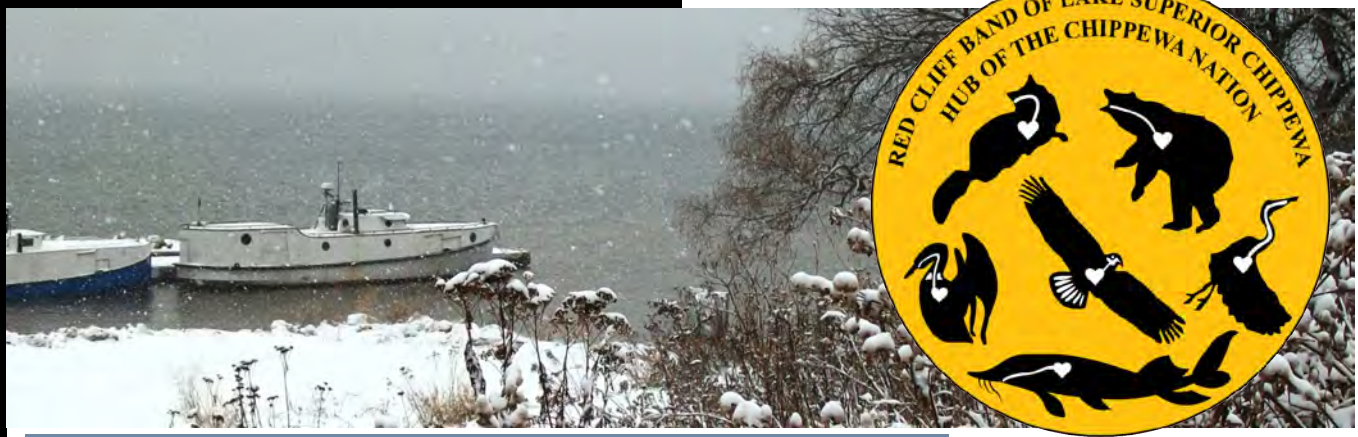


Treaty Natural Resource Division

Red Cliff Band of Lake Superior Chippewa

Volume 3, Issue 4 Winter 2014

Ganawenjigaade

It is taken care of, protected...We take care of, protect, keep it

Happy New Year!

… from all of us in the Treaty Natural Resources Division.

This photo was taken on December 12, 2014. Jeremy St. Arnold, Assistant Biologist of Forestry and Wildlife, is the only staff member missing from the above photo.

Employee of the Month

An office is only as good as its staff. And we here at the Treaty Natural Resource Division think we have some of the best. The following team members were nominated for Employee of the Month in the last three months by their fellow co-workers. By: Chad Abel

October Employee of the Month – Wild Rice!
Because of the fall assessment schedule, we were unable to meet as a Division in October and therefore did not select an Employee of the Month. Instead we are highlighting the wild rice seeding that took place along the lower Raspberry River near the campground. Mike Defoe and Josh Lafernier are shown broadcasting wild rice seed in the photo at left. Linda Nguyen and Marissa Balber also helped in the seeding event, using "mud balls" as an alternative wild rice seeding strategy in the area. Thanks Mike, Josh, Linda and Marissa!

November Employee of the Month – Shelly Gurnoe, Office Manager
Many staff have come and gone in the 30+ years that Red Cliff has maintained natural resource programs within the tribal government, but in all that time Shelly has remained the sole constant. She is an invaluable resource, working in a position that she herself mostly created. In honor of all she does to keep the train on the tracks, Shelly is being recognized for November Employee of the Month. Thank you Shelly for your hard work!

December Employee of the Month – Melonee Montano, Env. Director
Melonee was recognized as Employee of the Month by her co-workers in December. The nomination commended her for her tireless dedication, her ability to balance work duties, and for her ability to keep a sense of humor while constantly "putting out fires." The Environmental Department has also brought on two new programs (Sustainability and Mining) in the last year, adding more layers to the management of her office. Thanks, Melonee!

