Lake Superior Ojibwe

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SPRING 2021

Fast-tracked wolf season a striking failure in resource stewardship

By Charlie Otto Rasmussen, Editor

In a rush to kill wolves across their range in Wisconsin, the Department of Natural Resources (DNR) oversaw a poorly planned season scheduled over the last week of February. It took state-licensed hunters only three days to blow through a quota of 119 wolves enroute to a total kill of 217 animals. In this unprecedented late season, with pelts degraded and of little value, the hunt was more about killing wolves than harvesting a resource for an authentic use.

"It's so disappointing, the hurried plan to kill ma'ingan," said John D. Johnson Sr, chairman of GLIFWC's Voigt Intertribal Task Force. Johnson is also chairman of the Lac du Flambeau Band of Ojibwe. "The state bypassed tribal consultation to force this hunt when females are carrying their unborn. Entire future generations were killed off." Hunters and trappers combined to register 99 female wolves.

Ma'ingan—the Ojibwe word for wolf—is a central figure in the Anishinaabe creation story. Among the fishes, four-leggeds, and birds, no creature has a more profound relationship with Anishinaabe people than ma'ingan. According to the prophecy that binds wolf and human—what happens to one, will happen to the other.

The recent wolf season, which started February 22 and ordered closed two days later, hastily came together after the US Fish & Wildlife Service removed ma'ingan from the



CO Rasmussen

Endangered Species list January 4. The DNR first announced it would begin planning for a fall hunting season with an eye to revising the state's outdated wolf management plan in coordination with Ojibwe tribes and others. But in rapid succession, actions by state legislators and a lawsuit filed by a Kansas-based hunting advocacy group led the Wisconsin Natural Resources Board to approve a wolf season before the end of February. In an unusual step, the Board—which sets natural resources policy—ordered that state managers make available double the ordinary number of permits to (see **Wis. wolf season**, page 2)

Fish consumption advisory issued for Lake Superior smelt

Elevated PFAS prompt Wis. DNR to take action

By Paula Maday, Staff Writer

Madison, Wis.—Justin Miller has been smelting along the southern shore of Lake Superior for 12 years. At eight, his Dad took him out onto the water, uncles in tow, to watch, learn, and listen to stories about their smelting traditions across two seasons of the year.



CO Rasmussen

"In winter we use rod and reel, and in spring, we use nets," the 20-year old Bad River tribal member said. "On average, I've been pulling roughly 100-250 smelt per day through the ice. In spring, I'll get much larger amounts, more than one or two five-gallon buckets per pull."

Rainbow smelt are small, non-native fish most commonly caught during spring spawning season. And they are popular. Drive by any sandy beach location along the southern Lake Superior shoreline between March and May, and you will find parking lots packed with fishermen looking to net these tasty treats and partake in smelting traditions of their own.

"Smelt come to the sandy shores of Gichigami in the spring as winter loses its grip on the lake," says Bill Mattes, Great Lakes Section Leader at GLIFWC. "People gather on beaches to seine or dip the fish to eat or use for bait later."

Miller says the smelt he catches during winter is for eating, whether it's for his family or given away to others in the community. So it came as a surprise when—rod and reel in hand on the frozen waters of Chequamegon Bay—Miller received news of a new fish consumption advisory for Lake Superior smelt.

On January 15, the Wisconsin Department of Natural Resources (DNR) and Department of Health Services (DHS) issued the first-ever fish consumption advisory for Lake Superior smelt, advising people to limit meals to just one per month. The advisory came after the agency's statewide PFAS monitoring efforts turned up elevated levels of PFAS (per- and polyfluoroalkyl substances) in smelt collected from two locations in Lake Superior in 2019. The locations were noted as being 30 miles apart at sites near the Apostle Islands and off Port Wing.

(see **Elevated PFAS**, page 5)

Getting out

Iskigamizige-giizis

April is the Maple Syrup Boiling Moon month and full of opportunity. Hit the woods and water for some healthy sources of protein to go with your maple syrup, sugar, and candies.

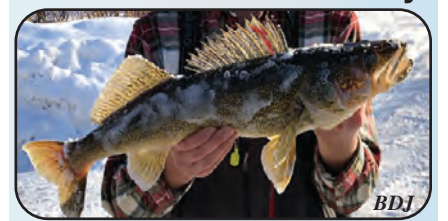


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Ogaa-walleye

• Prep the boat, check trailer lights, sharpen spears, gather up PFDs

Open water spearing—**average start date April 8**, southern Ceded Territory.

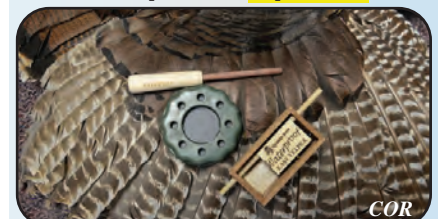


BDJ

Mizise-wild turkey

• Dig out camouflage clothes, practice a hen call, pick up #5 shotgun shells.

Spring wild turkey season—**April 10**: Minnesota 1837 & 1854 Territories, plus Wisco Tribal Youth hunt. General Wisconsin mizise opener **April 15**.



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data.glifwc.org/regulations



Anishinaabe insights



Ininaatig: getting to the roots of the Provider Tree

By Michael Waasegiizhig Price, GLIFWC TEK Specialist

For 20 years, I have been pondering and reflecting on the Ojibwe names of plants and animals, trying to find a window into the past, trying to find hints and clues about how our Anishinaabe ancestors understood the world. The morphemes within our language are beautiful threads that connect our worldview together. But, I am very careful about translations and I usually ponder a word for several years, as well as consult with other language speakers, before bringing my thoughts forward. The name for maple trees has been in my head for many years.

Ininaatig is the Anishinaabe name for sugar maple (*Acer saccharum* is the Latin name). I remember the late Porky White, Anishinaabe elder from Minnesota, saying that the name for sugar maple is translated as the ‘man tree.’

He told a story about how the Anishinaabe people once were starving in the spring after a long, hard winter, and the spirit of the maple tree spoke to them and instructed them in how to collect his sap for nourishment. The tree became sacred to the people as a result of this gift of life and sustenance.

Ever since I heard that story, I was curious as to why sugar maples were called by this name. I didn’t understand the linguistic connection between man and the maple tree. I searched through many traditional stories, creation stories as well, to find more information about this name, but found none.

I finally decided to look at the Anishinaabe language. I reached for my copy of ‘A Dictionary of the Ojibway Language’ written by Frederic Baraga in 1878 and searched for maple. I found the same name, but no further explanation. This name for maple tree, *ininaatig*, is at least 150 years old, if not hundreds, perhaps thousands. As I thumbed through the list of definitions in the dictionary, I found the word, ‘*ininan*,’ which means ‘to present or put something.’ As I reflected on this word, I realized that it could also be interpreted as, ‘to provide something.’

The word ‘*inini*’ refers to a man; *Anishinaabewinini* translates as Anishinaabe man. From a traditional perspective, the men were the providers of the home and community. They went out, hunted and brought home food, provided protection for the family, and did all of the work outside the home; thus they provided.

ininan = to provide something; *aatig* = tree
ininaatig = provider tree



Maple trees provide shelter for different species. (M. Price photo)

Wis. wolf season

(continued from page 1)

hunters and trappers; high participation along with several rounds of snowfall created a perfect storm, leading to a rapid wolf kill rate.

“Hunting with hounds is an incredibly lethal technique, which was only enhanced by fresh snow, and coordinated hunting efforts among groups of houndsmen,” said Peter David, GLIFWC wildlife biologist.

Hound hunters accounted for 86% of the wolf kill, the remaining balance split between trappers and hunters using predator calls that imitate prey animals in distress. In Wisconsin Ceded Territory, home to a majority of the state’s wolves, Ojibwe tribes claimed 81 ma’iinganag for themselves, representing one-half of the quota in the region. Tribal leaders pledged to use their treaty-reserved share of wolves as live animals left on the landscape to perform their ecological functions in the environment.

Moving forward, tribal leaders and wildlife managers expect to have a prominent role in updating Wisconsin’s 22-year-old wolf management plan, written at a time when packs were still returning to their former range after being wiped out in the 1950s. The state has announced it intends to launch yet another wolf hunting and trapping season this year beginning in November. After the DNR’s failure to maintain kill quotas and the poor application of scientific decision-making in wolf management, Ojibwe tribes remain deeply concerned about ma’iingan’s future. Wisconsin American Indian reservations, including Menominee, continue to be wolf sanctuaries protected by tribal authorities.

Master’s of Science Graduate opportunity

GLIFWC is sponsoring a graduate study opportunity to investigate brain tanning. Funding has been secured and GLIFWC is working with the University of Wisconsin–Stevens Point to establish a collaborative study.

The objectives of the study are three-fold, to gather and report on Ojibwe TEK associated with the craft of brain tanning, to understand and document the chemical and physical changes to hides when they are tanned with brains and to compare these changes to those in industrial tanning process, and finally to assess the risk of CWD exposure to those practicing the art of brain tanning with cervids. The preferred start date would be June 2021, but a fall start is possible.

Any person with interest in this area should contact Jonathan Gilbert, Director, Biological Services Division, GLIFWC (jgilbert@glifwc.org) or Scott Hygnstrom, Professor of Wildlife, University of Wisconsin Stevens Point (shygnstr@uwsp.edu).

