Mazina'igan

A Chronicle of the Lake Superior Ojibwe

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Fond du Lac Band, State open a new page on 1854 Treaty case

By Charlie Otto Rasmussen, Editor

Carlton, Minn.—Beginning with a powerful opening ceremony, the Fond du Lac Band launched into celebration on January 29 to mark the end of the 1854 Treaty case. Cementing decades of collaboration, the Ojibwe tribe and State of Minnesota formalized shared off-reservation natural resources management in the 1854 Ceded Territory of northeast Minnesota.

"The exercise of our hunting, fishing, and gathering rights under our 1854 Treaty is central to the lives, culture and traditions of the Fond du Lac people. It is inaadiziwin. Our way of life," Kevin Dupuis, Fond du Lac Band Chairman said in a statement.

Trailing a veteran's honor guard, a flourish of dancers in regalia energized the cavernous Black Bear Convention Center in union with the Cedar Creek Drum. On the edges of the main floor stood a panel of intertribal dignitaries and some 300 Nagaajiwanaag (Fond du Lac) community members.

Spiritual Advisor Ricky W. DeFoe read aloud the names of all 14 Fond du Lac signatories of the 1854 Treaty, identified as a headman, 1st chief, or 2nd chief. Each person attending the ceremony received a dakwenindan biiwaabikoons—or commemorative coin—bearing the image of the Nagaajiwa-

(See 1854 Treaty case, page 2)

The 1854 Treaty Ceded Territory is in northeast Minnesota. Fond du Lac Band issued a commemorative coin featuring Chief Enimaasing, one of 14 treaty signers from the tribe. (GLIFWC image)

Mille Lacs Lake ginoozhe (northern pike) abundant

An untapped, flavorful resource

By Mark Luehring
GLIFWC Inland Fisheries Biologist

In Mille Lacs Lake, the walleye gets all the headlines. It's the state fish of Minnesota, the most sought after target of tribal members, and even though the population is much lower than its historical peak, still the lakes' dominant predator. But another often overlooked species, the northern pike, is doing quite well in Mille Lacs Lake, and may provide a bonus harvest opportunity for anglers and spearers alike.

Ginoozhe (northern pike). (www.ohiodnr.gov)

Northern pike are a torpedo-shaped ambush predator with a mouth full of razor sharp teeth and a hungry attitude. They have firm white flesh, and excellent flavor especially when harvested from cold water. The Mille Lacs Lake pike population was much lower in the 1990s and grew throughout the early 2000s after more protective regulations and harvest caps were instituted (Figure 1, page 4). Now, this population is abundant enough to provide an additional harvest opportunity.

Current estimates of northern pike biomass (around 230,000 pounds) suggest that they are not quite as abundant as they were at the peak in 2011 (265,000 pounds), but that the population remains at relatively high levels. Northern pike range in length to over 40 inches in Mille Lacs Lake, but most of the fish are a more manageable size. Diet studies conducted on Mille Lacs Lake show that northern pike eat yellow perch, cisco, and occasionally young walleye.

Since some of this diet overlaps with what walleye in Mille Lacs eat and pike are relatively abundant, the Minnesota 1837 Fisheries Committee has set a harvest cap of 100,000 pounds for the 2018 fishing season (allocated evenly between state-regulated anglers and tribal members). This harvest cap is not intended to be a long-term harvest target, but provides additional harvest opportunity in the short term while the population is abundant.

(See Ginoozhe, page 4)

Get ready for spearfishing

Harvest seasons have a way of coming on quickly. A little prep work now will help get azhigwa bazhiba'ondwaa giigoonyag season off to a smooth start.

Boat prep: check battery, boat plug, lights & run the motor

Trailer: check all lights, wheel bearings & spare tire

Gear: charge headlamp battery & sharpen spear

PFDs: make sure there are personal flotation devices for each boat occupant!

Apostle Islands wolf generates healing, cooperation

By Charlie Otto Rasmussen, Editor

Bayfield, Wis.—Following the death of a female wolf in the Apostle Islands archipelago, Ojibwe cultural advisors are collaborating to both honor the animal and help a family in need. The effort comes with support from a coalition of resource agencies and their representatives committed to—as Ojibwe people say—do things in a good way.


NPS trail cam photo

"She died in a hard way," said Denise Cloud, a Bad River Band member who learned about the wolf soon after it was discovered on Stockton Island. "It was important to do what could be done right away to help her rest."

Cloud's co-workers from the National Park Service (NPS)—administrators of the Apostle Islands National Lakeshore on Lake Superior—found the emaciated wolf last year on August 30 near Quarry Bay. A rare presence far from mainland Wisconsin, the wolf was known to NPS authorities as early as 2015 from trail cameras positioned around the island. The animal appeared thin in those early images, even more so by the summer of 2017.

NPS officials transferred the carcass to the Wisconsin Department of Natural Resources (DNR). With help from GLIFWC staff, Cloud met with DNR Wildlife Biologist Todd Naas and smudged the remains of ma'iingan with sage.

"I explained to her what would be happening, and did a short ceremony," Cloud said, knowing wildlife officials were looking to establish a cause of death in a laboratory examination.

The next day, the wolf was transferred to the Wildlife Health Center in Madison for a necropsy, and Cloud went to work consulting with Ojibwe spiritual leaders to determine the right course of action. She got her answer upon learning of a local families' struggles—a family from the Wolf Clan in need of guidance on navigating through a difficult situation.

Healing and a teaching

Following instructions from Anishinaabe relatives in Saskatchewan, Denise Cloud prepared the wolf carcass for burial. GLIFWC, DNR, NPS and the Wildlife Health Center had coordinated to deliver it to Cloud after the necropsy examination. She removed the hide, leaving the paws intact, and wrapped the body in red and blue cloth, singing a song in Ojibwemowin.

"You do not remove the feet because they still have to walk," Cloud said. "I gifted her with asemaa (tobacco) and sweet grass. We thawed out a spot on the ground and buried her. Getting her in a place where she can finally rest was important."

(see Ma'iingan, page 4)

Off-reservation waawaashkeshi hunt tops 2K

The relatively mild winters over the past few years have likely contributed to an uptick in the waawaashkeshi (deer) population throughout much of the Ceded Territories. The 2017 off-reservation treaty deer hunt turned out to be successful for many tribal members. Overall, the off reservation tribal harvest was up compared to 2016 by approximately 15%.

During the 2017 off-reservation treaty deer hunt, tribal members harvested 2,003 deer throughout the Ceded Territories. Antlerless deer accounted for 58% while antlered deer accounted for 42% of the total.

Tribal hunters harvested deer from 37 counties within the Ceded Territories (Figure 1). This included 22 counties in Wisconsin, 11 counties in Michigan, and four counties in Minnesota. Similar to 2016, four counties in northwestern Wisconsin accounted for over half (51%) of the total off-reservation deer harvest. Those counties included Burnett Co. with 17%, Bayfield Co. (16%), Douglas Co. (10%), and Sawyer Co. accounting for 8% of the total harvest.

The most active and successful part of the hunting season occurred between October 27 and November 26, accounting for just over 58% of the total deer harvest. The most deer harvested by tribal members on a single day occurred on November 18, 2016, coinciding with the state of Wisconsin's state gun deer season opener.

—T. Bartnick

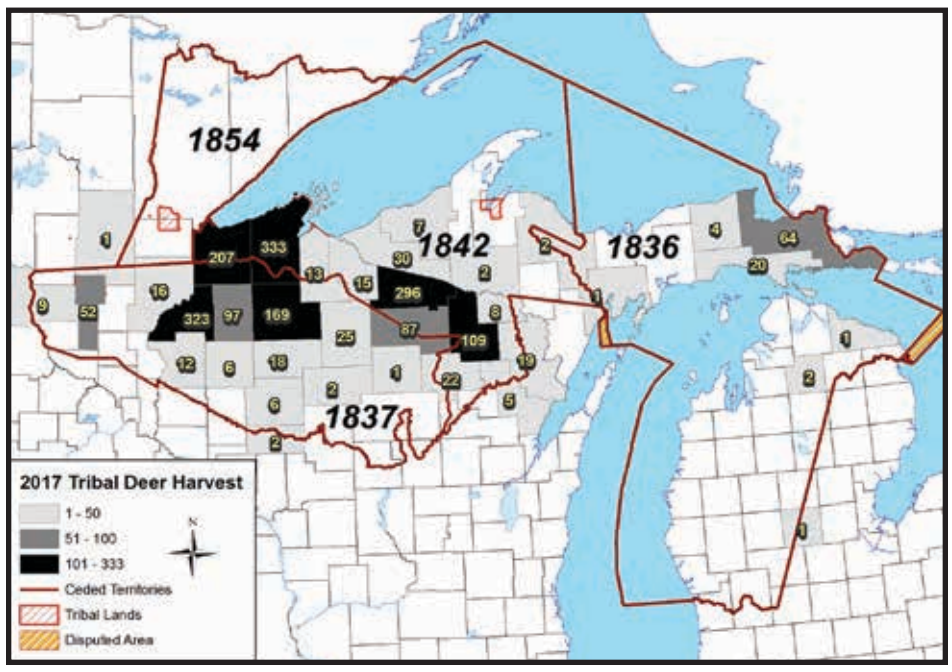


Figure 1. Distribution of waawaashkeshi (deer) harvest by GLIFWC member tribes during the 2017 off-reservation tribal hunting season, summarized by total deer harvested in each county.

New VITF officers

At the January 4 Voigt Intertribal Task Force meeting, Jason Schlender (left, Lac Courte Oreilles) was elected as the new Task Force Chair. John Johnson, Sr. (Lac du Flambeau) was elected as the new Task Force Vice Chair. VITF officers serve for a term of one year. (P. Maday photo)

On the cover

Wild turkey (mizise) abundance is growing steadily across much of the Ceded Territory. The spring season offers tribal members great hunting opportunities for some lean protein. (Photo courtesy of the National Wild Turkey Federation.)

1854 Treaty case

(continued from page 1)

naag ogimaa, Enimaasing, whose name translates in English to: "he sails away, or sails away."

The agreement—sanctioned by a judge on December 12—takes the form of a memorandum of understanding, or MOU, and serves as a capstone to litigation that began in 1992. As legal experts on both sides debated the status of 1854 Treaty rights over the past quarter century, Fond du Lac authorities implemented both off-reservation natural resource assessments and tribal harvest seasons for species like moose and walleye. Tribal regulators freely shared data with their state counterparts, including fisheries and wild rice research from northeast Minnesota lakes.

"We are very pleased that our work on these issues, and our history of coordination with the State on natural resource matters, allows us to now memorialize those processes in an MOU with the State," Dupuis said.

The 1854 MOU comes a decade after five tribes in Michigan negotiated a similar agreement that recognizes treaty rights in the 1836 Ceded Territory. Bypassing an uncertain court outcome, state and tribal representatives produced the 2007 Inland Consent Decree, which spells out resource management and law enforcement protocols across inland regions of Upper and Lower Michigan.

For Fond du Lac, cutting edge research on fish and wildlife helped fortify the band as a leader in natural resources management. In an exercise in sovereignty, the Band took a principal role in studying moose health when the population in northeast Minnesota began a dramatic decline in the late 2000s. The interagency work has led to a better understanding of the moose herd and its habitat requirements.

"Co-management is important," said GLIFWC Executive Administrator Jim Zorn at the all-band celebration. "You have these rights. You've always known it, and now the larger society knows it. But we always have to go out and educate."

Event moderator Reggie DeFoe, Fond du Lac resource management director and GLIFWC Board Commissioner, said that to help non-natives better understand the bond between Ojibweg and the outdoors, he likens the Ceded Territory as both "a church and a kitchen." Read the MOU and associated documents at *http://mn.gov/gov-stat/pdf/2017_12_08_483_STATE_DEFS.pdf*

Ceded Territory news briefs

Minnesota sulfate standards on manoomin waters remains unchanged

An Administrative Law Judge (ALJ) issued a decision on January 11 disapproving the State of Minnesota's proposal to change sulfate standards. The sulfate standard of 10 mg/L was adopted in 1973 in order to protect manoomin (wild rice), and was based upon research conducted in the 1930s showing that manoomin did not occur in waters with high sulfate concentrations.

The ALJ report found the proposed rule defective in several fundamental aspects, including its equation-based standard and the list of waters to which the rule would apply. For more, read the decision at: *www.pca.state.mn.us/sites/default/files/wq-rule4-15mm.pdf* **—P. Kebec**

Michigan omashkooz hunt: Bay Mills goes 4-for-4

In the 1836 Ceded Territory, the Bay Mills Indian Community issued four omashkooz (elk) harvest permits to tribal hunters for the 2017 elk hunt. Tribal hunters successfully filled all four of the available elk permits. During the first hunt period (early season), one bull and two cows were harvested. During the second hunt period (late season), another cow was harvested.

Bay Mills shares an allocation of elk harvest tags with four other treaty tribes in Michigan: Grand Traverse Band of Ottawa and Chippewa Indians, Little Traverse Bay Bands of Odawa Indians, Sault Tribe of Chippewa Indians, Little River Band of Ottawa Indians. The elk herd is located in north-central Lower Michigan within lands the tribes ceded to the United States in the Treaty of 1836. **—GLIFWC staff**

Minnesota Ojibweg seek cultural resources survey on pipeline route

Seeking to build the largest pipeline in company history, Enbridge, Inc. received approval from Canadian agencies in November 2016 to move ahead with plans for building Line 3. The pipeline would run from Hardisty, Alberta to Superior, Wis., carrying tar sands oil across 1,031 miles.

Approval is still needed on the United States side. The Minnesota Public Utilities Commission (PUC) is currently considering whether to approve or deny the Certificate of Need and Route Permit necessary for Enbridge to move forward with constructing the pipeline. Last October, the Minnesota Department of Commerce determined that Enbridge had not shown that the proposed project is needed. The PUC is also reviewing Final Environmental Impact Statement (FEIS) in order to determine whether to issue a route permit.