Red Cliff Recycling Program

By Marissa Balber

The Red Cliff Recycling and Transfer Station has been providing solid waste and recycling services to the Red Cliff community since 1997. In that time, the facility has undergone many changes to meet the expanding needs of residents, as well as the continued protection of the natural environment upon which the community depends. The Integrated Waste Management Plan implemented by the tribe outlines current management practices and has established goals for further development. The scope of the waste management plan has always been to reduce waste production and to increase the rate of recycling within the Red Cliff community. The Environmental Department staff, in coordination with a variety of tribal program support staff, carried out a waste stream analysis in the summer of 2012. The waste stream analysis report completed in September of 2013 separated the results of the two primary waste generators on the reservation, general residential waste and tribal housing.

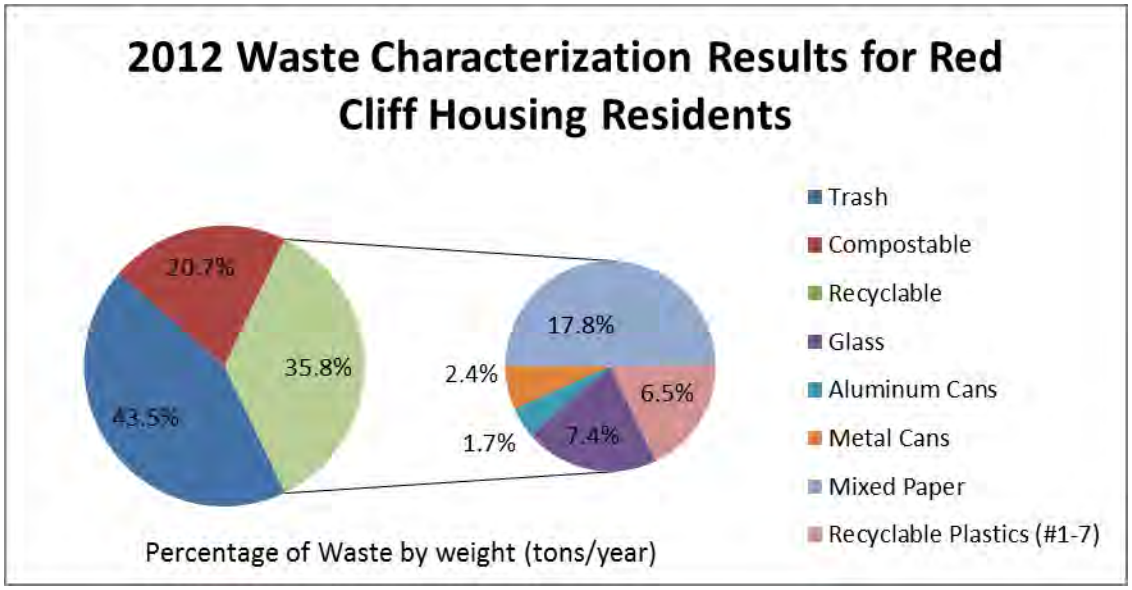
The waste stream analysis conducted in the summer of 2012 was collected over the course of one week during normal business hours. The waste collected was separated between tribal housing and general residential waste aside from housing. All materials that were analyzed in the waste stream assessment were considered 'solid waste' and intended for disposal in the compactor. Fifty percent of the waste collected from the general residential container and twenty five percent of the tribal housing waste were incorporated into the findings. The waste material break down was obtained through a series of calculations to estimate the annual percentage of waste generated by the Red Cliff community. The figures were quite staggering. The analysis revealed that the majority of waste disposed by both general residents and tribal housing were recyclable materials, particularly glass and mixed paper products.