Then, I thought about the name, *ininaatig*—the tree that provides? But, what does it provide? Obviously, maple trees provide sugar. Anishinaabe people worked tirelessly in the spring to harvest the sap of *ininaatig* and then, they boiled it and processed it down to granulated sugar. This tradition is ancient among Anishinaabe communities. But, what else does the maple provide?

As I walked down through a maple forest in the winter, I’ve noticed that older maple trees tend to hollow out, which is obvious by the many cracks and holes in the trunk. I noticed that the bark around the holes in the trunk are worn smooth, undoubtedly from animals crawling in and out. This characteristic of maples provides the necessary winter shelter for squirrels, raccoons, martens, fishers, porcupines, and many other tree-climbing mammals. Winters in the Great Lakes region can be harsh and these maple hollows are excellent wintering lodges. These hollows also provide birthing shelter for the young. So, I have come to believe that the linguistic connection between man and maple is this ability to provide.

Today, in our communities, many Anishinaabe men, especially younger men, do not carry this tradition of being a provider. Perhaps, some men were never taught this or, perhaps, they, like me, never had role models for becoming a good provider.

Over the last 150 years, Anishinaabe society was torn apart by armed conflict, corrupted treaty agreements, forced assimilation, boarding schools, and today, by consumer culture. Many young Native men are stereotyped by mainstream society as criminal, in much the same way as young black men in the inner cities. The pressures of consumerism dominate the spirits and minds of our young people today. I believe that many people, not just Anishinaabe people, have learned to measure their self-worth by materialism and acquisition. In the old days, before the colonization of this continent, I was taught that it was just the opposite; a person’s self-worth was measured by how much he could provide.

The naming of the maple tree as the ‘provider tree’ is a worthy teaching for our Anishinaabe people. Our teachings evolve from our relationships to the landscape. Regardless of how harsh the winters are or how much the climate fluctuates, the maple trees continue to provide; they provide nourishment for the people, and they provide shelter for the animals whose survival they depend upon. The predictions of climate change are forecasted to put increasing pressures on sugar maples in parts of the Great Lakes region, including the Ceded Territory, but the maples will continue to provide until the very end. By interpreting ‘*inini*’ as a ‘provider’ and ‘*ininaatig*’ as the ‘provider tree,’ our connections to the landscape and our cultural knowledge have been strengthened for the future.

Model Food Code project

Looking for the new Model Food Codes? Want to check out template documents for food safety? Need to print out some Lead advisory brochures? Visit the new Model Food Code Project webpage for all your traditional food code and safety needs: data.glifwc.org/food.code.project. Contact Owen Holly Schwartz with any questions at ohschwartz@glifwc.org.



Ceded Territory news briefs

Bay Mills president appointed to DOI-Indian Affairs

Brimley, Mich.—Bryan Newland is returning to Washington DC. Newland resigned as Bay Mills Indian Community Chairman in mid-February to accept an appointment to the Department of the Interior (DOI).

In his new role, Newland serves as Principal Deputy Assistant Secretary—Indian Affairs, joining a leadership team tasked with strengthening nation-to-nation relationships with American Indian tribes and addressing tribal priorities, including environmental protection.

“Very excited to be back at DOI to work with Indian Country,” Newland said, calling his tenure as Bay Mills president since 2017 as one of the greatest honors of his life.

From 2009-2012 Newland worked at DOI, where he was Senior Policy Advisor to the Assistant Secretary-Indian Affairs, providing guidance on issues ranging from land policy to treaty rights. DOI scheduled an initial round of tribal consultation meetings scheduled for mid-March. —**CO Rasmussen**

2021 tribal fishing season to begin

Ziigwaan is here and the ice is in full thaw mode. GLIFWC would like to encourage all harvesters to follow CDC guidelines by maintaining a minimum six-foot buffer from other individuals and by wearing personal protective equipment when in common-place areas near others. “If we all continue to do our part, we can keep all of our creel teams, harvesters, wardens and communities safe this season,” said GLIFWC Executive Administrator Michael J. Isham.

During these unique times GLIFWC will continue to do its best to participate in survey work and maintain operational creel crews at waterbodies where tribal harvesters exercise their treaty protected rights.

As GLIFWC member tribes have been rolling through the tiers of their COVID-19 vaccine programs, many communities are still concerned about the new virus strains that are emerging all over the world. Spending time outdoors fishing or harvesting is a great way to steer clear of large crowds.

GLIFWC wishes everyone a safe and bountiful harvest this spring. —**B. Jennings**

Elk harvest at zero for Ojibweg 2020 season

In the spring of 2020, the Wisconsin Elk Advisory Committee recommended a safe harvest quota of six bull omashkooz total. This number was proposed based upon the most recent data and was in line with overall management goals.

Following the recommendation, the Wisconsin Natural Resources Board overturned the Committee’s decision and chose to enact a total quota of 10 bull elk.

GLIFWC member tribes declared five bull elk for the 2020 season but chose a more conservative harvest approach in light of the Natural Resources Board Decision. GLIFWC member tribes did not harvest any elk from the Clam Lake herd in the 2020 season out of an abundance of caution for the long-term success of the elk population.

“We want to see omashkooz populations thrive again. The best way we will achieve this is if we listen to the advisory committee that was established to help us follow the best available science,” said GLIFWC Voigt Intertribal Task Force Chairman John Johnson Sr.

The Wisconsin Elk Advisory Committee is comprised of biologists with the US Forest Service, Wisconsin Department of Natural Resources, The Ho Chunk Nation, GLIFWC and other partners. The committee meets regularly and has the responsibility of making recommendations on both the reintroduction and management of wild elk.

GLIFWC member tribes have been elk reintroduction partners since 1995 with the goal of restoring the population to sustainable levels. —**B. Jennings**



Rocky Mountain Elk Foundation

Whitetail registration jumps 43% during pandemic

By Travis Bartnick, GLIFWC Wildlife Biologist

Waawaashkeshi (deer) harvest

During the 2020 off-reservation deer hunt, tribal members registered 1,044 deer, which was up compared to the 732 deer harvested in 2019 in the 1836, 1837, and 1842 Ceded Territories. The fall weather resulted in excellent hunting conditions as well compared to 2019.

It is likely that some of the additional harvest was related to the ongoing COVID-19 pandemic and the greater need to harvest waawaashkeshi to feed families and the community instead of taking the risk of going to the grocery store.

Antlerless deer accounted for 54% and antlered deer accounted for 46% of the total deer harvested in the 2020 season. Tribal hunters harvested deer from 35 counties within the 1836, 1837, and 1842 Ceded Territories (Figure 1). This included 21 counties in Wisconsin, nine counties in Michigan, and five counties in Minnesota.

Similar to past years, four counties in northwestern Wisconsin accounted for over half (52%) of the total off-reservation deer harvest. Those counties included Bayfield Co. (20%), Burnett Co. (14%), Douglas Co. (12%), and Sawyer Co. accounting for 6% of the total harvest.

Tribal hunters registered the most deer between October 17, 2020 and November 29, 2020, accounting for about 66% of the total deer harvest over those 44 days. The most off-reservation deer registered by tribal members on a single day occurred on November 21, 2020, coinciding with the Wisconsin state gun season opener. Most of the deer were registered using remote registration methods, either by phone or online.

Makwa (bear) harvest

Tribal members harvested a total of 42 bears from portions of the 1837 and 1842 Ceded Territories in Wisconsin and Michigan during the 2020 season.

A total of 39 bears were harvested in Wisconsin from 10 different counties, and three were harvested in Michigan from three different counties. The majority of bears harvested were male (72%).