According to five Ojibwe Bands, the FEIS is deficient as it does not include a full historic properties review and the route planned for the pipeline contains a significant amount of tribal cultural properties.

Mille Lacs, Fond du Lac, White Earth, Red Lake and Leech Lake Bands filed a Joint Tribal Petition with the PUC on January 2 requesting reconsideration of its decision to exclude the cultural resources survey from the FEIS. The Bands also filed briefs as "intervening parties" in the overall review process on the decision related to the route permit. A decision by the Administrative Law Judge is expected by April 23. **—P. Kebec**

Bay Mills, Michigan tribes reject Line 5 tunnel at Straits

Tribes in Michigan recently submitted comments on an analysis of alternatives for addressing Enbridge Line 5's crossing at the Straits of Mackinac. The State of Michigan hired Dynamic Risk to evaluate the existing pipeline under the Straits along with alternatives to its current lake-bottom crossing. Among the alternatives analyzed—including abandonment—the report favored tunneling into the lake-bottom to create a route for the pipeline.

In their comments, Michigan Tribes expressed disappointment in the final report. According to the tribes, the report obscures the high risk of rupture associated with maintaining a pipeline within the Straits—a risk that cannot be justified for Michigan-based needs. Moreover, the tribes contend that the final report prioritizes the commercial needs of Enbridge over tribal and community interests. Five tribes, including GLIFWC-member Bay Mills Indian Community, reserved treaty fishing rights in the waters that could be affected by a spill.

The Tribes concluded their comments by expressing their common goal of "decommissioning the Straits Pipelines." Line 5 continues to transport oil under the Straits despite recent admissions by Enbridge that some areas on the underwater pipes lack protective coating to prevent corrosion. **—P. Kebec**

European shrimp is latest invasive species found in Gichigami

Superior, Wis.—Bloody red shrimp, an aquatic invasive species from eastern Europe, has been discovered at the intersection of the St. Louis River and Lake Superior. The US Fish & Wildlife Service (USFWS) announced the finding in mid-February. The creatures are small—typically under one-half inch—but USFWS researchers note they are responsible for habitat degradation in other Great Lakes and disrupt aquatic food webs by competing with native species. Invasive organisms are often found near ports like Superior and Duluth where ships discharge ballast water. **—GLIFWC staff**

Hunt by day, spear at night

There's never been a better time for a spring turkey hunt

By Charlie Otto Rasmussen, Editor

Highly adaptable to both habitat and forage, wild turkeys have expanded across much of the Ceded Territory. But for many treaty harvesters, longbeards remain a bird of opportunity relegated to autumn hunts. Sure enough, a wild turkey would go nicely with a pot of manoomin and grilled leeks. Otherwise, springtime is centered on one thing: spearfishing.

Turns out the best time to hunt wild turkeys—when gobblers are most receptive to calls—typically coincides with ice-out, primetime for bagging walleye, northern pike, muskellunge and other species. Fishing in ziigwan can yield food for households and extended families for the rest of the year. Seasonal Ojibwe camps, even entire villages, were historically located on waters that hosted giigoonyag spawning runs.

Wild turkeys just have not drawn much interest on a subsistence or cultural level. Over the past six years—in the midst of ever increasing turkey numbers—treaty hunters have killed as few as seven birds during spring seasons, at most 33. That's across ceded lands from Minnesota, Wisconsin, and through Michigan. Those modest harvest numbers can triple in the fall during general hunting outings.

Few, if any, wild turkeys (mizise) traditionally occupied big-woods Ojibwe Country. Now that they're here through successful translocations, tribal members have a uniquely modern opportunity to hunt by day, spear by night.

The Wisconsin Ceded Territory youth wild turkey hunt is April 7-8. Members 10-15 years old can hunt accompanied by a parent, guardian or designated adult. Youth must be in possession of a valid turkey hunting permit issued by the tribe or a GLIFWC clerk. The regular season opens April 11

In Minnesota, the treaty season kicks off April 14. The Michigan territory has multiple wild turkey openers—see your tribal conservation office for dates and band-specific rules.

Need to know

Springtime is breeding season and males—known as gobblers or toms—have an ear for female birds. Learn to mimic basic hen "yelps" with friction or mouth calls to bring a gobbler into shotgun range. A 12-gauge fitted with a full choke is a good choice. Inside of 40 yards, aim for the head and neck—turkey feathers serve as armor to wind, rain, and shot ammunition. Dressing in full camouflage or utilizing a blind will also help keep you concealed from sharp-eyed turkeys.

Locating public land birds can be accomplished by networking with community members, and scouting on foot or from a vehicle. Turkeys spend evenings on the roost, often choosing large white pines with stout upper branches. Toms will gobble from the roost in the pre-dawn, revealing their location to potential mates and, of course, hunters who can move in close and take a seat before fly down.

(See Spring turkey hunt, page 5)

Friction calls commonly include a wooden peg to create a range of vocalizations, including hen "yelps" and "cutts." The wooden peg (left) makes sounds by striking it across the round slate. The call on the right is a simple push-button call, a great choice for beginning spring turkey hunters. (COR photos)

Exploratory drilling set to resume in western Upper Michigan

Damage from 2017 yields $25,000 fine for mining co.

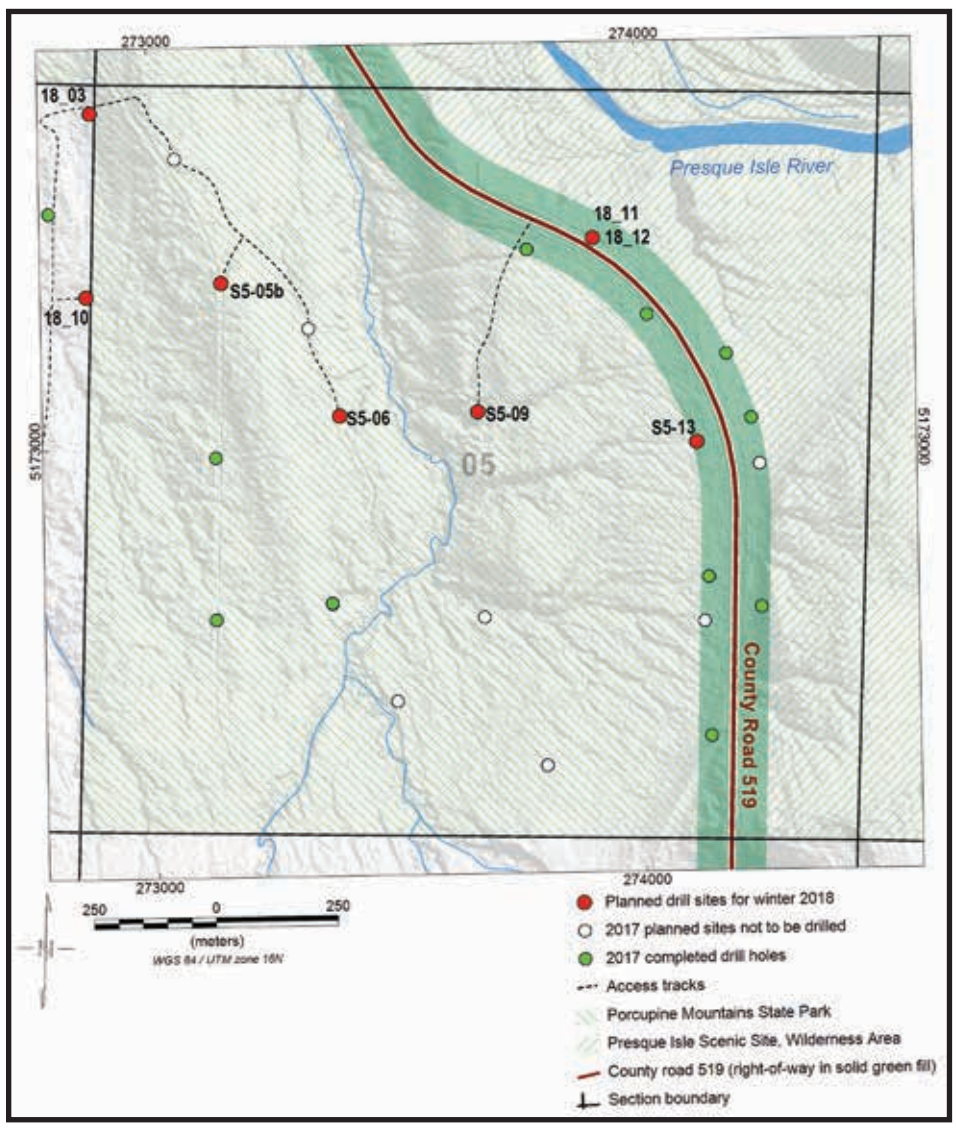
Wakefield, Mich.—A half-mile long section of snowmobile trail in Gogebic County has been leveled and stabilized after last spring's exploratory mineral drilling by Highland Copper Company. The work follows an early April 2017 drilling operation that turned the trail into a muddy, deeply-rutted channel. The trail and adjacent County Road 519 occupy a 466-foot wide, north-south strip of Gogebic County Road Commission land that bisects the western end of the Porcupine Mountains Wilderness State Park (the Porkies).

Contractors for Highland, which owns land next to the western end of the Porkies, originally began drilling within a one square mile section of state land (T49N, R45W, Section 5) inside the park in early February 2017. Michigan law allows subsurface mineral rights owners the right to "reasonable" use of the surface to access minerals. A conservation agreement with the Michigan Department of Natural Resources resulted in minimal damage to the surface, and the company suspended operations within the park in late February due to unseasonably warm weather.

A few weeks later, however, the company resumed drilling on the strip of county land along the road, where no such agreement existed. By early April, heavy equipment had torn up the trail. Frequent spring rains added to the problem, sending muddy runoff south into a Gypsy Creek tributary, and north into the Presque Isle River valley. A citizen action group, the Upper Peninsula Environmental Coalition, alerted the Michigan Department of Environmental Quality (DEQ) and the media. The DEQ suspended the drilling the next day, ordered Highland to restore the site, and issued a $25,000 fine for failure to obtain the required wetland, soil erosion, and sediment control permits.

Highland plans to finish drilling three holes along the road that weren't completed last spring, and to drill three more holes within the park. They already have a mining permit for an underground mine outside the park, acquired with their purchase of Orvana Resources in 2014. If Highland decides to mine under the park, it plans to access that underground area from its lands bordering Section 5. Prior to beginning mining activities, Highland would need to file an amended permit request with DEQ. And before potential approval, the DEQ would provide opportunity for public comment, including comments from any interested Tribes.

—GLIFWC Staff



Location of 2017 and planned winter 2018 drill sites. (Map courtesy of the Michigan DNR.)

Free range buck tests CWD positive in Wisconsin CT

Deer farm trade keeps always-fatal disease moving

By Travis Bartnick, GLIFWC Wildlife Biologist

Chronic wasting disease (CWD) has once again been detected in the Wisconsin Ceded Territory. On January 22, the Wisconsin Department of Natural Resources (DNR) confirmed that a wild deer tested positive for CWD in northeast Lincoln County. This is the first detection of CWD in a wild deer in Lincoln County, and the second CWD positive wild deer detected in the Wisconsin portion of the Ceded Territory. The only other CWD positive deer detected in the Wisconsin portion of the Ceded Territory was found in Washburn County in 2012.

This most recent CWD detection will result in baiting and feeding bans for state hunters in Lincoln and Langlade counties, and a renewal of the baiting and feeding ban in Oneida County. The deer that tested positive for CWD in Lincoln County was reported to be a healthy looking two-year old buck and was harvested near the Wisconsin River, a few miles south of Rhinelander. The location where the deer was harvested is about 20 miles from Three Lakes the nearest captive cervid facility with a CWD positive deer.

The Wisconsin DNR is currently planning to sample additional deer in the surrounding area, which will likely result in the issuance of emergency disease response tags in an effort to determine the potential prevalence of the disease on the landscape.

In other CWD news, a February press release confirmed that a CWD positive deer discovered on a captive deer facility in Waupaca County in 2017 was sourced from a captive deer farm in Pennsylvania. Another deer on the Pennsylvania farm also tested positive for CWD. This is likely the first confirmed documentation of the transportation of CWD positive deer across state lines by the captive deer industry. The transport of a CWD positive deer from Pennsylvania to Wisconsin is another illustration of how easily this disease can be moved long distances and continues to threaten the future of deer hunting and treaty resources across the Ceded Territory.

Ma'iingan

(continued from page 2)

The wolf hide is in the process of being tanned. Soon it will be in the hands of the Wolf Clan family, generating positive energy and healing for people in need.

"I share all these things because I hope people will look at wolves and other animals differently," Cloud said. "People don't realize what an animal goes through when it gives up the hide. Things need to be done for them. And now this wolf will be at rest and able to help some people that are really in need."

Ginoozhe

(continued from page 1)

Even with this opportunity in 2017, total harvest of northern pike was 28,442 pounds. For the 2018 spring fishing season, tribal members can harvest northern pike by spearing or netting.

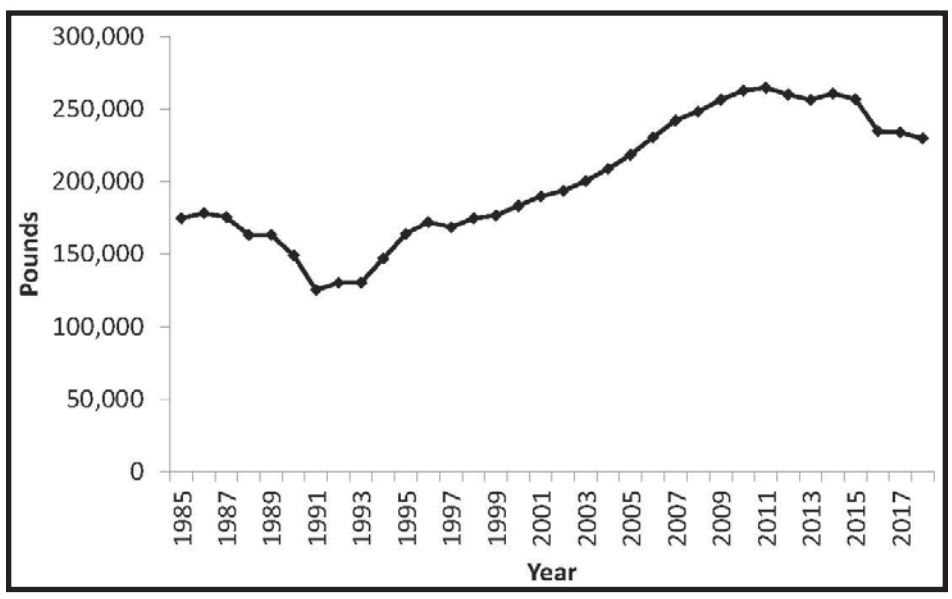


Figure 1. Stock biomass estimated by the surplus production base model of northern pike in Mille Lacs Lake.