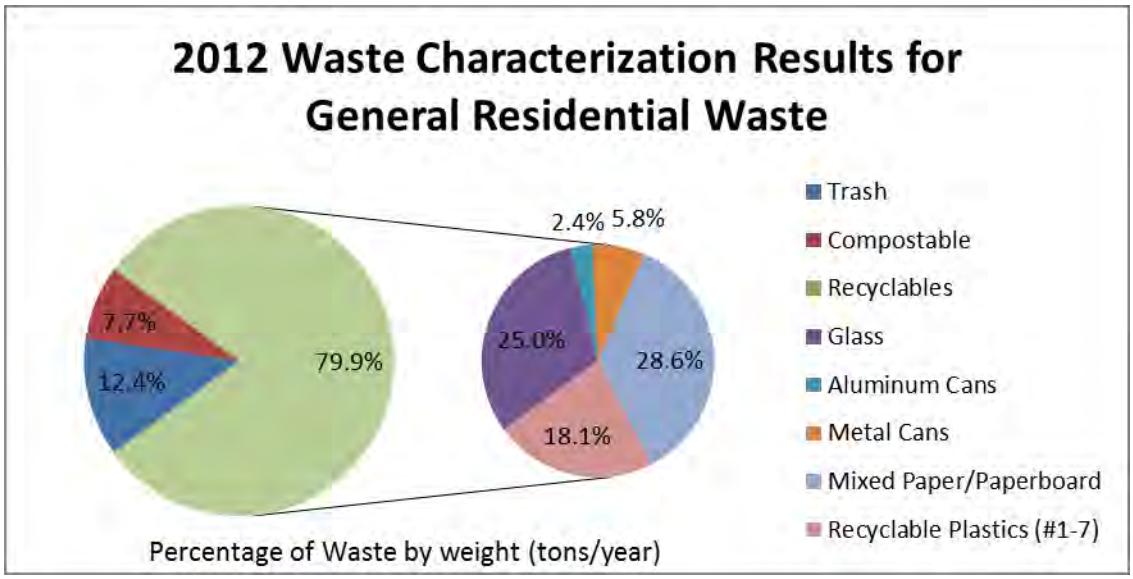
The current cost of waste disposal at the Red Cliff Transfer station is minimal, ranging from $1 for a small green bag to $3 for a large green bag; however, the Transfer Station provides free recycling to community residents. The Environmental Department and the Red Cliff Recycling and Transfer Station staff are actively seeking ways to further improve the quality and affordability of waste disposal services provided by the Transfer Station, as well as search for ways to achieve an increase in the rate of recycling on the reservation.

Red Cliff Recycling Program

In the spring of 2015, we plan to implement a new recycling program to reward model recyclers. The Transfer Station staff will conduct random inspections of solid waste, presenting residents whose waste does not contain recyclable materials with free tags for future disposal.

For more information regarding recycling or solid waste disposal, please contact Melonee Montano in the Red Cliff Environmental Office: 715.779.3650; or Bim Gordon at the Red Cliff Recycling and Transfer Station: 715.779.0171.





Figures taken from "Integrated Solid Waste Management Plan: Red Cliff Band of Lake Superior Chippewa." Revised by Melonee Montano, Red Cliff Environmental Program Director (March 2014).

Red Cliff Resolution Opposes Concentrated Animal Feeding Operations

On December 22, Tribal Council passed a resolution stating that the Red Cliff Band stands in opposition to the establishment of Concentrated Animal Feeding Operations (CAFOs) on the Red Cliff Reservation, within Bayfield County, and within Ceded Territory. The resolution comes on the heels of the purchase by Reick's View Farm LLC of 560 acres in the township of Eileen for the purpose of establishing a swine birthing operation. If permitted, the facility would be the first Concentrated Animal Feeding Operation (CAFO) to breech Bayfield County lines.

CAFOs are defined by their immense size and factory-like approach to rearing animals. To qualify as a CAFO, an operation must house at least 1000 animal units. An animal unit is defined as 1000 pounds. Adult swine weigh between 200 and 300 pounds, meaning a swine CAFO consists of around 3000 sows. To put the size of this operation into perspective, consider that the population of Washburn, Bayfield County's largest municipality, tops out at just over 2000 people.

A facility of this scale will impose a slurry of negative stresses, strains, risks, and consequences upon the local community, economy, and environment. CAFOs literally feed off of a broken national food system that stands dependent upon unsustainable federal subsidy programs, polluting and destructive technologies, imbalanced distribution, and unethical labor and animal welfare practices.

Plus, everybody poops, even pigs. CAFO pigs poop over the grated floor upon which they spend their entire lives. The poop drains into what are called manure lagoons. A swine CAFO produces about 1.3 million gallons of animal waste a year. As people who already live beside CAFOs can attest, manure lagoons stink.

Above: Sows in gestation crates in a facility much like that proposed for Bayfield County.

Upper Right: Laborer in swine CAFO wearing face mask as protection against poor air quality.