2020 Ojibwe Ceded Territory deer harvest

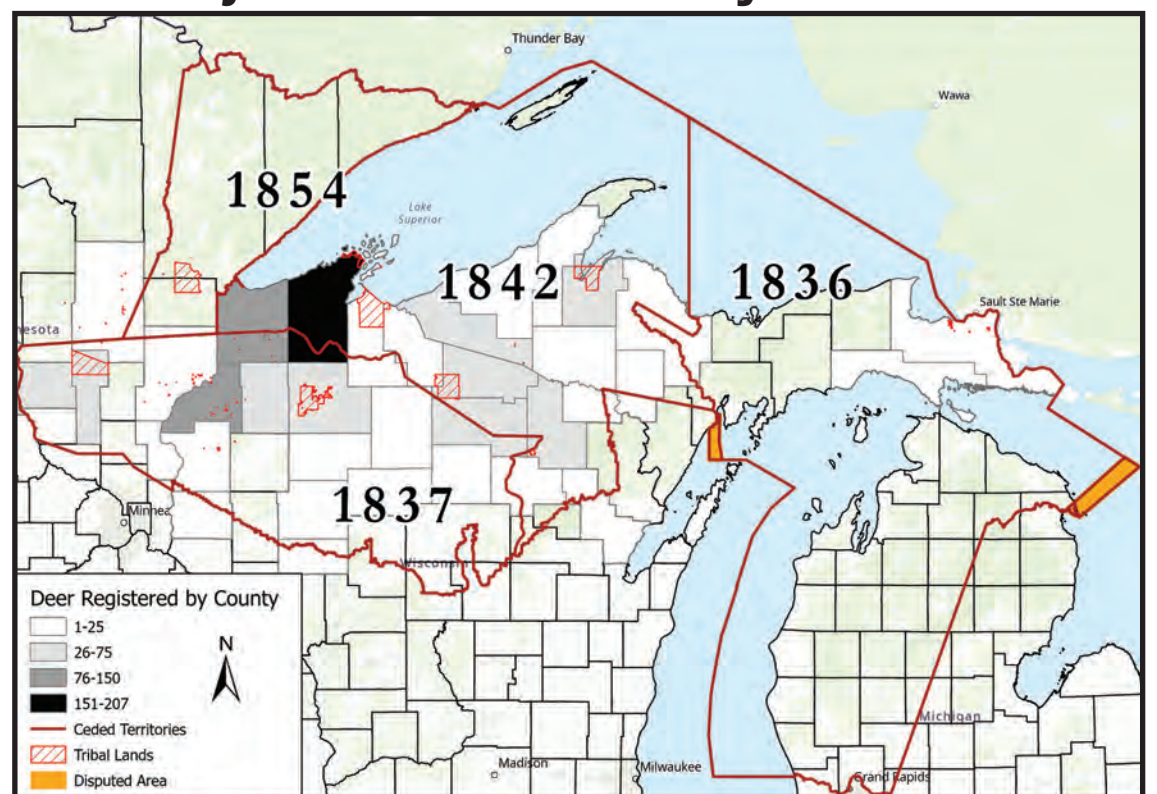


Figure 1. Distribution of waawaashkeshi (deer) registered by GLIFWC-member tribes in the 1836, 1837, and 1842 Ceded Territories during the 2020 off-reservation tribal hunting season, summarized by total deer harvested in each county. *The boundaries are representations and may not be the legally binding boundary.

Fall mizise (turkey) harvest

During the fall turkey season, tribal hunters harvested 13 turkeys in the Wisconsin portion of the Ceded Territory, including eight males and five females. The majority of turkeys were harvested from Zone 6 in northwestern Wisconsin. One female turkey was harvested during the fall season in the Minnesota portion of the Ceded Territory.



Early spring ice an annual hazard Wardens train for cold water rescue

Residents of the North Country know that ice can be present on lakes anywhere from November to May. And where there's ice, folks with spears, angling rods, and all sorts of motorized vehicles will venture out on the frozen water to fish and recreate. One important job of a GLIFWC warden is to help keep those people informed and as safe as possible.

"Always remember that ice is never completely safe," said GLIFWC Warden Matt Kniskern. "Plan ahead of time before venturing out. Talk to locals about ice conditions. Charge up your cellphone and carry it with you. A float coat or life jacket is a good investment that can save your life."

Accidents happen every year when trucks, snowmobiles, even pedestrians break through the ice into the jarringly cold water below. Kniskern said that all ice is not the same. Even though it can appear fairly thick—a foot or more—the quality of the ice can range from clear lake ice (strong) to highly degraded candled ice that appears like thin crystalline tubes underfoot.

"As we get closer to ice-out, fishermen are going to encounter more unstable ice that cannot support a lot of weight. We prepare every winter for situations that involve people breaking through the ice," said Kniskern, training director for GLIFWC's 18 conservation officers.

Atop an ice sheet on Gichigami's Chequamegon Bay, the GLIFWC Enforcement Division gathered March 1 to refresh their cold water rescue training skills. For two new warden recruits taking their first dip into the frigid waters of Lake Superior, the experience helped advance their skills and build camaraderie with the force.

"In addition to enhancing public safety, this training is something that helps build good communication and good team-building skills," Kniskern said.

—CO Rasmussen



Officer Jim Stone demonstrates how to bind two ropes together using a figure-8 knot. (CO Rasmussen photo)



Ice anglers appear in the background as GLIFWC wardens conduct cold water rescue training on Chequamegon Bay. (CO Rasmussen photo)

In Ceded Territory spanning move, GLIFWC warden settles in near Mille Lacs

After nearly five years patrolling the Great Lakes waters and woods of the 1836 Ceded Territory, GLIFWC Warden Gale Smith has headed west to a new duty station near Mille Lacs, Minnesota. Completed in late 2020, the transfer to the far end of the 1837 Ceded Territory situates Smith in a region rich with memories from his youth.

"Fishing Mille Lacs Lake with my grandfather, with my uncles every year was always really important to me. That fishery at Mille Lacs, it's a special place," said Smith, an avid angler who grew up making springtime visits to the lake during the netting and spearing season.

Smith moves on from the storied waters of eastern Upper Michigan, where lake whitefish and lake trout are keystone species for Bay Mills Indian Community fishers in Lakes Superior, Huron, and Michigan. At Mille Lacs Lake, home of Mille Lacs Band of Ojibwe, walleye, northern pike, and perch form the core of the native subsistence fishery. World-class smallmouth bass and muskie fishing makes the big inland lake a favorite for sports anglers.

Across the three-state Ceded Territory, GLIFWC wardens are stationed near member communities, enforcing tribal conservation codes on off-reservation lakes and forests. Smith and his family settled in a home south of Mille Lacs Lake, putting him in a centralized position to protect the big lake, small inland lakes and public woodlands where tribal members exercise treaty-reserved rights in the Minnesota 1837 Ceded Territory.

Ceded Territory boundaries—part of treaty negotiations with the United States government—were established prior to statehood. Six present-day Wisconsin Ojibwe tribes established treaty rights in east-central Minnesota along with Mille Lacs and Fond du Lac Ojibwe bands. (A Lac du Flambeau Band member, Smith grew up in northeast Wisconsin.)

—CO Rasmussen



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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

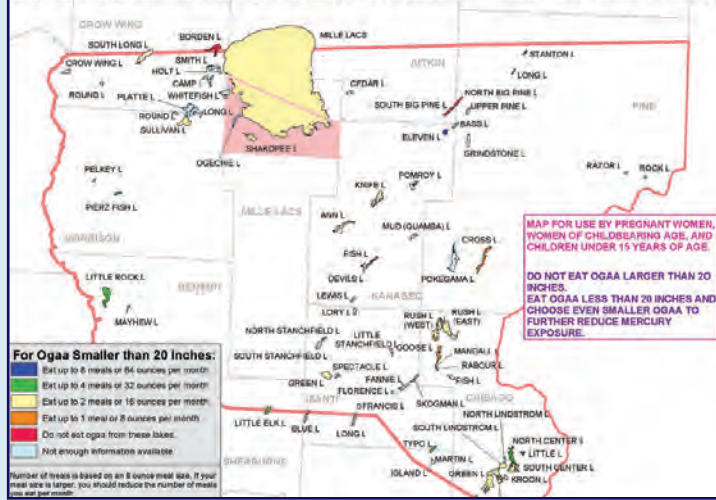
On the edge of the Chequamegon Bay ice March 1, GLIFWC Conservation Wardens Mike Popovich and Riley Brooks discuss cold water rescue techniques with training officer and GLIFWC warden, Lauren Tuori, pictured far right. (CO Rasmussen photo)



Weweni amwaadaanig ogaawag (Let's eat walleyes safely)

The spring ogaawag (walleye) season is right around the corner. Whether you will be setting out upon the waters to harvest fish or simply enjoying the catch at the dinner table, GLIFWC's Mercury Maps can help you make informed decisions about safe fish consumption.

This Map is to Help You Find Safe Ogaawag (Walleye) in the Minnesota 1837 Ceded Territory



Spring spearing and netting are an integral part of the Anishinaabe bimaa-diziwin (tribal lifeway). Tribal members reaffirm their off-reservation treaty harvest rights while providing their families and communities with a tasty and healthy food. But, as with any species of fish, ogaawag contain mercury. Exposure to mercury above safe levels can cause negative health impacts, especially in fetuses and young children. To limit exposure to mercury, choose lakes with lower mercury levels. Refer to GLIFWC's Mercury Maps for the safe number of meals of ogaawag per month you can safely enjoy from that lake. Ogaawag less than 20 inches and other species of fish lower on the food chain such as asaawe (yellow perch) tend to have lower mercury levels.

The Mercury Maps are available on the GLIFWC website at glifwc.org/Mercury/index.html where additional information on safe fish consumption can also be found. This information is distributed to member tribes and made available at tribal registration stations. Before going in, please contact your community registration station to check if they are currently open to the public and remember to practice safe COVID-19 precautions such as social distancing and mask wearing. —H. Arbuckle

Hand-pulling garlic mustard creates room for native species

One of the most aggressive forest floor invaders is garlic mustard. This biennial forest plant was introduced to North America by early European colonists. Shade-tolerant and almost completely immune to North American insects and diseases, it readily invades hardwood and mixed hardwood-conifer forests, especially where non-native earthworms have consumed the duff layer.

Garlic mustard grows rapidly in spring, when wild leeks and other spring ephemerals are trying to store as much sunshine as they can before the tree canopy closes in. As the second-year garlic mustard plants start to bolt, they can reach 2 or even 3 feet tall, overtopping and shading out other forest floor plants. Garlic mustard also releases chemicals that reduce the growth and abundance of other plants. Some of these chemicals inhibit the growth of specialized fungi called mycorrhizae, which most plants rely on to efficiently obtain water and nutrients from the soil.