There are a number of ways to reduce exposure to mercury while still harvesting and consuming ogaa. Sort and label the bags with the name of the lakes where the fish were harvested; and mark whether the fish were under 20 inches or over 20 inches. Follow the advice on the mercury maps for the maximum safe number of ogaa meals per month. (COR photo)

Updated mercury maps detail safe walleye consumption

Additional Michigan 1842 inland lakes included

By Sara Moses, GLIFWC Environmental Biologist

The spring ogaa (walleye) season is right around the corner. Whether 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.

By harvesting ogaa, tribal members reaffirm their off-reservation treaty rights while providing their families and communities with a high quality food source. But, as with any fish, ogaa contain mercury, a contaminant that is released into the environment largely from the burning of coal and metallic mining and processing activities. Exposure to mercury above safe levels can cause negative health impacts, especially in fetuses and young children. You can reduce your mercury exposure by using the mercury maps to choose lakes with lower mercury levels for harvesting ogaawag, and by following recommended consumption advice for the lake where your fish were harvested.

Under funding from the Great Lakes Restoration Initiative, GLIFWC updates the mercury maps every two years. The maps, most recently updated in January 2018, provide ogaa consumption advice for 348 individual lakes, including 16 new lakes with advice developed since the maps were last published in 2016. In particular, GLIFWC worked with the Lac Vieux Desert Band and the Keweenaw Bay Indian Community in recent years to significantly increase the number of lakes displayed on the maps within the Michigan 1842 Ceded Territory.

Fish mercury levels change slowly over time, even as emissions of mercury in the region decrease. This, in combination with the rotating sampling scheme for lakes, means that we do not generally see dramatic changes in the advice provided by the maps from year to year.

Walleye upgrades & declines for 2018

Since 2016, we changed our advice to less restrictive for three lakes and more restrictive for six lakes. A notable improvement is Bond Falls Flowage in Upper Michigan, which has changed from "Red" or "Do Not Eat" to a recommendation of up to one meal per month for the sensitive population (pregnant women, women of childbearing age, and children under 15 years of age). In Wisconsin, the safe number of ogaa meals from Star Lake (Vilas County) has increased from one to two per month for the sensitive population. The most popular lake affected by more stringent consumption advice is Big St. Germaine Lake in Vilas County, where the safe number of ogaa meals for the general population (men 15 and older and women beyond childbearing age) dropped from eight to four per month.

In an effort to inform and protect tribal members, GLIFWC began its mercury program in 1989. It has since measured mercury levels in more than 8,400 fish from Lake Superior and inland lakes across the Ceded Territories. Data from walleye sampling is used to produce GLIFWC's mercury maps, which provide color-coded, lake-specific ogaa consumption advice. The maps indicate the safe number of ogaa meals that can be consumed per month from lakes where fish are typically harvested by GLIFWC's member tribes. In addition, you can target smaller fish, which tend to be lower in mercury, or consume lower mercury species such as whitefish, bluegill, or perch.

The updated Mercury Maps are now available on the GLIFWC website at *http://glifwc.org/Mercury/index.html* and will be made available at tribal registration stations and at various tribal events this spring.

Shockingly high levels of mercury found in Lake Superior lamprey

By Sara Moses, GLIFWC Environmental Biologist

It's long been known that sea lamprey (bimiizii) are bad news in the Gichigami region. These creatures invaded our Great Lakes in the 1940s through man-made locks and canals. Adult lamprey attach to host fish, such as lake trout, by their ring of rasping teeth and feed off of blood and other bodily fluids. Dramatic decreases in lake trout, burbot, whitefish, and sucker populations coincided with increasing lamprey numbers, impacting commercial, subsistence, and recreational fisheries. Now we have one more reason to dislike theses slimy invaders—their mercury levels are sky high.

GLIFWC researchers, in collaboration with scientists at the University of Wisconsin–Superior, recently looked at mercury levels in lamprey collected in Michigan and Wisconsin tributaries to Lake Superior. The results were shocking. Adult lamprey had mercury concentrations higher than any other fish from Lake Superior ever recorded. In fact, they were ten times higher than top predator fish, like lake trout.

The good news is that the high mercury levels in lamprey do not pose a direct threat to the people around Lake Superior. Despite being considered a delicacy in Europe and by some tribes of the Pacific Northwest, lamprey are not typically consumed by humans in the Great Lakes region. But, there is a concern for wildlife whose tastes may not be so discerning. A number of birds and mammals, such as eagles, herons, ducks, seagulls, and otters, feed on adult lamprey.

Not only adult lamprey have dangerously high levels of mercury in their tissues. The study found that lamprey eggs and larvae, about the size of a pencil, also have extraordinarily high mercury loads. These early life stages of lamprey are a potential food source for fish in the tributaries where they live.

In addition to being a mercury source to the fish and wildlife that consume them, adult lamprey may be significant transporters of mercury within the Great Lakes ecosystem. Adults pick up the majority of the mercury in their bodies from the fish they feed upon in the lake. After one to two years in this parasitic phase, they return to the tributaries to spawn and die. Their decaying carcasses are then sources of mercury to these tributaries. With an estimated 80,000 spawning-phase lamprey returning to Lake Superior tributaries each year, this represents a substantial pulse of lake-derived mercury to the tributary streams and rivers.

Controlling invasive lamprey is important to protecting the fishes of Gichigami. Every spring GLIFWC's Great Lakes Section sets traps in Lake Superior tributaries during the spawning run to estimate the number of adult lamprey, and to reduce their reproductive potential by removing a portion of the run. This work is done in cooperation with GLIFWC's member tribes, the Great Lakes Fishery Commission, and the U.S. Fish & Wildlife Service–Sea Lamprey Control program. For more information visit *https://data.glifwc.org/archive.bio/AdminReport17-07.pdf*.

Native to the Atlantic Ocean, sea lampreys are parasitic fish with extraordinarily high amounts of mercury in its tissues. Lampreys have an eel-like body, with seven gill openings and a large round mouth with sharp, curved teeth. (CO Rasmussen photo)

Spring turkey hunt

(continued from page 3)

While they may not gobble as much through the middle of daylight hours, birds are still receptive to calls and can be ambushed in meadows or other open areas that service as strutting grounds.

Packed with pure protein, very low in fat, mizise is a great choice for healthy meals this spring, and freezes up nicely for a special occasion later in the year.

See *www.glifwc.org* or visit your local GLIFWC registration station to pick up carcass tags—where required—and more details on spring wild turkey hunting.

Mizise registration

Turkeys harvested off-reservation can be registered over the phone at GLIFWC's toll free harvest registration line: 844-234-5439. To register your harvest, you will need your NAGFA ID number which can be found on your hunting license. Detailed instructions can be found on GLIFWC's website: *http://glifwc.org/Regulations*

Enforcement Division trains in cold water rescue

In between anglers and ice-house jiggers (background) out on Chequamegon Bay, GLIFWC officers wearing bright yellow cold water rescue suits practice entering and climbing out of the water onto the ice sheet. (CO Rasmussen photos)

Armed with a rope fitted with a carabiner, a GLIFWC warden moves in to retrieve a fellow officer from the icy waters of Lake Superior. The Enforcement Division conducts a training refresher each year in preparation for potential rescue situations on Gichigami or inland waters.

Ready to sled, hunt & more

An interagency team of law enforcement officers recently trained students from three Upper Michigan school districts in a snowmobile safety class. GLIFWC Officers Steven Amsler and Matt Kniskern said the February 20-23 event included 6th graders from Watersmeet, Ontonagon, and Ewen-Trout Creek Middle Schools. A total of 46 kids participated in the course and received their safety certificates.

The students are scheduled to move on to ATV safety in March and then Hunters Safety in April. Students completing all the classes will then be able to go to Camp Nesbit for a week in early May. This camp and associated safety program relies heavily on cooperating agencies to be successful including, Ontonagon Sheriff's Office, Michigan Department of Natural Resources, Porcupine Mountain State Park Rangers, and community volunteers. (S. Amsler photo)

Ogaawag for elders returning in 2018 to LCO

After a strong turnout last season, Lac Courte Oreilles area GLIFWC wardens plan to collect fresh-speared walleyes again this spring for distribution to community elders. Officer Mike Popovich and LCO fisherman Jim Tate originally hatched the plan before the 2017 spring spearing opener, placing donation bins at boat landings where tribal members have their catch counted and measured by GLIFWC creel teams. LCO spearers responded with a strong 168-fish donation and Officer Pat Ratzleff filleted the entire catch. Tate, Popovich, and Ratzleff then spent a day hand delivering frozen walleye packages to elders and disabled tribal members throughout the Lac Courte Oreilles area.

"The harvesters, the people that donated, really enjoyed having the opportunity to share with others," Popovich said. "We fed a lot of people in need, a lot of families."

For elders and harvesters that can attend, Popovich is planning an event at the LCO Conservation Office after the season wraps up in May. Povovich said it's a great way to build relationships and a sense of community.

"We'd like to see everyone come together, meet each other and spend a little time reflecting on spearfishing," Popovich said.

For those that cannot make the event, GLIFWC officers and volunteers plan on delivering fish once again this year. Contact Dolly at LCO Conservation 715.634.0102 or Officer Mike Popovich at 715.292.7535 for more information.

—CO Rasmussen

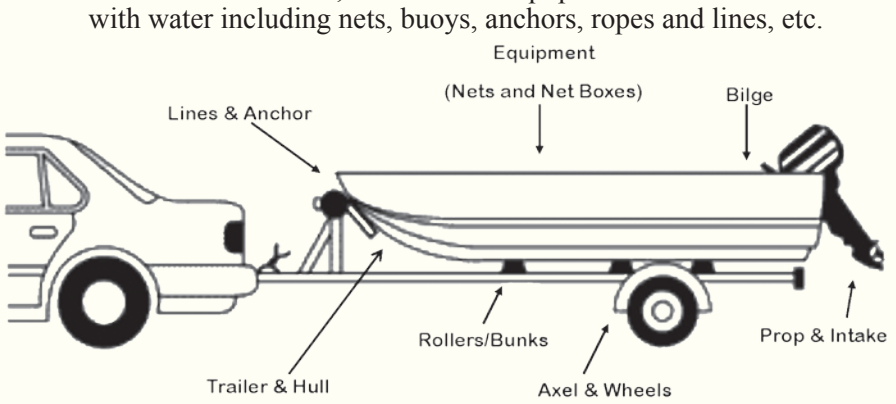
Look for donation bins at boat landings open to LCO tribal spearers. (COR)

Ganawendan Ginibiiminaan (Protect Our Waters)

Aquatic invasive species (AIS) can have negative impacts to treaty resources including spawning and fish habitats. Remember when out on the waters to take the precautions to prevent their spread. Watch for invasives hitching rides on plant fragments, mud or debris!

Stop Aquatic Invasives

- ✓ ***REMOVE*** any mud or debris, plants and animals from your boat, trailer and equipment
- ✓ ***DRAIN*** all water from boat, fishing boxes and equipment ensuring it does not drain back into the waterbody.
- ✓ ***CLEAN*** or ***DRY*** boat, trailer and all equipment that came into contact with water including nets, buoys, anchors, ropes and lines, etc.



Don't forget to check these spots for hitchhikers.

Makwabimidekewin medicine

By Paula Maday, Staff Writer

Odanah, Wis.—Bear grease is known for its richness in cooking, particularly the flavor it adds to foods like pastries and pie crusts. But during a recent workshop hosted by Bad River Food Sovereignty and the UW-Extension Youth Program, participants learned just how nourishing makwabimide(bear grease) can be both inside of the body and out.

Led by Bad River harvester and skilled practitioner Maria Nevala, the "Dine and Learn" event drew over 25 community members, young and old. The agenda for the night: producing hand scrubs and beauty products from rendered animal fat, native plants, and everyday items. Attendees were also treated to a home-cooked meal with food grown on site at the Bad River Food Sovereignty High Tunnels. The workshop was one of a three-part series on using bear grease.

The hard work of rendering the fat had already been done by participants of an earlier workshop and Nevala, who taught herself how to do it when her boys came of age around 17-18 years ago. "They wanted to start hunting bear," she said. "And I hated the thought of that bear grease going to waste. I decided I'm not going to waste any part of this bear."

Nevala had heard from her grandma and others that bear grease was good for leather and boots, and also good for joint pain and hair. "My grandma always used to say that my uncles believed in bear grease. They used it for their hair. They would put it in there and flip out their combs and it kept it thick and dark. It kept the greys away! I don't know if that's true, but that's what they believed," she chuckled.

One group of participants whipped up an orange cream sugar scrub that was made of bear grease, coconut oil, sugar, vanilla extract, and orange essential oil. The scrub, which can be used to exfoliate the skin, smelled like a dream. (P. Maday photo)

Starting out, Nevala had a lot of experimenting to do to figure out how to render the bear grease. "It was mostly trial-and-error," she says, noting that the first time she tried it, she left a little bit of the meat on, thinking she could cook it with the fat. "I scorched it," she laments. "So the next time, I cut all the meat off. Then I started cutting the fat into smaller pieces and using a slow cooker, just trying different things. And I would get a little bit more each time." The best method Nevala has found so far is to use a grinder to cut up the fat and then use a Nesco to slowly melt it.