Right: Flooded manure lagoons pollute waterways of North Carolina.

Red Cliff Resolution Opposes Concentrated Animal Feeding Operations

Algae bloom in Lake Erie in 2011 catalyzed by agricultural runoff.

Neighbors of existing swine CAFOs report noxious odors cause headaches, diarrhea, runny nose, sore throat, burning eyes, and reduced quality of life.

There are other problems with the manure. In an "ideal" system, manure is retained for six to twelve months to allow for residual antibiotics and pathogens to break down before the manure is spread on farm fields to be used as fertilizer. If improperly applied, the manure applications saturate storm-water runoff with nutrient levels in such excess as to be toxic to natural systems.

Even with the best intentions and most careful management practices, extreme precipitation events, as are predicted to increase with climate change, can cause the manure lagoons to overflow and contaminate groundwater. Great Lakes watersheds with similar large-scale livestock developments, such as Green Bay, Wisconsin and Toledo, Ohio, have experienced increases in algal blooms, beach closures, and the development of dead zones like that found in the Gulf of Mexico where agricultural runoff is concentrated in waters from the Mississippi River.

Pollution will affect local quality of life, and it will negatively impact the tourism industry that Bayfield County depends upon. "Sailing on the winds of swine stink" and "swimming lakes of poo" don't quite cut it as slogans ripe with tourist appeal.

Swine effluent threatens to pollute our air, land, water, and local economy. CAFOs also threaten to pollute our community's commitment to equitability and sustainability. The jobs created by CAFOs are most commonly filled by immigrants and marginalized communities. Pay is low, hours long, the work repetitive, and labor conditions poor. Seventy percent of swine CAFO employees suffer acute bronchitis, because again, manure stinks.

The Treaty Natural Resources Division prioritizes maintaining access to sustainable traditional foods such as wild rice, fish, game, and maple syrup. The Red Cliff Community Farm promotes local production and distribution of local, sustainably raised produce. Red Cliff is enmeshed in a larger community that thrives because of its commitment to small-scale, diversified, local agriculture. Red Cliff's opposition to CAFOs is a demonstration of our commitment to community and environmental resiliency built upon sound ethics and agricultural practices.

If you would like to learn more about the proposed CAFO in Bayfield County or how you can get involved, please get in touch with Beth Raboin, the environmental office's sustainability coordinator. You are also welcome to attend a meeting between the Bayfield County Land and Conservation Committee and the Bayfield County Planning and Zoning Committee on Tuesday, January 6th at 2pm and the Bayfield County Board of Commissioners meeting on Tuesday, January 27th at 7pm. Both meetings will be held in the in the Bayfield County Courthouse in Washburn, and both have scheduled time to take public comments.

By: Beth Raboin
Sustainability Coordinator
779.3650
beth.raboin@redcliff-nsn.gov

KICK THE HABIT: QUIT STYROFOAM FOR GOOD

REUSABLE COFFEE MUGS:
EVERYBODY IS DOING IT!

Ew. Styrofoam is gross.

- Styrofoam is a petroleum product that is prohibitively difficult to recycle.
- Styrofoam NEVER biodegrades. It is the second most common form of human-made debris on our beaches and composes roughly **30%** of the world's total landfill space.
- Although Styrofoam NEVER biodegrades, it does eventually break into smaller and smaller pieces that if accidently consumed by wildlife can block the intestinal tract and often results in death by starvation.
- Fifty-seven chemical byproducts are produced when creating Styrofoam. Many of these chemicals are toxic, negatively impact earth's ozone, and contribute to climate change.
- The carcinogenic chemical benzene is used in Styrofoam production. When heated or exposed to fatty acids, the residual benzene in Styrofoam leaches into our food and drinks (such as hot coffee).
- Acute exposure to styrene, the main solid ingredient in Styrofoam causes these not so fun reactions in humans: Eye irritation, gastrointestinal effects, listlessness, and impairment of balance.
- Chronic exposure causes: Headache, fatigue, muscle weakness, hearing loss, depression… (Too many side effects to list here. Take-home = EW!)
- Because Styrofoam takes up a lot of space but is very lightweight, and waste disposal fees are measured by volume rather than weight, Styrofoam is much more expensive to dispose of than most other waste.