Weed warriors pulling garlic mustard on the Bad River floodplain just north of Mellen in May 2009. Today most of this 70-acre site is nearly free of garlic mustard. (S. Garske photo)

Of course garlic mustard doesn't try to be a bad neighbor. From a traditional perspective, garlic mustard isn't malicious or bad. The plants are just carrying out the instructions that the Creator gave them. The damage they do is the result of people bringing them here.

"Kitche Manitou (the Great Spirit) had a vision of the earth, and decided to bring it into being. As part of this earth he made four kinds of plant beings: flowers, grasses, trees and vegetables. To each he gave a spirit of life, growth, healing, and beauty. He placed each where it would be most beneficial, and lend the earth the greatest harmony and order."

—Paraphrased from *Ojibwe Heritage*, by Basil Johnston (1990)

For over a decade GLIFWC has been working with the Northwoods Cooperative Weed Management Association (NCWMA) and lots of wonderful volunteers, to eradicate small garlic mustard populations and contain large populations along the Bad River floodplain north of Mellen, Wisconsin and the Montreal River floodplain between Ironwood and Hurley, on the Michigan-Wisconsin border. (see [Garlic mustard](#), page 11)

Elevated PFAS prompt Wis DNR to take action

(continued from page 1)
What are PFAS?

According to the U.S. Environmental Protection Agency (EPA), PFAS are a group of man-made chemicals that includes PFOA, PFOS, GenX and others. PFAS have been manufactured and used in industries around the world, including in the United States, since the 1940s. More than 4,700 PFAS currently exist, that number growing as industries invent new forms of this type of chemical. PFOA and PFOS have been the most extensively produced and studied. Both chemicals are very persistent in the environment and in the human body; they don't break down and can accumulate over time. The specific PFAS found in the rainbow smelt that was sampled from Lake Superior was PFOS (perfluorooctane sulfonate).

PFAS are found in everything from nonstick cookware to pizza boxes to drinking water. A list of places and items in which you might encounter PFAS is provided on the EPA's website at epa.gov/pfas/basic-information-pfas#exposed.

How do PFAS get into smelt?

The Wisconsin DNR says these contaminants make their way into the environment in a variety of ways, including spills of PFAS-containing materials, discharges of PFAS-containing wastewater to treatment plants and firefighting foams. The specific source of the PFAS found in the rainbow smelt that was sampled from Lake Superior was not identified. Additional information on PFAS exposure pathways is expected to come out of Michigan as researchers continue to collect and analyze a variety of samples from deer, fish, sediment, and algae.

What about PFAS in other Lake Superior fish?

At the time that it received news of the contaminated rainbow smelt samples, the Wisconsin DNR also received sample results from bloater chub, cisco/lake herring, lake whitefish, lake trout, and siscowet lake trout in Lake Superior and crappie, yellow perch, channel catfish, carp, northern pike, walleye, and musky from the St. Louis River. The agency said PFAS levels weren't high enough in those species to trigger consumption advisories.

GLIFWC Environmental Biologist Sara Moses explains that PFAS behave differently in fish than most contaminants that we are familiar with. "Substances such as mercury or PCBs (polychlorinated biphenyls) accumulate as they move up the food chain. So, we typically find the highest levels in large predatory fish like walleye or lake trout. But with PFAS, this pattern doesn't hold. Sometimes the highest levels of PFAS pop up in unexpected fish species, even in smaller fish lower on the food chain like has been seen for smelt."

Moses said scientists aren't sure why this is, and more research is needed. Hopefully ongoing research, such as that being taken on in Michigan and by others, will start to unearth answers to some of these many questions about PFAS exposure in the environment.

What's the risk?

The EPA says there is evidence that exposure to PFAS can lead to adverse human health effects. Studies indicate that PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animals.

The most consistent findings are increased cholesterol levels among exposed populations, with more limited findings related to low birth weights for infants, effects on the immune system, cancer, and thyroid hormone disruption.

"The risk of health problems increases with the amount of contaminated fish you eat," state officials have said. "Following this advisory will help protect you from excess PFAS exposure found in fish."

Have other Lake Superior states issued advisories? What's next?

The state of Michigan, which shares Lake Superior waters to the east, has not issued a smelt consumption advisory at this time, though Marcus Wasilevich, PFAS response coordinator at the Michigan Department of Health and Human Services, says they consider the data from Wisconsin "to be rather reliable."

Michigan plans to collect its own samples from Lake Superior this spring. If the samples show PFAS contamination levels similar to Wisconsin's, Michigan regulators will likely issue a smelt consumption advisory for their state as well, impacting tribal harvesters from Ojibwe bands located in the Upper Peninsula, including Keweenaw Bay Indian Community and Bay Mills. Michigan will also be sampling fish from Lake Michigan and Huron, as well as some inland waters.

To the west, the Minnesota Department of Health issued an advisory consistent with Wisconsin's and based on Wisconsin's monitoring results, on March 1. Research Scientist and Fish Advisory Program Manager Pat McCann said the advisory was issued out of precaution, as smelt are known to travel around Lake Superior, and the advisory could change as more data is collected. Minnesota will collect smelt from Lake Superior this year to monitor for PFAS.

Minnesota will also look to test inland waters of the Ceded Territory. The state will be partnering with GLIFWC, 1854 Treaty Authority, the Fond du Lac Band and Grand Portage Band of Lake Superior Chippewa to help identify inland locations and collect fish.

Back in Wisconsin, the DNR plans to sample more rainbow smelt in other parts of Lake Superior and Lake Michigan to learn more about PFAS contamination in these and other fish species. In the meantime, Justin Miller says that the new advisory won't change his harvest activities much. Since a portion of his winter catch is shared amongst members of the community and his spring catch is primarily used for bait, he views his level of risk as relatively low. However, he adds thoughtfully, "I still might cut back on how much I eat."



GLIFWC language project to host virtual outreach

Second set of children's books on their way to partners

By LaTisha Coffin, ANA SEDS Coordinator

Ziigwan. It's that time of year when our mother renews herself and the first fresh plants are ready for harvest. One of the first greens ready are *bagwaji-zhigaagawaanzhiig*, also known as wild leeks or ramps in English.

When you step into a field of ramps in the spring, you know it! Just like Cleo White, White Earth Ojibwe and GAAGIGE (GLIFWC Advisory and Guidance Input Group of Elders) member, did in the newest Maajii-Ojibwemowag book, titled *Bagwaji-zhigaagawaanzhiig*. As told by her husband, Dennis, Lac Courte Oreilles and GAAGIGE member, this story focuses on how they harvested ramps with Dennis's mother and their daughter, Wabigon, near the Lac Courte Oreilles reserve. As seen through illustrations by Wesley Ballinger, they offer tobacco before gathering ramps and taking them home to make soup and bake pizza.

The *Bagwaji-zhigaagawaanzhiig* book joins the volumes, *Asemaa* and *Manoominikeyaang*, to complete the second set of the Maajii-Ojibwemowag book series, titled *Zhaawanong: Stories of the Plants*. In addition to the newly published books, the *Zhaawanong* webpage will soon be published to GLIFWC's Ojibwe language website: glifwc-inwe.com, crafted by Intermedia Web Designer Melissa Maund-Rasmussen. New interactive games and Flipbooks with audio will be featured on the *Zhaawanong* webpage, along with pronunciation and translation guides. Be sure to check out GLIFWC's Facebook page for the *Zhaawanong* webpage launch announcement!

The new books, along with other developed materials, will be distributed to project partners, such as tribal Head Starts and daycare centers, within GLIFWC's 11 member tribes. To assist teachers and caregivers in utilizing the new materials, Language & Outreach Specialist Misty Peterson will be conducting virtual informational sessions with project partners this spring, due to the ongoing COVID pandemic.

Once the snow melts in your local woodlands, enjoy some *bagwaji-zhigaagawaanzhiig* on your homemade pizza or in your soup like in the story! *Minopogwad!* (It tastes good!)



Wild leeks, a ziigwan treat, face challenges

By Steve Garske, GLIFWC Invasive Species Coordinator

Spring is just around the corner! Well, maybe the corner after that. But it won't be long before the forests and wetlands of the Northwoods burst with new life. Some of the first plants to emerge are the spring ephemerals—*makopiniig* (cut-leaved toothwort), *ojidimo miskishmandauminiig* (Dutchman's breeches), *meskojibikakag* (bloodroot), *bezhigojibikag* (blue cohosh), and of course those tasty wild leeks (*zhigaagawaanzhiig*).



Namepiniig (wild ginger), *makopiniig*, *ojidimo miskishmandauminiig* and other early spring plants brighten the forest floor. (S. Garske photo)

Historically wild leeks were common in hardwood forests from the northeastern US and adjacent Canada, west across the Great Lakes region and south to Tennessee and Missouri, and all the way to the Great Plains. While their onion-garlic taste repels deer and other potential predators, most humans enjoy eating wild leeks. In fact they like them so much that in many parts of the eastern US their populations have been seriously depleted. Much of the damage is being done by commercial harvesters, who often dig up whole populations of leeks.