In addition to learning how to make bear grease, Nevala started doing more research on plants, utilizing GLIFWC's *Plants Used by the Great Lakes Ojibwa* as well as family and her own memories. "I remember my grandma using 'frog leaves' on our skin for cuts and scrapes," she said. "She would take that out and put it directly on our skin."

Nevala's eczema cream that she makes today still employs those "frog leaves" (plantain), as well as "fuzzy leaf" (mullein), burdock root, and stinging nettles. Nevala slow-infuses the leaves—which she harvests in the summer—with bear grease to make a salve, a process that can take 16-20 hours.

Eager to share and exchange traditional knowledge with friends and community members, Nevala enjoys opportunities like the workshop. "I have one friend who is really knowledgeable about essential oils," she says, "And I know a lot about wild plants growing on the rez, so we started combining our knowledge to try out some different things."

Participants at the December 19 workshop got to try their hands at mixing together some of these things. Working in small groups, attendees made big batches of pain salve (good for arthritis and joint pain), eye cream, body scrubs, and lip balm.

Gina Nelis Secord (left) and Luanne Wiggins carefully stir and add essential oils to their bear grease concoctions. (P. Maday photo)

At the end of an evening of good food (the squash soup and homemade garlic bread were phenomenal), good teachings, and good laughter, everyone got to take a small jar of each product home, just in time for the holidays. A large box of pain salve was also shipped to the Elderly Center to share. And this makwabimide medicine—rich with nutrients from the bear's diet and the restorative powers of our plant relatives—brought healing throughout Mashkiziibi—the Bad River community.

Resource

Plants Used by the Great Lakes Ojibwa is a 440-page book that includes a brief description of each plant and its use, a reproduced line drawing, and a map showing approximately where each plant is found within the Ceded Territory. This book can be purchased on the GLIFWC website at *www.glifwc.org/publications/* or by emailing *lynn@glifwc.org*.

Bear Grease Pain Salve

4 cups bear grease
4 oz. beeswax, grated
100 drops of frankincense
80 drops of wintergreen
80 drops of peppermint
120 drops of eucalyptus

Melt bear grease and grated beeswax together over a gentle heat, stirring well and slowly. Add essential oils and pour into small jars. Use as needed.

Important tips to remember:

- Use high-quality essential oils. Check the labels to make sure that the oils you are using are 100% oil, do not contain fillers, and are preferably organic.
- Don't add essential oils when the bear grease is hot. Add when warm, right before you pour into the jars.

Fiddleheads, deer meat among traditional foods eyed for model code project

By Owen Maroney, GLIFWC Community Dietician

In a previous GLIFWC project, a Bad River elder told staff to "boil it in three changes of water" when cooking milkweed buds.

Since then, we have learned from tribal elders that other traditional, treaty harvested foods should be cooked in a similar fashion, not eaten raw. We are coming to better understand some possible scientific reasons for this traditional practice.

In spring 2017, project staff collected raw, young bracken fern fiddleheads (*Pteridium aquilinum (L.)*), better known in Ceded Territory as wewegaagin.

The fiddleheads were not cooked or boiled but simply dehydrated and sent to a lab in Denmark to determine their concentration of a naturally occurring chemical called ptaquiloside, which is known to cause cancer in livestock. To date, there is no clear evidence of the chemical's impact on human health. Previously, it had been unclear if ptaquiloside was present in bracken ferns within Ceded Territory and at what concentration. Through this partnership with the Metropol University College in Denmark, we learned that some raw bracken fern fiddleheads have a low concentration of ptaquiloside, while others do not have a detectable amount.

Wewegaagin. (O. Maroney photo)

It's research like this and more which could potentially impact future food consumption advisories and policies in the new "GLIFWC Chippewa Ceded Territory Traditional Food Regulatory System Project."

This complex 3-year project, funded by the Administration for Native Americans (ANA), is working in three main areas simultaneously: toxicology, policy, and capacity.

The toxicology area is researching contamination and food safety concerns related to treaty harvested Anishinaabe food. The research is guided by feedback from tribal members through the Traditional Food Interest Survey, where tribal members indicated treaty harvested foods they would like to see incorporated into a food code model.

The policy area is currently working to identify laws, regulations, guidances, etc. which are impacting access to and utilization of traditional foods. For example, current regulations impacting the use of venison in tribal Head Start program meals.

By project's end, the final area, capacity, will have assisted tribes in identifying and strengthening existing resources within tribal communities to effectively implement tribally-administered food regulatory systems. Each of these three areas work together to increase tribal self-regulatory capacity and sovereign control.

By learning how to harvest and prepare traditional foods safely, we can share traditional food ways with tribal youth safely as their Ojibwe ancestors intended.

Telling Our Stories

Tribes exhibit living culture at museums throughout Ceded Territory

The Four Seasons room at the Mille Lacs Indian Museum features a circular diorama depicting fall, winter, spring, and summer life of the Ojibwe. All of the mannequins used in the exhibit are cast after real Mille Lacs Band members. (P. Maday photo)

By Dylan Jennings & Paula Maday, Staff Writers

The passing along of Ojibwe history and stories is deeply rooted in oral tradition. But this is not the only way that culture has been imparted over generations. Consider, for instance, the wiigwaasabak—birch bark scrolls—which have carried complex Ojibwe ideas, shapes, songs, maps, and other important information over hundreds of years. These pictorial representations are part of a strong visual culture that also belongs to the Ojibwe.

Many history books and museums have pigeonholed Native American people and culture as a historical reference point—someones and somethings that existed somewhere other than today. In this narrative, we all become artifacts. But today, many tribes are reasserting their sovereign right to tell their own stories, in their own ways, in visual arts spaces that invite others to see just how alive this culture really is. Join us as we visit some of the Ceded Territory's most vibrant and engaging museums and cultural centers.

George W. Brown, Jr. Ojibwe Museum & Cultural Center
603 Peace Pipe Rd., Lac du Flambeau, WI
http://ldfmuseum.com

In the heart of Lac du Flambeau, in a 9,000-square foot "round house" lives the George W. Brown, Jr. Ojibwe Museum and Cultural Center. Built in 1988 as a joint venture between the Lac du Flambeau Historical and Cultural Society and the Lac du Flambeau Band of Lake Superior Chippewa, the center showcases the circle of life of the Ojibwe, with a four seasons exhibit occupying the main stage of the building. The museum also features areas that teach about Lac du Flambeau (LdF) origins and history, including photographs and information on the fur trading and lumber eras. A visit to the museum is not complete without a viewing of the world record sturgeon that's on display, as well as a 24-foot dugout canoe. And don't forget to stop in the gift shop, which offers many local, tribally produced arts and crafts.

Museum Director Teresa Mitchell says the museum's collection has grown about three-fold since the opening in 1989. Prior to its current incarnation, the museum was housed in the Lac du Flambeau library and went by a different name—the Lac du Flambeau Museum and Cultural Center. It outgrew that facility, which had limited space for exhibits and didn't allow for proper storage or display of artifacts. To fund the $500,000 building the museum now occupies, stakeholders secured a $250,000 community development block grant from the U.S. Department of Housing and Urban Development, with a 1:1 match met through funds raised by the LdF Tribe, LdF Historical and Cultural Society, and community projects, according to a December 4, 1987 article in The Lakeland Times. In 1995, the center was renamed to honor a community elder who was a life-long proponent of cultural preservation, George W. Brown, Jr.

The Mikwendaagoziwag "They Will Be Remembered" Heritage Center underwent a 20-year restoration and now houses the Legacy of Survival exhibit and gallery. The facility—formerly a Bureau of Indian Affairs government boarding school boys dormitory—is located at 838 White Feather St. in Lac du Flambeau. (D. Jennings photo)

Today, the museum operates as a non-profit, fully supported by the Lac du Flambeau Tribe. Mitchell says that grants are applied for often to help maintain the collection and the building. A separate building—the boys dormitory from the old boarding school at LdF—is worth a stop as well. Recently restored, it houses additional exhibits, as well as the LdF Historic Preservation Office, language department, and cultural activities.

Fond du Lac Cultural Center & Museum
1720 Big Lake Road Cloquet, MN
www.fdlrez.com/museum

The Fond du Lac community recognized years ago that a museum was a necessary component in telling their story. In 2000, the tribe received a grant that assisted in the funding of a cultural center and museum to house artifacts and to share their story and perspectives with visitors. Jeff Savage, Museum Director, has held the position since the creation of the building.

The museum hosts many cultural events throughout the year including arts classes, beading, and moccasin making. Fond du Lac Natural Resources Manager and GLIFWC Voigt Task Force Rep Tom Howes relayed: "The museum does so many positive things for our community, including a language focused wiigwaasi-jiimaan program which taught multiple tribal members how to make birch bark canoes while incorporating Ojibwemowin into every aspect."

Mille Lacs Indian Museum & Trading Post
43411 Oodena Dr., Onamia, MN
http://sites.mnhs.org/historic-sites/mille-lacs-indian-museum

Down Hwy 169, around Mille Lacs Lake, a hidden gem awaits at the Mille Lacs Indian Museum and Trading Post. Open in its current location since 1996, it is one of 26 sites in the state that are managed by the Minnesota Historical Society.

(See Telling our stories, page 15)

Mille Lacs Indian Museum has both historical and contemporary exhibits. The powwow exhibit incorporates powwow culture right into the exhibit design, using an Indian Fry Bread truck as a display case. (P. Maday photo)

Ishpaagoonikaa Deep Snow Camp at Lac Courte Oreilles

GLIFWC camp shines as positive youth mentoring experience

By Paula Maday, Staff Writer

Lac Courte Oreilles, Wis.—It was a cold weekend January 26-28 as 47 youth came together on the Lac Courte Oreilles reservation for Ishpaagoonikaa Deep Snow Camp. For many of these youth, it was a reunion, a chance to see their camp family during the long, cold winter season. For others, it was a welcome, a matriculation into a special group and learning environment where Ojibwe traditions abound each biboon.

In the camp family, everyone has a role: youth, elders, tribal leaders, community members, culture bearers, and GLIFWC staff. Wardens from the Conservation Enforcement Division play a huge role in organizing and leading activities throughout the camp.

"The wardens believe in the native communities they serve, and they work hard to foster healthy and respectful relationships between community members and their environment," says GLIFWC Outreach Officer Heather Bliss. "Anytime we get an opportunity to lead or participate in an outreach program, such as the winter camp, the wardens are the first ones to commit to leading workshops or assisting cultural advisors and elders."

Mike Burns, a western district warden who works in the Mille Lacs area, says that he enjoys helping out with the GLIFWC seasonal camps. "To see the kids' excitement and ability to absorb what we instruct them on is amazing. It makes me feel comfortable with them going outdoors, doing these activities, and staying safe."

Burns led a session on Saturday morning on Grindstone Lake, where he instructed youth in setting tip-ups, alongside fellow warden Gale Smith and Lac Vieux Desert harvester Roger LaBine. "We showed them how to set both traditional and modern tip-ups," he said. "We explained the parts of the tip-up, and how and where to set them in the water column based on the species they're fishing for. There's many ways to do the same task and stay true to the harvest activity." For campers, seeing a traditional Ojibwe method of ice fishing alongside a more modern method shows that while the ways of harvesting may have changed, the intent is still the same, and doesn't impinge on the treaty rights of Ojibwe tribes.

Burns helped facilitate two other sessions during the camp, one on winter survival and one on snow shelter building, along with Lauren Tuori, a GLIFWC conservation officer working near Lac Courte Oreilles. Tuori is active in local schools and educational programs year-round, in an effort to build positive relationships between harvesters and wardens.

During the opening ceremony, Tuori asked campers two questions. "How many of you have met me before, either out in the woods, on a lake, in school, or at camp?" she asked. About 3/4 of the kids in attendance raised their hands. She then asked, "How many of you have met me because I was writing a ticket to you or someone you know?" No one raised their hand. "I told the students that is how we measure success in the enforcement division at GLIFWC. My goal is to help teach kids to hunt, fish, and gather ethically, responsibly, and legally. I want kids and parents alike to feel free to call me at any time with questions about laws and regulations, because our mission is to encourage tribal members to exercise their treaty rights while protecting the natural resources."

The Ishpaagoonikaa Deep Snow Camp family 2018. (P. Maday photo)

Campers use safe knife cutting techniques to chop potatoes, carrots, and onions for venison stew.

Meal in a jar (inset). Each participant got to take home a jar of pressure-cooked, ready-to-eat venison stew to enjoy with their families. (P. Maday photos)

Ishpaagoonikaa Deep Snow Camp travels to a different tribal community every year, offering GLIFWC member tribes the opportunity to encourage intertribal, intergenerational mentorships between youth and harvesters throughout the Ceded Territory. In LCO, this was no different. The weekend included a storytelling session with Mike and Fred Tribble—the LCO ogichidaag that helped launch the *LCO v. Wisconsin* case in 1983—as well as time spent ice fishing with new Voigt Intertribal Task Force Chairman Jason Schlender.

The storytelling session has become somewhat of a camp tradition the past few years, a sort of rite of passage. It bonds everyone at camp through the sharing of an origin story—the story behind the LCO case that led to the formation of GLIFWC. This story is part of all of us—the reason why we are all gathered here now, at camp, and the reason we are able to continue learning how to exercise our treaty rights. So it is no surprise to see 40-some squirrely middle schoolers sitting

(See Deep Snow Camp, page 18)

Sokaogon Mole Lake staff, volunteers and GLIFWC wardens prepare a spearing hole to teach youth how to spear through the ice on Pelican Lake. (D. Jennings photo)

Greg Biskakone Johnson teaches about the significance of hides at a moccasin workshop at the 2018 Bad River Bibooni-Gabeshiwin. (D. Jennings photo)

Wiigwaas: Making the baskets of our ancestors

By Dylan Jennings, Staff Writer

Wiigwaas has sustained Anishinaabe communities for a very long time. Serving as a vessel to carry Anishinaabe across both smooth and rough waters, to cooking and providing shelter. The simple use of wiigwaas is becoming increasingly popular in main stream art shows and festivals. Anishinaabeg have long since recognized its utilitarian qualities and have incorporated useful everyday tools into jaw dropping pieces of art.