It's a fact! For less than the price of one cup of coffee, you can buy a mug to use for a lifetime of coffee. Check thrift shops, garage sales, and your friends' cupboards for great deals!

Barrels Project Update

Biboon is here. Time for song of the chickadee and howling of the wind.

Update on the Lake Superior Barrels Project which came to be from dumping 1437 barrels of military munitions and production line debris by the DoD is as follows. We are in the process of implementing comments from the Investigation Report we received back from the Army Corps of Engineers, which in turn will be followed by the Summary Report.

We have also brought on board a new contractor, Ridolfi Environmental who will be working on the Investigation Report and Summary Report. They have a long history of working with different tribes in the states of Washington and Alaska, doing environmental cleanup and habitat restoration among other things.

Also, we have made PowerPoint presentations to the communities in Duluth, Silver Bay, Grand Marais, Two Harbors and also presented to the Fond Du Lac Resources Management Team.

For our next round of funding, Red Cliff in coordination with Ridolfi Environmental is drafting up a pre-proposal at this point. This proposal will include the following:

· Testing of chemical components of the BLU-4 ejection cups (M5 propellant)

· Retrieval and sampling of another 45 barrels

· Conduct Cultural-Socio Impact Study

I would like to also give a special shout out to Frank Koehn who is our Public Relations Coordinator. He has been working diligently and endless hours doing presentations informing communities along the North Shore, about the Barrels Project. Chi-Miigwech Frank for all your hard work!!

After we have made the presentations to the North Shore, we will be informing the South Shore on the barrels also. Please visit our Blog: www.lakesuperiorbarrels.wordpress.com for a presentation near you, or contact Gary Defoe Jr through email: gary.defoejr@redcliff-nsn.gov or the office, 715-779-3650.

Winter Pet Care

Winter is here again, meaning not only cold weather for us, but for our pets as well. Indoor and outdoor pets feel the effects of winter weather and here are a few tips to ensure a healthy and happy pet.

1. **Most pets should be welcomed into the home to keep safe and warm.**
2. **If your dog is chained outside, a doghouse must be provided. According to Red Cliff Ordinance 15.10.2 *- No owner or keeper shall fail to provide his animal(s) with food, water, adequate shelter, or proper care when needed to prevent suffering*. To provide the most comfortable shelter the house should be a few inches off the ground to allow for air circulation and waterproof. A flap covering the entrance will help keep the warm air inside the house and provide protection from wind gusts. The dog house should be large enough for the dog to lie down and have a little head room when sitting down. At this size the dog's body warmth will keep the house warm. Adding fresh hay, straw, and cedar shaving will add warmth and comfort.**
3. **When temperatures drop below 20 degrees it is best to keep your pet indoors. When it drops below 40 degrees short haired dogs, elderly dogs, and puppies should be kept indoors.**
4. **Keep a watchful eye on your pet. Frostbite can affect both dogs and cats and is common on ears, noses, paws, and bellies. Signs of frostbite include turning reddish, white, or grey and the skin is cool to touch. If your animal shows signs of frostbite, bring it indoors and call a veterinarian.**
5. **Outdoor cats may seek shelter in your car engine for warmth. Be sure to honk your horn or bang on the hood before starting the engine to give them extra time to evacuate.**
6. **Antifreeze attracts both cats and dogs. Ethylene glycol is an ingredient in antifreeze that provides a sweet taste which invites them to taste it. Even a small amount is enough to cause death. If you pet has swallowed antifreeze, call a veterinarian immediately.**
7. **Some salt used to clear roadways and sidewalks are harmful for pets. Make sure you inspect your dogs' paws after walks for any embedded salt rocks and wipe paws to prevent them from ingesting it.**
8. **With the decrease in temperatures your pets' body will be working extra hard to produce more heat. This will increase their appetite and they will require more food than normal. Always have fresh, clean water available – snow is not enough. Check your outdoor pets' water frequently as it may freeze. Animals cannot burn calories without a fresh supply of drinking water.**

If you follow these tips your pet can be comfortable throughout the winter which makes you a good pet owner. If you have an animal welfare concern or feel that someone is violating Red Cliff Ordinances you can call the Red Cliff Wardens at (715) 779-3732 or email lucas.cadotte@redcliff-nsn.gov