Wild leeks and other plants face a number of other challenges as well. They suffer from habitat loss, as natural forests are converted to aspen clearcuts and pine plantations, or lost to development. Climate change is also a threat—an analysis by the GLIFWC climate change program found that under a mid-range scenario, wild leeks would be “moderately vulnerable” to climate change by 2050. The last thing they need is competition from invasive plants!

Two types of leeks

It may come as a surprise, but there are TWO distinct types of wild leeks! These two types are increasingly considered to be separate species by plant taxonomists (people who study plant relationships).

The most common one in the Ceded Territory has the scientific name *Allium tricoccum*, and is usually called “ramps.” It's the larger of the two on average, with pinkish to reddish leaf stalks, wider leaves (1.2 to 3.5 inches wide), and 30-50 flowers. It flowers from late June through early August.

The other type of leek (*A. burdickii*) tends to be somewhat smaller, with pale greenish leaf bases, narrower leaves (0.6-1.8 inches wide), and 12-18 (rarely up to 24) flowers. It flowers in June. Crosses between these two species are rare in nature, in part because of their different flowering times.

See if you find these two types of leeks in the woods this spring!



A small patch of large wild leeks or “ramps” (*Allium tricoccum*). (S. Garske photo)

Inset: Here's a patch of small wild leeks (*Allium burdickii*). (R. W. Smith photo) michiganflora.net/species.aspx?id=36





Early clues from Buffalo Reef acoustic telemetry project point to stamp sands impact

By Ben Michaels, GLIFWC Fisheries Biologist

GLIFWC Great Lakes Fisheries Section spent some cold days out on Lake Superior this past fall, first deploying, then collecting acoustic receivers as part of a three-year cooperative study with the US Geological Survey and Michigan Department of Natural Resources.

This multi-agency effort is aimed at determining how the ongoing encroachment of mining waste, known as stamp sands, influences spawning behavior and movement of chinamegos (lake trout) and adikameg (lake whitefish) around the Grand Traverse Bay area on the Eastern side of the Keweenaw Peninsula in Lake Superior.

For the last 100 years, wind and wave activity has been pushing stamp sand down the Keweenaw shoreline and onto Buffalo Reef, diminishing the quality of important fish spawning and nursery habitat. With the use of acoustic telemetry technology, the research team has, thus far, collected one year of movement data, which has provided some preliminary insight into how migration of stamp sand may be impacting fish populations around this area. An interagency crew surgically implanted acoustic transmitters into both chinamegos and adikameg last fall, allowing researchers to track both species in the study area for up to three years.

Lake trout generally appear to be spawning near habitat where relatively little stamp sand is present, suggesting they are avoiding areas along the northern boundary of the reef where the bottom substrate has been smothered via continuous infilling of stamp sand (Figure 1). Whitefish spawning behavior on the reef will be analyzed later in 2021.

Biologists are concerned that the entire reef could become unsuitable for spawning if remedial actions are not taken to thwart further stamp sand movement in the future. Furthermore, the native sand beach located just south of Buffalo Reef will likely become inundated with stamp sand, potentially annihilating larval whitefish habitat in that area (Figure 2).

The potential for habitat damage doesn't stop there, unfortunately. Acoustic data collected from this study also show that whitefish and lake trout use Traverse Point for spawning, and it appears to serve as a sort of winter and summer residence, possibly a feeding area, especially for whitefish. This suggests that as stamp sands migrate further south, perhaps onto Traverse Point, lake trout and whitefish populations would be further impacted.

Ultimately, there will likely be severe habitat damage on Buffalo Reef and other important nearshore areas if migrating stamp sands are not stopped, which could have far-reaching, adverse effects on tribal commercial and recreational fisheries around the Keweenaw Peninsula.

For more information on the Buffalo Reef acoustic telemetry project, please contact Ben Michaels at smichaels@glifwc.org.

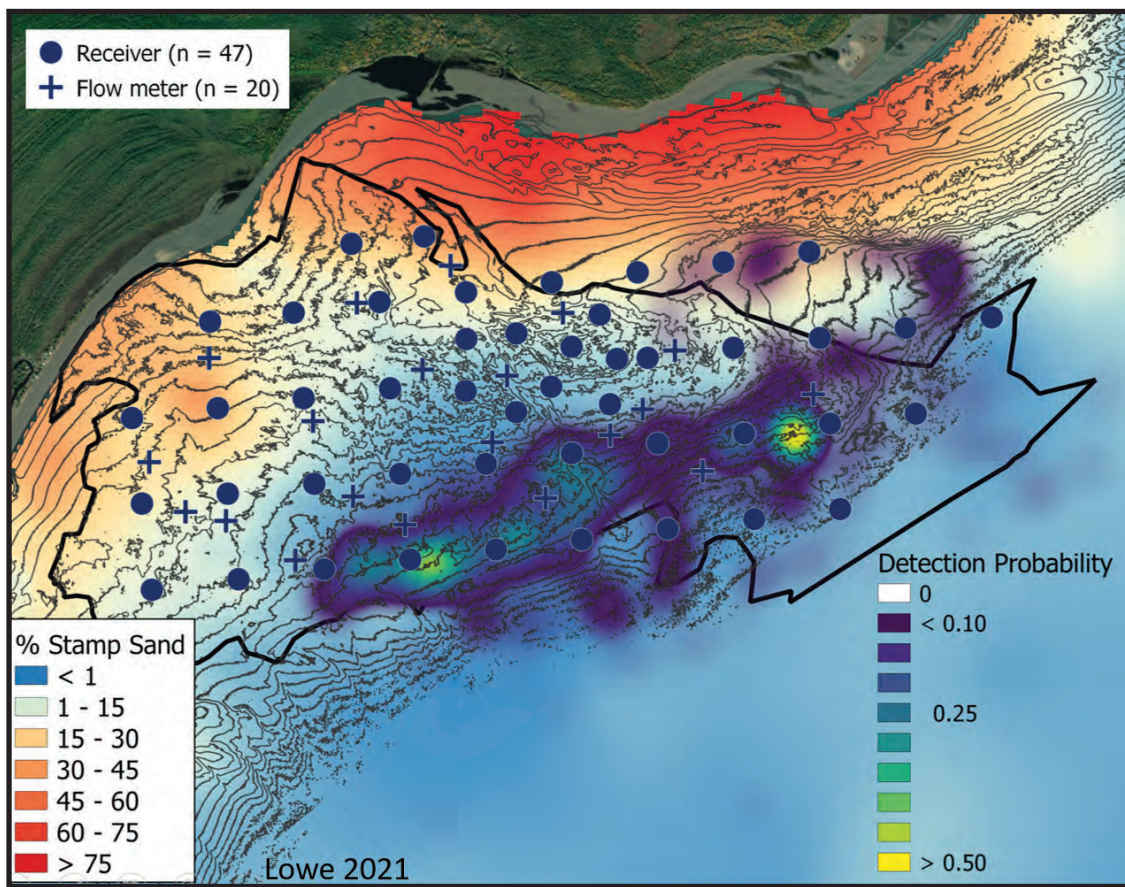


Figure 1. Acoustic receiver locations and detection probability of lake trout on Buffalo Reef during the 2019 fall spawning season in relation to the presence (% coverage) of stamp sands. Detection probability indicates where on the reef fish were most likely to be present. The boundary of the reef is depicted by the black line.



Figure 2. Location of the larval whitefish nursery/feeding area and Traverse Point relative to Buffalo Reef. The gray-colored stamp sands have been gradually moving southward along the shore via wind and wave activity, posing a threat to larval whitefish habitat and Traverse Point.

Sea lamprey “transformers” captured on Marengo River

By Bill Mattes, GLIFWC Great Lakes Section Leader

Right up to the December 1 winter freeze-up on the upper Marengo River, GLIFWC Great Lakes Section staff regularly checked nets set to capture newly transformed sea lamprey (bimiizii).

In total, 220 transformed lamprey were removed from the system. Most of these were transported to the USGS Hammond Bay Biological Station to be used in research studies.

GLIFWC nets intercepted transformed sea lamprey as they made their way from river sediments, where they had lived for 3-5 years eating detritus, to Gichigami (Lake Superior) where they will find fish to feed upon.

Each sea lamprey will consume around 40 pounds of fish, growing from about six inches to over 20 inches and gaining weight from less than a quarter ounce to half a pound in 18 months. After 18 months of feeding the adults return to tributaries to spawn,

females laying over 100,000 eggs each, before they die.

Sea Lamprey came into the Great Lakes through man-made connections to the Atlantic Ocean. In their native range, sea lamprey feed in the oceans where the abundance of fish is much greater in comparison to the number of streams where they can spawn and reproduce.

In the Great Lakes the opposite is true, many streams are suitable for spawning sea lamprey however fish abundances are much lower than in the oceans. This presents an imbalance between the predator and prey.

When first introduced, sea lamprey decimated the large predators and reduced the numbers of other fish in the Great Lakes, primarily the chinamegos (lake trout) and adikameg (lake whitefish). This resulted in the closure of fisheries which relied on the lake trout and lake whitefish. However, a lampricide was discovered and has been used to control (see Sea lamprey, page 11)



Fyke nets, set in the Marengo River at Government Road to capture transformed sea lamprey, sit frozen in a sheet of ice on December 1, 2020. Great Lakes Section staff were able to retrieve the nets by breaking the ice sheet up prior to pulling the nets out. Inset: A transformed sea lamprey using its oral disk to suction onto the author's hand. (B. Mattes photos)



Harvesting zhigaagawanzh

Ziigwan (spring time) is one of my favorite times of year. The lakes and rivers slowly thaw and the healing blanket of snow begins to melt away.