For guys like Pat Kruse, working with wiigwaas isn't just an art form, it's a way of life. Pat Kruse is a Red Cliff tribal member residing on the Mille Lacs reservation in northern Minnesota. He has dedicated his entire life to learning the trades of our ancestors.

"I've been working on baskets since I was a kid, and have always tried to incorporate Anishinaabe florals into my work," he says as he holds a few new creations. "I'm starting to try more quillwork with my baskets and take things to the next level in my projects."

To the left: Father and son crafters created this wiigwaas baseball cap. (Photo courtesy of Minnesota Historical Society)

Ojibwe quillwork, another old practice that predates beadwork, could be used to adorn clothing and other articles of use. Quills could be dyed various colors from different plants and earth materials. Today it's seeing a revival as people begin to recover the practice.

Kruse and his son Gauge not only utilize birch-bark work as a means to bond, but they also bring a competitive edge to the game. Both Pat and Gauge enter their pieces of work into various art competitions throughout the Country. It's not uncommon for their work to be spotted in museums, tribal buildings, casinos and other art venues across Turtle Island. Even more impressive, the Kruse's were honored as Minnesota Artists in Residence for 2015. This allowed them to further explore wiigwaas and other potential creative avenues to try. Most importantly, it afforded them the opportunity to study the history and learn about old basket patterns that Anishinaabeg used to make.

"Every basket has a unique purpose; some for storing manoomin, others for winnowing. Our ancestors never cease to amaze me for their innovative approaches," says Gauge.

When asked about materials, Kruse smiles and pulls out an old piece of bark and lays it on the table. "This piece of bark is over 80 years old." He smiles as he rolls the bark. "Sometimes people will bring me old bark and I can clean it up and still use it to make strong baskets. It's hard to find a similar natural material as durable as wiigwaas."

Kruse shows us a few contemporary baskets made of the old bark. Staring at a mural of beautifully intricate birchbark pieced together to make images, I ask Pat what it is that inspires his work. He replies "I'm inspired by all the Anishinaabeg that have come before us. I am inspired by our modern Ojibwe artists as well. Most of all, I'm inspired by anyone that works with nature and the environment: these people always seem to understand what it means to be humble and are often times content during hard economic times. They truly understand the value of what was given to us."

Lashing the old teachings with modern technique, it's safe to say these ways and teachings will survive. Much like the 80 year old wiigwaas, still strong enough to work with, Anishinaabe teachings and traditions are durable enough to withstand the wither of time.

Pat and Guage Kruse collaborated on this 2014 birch-bark appliqué makak (storage container) with cover. (Photo courtesy of Minnesota Historical Society.)

Make your own sugar basket:

3-4 holes on the seams
Stitch the seams with sinew
Scribe (with an awl or similar tool)

(Hint: Use a copier to enlarge the basket to whatever size you need.)

Finished sugar basket.

Ceded Territory SCIENCE

Lac Vieux Desert Lake— On the road to recovery

Summary

Young walleye eat both invertebrates and fish. In Lac Vieux Desert (LVD) Lake, 85% of the young walleye sampled in June 2017 had fish in their diet (the valuable food item), nearly 100% had invertebrates and/or fish in their stomachs, and 80% of these fish were in normal or above normal condition (i.e., a healthy weight).

Moreover, we captured 23.7 young walleye per mile in June (by comparison the average across other lakes is 11.2 walleye/mile for spring surveys) and 12.8 walleye per mile in September (compared 9.9 walleye/mile for fall surveys in naturally reproducing waters).

Collectively, this indicates young walleye came out of winter in good condition, fed on invertebrates and fish over the summer, and an above average number of fish survived to their second fall. This is a huge step towards recovering walleye stocks in LVD Lake, but there are several hurdles (e.g., establishing natural reproduction) to overcome in the future.

Lac Vieux Desert walleye rehabilitation partnership

Lac Vieux Desert Lake is a 4,300 acre flowage in the 1842 ceded territory that is located within the Wisconsin River basin on the border of Michigan (Gogebic Co.) and Wisconsin (Vilas Co.). The walleye population of Lac Vieux Desert Lake has experienced a well-documented decline in abundance and recruitment over the past decade.

To remedy this issue, a cooperative walleye rehabilitation work group was formed that included Lac Vieux Desert Tribe (LVD), Sokaogan Mole Lake Tribe (MLK), Great Lakes Indian Fish and Wildlife Commission (GLIFWC), Lac Vieux Desert Lake Association,Wisconsin Department of Natural Resources (WDNR), and Michigan Department of Natural Resources (MiDNR). Together, this group aims to increase the abundance of adult walleye to at least three fish/acre over the next several years.

Into the Aquatic Vegetation—Technical Report

Age-1 walleye opportunistically consume both invertebrates and fish, with fish being more nutritionally valuable. When present, young perch appear to be the preferred species followed by other soft-rayed fishes (e.g., shiners). Centrarchids (like bluegills) are typically consumed when soft-rayed fishes are unavailable, a common occurrence at the southern edge of walleye distribution. Mayfly nymphs and amphipods are an important part of the diet if the abundance of prey fish is limited.

In mid-June, Great Lakes Indian Fish and Wildlife Commission (GLIFWC), Mole Lake, and Wisconsin Department of Natural Resources (WDNR) biologists collected young walleye around the perimeter of Lac Vieux Desert Lake. During that survey, a subsample of age-1 fish (most likely stocked extended growth walleye, 53 in total) were measured, weighed, and sampled for their gut contents. We provide a summary of relative abundance, condition, and commonly consumed prey items below.

Figure 1. Photo of prey items consumed by an age-1 walleye in Lac Vieux Desert Lake in June 2017.

Age-1 walleye were caught at a rate of 23.7 per mile during the survey, which is greater than the average spring survey catch rate of 11.2 per mile observed in other Wisconsin waters stocked with extended growth walleye (Kampa and Hatzenbeler 2009). Survival based on the Serns (1983) fall survey index indicates that 40% of the extended growth walleye (~20,000 fish) stocked last fall survived the winter. The survey results suggest that enough walleye from the fall 2016 stocking (51,754 large fingerlings by WDNR) survived over the winter to potentially produce a good year-class in the future. However, these fish must survive another 2-3 years before they start contributing to the mature spawning population. GLIFWC and WDNR will continue to conduct fall surveys to help estimate survival of young fish over the summer.

Age	Sample Size	Total Length (mm) mean ± SE; range	Weight (g) mean ± SE; range	Wr mean ± SE; range	% stomachs with prey
1	53	210.0 ± 2.3; 172.7-241.3	81.5 ± 2.9; 37-131	108.8 ± 1.3; 89.9 - 122.9	98

Table 1. Condition of age-1 fish captured in Lac Vieux Desert Lake in June 2017. Relative weight (Wr) compares the weight of each sampled fish to a length-specific reference weight. The equation used to calculate Wr for walleye was derived from 228 populations and over 48,000 walleye in Wisconsin (Sass et al. 2004). A Wr greater than 100 indicates that the fish are in good condition or plump relative to other walleye in this region.

Approximately 85% of age-1 walleye consumed fish, with the most common identifiable species being bluegill (n=10) followed by yellow perch (n=1) (unidentifiable fish = 31). Age-1 walleye were consuming invertebrates and fish, with almost 100% of the sampled fish having prey items in their stomachs (Table 1; Figure 1). Over 80% of age-1 fish had a relative weight (Wr) greater than 100, which means their body condition was above normal relative to walleye in other lakes in Wisconsin (Figure 2). Overall, this indicates that most of the age-1 walleye came out of winter in good condition and started to feed on fish and invertebrates.

Although there are many more hurdles to overcome in the next few years, we are one-step closer to recovering walleye stocks in LVD Lake. Please contact *aaronshultz@glifwc.org* for more information.

—Mark Luehring, Adam Ray, Joe Dan Rose, Ben Michaels and Aaron Shultz, GLIFWC Inland Fisheries Staff

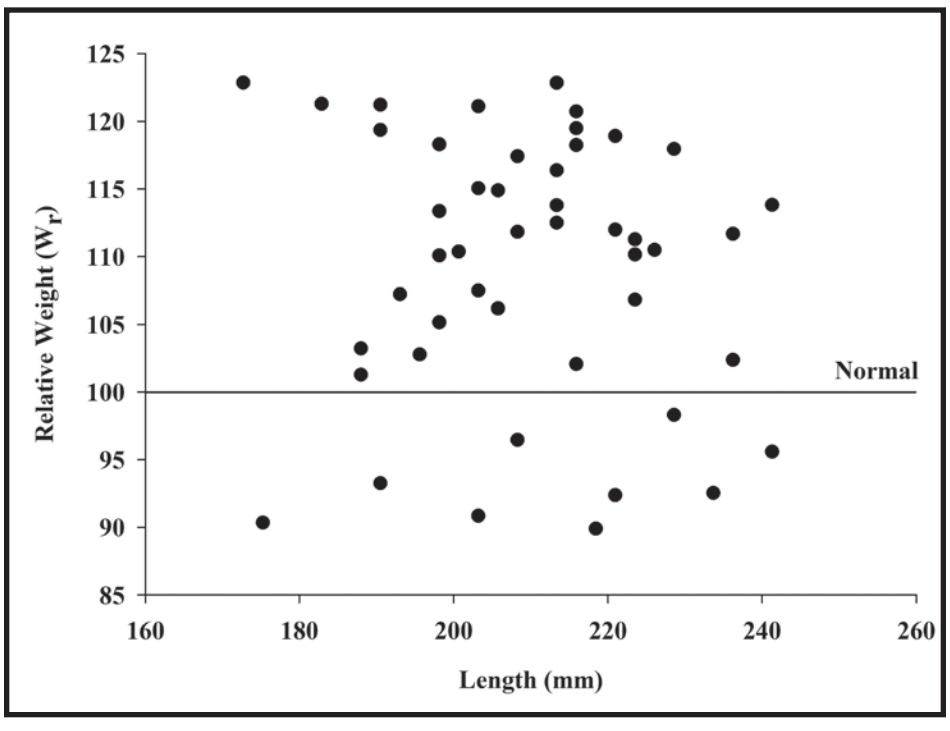


Figure 2. Relative weight (Wr–weight of each sampled fish compared to a length-specific reference weight) of age-1 walleye (n=53) in Lac Vieux Desert Lake in June 2017. The equation used to calculate Wr for walleye was derived from 228 populations and over 48,000 walleye in Wisconsin (Sass et al. 2004). A Wr greater than 100 indicates that the fish are in good condition or plump relative to other walleye in this region.

The future of ziinzibaakwadwaatig and the sugarbush in a changing climate

By Melonee Montano, GLIFWC TEK Outreach Specialist and Hannah Panci, GLIFWC Climate Change Scientist

To the Ojibwe people, ziinzibaakwadwaatig is an extremely important tree. Maples are a source of medicine and food and the subject of numerous traditional stories. For generations, tapping trees for maple sap has brought families together every year for several weeks in the springtime. Families would often tap 100 to 150 trees, and many would (and still do) carve their own taps out of maple—maple swells when wet, creating a tight seal.

The late Jim Northrup of Fond du Lac reservation described the sugarbush as being more than just a location; he saw it as "a state of mind." During Traditional Ecological Knowledge (TEK) interviews carried out through the climate change program at GLIFWC, ziinzibaakwadwaatig is often mentioned, in the form of memories and knowledge of everything from methods used to stories told while in the sugarbush. Much of this knowledge can be related to climate change and integrated into our GLIFWC vulnerability assessment.

So what can research and TEK tell us about how climate change will affect the tradition of maple sugaring? Researchers at ACERnet, the *Acer* (*Acer* is the genus of maple trees) Climate and Socio-Ecological Research Network, have 'boiled down' the factors in the amount of syrup produced every year to four things: tree availability, tree health, timing and length of the tapping season, and the quality and quantity of sap. Each of these factors are likely to be affected in some way by climate change.

Ziinzibaakwadwaatig availability: Ziinzibaakwadwaatig is expected to experience a range reduction, but the timing of this is uncertain. By the end of this century, models show that the ziinzibaakwadwaatig range could stay about the same

(See Ziinzibaakwadwaatig, page 14)

Get hooked on phenology

By Travis Bartnick, GLIFWC Wildlife Biologist and Hannah Panci, GLIFWC Climate Change Scientist

Hooked on phenology? This issue contains our summer/fall phenology brochure for you to record your own observations. Make a fun activity out of watching for the events that are listed, or by noting other phenological or seasonal events you observe throughout the year. Complete as much of the form as you can.

If you submit your 2018 observations to GLIFWC, we will include some of your observations in future phenology calendars. If you would like to submit observations online instead of mailing in the paper form, please visit *www.glifwc.org/ClimateChange/PhenologyStudy.html* to find the link to our online observation form. Using the online form, you can submit observations as they occur. This can be a fun activity for teachers, families, or anyone that enjoys spending time outdoors!

If you missed our winter edition of the *Mazina'igan*, here's some background information on phenology:

Phenology is the study of the timing of biological events throughout the year—when the maple sap starts running, the ruffed grouse begins drumming, or blueberries ripen. Phenology is a useful way to monitor possible long-term trends in environmental conditions, such as a changing climate.

Seasonality is related to phenology, but has less to do with biology and more to do with variations in environmental factors that occur at specific intervals that span less than one year.

Seasonal observations are also important to record from year to year, as they help determine trends in things such as the average ice-on or ice-out dates on lakes, the date of the first snowfall, or the first thunderstorm of the year.

Many people jot down observations on their own calendars, and some have been keeping phenological or seasonal records for decades!