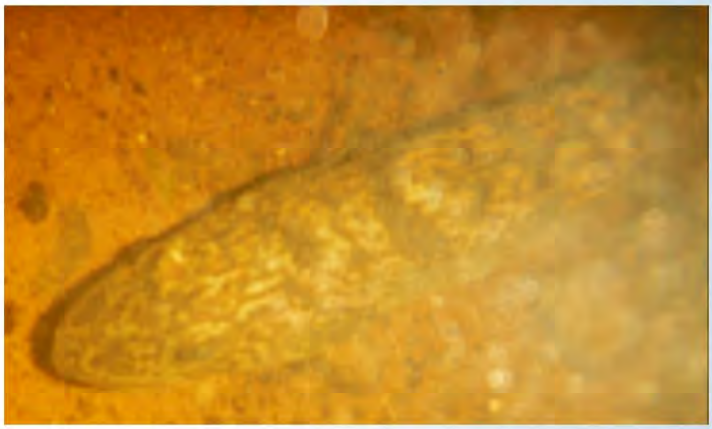
Beach Erosion Project—2014

Stormwater runoff from the casino roof and hillside surrounding the beach were severely eroding the sand beach near the Red Cliff marina (see picture at left). To fix the problem, we installed a trench drain along the pavement to capture the excess rainwater and direct it toward the boat ramp instead of across the beach. We also removed an old drainage system that piped out at the beach, creating additional erosion concerns. Instead, the old drainage system now ties into the trench drain, alleviating future erosion concerns. The photo below shows the area after improvement.

Red Cliff Fish Hatchery

On this page you will see images of some of the events that take place each year during the rearing of our walleye. Starting with the top left image you will see staff conducting a sample count of walleye. This photo was taken roughly two months after they were placed in the pond. We do this every year so that hatchery staff can get a rough estimate of the number of fish in each ponds. The top right photo is another sample of the walleye, roughly a week before they were stocked. The bottom left image is a tub of walleye that were trapped out of the pond before they were weighed and measured for another sample count. The bottom Right photo is of Troy giving a Walleye a LV fin clip before it was put into the stocking truck and sent off to a lake to be stocked.

Current Hatchery Updates/ Highlights / News



Pictured above: One of the stocked walleye moments after it's release in lake Owen

- The hatchery Released their Walleye for the 2014 season into Lake Owen
- The RAS system is up and running. Fish will be added in a few short weeks
- Releasing of 2013 Coaster Brook Trout continued
- Broodstock has been separated
- Spawning of Broodstock has begun and will continue into the next month
- Grant Proposals and reports are being constructed

Pictured above: The Environmental staff, alongside the fish hatchery staff, searching through the weeds making sure no walleye were left behind after the pond had been drained

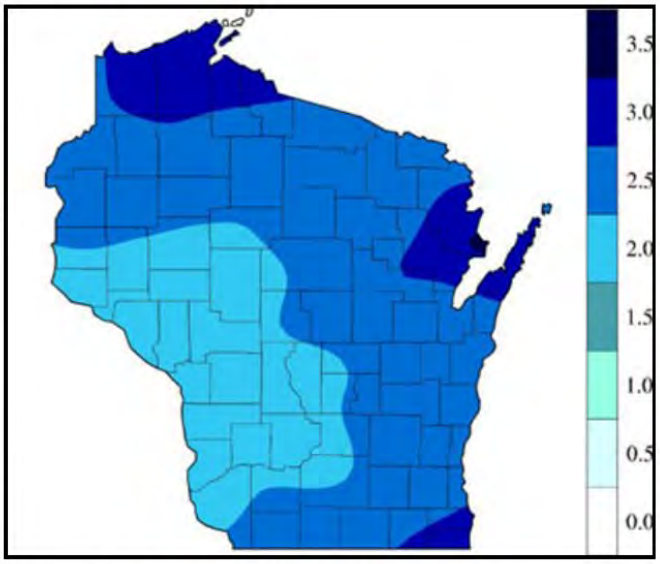
Any Questions or comments please feel free to contact the fish hatchery

(715)779-3595 or (715)779-3750

chase.meierotto@redcliff-nsn.gov

Climate Change and Extreme Precipitation

The projected changes to Wisconsin's climate include an increase in the frequency and intensity of extreme precipitation events.