Many of our relatives like makwa (bear) wake up from hibernation, and our plant relatives also begin to emerge. One of the first plants we see all over is zhigaagawanzh.

Zhigaagawanzh is the word we use for leeks or wild onion. It grows in fertile soils all over if you just open your eyes. They can be dug up and eaten with just about anything.

Sometimes we dry them and use them for seasoning, and other times we freeze them and put them in soups. Sometimes we just eat them right from the ground.

Ask an adult or an elder in your community to show you where and how to respectfully harvest zhigaagawanzh.

—B. Jennings



Color the picture. Always harvest with an adult or an elder so they can show you where and how to harvest zhigaagawanzh respectfully. (W. Ballinger illustration)



Zhigaagawanzh. (GLIFWC staff photo)



Color the picture. After harvesting leeks it's fun to help nookomis (grandmother) in the kitchen. Homemade soup and pizza are made with the harvested zhigaaganwanzh. (W. Ballinger illustration)



Harvesting leeks with your family can be fun. Gekekibinesiikwe Jennings enjoys harvesting leeks with her family. (B. Jennings photo)



Wild leek bed. (COR photo)

Pictured are two coloring pages from the *Stories of the Plants: A Zhaawanong Coloring Book*. This book is based on Bagwaji-zhigaagawanzhiig, *Stories of the Plants: A Zhaawanong Book* published by GLIFWC through a grant from the Administration for Native Americans. See page six for more information about this project.



National Climate Adaptation Strategy updated

Featured role for Indigenous Knowledge

By Rob Croll, GLIFWC Climate Change Coordinator and Jen Vanator, GLIFWC Great Lakes Program Coordinator

In 2010, the United States Congress asked the Council on Environmental Quality (CEQ) and the Department of the Interior (DOI) to develop a national strategy to “assist fish, wildlife, plants, and related ecological processes in becoming more resilient, adapting to, and surviving the impacts of climate change.” This Congressional direction was in response to increasing national calls for ways to better understand, prepare for, and address the impacts of climate change on natural resources and the communities that depend on them.

The DOI then put together a team of representatives from other federal agencies, state fish and wildlife agencies, tribal governments, and intertribal commissions to begin developing what came to be known as the National Fish, Wildlife, and Plant Climate Adaptation Strategy (Strategy). By 2011, the core federal team had reached out to five state fish and wildlife agencies, several tribal governments, and three intertribal commissions to build the author team for the Strategy.



GLIFWC's Hannah Panci drills a hole to measure ice for the phenology project. (R. Croll photo)

In addition to the participation of former Executive Administrator Jim Zorn and staff Jen Vanator, GLIFWC contracted with Arthur (Butch) Blazer to be a key author of the Strategy, together with support from staff from the Northwest Indian Fisheries Commission, Tulalip Tribe, Yakama Nation, Columbia River Inter-Tribal Fish Commission, Passamaquoddy Tribe at Pleasant Point, and Bureau of Indian Affairs.

The Strategy was published in 2012 with the goal of providing a plan to unify climate adaptation efforts across federal programs while attempting to incorporate values most important to tribal and other governmental entities into those efforts. In addition, this initial Strategy provided an important step acknowledging that climate change presented a significant threat to the continuation of cultural lifeways, and that Traditional Ecological Knowledge could play an important role in adaptation planning.

This acknowledgement, however, was not built explicitly into the goals of the Strategy. From 2012–2017 the federally-led Joint Implementation Working Group (JIWG), which included state, tribal and NGO partners, worked to implement and promote the Strategy across the federal system and to state and tribal natural resource departments and nonprofits. GLIFWC representation on the JIWG during this time included Jim Zorn, Jen Vanator, and former Climate Change Program Coordinator Kim Stone.

By 2018, with the changes that occurred in federal natural resource priorities in the Trump administration, most federal JIWG participation ceased and the Association of Fish and Wildlife Agencies (AFWA) took over certain key functions of the JIWG. This included continued coordination of the annual Climate Adaptation Leadership Awards (CALA), which recognize exemplary leadership by individuals, agencies, businesses, and other organizations to reduce climate impacts and advance adaptation for natural resources in a changing world.

In late 2018, a core group of state, tribal, federal and NGO staff, (including current GLIFWC Climate Change Program Coordinator Rob Croll, convened by AFWA Adaptation Program Manager Maggie Earnest Johnson) began meeting to discuss the future of the Strategy. This group, which soon began calling itself the National Fish, Wildlife and Plants Climate Adaptation Network, agreed that a comprehensive national strategy addressing climate adaptation for natural resources continued to be relevant and necessary.

The Network identified several projects that would advance the Strategy, including a high-level review of what has changed in the science of climate adaptation since the release of the Strategy in 2012, how the Strategy has or has not been implemented, and recommendations for the future.

This review, released on January 26, 2021 in a report entitled *Advancing the National Fish, Wildlife, and Plants Climate Adaptation Strategy into a New Decade*, contains three parts. The first part describes how our understanding of climate change and climate adaptation science has changed, and how the emerging field of adaptation practice has grown. Part 2 cross-walks the Strategy goals with a variety of climate adaptation plans at federal, state, tribal, and nonprofit levels to assess how the Strategy has been implemented or has influenced policy and practice over the past decade. Part 3 contains thirteen management recommendations and a new Strategy goal meant to address how the Strategy can continue to be a relevant and effective guiding document for adaptation professionals into the future.

Of the thirteen management recommendations in Part 3, one addresses the importance of Indigenous Knowledges in climate adaptation:

Recognize that Indigenous knowledges (IKs) are valid and valuable systems of knowledge, grounded in relationships with places and species, developed over millennia of observation and active resource management, equal in value to Western science and crucial for addressing climate change impacts in an inclusive way.

The values that drive most IKs, like reciprocity, balance, respect, and interconnectedness, are critical for the sustainability of long-term adaptation decisions. IKs should be sought in keeping with the principle of free, prior, and informed consent and used appropriately in partnership with the Indigenous communities and knowledge holders to whom they belong.

Another recognizes that marginalized communities, including tribal communities, are often more vulnerable to disruptions caused by climate change and suggests that management interventions and allocation of resources for climate adaptation must *assess and include the needs of marginalized communities, under their direction and according to their goals, through equitable and meaningful consultation and engagement.*

For more information on the National fish, Wildlife, and Plants Climate Adaptation Strategy, the Network, and to read the full report, visit: fishwildlife.org/afwa-inspires/climate-adaptation-network.



Tribal communities across Minnesota and Wisconsin were hit hard by historic flooding in July 2016. (COR photo)

TEK guides Great Lakes management

By Hannah Arbuckle, Outreach Coordinator

Across the Great Lakes and beyond, there is a growing recognition that collaboration between Indigenous knowledge and western science can enhance the ways in which shared waters are governed.

In 2012, the federal governments of the United States and Canada looked to encourage this collaboration within work underway within the Great Lakes Water Quality Agreement (GLWQA). The Agreement provides a framework for bi-national management of the Great Lakes, with the objective to protect and restore the quality of water within the Great Lakes.

To take action, a Traditional Ecological Knowledge (TEK) Task Team was created. Current membership consists of staff from seven U.S. federal agencies, two academic institutions and eight tribes and intertribal commissions. First Nations and Métis also serve as members, but are currently on hiatus.

The role of the TEK Task Team is to help guide how Indigenous knowledge can collaborate with western science, identify opportunities for TEK within the work being done, compile a record of GLWQA activities that would provide good opportunities for TEK inclusion, and explore possible means of increasing participation by Indigenous people.

To fulfill these roles, the TEK Task Team decided that it would first be important to provide some guidance on understanding TEK, as well as how TEK can play a role in a framework that was created within a western science structure.

To do so, they developed the “Guidance Document on Traditional Ecological Knowledge Pursuant to the Great Lakes Water Quality Agreement” (Guidance Document).

The Guidance Document provides an introduction to TEK, gives examples of TEK and western science management collaboration in environmental contexts, and provides resources through which people can enhance their education on TEK. Examples included in the document were provided by tribes and intertribal organizations that serve on the Task Team, and showcase methods by which TEK either collaborated with western science, guided management decisions, or both, with respect to tribal and interjurisdictional management.

The Guidance Document was presented to tribes in November 2020, followed by a 60-day comment period. At the close of the comment period, it underwent revision, and is currently working its way through the GLWQA process to become finalized.

It is the TEK Task Team’s hope that the Guidance Document will continue to evolve and assist other entities in working towards collaboration in their management activities. Watch for an online speaker series from the Team in May or June of 2021.



Ojibwemotaadiwag Anishinaabewakiing.

They speak Ojibwe to each other in Indian Country.