This information can be useful for scientists trying to gain a better understanding of which species are more or less able to adapt to environmental changes over time. If you would like a copy of the 2018 phenology calendar email l*ynn@glifwc.org* or call (715) 685-2108.

(see What are you observing in the Ceded Territory, page 14)

PLACE STAMP HERE

Tape and stamp this form and return to GLIFWC by December 31, 2018. Make sure to include the information below:

Name:_____

Address:_____

_____

Tribal affiliation (if any):_____

_____

Phone number or email:_____

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

www.glifwc.org/ClimateChange/PhenologyStudy.html

Please print return address clearly:

GLIFWC — Climate Change
72682 Maple Street
P.O. Box 9
Odanah, WI 54861

Aaniin ezhiwebak Anishinaabe-akiing?

Please Help GLIFWC Observe Seasonal Events in the Ceded Territories

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

Help us study phenological and seasonal changes by writing down your observations on this form. Keep it on your bulletin board or refrigerator. Share your knowledge by mailing it back to GLIFWC by December 31, 2018.

Great Lakes Indian Fish & Wildlife Commission

Ziinzibaakwadwaatig in a changing climate

(continued from page 13)
(in a low emissions scenario) or experience a large decrease (in a high emissions scenario). If and when ziinzibaakwadwaatig does experience a range reduction, there will be fewer trees on the landscape available for tapping, especially at the southern end of its range.

Ziinzibaakwadwaatig health: There are many aspects to this factor, but climate change impacts could both positively and negatively affect ziinzibaakwadwaatig health. Ziinzibaakwadwaatig typically grows in moist soils, and altered precipitation (both drought and flooding) could negatively impact growth. Pests such as the forest tent caterpillar, gypsy moth, and others that could increasingly survive warmer winters may negatively affect ziinzibaakwadwaatig health.

Increased deer populations due to warmer winters with less snowpack may increase browse pressure on ziinzibaakwadwaatig saplings. Ziinzibaakwadwaatig also grows best with a deep snowpack in the winter—one study found that shallower snowpack in the winter was related to root dieback. However, ziinzibaakwadwaatig is also fairly adaptable—it is shade tolerant and has a wide range of soil requirements. Also, some aspects of climate change may have a positive impact on ziinzibaakwadwaatig—one study showed warmer summer temperatures in the Great Lakes region was related to faster growth of ziinzibaakwadwaatig saplings.

Timing and length of tapping season: The Ojibwe often pay attention to the animals in order to know when to carry out certain seasonal activities, including the tapping of maples. It is said that when one sees and hears the crows arrive in the spring, it is time to tap trees. The Ojibwe have observed that the season is not only coming sooner in the year but the window of opportunity to tap is also getting shorter (years ago, the sap would run for about two weeks). Models agree: freeze/thaw cycles that create conditions for sap flow will continue to occur earlier in the year, causing the sap to run earlier, and there will be fewer freeze/thaw days, which means the tapping season will likely be shorter.

Quality and quantity of sap: Many factors contribute to sugar content of sap, but one that ACERnet identified was July temperatures. Warmer July temperatures were linked with lower maple sap sugar content the following spring, suggesting that heat stress may reduce sugar stores. Interestingly, TEK interviewees mentioned that years ago, 50 to 55 gallons of sap were needed to make one gallon of syrup, whereas it is currently about 40 gallons. This may mean that in some areas in the Ceded Territories, sugar sap content has actually increased.

Climate change may impact Ceded Territory sugarbushes in a number of ways including the timing and length of the maple tapping season. (COR photo)

Other research shows that stressed maple trees produce compounds called secondary metabolites, which make syrup darker and affect the taste of the syrup. Researchers have found more of these metabolites in southern parts of the ziinzibaakwadwaatig range; therefore, warmer temperatures may cause increased metabolite production and darker syrup.

Interviewees have mentioned sap color in the context of tapping hard maple (sugar maple) versus soft maple (red maple)—soft maple produces really dark sap and is not recommended for tapping.

What does all of this mean for the future of ziinzibaakwadwaatig tapping? People that tap trees in general are noticing more variability in the weather and other factors that affect sap flow. This variability is expected to continue. Models looking into the future project that the tapping season will occur (on average) two to three weeks earlier by the end of the century.

Northern sites, including here in the Ceded Territories, may see stable or even increasing sap collection, while southern sites are expected to see a decrease. Sugar content of sap is projected to decline in most regions.

Most sites, particularly in southern parts of the country, will see a resulting decline in syrup production, though in far northern regions it may not decline as much. For more information on the research summarized here, see *http://blogs.umass.edu/acernet/*.

Essential Ojibwemowin

***ziinzibaakwadwaaboo*—maple sap**

(continued from page 13)

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

***Please record the date, location, and species (if applicable) for each observation. Return to GLIFWC by December 31, 2018. Miigwech!

Niibin / Summer — Date/Location

Dates and amounts of extreme rain events (>4" in 24 hrs) _____

First monarch butterfly _____

First firefly _____

Deer seen with summer coat _____

First birch bark harvested _____

Flowers on berry plants (species) _____

Berries ripe (species) _____

Loons nesting _____

Loon chicks _____

Wild rice in floating leaf stage _____

First wild rice ripe _____

First wild rice harvested _____

Other niibin observations:

_____

_____

_____

_____

_____

_____

Dagwaagin / Fall — Date/Location

First grouse harvested _____

First duck harvested _____

Last ducks on the lake/river _____

Last loons on lake _____

Bucks in rut _____

First polished deer antlers _____

Deer have winter (gray) coat _____

First deer harvested _____

First princess pine harvested _____

First apples harvested _____

First cranberries harvested _____

First leaves changing color (species) _____

Peak fall color _____

First leaves falling (specify tree species)

_____

Nighthawks migrating _____

First fire in the woodstove _____

Sandhill cranes flying south _____

First frost _____

First day temperature stays below freezing (32°F)

_____

First snowfall _____

First snow that sticks _____

Lake frozen solid (specify lake) _____

Other dagwaagin observations:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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_____

Spotlight on health & wellness at Native Nutrition Conference

Prior Lake, Minn.—Bringing together both academic and indigenous knowledge systems, the 2nd Annual Native American Nutrition Conference drew more than 500 people last autumn from across the United States and beyond. Building on the momentum from the international event, organizers have already booked a third conference October 2-5, 2018.

The gathering is a great setting to discuss the status and possible future of Native American nutrition and wellness. Participants from four countries, 37 states—including more than 50 tribal nations—attended in 2017. Indigenous people made up nearly 60% of the total.

Topics included traditional food nutrition, food access and natural resource issues, research, indigenous knowledge, and the struggle between Western knowledge and Indigenous knowledge. More than two dozen experts fom all over Indian Country and academia provided insight into a variety of issues related to health and wellness.

With five sessions plus two additional breakout sections, presenters paired featured topics with an Elder's Response, and then a question and answer session. Elder's Responses tied together—in the way that only elders can—history and traditional knowledge and the bigger picture.

The conference offers much to learn, and a number of presentations are available online for free. I highly encourage you to take a look and download the presentations. *http://seedsofnativehealth.org/resource-center-2017-presentations/*. The Shakopee Mdewakanton Sioux, in partnership with the University of Minnesota, created the Native Nutrition Conference. Find more information about the event and this fall's conference at *http://seedsofnativehealth.org/conference/* **—OH Maroney**

Herbed Turkey Breast

Developed by GLIFWC staff

Prep Time: 10 minutes • Cook Time: 15 minutes
Total Time: 25 minutes

Serving Size: ½ inch slice (Approx. 3 ounces) • Yield: 4 to 6

Ingredients

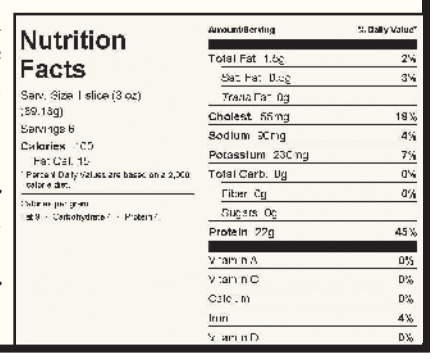
1 each	turkey breast; deboned and any excess fat and skin removed
2 each	bay leaves
4 cups	low-sodium chicken stock
¼ cup	ramp leaves, minced, lightly packed

Directions

1. In a large stock pot add turkey, chicken stock, and bay leaves.
2. Bring pot to a boil then reduce heat to a simmer. Continue to poach turkey until fully cooked, about 35 minutes.
3. Using tongs, pull turkey from liquid and place on cutting board. Allow to cool slightly.
4. Cut turkey into ½ inch thick slices and place on serving dish.
5. Drizzle a little of the poaching liquid over sliced turkey to retain moisture.
6. Sprinkle with fresh herbs before serving.

Chef Notes:

Ramp leaves can be substituted for other herbs to suit your taste such as rosemary, mint, sage, thyme, or parsley.



Recipe reprinted from ***Mino Wiisinidaa! Let's Eat Good!****–Traditonal Foods for Healthy Living cookbook. This cookbook can be ordered online at:* www.glifwc.org/publications/#Cookbook *or call (715) 685-2108.*

Telling our stories

(continued from page 8)

But the story of the museum—and the trading post—go back much farther, to a couple named Jeannette and Harry Ayer, who moved to Mille Lacs in 1918 and built a roadside store.

According to Site Manager Travis Zimmerman, the store initially operated as a general store, but by the 1940s, had changed to primarily offer American Indian arts and crafts to passersby who traveled along the highway. In addition to selling objects, the Ayers maintained a personal collection that they displayed in the back room of their store, and later built a cinder-block museum. In 1959, the Ayers retired and donated the land, buildings, and collection to the Minnesota Historical Society.

The Historical Society opened and ran the museum beginning in August 1960, but by the 1980s, plans were being made to create a new museum space. According to the website, "Joyce Wedll, a contributor to the book '*The Changing Presentation of the American Indian*,' wrote about the role of the Indian Advisory Committee (IAC) in developing the museum's new exhibits. She identified two goals that the IAC had outlined; first, the exhibits should demonstrate that Indian people are not stuck in the past, but are an active living culture that is still surviving and striving today. Second, the exhibits should correct persistent stereotypes of Indian people and culture. The main message of the new museum would be that the Mille Lacs Band of Ojibwe had retained its culture, traditions and its home for more than two centuries, often against the greatest of odds."

Mille Lacs Indian Museum is big—22,810 square feet total, with a 2,000-square foot storage room that houses 2,000 objects and is climate and humidity controlled remotely. (P. Maday photo)

Today, the exhibits at the Mille Lacs Indian Museum do just that. In the heart of the building, the Four Seasons room shows the close relationship that the Mille Lacs Band shares with the environment and harvesting. Hugging this room, contemporary exhibits walk a visitor though Mille Lacs history, powwow culture, honored veterans, and sovereignty. Selected objects from the Ayers' original collection are also on display. Moving clockwise around the museum, you will end up at a long wall of large windows that run parallel to Mille Lacs Lake, a reminder that everything cherished inside the museum, still lives spiritedly outside its walls.

Ziibiwing Center of Anishinaabe Culture & Lifeways
6650 E. Broadway Mt. Pleasant, MI
www.sagchip.org/ziibiwing

The Ziibiwing Center at Mt. Pleasant, Mich. maintains steady flows of people and school groups, sometimes over 100 visitors per day since its grand opening in 2004. The complex hosts a large exhibit floor and an annual changing exhibit, which highlight the Anishinaabe seasonal lifestyle and the various periods of chronological history including pre-contact and the migration story. The Saginaw Chippewa Indian Tribe generously gave $10 million dollars to get the 34,349-square foot building up and running.

The gift shop—which actually helps to fund continued operation of the building—is adorned with the work of local craftsmen and artists. Down the hall and to the right, is an archival library room where community members can do research on lineage or even take a weekly language class. Across the hall, the climate controlled artifact room houses old pieces of tribal history that need to be safeguarded.

Museum Curator William Johnson reminisces: "This center has been a dream of the community since the 50's. What you will see is the work of our community youth, veterans and elders every step of the way. We started with surveys to better understand the needs of the community, and the rest is history."

We hope that you have enjoyed this written tour of some of the museums and cultural centers in Ojibwe Country. This is by no means an exhaustive list; there are many more wonderful institutions within our reservations and across the Ceded Territory with stories to tell. We hope you have been inspired to visit some of these places. They are a beautiful invitation to see, hear, and feel the living culture of the Ojibwe.

A treaty exhibit at Saginaw Chippewa Tribes' Ziibiwing cultural center highlights many of the treaties signed and also sets the scene for the conditions that many of these treaties were signed under. Alcohol and other trade goods such as money, rifles and blankets are seen in the background of this particular exhibit. (D. Jennings photo)

Resources

Some of the information in this article has been included to assist tribes who are looking to develop or support their own museums and cultural centers. An additional resource for tribal museums is the Association of Tribal Archives, Libraries, and Museums (ATALM).

ATALM is an international non-profit organization that maintains a network of support for indigenous programs, provides culturally relevant programming and services, encourages collaboration among tribal and non-tribal cultural institutions, and articulates contemporary issues related to developing and sustaining the cultural sovereignty of Native Nations. Visit *www.ATALM.org* for more information.

Zaasijiwan
•It Ripples•

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

Gikinoo'amaadiiwigamigong, ingiw abinoojiinyag ojibwemotaadiwag. Ingiwedig giigoonyikewininiwag miinawaa giigoonyikewikwewag akwa'wewigamigong ojibwemotaadiwag. Ojibwemowag gaye giiwewaad. Ziigwang ina giwii-ojibwem? Gabeshidaa! Gidaa-maawanji'iwemin. Babimosedaa! Bizindandaa! Bizindawaadaanig! Goji-ojibwemodaa! Iskigamiziganing, gagwejindiwag. Awegonen i'iw? Awenen wa'aw? Minwendaagwad! Miigwech. Miigwech.

(At the school, those children speak Ojibwe to each other. Those fishermen and fisherwomen over there in the spearfishing house speak Ojibwe to each other. They speak Ojibwe too as they go home. When it is spring, will you speak Ojibwe? Let's camp! We could get people together. Let's take a stroll! Let's listen! Let's listen to them! Let's try to speak Ojibwe! At the sugarbush, they ask each other questions. What's that? Who is this? It is fun! Thank you.)

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**in—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.

VTI Questions

Yes/No = na or ina is the 2nd word in the question. Who/What/Why/When-type question's rules—to speak verbs with an initial vowel sound change and b-form suffix.
Patterns for VTI: I, You, S/he, We, They
Roots are commands:
Clean it!—Biinitoon!
Nimbiinitoon jiimaan.—I clean the boat.
Gigii-piinitoon ina adoopowin?—Did you clean the table?
See it!—Waabandan!
Aandi waa-waabandamaan mazina'igan?
Where will I see the book?
Aaniin apii gaa-waabandaman makak?
When did you see the basket?
Awenen wayaabandamang mookomaan?
Which one of us sees the knife?

Niizh—2

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

A. Daga, <u>aaba'an</u> <u>jiimaan</u>! Niwii-pooz noongom.

B. Ingii-aaba'aan biiminakwaan. <u>Indayaanan</u> abwiin.

C. Giwii-piindaakoojige na omaa zaaga'iganing? <u>Miigwech</u>.

D. <u>Noodin</u> miinawaa mamaangaashkaa besho <u>naawagaam</u>.

E. <u>Maanoo</u>, wayiiba ingiw giigoonyag wii-aamiwag omaa.

F. Inashke! <u>Jiigibiig</u> ayaawag miskwaadesiwag.

G. Zaagibagaa. <u>Eyaa'</u>, ashkibagaa.

H. <u>Apane</u> niminwendam ziigwang.

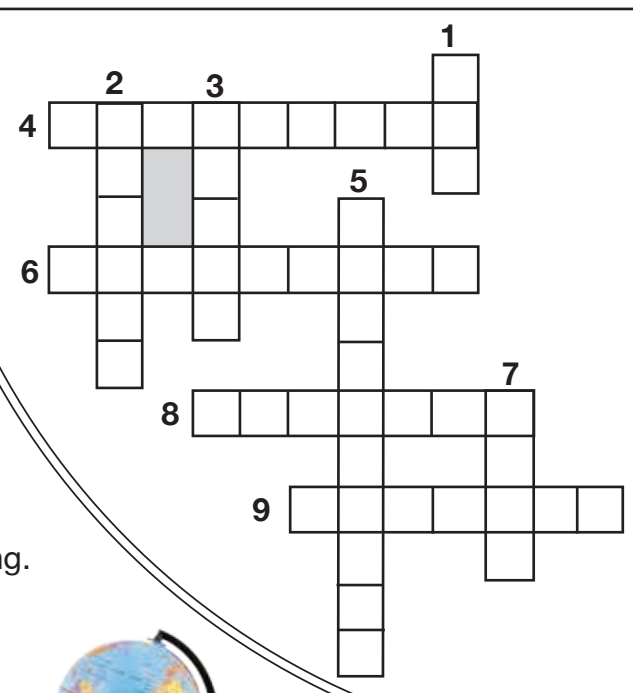
A	N	Y	O	M							
M	A	B	O	E	I						
Z	A	B	G	'	N	I					
I	W	A	A	M	Z	S	G				
K	A	N	N	'	S	N	A	W			
I	G	O	W	O	A	I	P	W	E		
M	A	O	K	A	O	N	A	I	B	C	
A	A	D	M	I	O	A	N	M	W	A	H
A	M	I	A	P	G	J	E	Y	A	'	O
M	I	N	D	A	Y	A	A	N	A	N	O
J	O	D	J	I	I	G	I	B	I	I	G

Niswi—3

IKIDOWIN ODAMINOWIN (word play)

Down:
1. question marker
2. How or in what way?
3. those (animate)
5. Let's all go camping.
7. Yes!

Across:
4. Go out on a walk!
6. Listen!
8. Look! Behold!
9. canoe, boat



akiing
on the earth

Online Resources
ojibwe.lib.umn.edu
ojibwe.net
glifwc.org

Niiwin—4

VTI Roots are in Commands

Minwendan!—Like it!
Niminwenda**an** naboob.—**I** like soup.
Ominwend**aan** naboob.—S/he likes it-soup.
Jiibaakwaadan!—Cook it!
Ojiibaakwaadaan**aawaa** naboob.—**They** cook (it) soup/stew.
Gijiibaakwaad**aan** ina naboob?—Are you cooking (it) soup?
Ombigamizan!—Boil it to sugar!
Nindombigamiz**aan** omaa.—I boil it to sugar here.
Odombigamiz**aan**.—S/he boils it to sugar.

Gi- -aan

O- -aawaa

Nim-

Od -ziin

Ni- -aan

1. Bijiinaago na _____gii-minwend_____ wild rice?

2. Gaawiiin _____ayaan_____ adoopowining imaa.

3. Eya' adoopowining _____waaband_____ naboob.

4. Bijiinaago _____gii-jiibaakwaad_____ wiikwandiwin!

5. Geget! Ningii-bakademin. _____biinitoon waaka'iagan noongom.

Translations:

<u>Niizh—2</u> **A.** Please, untie the canoe. I want to get in now. **B.** I untied the rope. I have the paddles. **C.** Do you want to make a tobacco offering here on the lake? Thanks. **D.** It is windy and there are big waves near the middle of the lake. **E.** Let it be, soon those fish will spawn here. **F.** Look! Along the shore are painted turtles. **G.** It is budding. Yes, there are green leaves. **H.** I am always happy when it is spring.

<u>Niswi—3</u> ***Down:*** **1.** Ina **2.** Aaniin **3.** Ingiw **5.** Gabeshidaa **7.** Eya' ***Across:*** **4.** Babimosen **6.** Bizindang **8.** Inashke **9.** Jiimaan

<u>Niiwin-4</u> **1.** Yesterday, did **you like the wild rice**? (Gi- -aan) **2.** No **s/he did not have it** on the table there. (Od- -ziin) **3.** Yes, on the table **I see the soup.** (Ni- -aan) **4.** Yesterday, **they cooked a feast**. (O- -aawaa) **5.** Sure! We were hungry. **I am cleaning the house** now. (Nim)

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.

Edited by Jennifer Ballinger, Saagajiwe-Gaabawiik

Onizhishin noongom da-nanda-gikenimang asemaa enaabaji'ind

It's great/swell for us to learn about the use of tobacco today

Aaniin giinawaa (hello you)!

Today is a good day to learn about asemaa (tobacco)! It's the first thing we should use when we harvest and ask for help. Asemaa is used in our ceremonies all across Ojibwe country. We aren't talking about store bought tobacco or cigarettes, we are talking about original asemaa which comes from the earth. Look below at the beautiful red plant called miskwaabiimizh or red osier dogwood. Some also call it red willow. Many communities harvest this plant from the first snowfall in biboon (winter) to the first thunder in ziigwan (spring).

If you can get a hold of some leather and needle with sinew, follow the pattern below to sew a small pouch to hold your asemaa. Be careful with the needle!

After we put down asemaa and harvest miskwaabiimizh, we can scrape off the outer bark. It's the inner bark we are after to make original tobacco. The outer bark can be used for many other types of medicine. Using a knife or a spoon, we can scrape away the inner bark and collect the pieces for our asemaa. Sometimes our elders will blend the inner bark with other dried plants or even tobacco leaves grown naturally.

Our asemaa and prayers become stronger when we put that little extra effort into making our original tobacco. **—D. Jennings**

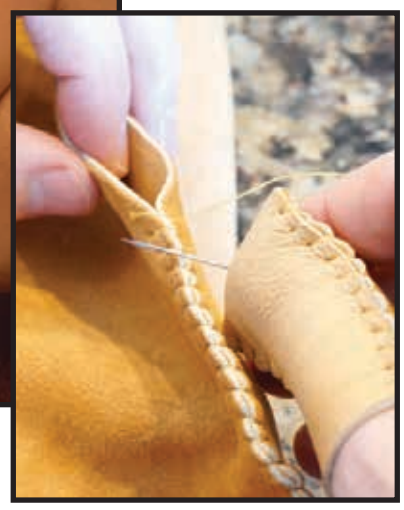
Fred Ackley of Sokaogon Mole Lake teaches youth about Anishinaabe traditional stories and asemaa at the Mole Lake winter camp. (D. Jennings photo)

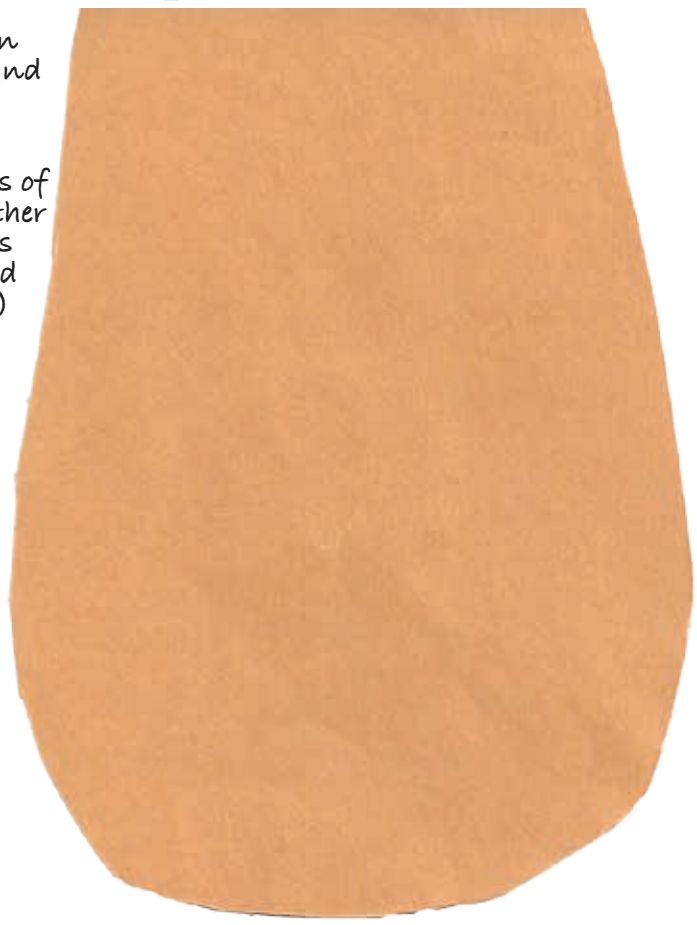
Miskwaabiimizh (red osier dogwood) can be found all over the ceded territory. Please make sure to put down asemaa before harvesting. (D. Jennings photo)

The inner bark of miskwaabiimizh (red osier dogwood) is thinly peeled and dried and many times mixed with other medicines. (P. Maday photo)

Make your own asemaa pouch

- Trace this pattern onto buckskin and and cut out two identical pieces.
- Put the two pieces of your pouch together and sew the sides with a needle and sinew. (see below)
- Fill the pouch with asemaa.





Bi-national committee gives Gichigami a checkup

By Ben Michaels, GLIFWC Fisheries Biologist

Ashland, Wis.—Fisheries professionals from the United States and Canada met January 9-11 to discuss topics relating to fisheries research and management on Lake Superior. The group consists of representatives from various state, tribal, federal, and provincial agencies, and together they make up the Lake Superior Technical Committee (LSTC).

This committee operates under the auspices of the Lake Superior Committee (LSC), which is one of five Lake Committees that was formed by the Great Lakes Fishery Commission in 1965 to facilitate agency-to-agency interaction and implement management plans to tackle fisheries issues such as the invasion of the sea lamprey. The main purpose of the LSTC, however, is to collect and interpret biological data and convey management recommendations to the LSC.

The main topic discussed at the recent LSTC meeting was the state-of-the-lake report (SOL)—a document produced every five years by various members of the LSTC that assesses population trends of ecologically and economically important species. The report outlines specific goals, or Fish Community Objectives (FCO), that were established by the LSC as a sort of "report card" for the health of Lake Superior's ecosystem and fish populations.

For example, the FCO for lake whitefish is to maintain self-sustaining populations within the range of abundance observed during 1990-99. It was reported at the LSTC meeting that the lakewide population of adult whitefish has been decreasing since the mid 2000's, and this is reflected by an overall decrease in commercial gill net yield during that time period; however, the level of relative abundance is still within the range of abundance specified by the FCO (Figure 1). There are numerous FCO's for Lake Superior, each pertaining to a species or a group of species, and the full SOL report will be presented by LSTC members to the Lake Superior Committee at the Lakes Committee Meetings, which are being held in Sault Ste. Marie, Ontario during March 19-22, 2018.

If you have any questions relating to the LSTC or topics that were discussed at the meeting, please feel free to contact Ben Michaels at *smichaels@glifwc.org*.

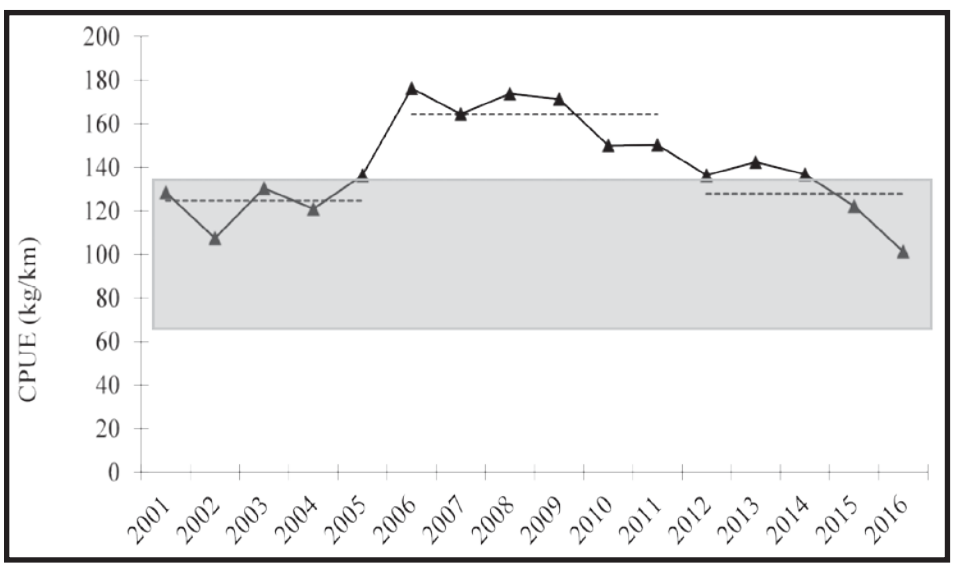


Figure 1. Commercial gill net CPUE (kg/km) of lake whitefish in Lake Superior during 2001–2016. Dotted lines represent the average CPUE during 2001–2005, 2006–2011, and 2012–2016. The shaded region represents the range of CPUE values where FCO is being achieved (65–136 kg/km).