Aaniin gakina-awiya! Niminwendamin apane ani-ziigwang giwedining. Ziigwan omaa. Nibiindaakoojige jiigaatig, ganabaj jiigibiig gaye. Megwayaak gemaa iwidi giti-gaaning nimbimose. Ninandokawecheige imaa. Gigii-nandokawecheige na? Gigii-nandawaabamaag ina bineshiiyag? Noongom ziigwang, giga-waabamaag ingiw banajaanyag. Maagizhaa gidaa-waabandaan migiziwaziwon gaye. Ge-niin niwaabamaag ingiw ininaatigoog. Aaniin apii gaa-maajigaag? Daa-iskigamide niimidana-daso-minikwaajigan iwe ziinzibaakwadaboo biinish ingo-minikwaajigan iwe zhiywaagamizigan!

(Greetings everyone! We are always glad when spring begins in the north. It is spring here. I make an offering of tobacco by a tree, maybe by the lakeshore too. In the woods or over there in the fields I walk. I look for tracks there. Did you look for tracks? Did you look for birds? Now, when it is spring you will see those baby birds. Perhaps you could see an eagle's nest too. I too am looking for those maple trees. When did the sap start running? Forty gallons of sap can boil down to one gallon of maple syrup!)

Bezhiig—1

OJIBWEMOWIN (Ojibwe Language)

Double vowel system of writing Ojibwemowin.
 —Long vowels: AA, E, II, OO
 Waabooz—as in father
 Miigwech—as in jay
 Aaniin—as in seen
 Mooz—as in moon
 —Short Vowels: A, I, O
 Dash—as in about
 Ingiw—as in tin
 Niizho—as in only

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

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

VII's—Verbs, Intransitive, Inanimate; "IT IS..." action words
Minwaande.—It is a good color.
Ozaawaa.—It is yellow or brown.
Waabishkaa.—It is white.
Makadewaa.—It is black.
Miskaa.—It is red.
Ozhaawaashkwaa.—It is green or blue.
Waabijiyyaa(g).—It is grey. (They are...)
Inaande.—It is a certain color.
Binaakwe'igan(an)—Rake(s) (NI)
Zhiishada'igan(an)—Broom(s)
Gwaaba'aawangwaan(an)—Shovel(s)
 Eya! Yes!—I find **them** and I use **them!**
VAI Colors.
Ozaawizi.—S/he is yellow or brown.
Miskozi.—S/he is red.
Inaanzo.—S/he is a certain color.

Niizh—2

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

A. Inashke! Ingii-mikaan gwaaba'aawangwaan. Miskwaa.
 B. Ingoji indayaan gaashkakamiga'igan gaye.
 C. Ate omaa i'iw zhiishada'igan wayaabishkaandeg.
 D. Ozaawaa na i'iw biskitenaagan?
 E. Daga wewiib iwidi gitigaaning. Manganibaandaan wiyagasnh.
 F. Indaabijitoomin iniw gitigaanan imaa.
 G. Niminwendaan ani-ziigwang.
 H. Gidibishkaamin noongom!

A B N G G
 N O A ' A M
 I N N A G O I
 Z O A E E Y T S
 I O A A Y N A ' K
 I N G S A Z A G O W
 G G I I G A A N A D A
 W O T W M K G Y A S A A
 A M I O D E T G ' O H D
 N ' G A O Z A A W A A E
 I O H N S A G A Y I I W



Niswi—3

IKIDOWIN ODAMINOWIN (word play)

Down:

- along the shore
- I think that, maybe
- I think that, perhaps
- always
- hurry

Across:

- everybody
- or
- yes/no question word
- also, and, too

Angotoon!
 Reduce it to nothing!
Minwaabajitoon!
 Get good use of it!

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

Niiwin—4

Aandi gezhiikaayan noongom?
 Where are you going so fast today?
 Answer: **Indizhaa...**I am going... (By, on, in, at, to) the garden/farm.—Gitigaaning. —ong
To the store.—Adaawewigamigong. —wan
To the road.—Milkanaang.
To the swamp.—Mashkiigong.
To the sugarbush.—Iskigamiziganing.
To the lake.—Zaaga'iganing.
****Plural Inanimate things Colors**
Makadewaawan.—They are black. —ing
Waabishkaawan.—They are white. —ang
Miskwaawan.—They are red.
Ozhaawaashkwaawan.—They are blue or green.
Ozaawaawan.—They are yellow or brown.
Mii'iw.—That's it.
 1. Niijikwe gii-pimose Ziibi _____ bijinaago.
 2. Bimoseg mashkiig _____ nibiiwakamigaa.
 3. Waakaa'iganing iniw aabajichiganan miskwaa _____.
 4. Ozide-miikana _____, nisayenh gii-pookonikeshin.
 5. Suffix (endings) such as -ong, -ing, -ang for nouns denote location of the action. These are called _____.

Translations:

Niizh—2 A. Look! I found a shovel. It is red. B. Somewhere I have a hoe also. C. Here is that broom that is white. D. Is that sap bucket of folded birch bark brown? E. Please hurry over there to the garden. Shovel the dirt. F. We use these gardens there. G. I like it when spring begins. H. We all have a birthday today!

Niswi—3 Down: 1. jiigibiig 2. ganabaj 3. maagizhaa 4. apane 7. wewiib Across: 5. gakina awiya 6. gemaa 8. ina 9. gaye

Niiwin—4 1. My female friend walked to the river (-ing) yesterday. 2. When s/he walks at the swamp/muskeg, it is wet ground. (-ong) 3. By the house, those tools are red. (-wan) 4. On the foot path, my older brother fell and broke his arm. (-ang) 5. "At the, to the, in the, by the" location suffixes are called locatives.

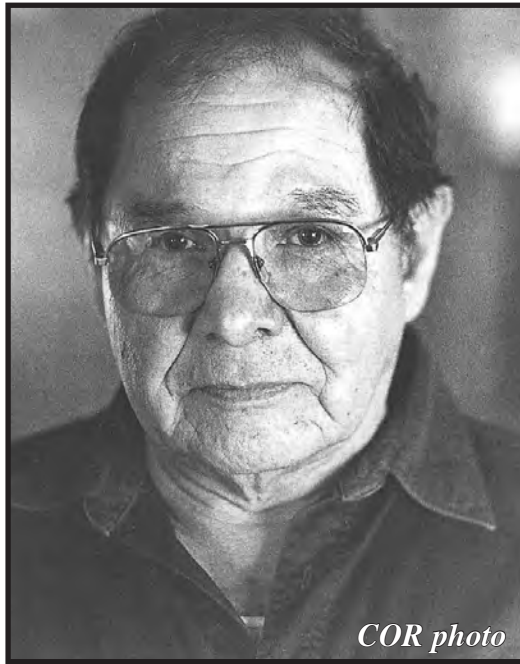
There are various Ojibwe dialects; check for correct usage in your area. The grammar patterns may help a beginner voice inanimate and animate nouns and verbs correctly, as well as create questions and negate statements. Note that the English translation will lose its natural flow as in any world language 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. © 2021 Shelly Ceglar • Edited by Jennifer Ballinger, Saagajiwe-Gaabawik



Benton-Banai led many on a trail to embrace Anishinaabe culture, spirituality

Lac Courte Oreilles spiritual leader, educator, and past GLIFWC advisor Eddie Benton-Banai walked on November 30, 2020 at age 89. A Fish Clan member known as Bawdwaywidun Banai-see, he helped found the American Indian Movement and later served as Grand Chief of the Three Fires Midewiwin Lodge.

“To many LCO leaders, as well as leaders from across Indian Country, Eddie served as a trusted mentor,” said Michael J Isham Jr, GLIFWC executive administrator. “He never missed an opportunity to educate tribal membership about our history and culture. He’d always make a point to share the true history of what is now known as the Chippewa Flowage, especially with young people.”



COR photo

Benton shared intimate accounts of how the forced flooding of the Lac Courte Oreilles reservation impacted local residents for generations following development of the 15,300-acre Chippewa Flowage. The dramatic man-made flood that inundated graves, wild rice and cranberry beds, and the Ojibwe village Post is detailed in the GLIFWC Press book, *Where the River is Wide: Pahquahwong and the Chippewa Flowage* released in 1998.

Four years later, Benton helped facilitate strategic planning efforts as GLIFWC formalized a commitment to mesh Ojibwe culture into everyday work and decision making. The far-reaching Anishinaabe Heritage Goal minted in 2002 lays out a protocol to educate tribal youth, as well as GLIFWC staff, in traditional Ojibwe lifeways, including expanded use of Ojibwemowin.

Nearly twenty years later, the vision Benton imparted to GLIFWC and its staff is being realized across all aspects of the Commission’s work, a melding of culture and science.

Edward Joseph Benton was born March 4, 1931 along the shoreline of Round Lake near Hayward, Wisconsin. He leaves behind a large extended family and a legacy rooted in Anishinaabe spiritual and cultural education.

—CO Rasmussen

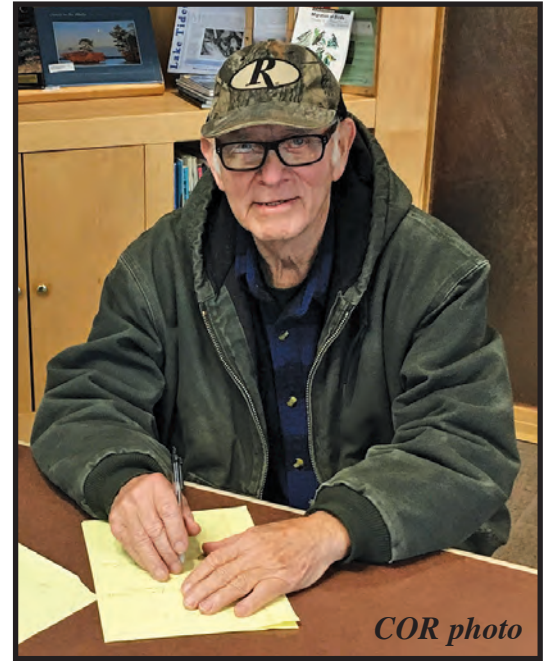
Quintessential lessons from Rose Sr: Environmental stewardship, Ojibwe culture & leadership

Moka’ang Giizis, or Rising Sun, Eagle clan, grew up just downstream of the big bend of the Bad River in Old Odanah, Wis. Most commonly known by his English name, Joe Rose Sr, he was born on April 24, 1935—often recalling it as a time of wood heat and kerosene lamps. He excelled in harvesting from the woods and waters of the Bad River Reservation, bringing home snowshoe hare, white-tailed deer, fish, wild rice, and waterfowl—wild foods that formed the centerpiece of meals for much of his life. From this robust beginning bloomed a lifelong, spiritual relationship with the natural world.

Rose forged a distinguished career in education. A 1958 graduate of Northland College in Ashland, he went on to complete a graduate program at Black Hills State University in South Dakota in biology and counseling. Following a tenure teaching at high schools, Rose returned to Northland College to launch the Native American Studies program in 1974. During his long career as program director, he helped create connections and understanding between Indian Country and non-native communities. Rose gave voice to Ojibwe treaty rights during the Walleye Wars of the late 1980s and his development of Native American Awareness Days at Northland brought a wide spectrum of Wisconsin citizens together for a week’s worth of activities culminating in a spring powwow.

Throughout his life, Moka’ang Giizis had his feet firmly planted in both native and mainstream culture. A member of the Midewiwin Grand Medicine Society, Rose also studied Catholicism and was a keen observer of history. Over the last three decades he’s been widely recognized as a leading environmental activist and a voice of unity, calling all citizens of the upper Great Lakes region to come together as a “New People” in this Anishinaabe age known as the Seventh Fire. According to prophecy, Rose said, we’re at a crossroads and it’s time for the New People to lead the way on the path to sustainable living with aki, the earth. Rose walked on February 23 in Duluth.

—CO Rasmussen



COR photo

GLIFWC Board officers



During a January 26 virtual meeting, GLIFWC Board of Commissioners reelected all three of its officers. The trio includes Lac Vieux Desert Band Chairman Jim Williams Jr (GLIFWC Board Chair); Bad River Band Chairman Mike Wiggins (GLIFWC Board Vice-Chair); and Fond du Lac Band Resources Management Director Reginald DeFoe (GLIFWC Board Secretary). Composed of the tribal chairperson—or a designee—of each member tribe, the GLIFWC Board oversees Commission activities and establishes policy. (FdL Band/CO Rasmussen photos).

Garlic mustard (continued from page 5)

This spring will mark the 13th year that GLIFWC and partners have worked to control garlic mustard on the Bad River floodplain. Due to COVID-19 restrictions, participation last year was limited to GLIFWC and NCWMA staff, who worked mostly alone on different sections of the population. This year we’re hoping to again invite volunteers, school groups, and other partners to help out, and to enjoy a cookout in Copper Falls State Park. Time will tell!

—S. Garske

Sea lamprey (continued from page 7)

their numbers along with barrier dams which prevent sea lamprey from getting to spawning grounds. With these controls in place fish abundances rebounded to levels found prior to the sea lamprey invasion.

However, a large number of fish are still unavailable to fishers as the sea lamprey make a meal of them before fishers can harvest the fish. For more information on sea lamprey visit the Great Lakes Fishery Commission at glfc.org. This work was done in cooperation with the USFWS Marquette Biological Station, Mashkiizibii Natural Resources Department and the Wisconsin Department of Natural Resources.



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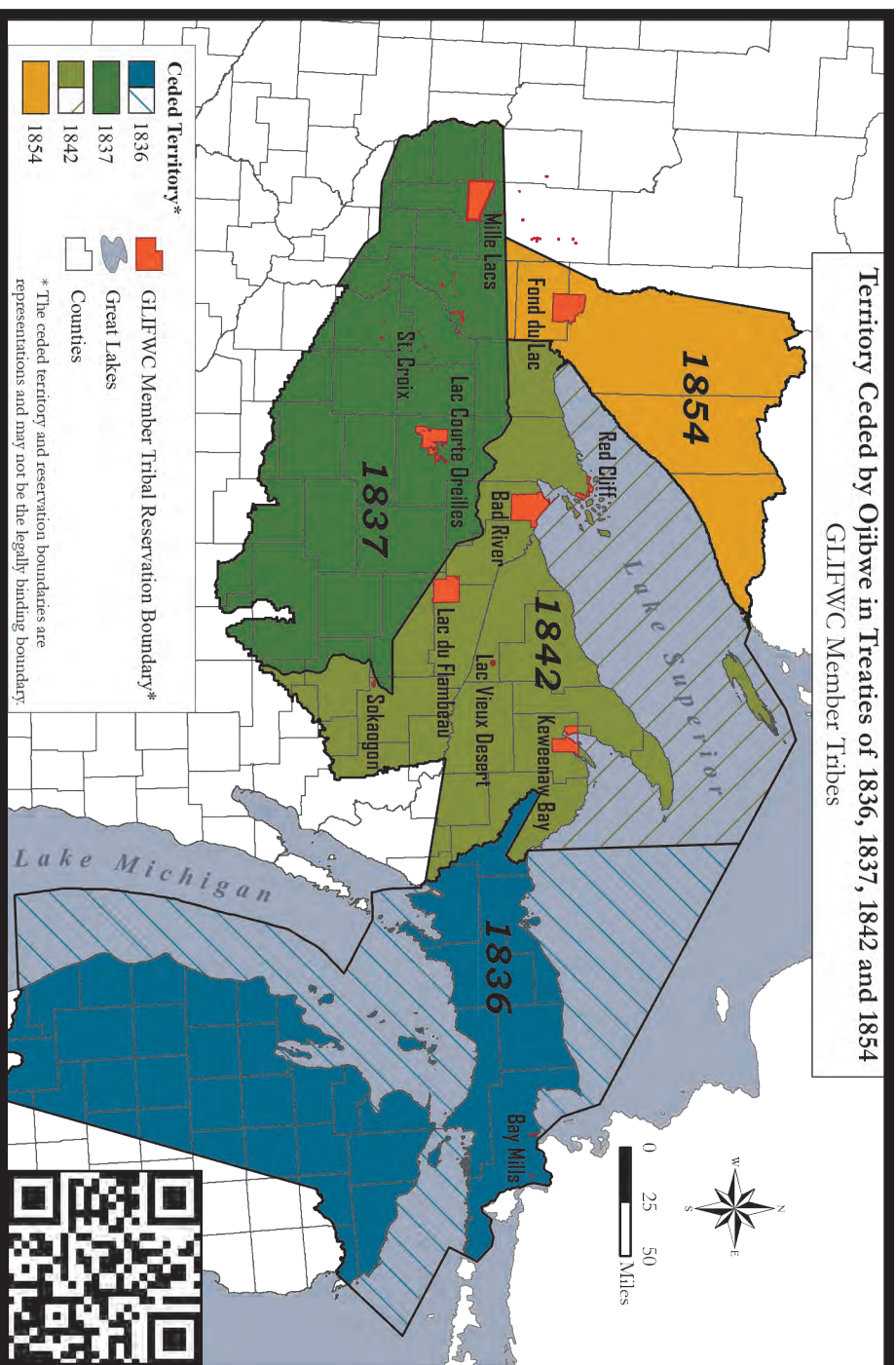
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Territory Ceded by Ojibwe in Treaties of 1836, 1837, 1842 and 1854

GLIFWC Member Tribes



TIMELINE OF ANISHINAABE TREATY RIGHTS

IN THE NORTHERN GREAT LAKES

QUINCE PEOPLE MORTALITY IN THE NORTHERN GREAT LAKES AREA

SAMOY LAKE TOBACCO

WILLIAM MOWBRAY

BIG ABE LEBLANC

Excerpted from the Timeline of Anishinaabe Treaty Rights poster.

Timeline of Anishinaabe Treaty Rights

Throughout history, there have been many events and people that have impacted the exercise of Anishinaabe treaty rights. The Timeline of Anishinaabe Treaty Rights in the Northern Great Lakes presents an engaging, expansive picture of this history, from the documented initial contact with Europeans in 1620 through cultural and conservation efforts in 2020. Featuring a map illustrating treaty lands, as well as links to short videos from the Ojichidaa Storytellers series, this visually captivating poster is one that you will revisit over and over for its dates, its stories, and its impact. Download the poster at ogtchidaa.org. For a free copy email pio@glifwc.org.

Nazim'igam

A Chronicle of the Lake Superior Ojibwe



ZIGWAN 2021

INSIDE:
PFAs in Gichigami smelt
Wis. wolf kill soars
Zhigaagawanzh—Leeks