Deep Snow Camp

(continued from page 9)

perfectly still, hanging on the words of these Ogichidaag, even though some of them have heard this story many times before.

For Schlender, the time he spent with youth and other harvesters at camp meant a great deal to him. "I was honored to be able to share harvest knowledge with our tribal youth and I feel inspired to see their excitement to learn about our culture and practices. I am proud to be from Lac Courte Oreilles and so an opportunity to showcase our resources and the expertise of our harvesters is a prideful moment for me and our community."

Campers engaged in many other activities throughout the weekend, including venison stew canning, beading, and building a sweat lodge. They were also able to take part in a new experience this year: cooking outdoors using a Bootagan—a hollowed out yellow birch log used to grind rice, corn, and similar foods. To grind corn, campers put kernels inside the log and then used a long, wooden cylindrical-shaped hammer to smash it into meal. They combined the resulting cornmeal with boiling water, blueberries, and maple syrup for a hearty snack.

Saturday night was a special night. Campers—joined by family and community members—came together for a big beautiful winter feast, cultural stories told by Mike Sullivan, and a cleansing sweat in the lodge they had helped to build. Renewed in spirit, the camp family celebrated and strengthened the ties that have bound the Ojibwe season-to-season, generation-to-generation.

Research institute helps GLIFWC, tribes track fish contamination

By Charlie Otto Rasmussen, Editor

Processed fish tissue samples.

For native people bound to traditional homelands, airborne pollution is a problem. Food comes from your home territory. In the Great Lakes region, mercury deposited directly into the environment through precipitation can make fish unsafe for humans to eat.

"It's so important to know what's in the fish you eat. That's especially true for everyone who includes fish as a significant part of their diet," said Christine Polkinghorne, lead scientist at Lake Superior Research Institute (LSRI). "You have to know if there are toxins present."

According to Polkinghorne some mercury is naturally occurring—existing as natural deposits—while human activity accounts for a significant volume of the toxin that is introduced into the environment each year. Burning coal to produce electricity, household waste incineration, and mining activity are primary contributors. Once released into Ceded Territory ecosystems, bacteria transform inorganic mercury into the more toxic compound, methylmercury.

"It ends up bio-accumulating," Polkinghorne said. Mercury concentrations move up the food chain. Larger, older fish often harbor higher levels of mercury.

Housed on the University of Wisconsin-Superior campus, LSRI has analyzed fish tissue for GLIFWC for more than two decades. In coordination with the Enforcement Division, GLIFWC researchers purchase walleye samples from tribal spearers at boatlandings every spring. Fish samples from the Great Lakes—including whitefish and siscowet trout—are similarly acquired from Lake Superior commercial fishermen along with research crews conducting routine assessments. Additional tribal food fish—muskellunge, whitefish, northern pike, cisco, and burbot—have been sampled at LSRI as well.

Polkinghorne said that while there have been technological advances in processing samples, LSRI is careful to adhere to original testing procedures to produce accurate results over time.

"Quality control is a really important part of what we do," she said. "The methods are still the same, but the instruments are easier to use."

Using food processors familiar to household kitchens, lab technicians grind fish tissue to help "homogenize" entire fillets, Polkinghorne said. Flesh is further broken down with chemicals including nitric and sulfuric acid. Once processing is complete, the resulting solution is analyzed for mercury in a FIMS 100, a compact machine about the size of a 12-pack. The entire procedure is regularly monitored by an independent quality assurance manger.

"We have a high level of confidence in the data we produce here," Polkinghorne said. The work ultimately helps GLIFWC circulate sound advice about how much fish can be safely eaten.

LSRI conducts fishery pollutant assessments for additional tribal resource organizations including departments from Fond du Lac Band, Grand Portage Band, Lac du Flambeau Band, and 1854 Treaty Authority.

Technicians at LSRI laboratories in Superior, prepare fish samples for mercury testing. (CO Rasmussen photos)

GLIFWC staff milestones

GLIFWC All Staff Day brings together employees from across the Ceded Territory to share stories, camaraderie, and get up-to-date on agency fundamentals like budgets and retirement plans. It's also a time to recognize service to the organization and its member tribes.

At the Commission staff day February 23 in Odanah, employees marking a five-year anniversary received a unique GLIFWC pin. Staff serving a quarter-century and beyond took home Pendleton blankets and more. Pictured from left: Dawn White (5 years), Esteban Chiriboga (20), Ann McCammon Soltis (25), Bill Mattes (25), Leanne Thannum (30), and Lynn Plucinski (35). (CO Rasmussen photo)

All Staff Day included a special recognition for Executive Administrator Jim Zorn (background), who is retiring in May. Led off by longtime biologist and Biological Services Director Jonathan Gilbert, staff told "Zorn stories" and shared their appreciation for more than 31 years of leadership. (CO Rasmussen photo)

Chi-Miigwech

GLIFWC would like to say chi-miigwech for the $4,400 gift from the H.J. Hagge Foundation Fund within the Community Foundation of North Central Wisconsin. The generous contribution will help further develop GLIFWC's core programs.

GLIFWC in Peru:
Shared environmental concerns

Traditional ecological knowledge (TEK), forest management, and environmental protection are all common challenges faced by Great Lakes tribal communities. However, these topics mirror similar challenges in other distant countries, especially the country of Peru.

In December of 2017, a delegation of tribal leaders and ambassadors representing their respective tribes and GLIFWC traveled to multiple communities in the Amazonian Basin. Bradley Harrington, Mille Lacs Commissioner of Natural Resources; Jason Schlender, Vice Chairman of Lac Courte Oreilles; Mic Isham, former Chair of Lac Courte Oreilles; Dylan Jennings, GLIFWC Public Information Office Director; and Melonee Montano, GLIFWC TEK Specialist.

CONAP, an environmental agency and confederation of Amazonian nations within Peru (Confederacion de nacionalidades amazonicas del Peru) had visited GLIFWC and other tribal communities in year's prior, and it was time for reciprocation.

Many of these communities are dealing with some of the very same issues including: Protection of cultural knowledge, preservation of cultural practices, synthesizing management plans with TEK, language revitalization. reiterated,

"As indigenous people we all have to stand up and fight together," said President Oseas Barbaran Sanchez of CONAP.

Solutions in Peru for combating some of the above challenges include a Green Fund that was established through funds from past oil exploitations. The main focus of the Green Fund is biological diversity and preservation of critical resources.

A Regional Development Plan in the Region of Loreto aids in prioritizing these resources based on direct input and consultation from the indigenous people and co-management with them. The strong foundation is that both governmental and indigenous groups involved in the co-management believe "the more you protect, the more you produce." Meaning, if a specific critical resource is managed and protected effectively, it will in turn continue to provide for the communities in numerous ways ranging from spiritually to economically. An important aspect of resource management is considering current and future climate change impacts in order to assure their future availability.

A local harvester shares traditional methods of fish harvesting, including spearfishing. He shows the various types of spears utilized. (D. Jennings photo)

Numerous other approaches similar to the Green Fund were shared with our delegation such as the establishment of immersion schools, which incorporate their indigenous languages, indigenous forestry that utilizes sustainable practices and business models, as well as numerous conservation areas and organizations, which support them. Through this exchange, a great deal was learned about cultural survival. It is the intent that the many approaches and practices will continue to be shared with our indigenous communities and our connections as indigenous people throughout the world will continue to bring us strength. For more information about CONAP visit the website: *www.conap.org.pe/.*

—D. Jennings & M. Montano

New GLIFWC hire at deputy administrator

Until the start of 2018 Wayne LaBine had never worked for the Commission. But he's been around GLIFWC since the earliest days. Sokaogon Mole Lake's LaBine became the new deputy administrator January 1.

LaBine has a long history as a treaty harvester, participating in off-reservation hunting and spearing seasons since the inaugural seasons of the mid-1980s. He went on to spend two decades as a Sokaogon representative to the Voigt Intertribal Task Force, and also served as GLIFWC Board of Commissioners secretary.

With extensive experience in financial management, LaBine oversees GLIFWC's Division of Administration—center of accounting, bookkeeping, and overall fiscal management systems. He also participates in special projects and cultural events undertaken by the Commission.

Part of a large family, LaBine was born in Ontonagon and raised in Trout Creek, Michigan. He went on to attend Notre Dame University for four years, leaving shy of completing a business administration degree. Heeding an appeal from his mother to serve tribal communities, LaBine moved to Mole Lake working in tribal government accounting at various enterprises. In his most recent position, he worked with youth in a recreation program for the Forest County Potawatomi.

Labine and wife Denise Smith-LaBine have two adult children, Jaryn and recent GLIFWC intern Jayln. A three-season harvester, LaBine has been busy on weekends spearing through the ice and is preparing for the spring season.

Autumn, LaBine says, is his favorite time of year when he pursues ducks, upland birds and deer. A strong supporter of traditional community sharing, he annually distributes fish and meat to friends and nutrition programs at both Mole Lake and nearby Potawatomi reservation.

—CO Rasmussen

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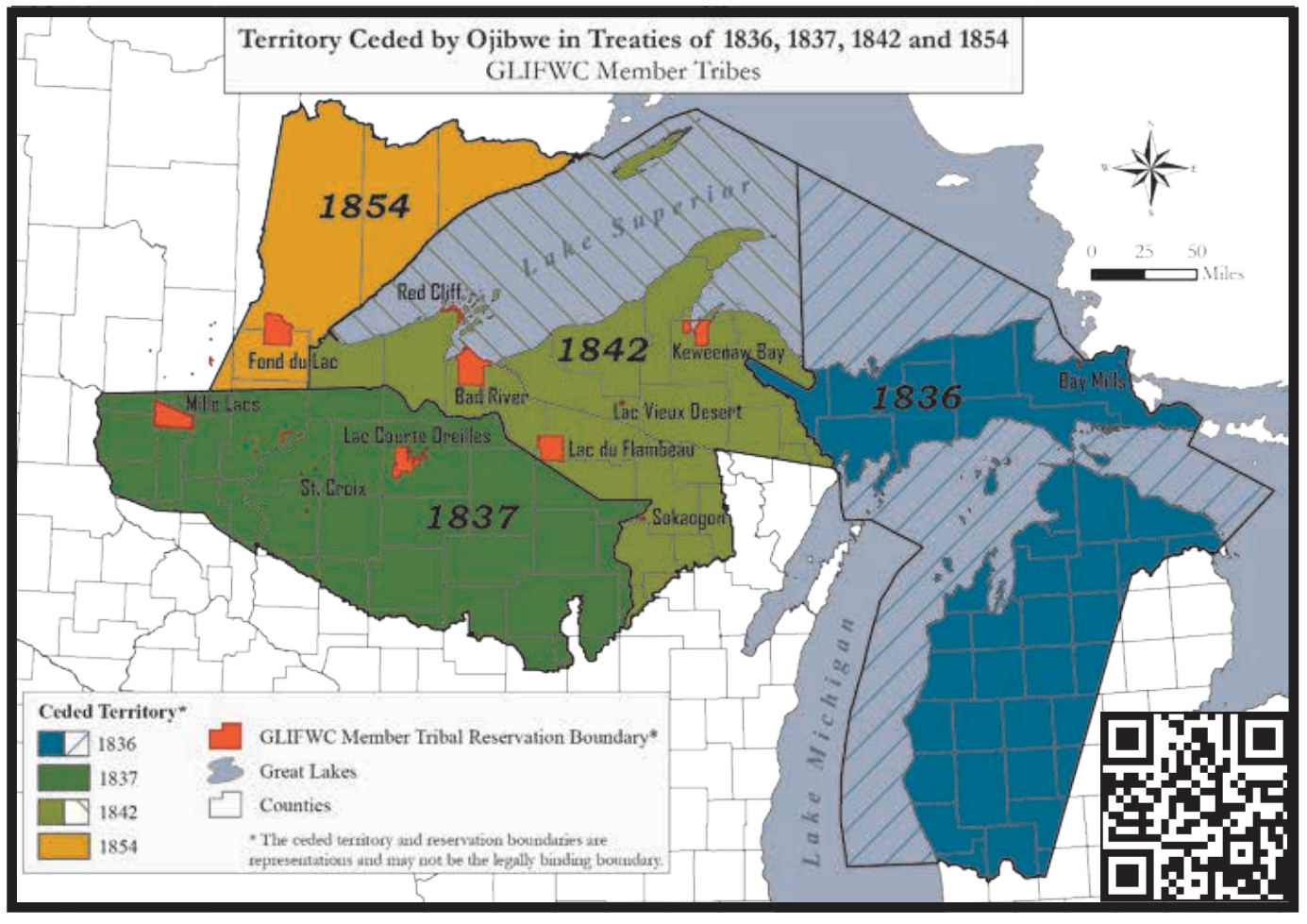
Although **MAZINA'IGAN** enjoys hearing from its readership, there is no "Letters to the Editor" section in the paper, and opinions to be published in the paper are not solicited. Queries as to potential articles relating to off-reservation treaty rights and/or resource management or Ojibwe cultural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



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