Frequency of 2" precipitation events

Projections of the future climate are created using global circulation models, which help forecast future weather patterns. Another component of predicting future climate trends are "emissions scenarios". Because greenhouse gases, such as carbon dioxide, are causing climate change, predicting if more or less of these gases will be in the atmosphere in the future is an important piece of the puzzle. There appears to be no end in sight in terms of burning fossil fuels like coal and oil—society is heavily dependent upon them now and probably will be in the future without major societal changes.

Flooding on the Raspberry River in 2012

The blue map of WI above shows the projected change in frequency of 2" precipitation events from 1980-2055. Typically, heavy precipitation events of at least two inches occur roughly 7 times per decade (once every 17 months) in northern Wisconsin. Based on one emission scenario, by the mid-21st century, Wisconsin may receive 2-3 more of these extreme events per decade, or roughly a 25% increase in their frequency. The consequences of more frequent and more intense rain events are many.

Culverts are typically built to the capacity for 50, 100, or 500 year floods. If more of these rain events happen, culverts can become compromised which can lead to costly repairs, road closures hindering transportation, and the prevention of emergency services to help community members. Extreme rain events can also overload the capacity of wastewater treatment plants leading to discharging wastewater into Lake Superior. The amount of water that falls during a storm adds up quickly when looking at a whole watershed. The water running off the land often times picks up nutrients along the way, especially in agricultural areas, which can result in algae blooms which can lead to unsafe swimming conditions and beach closures.

In 2012, northwest Wisconsin and the Duluth area were hard hit by a major rain storm which produced flooding on local rivers and major road washouts in the Duluth area. Rivers and water drainage systems along Lake Superior are ill equipped to handle 12" of rain in 1 day.

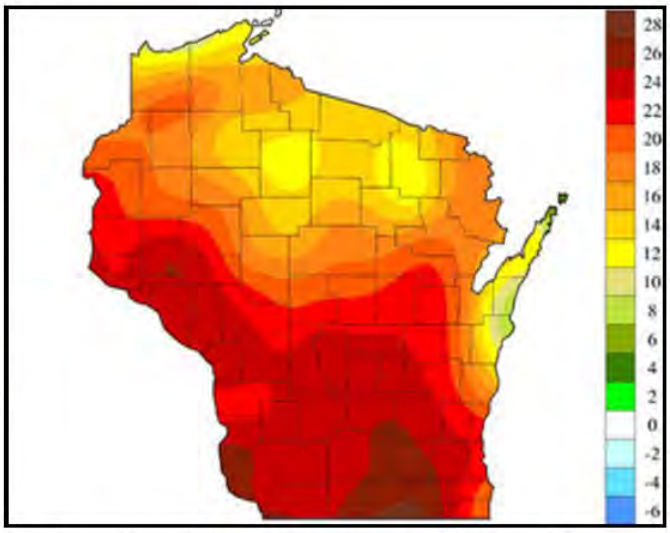
Flooding in Duluth in 2012

Sediment from sandy soil can wash into the rivers, which smoothers the substrate used by the coaster brook trout. The fast moving water can also wash spawning substrate out of the rivers and into Lake Superior leaving brook trout little habitat to spawn. Woody debris and stream bank shrubs and trees are also impacted by fast moving high waters. Woody debris provides fish habitat to hunt, hide and hangout. Stream banks are not only stabilized by trees and shrubs but also provide much needed shade from the hot summer sun for fish.

We know more intense rain events have been happening over the last 30 years and there is a high probability that this trend will continue. One adaptation option is to increase the size of culverts when routine replacement is needed. Though it may cost more money initially, a larger culvert can help ensure that a costly culvert or road washout doesn't happen in the future.

Forestry practices throughout a watershed have a big impact on how heavy rains effect streams and lakes. Trees soak up large quantities of water that would otherwise run into rivers, and they help stabilize soil which prevents sediment being washed away. Forestry practices like selective thinning and best management practices like harvesting trees in winter can help create a robust system that is less likely to fail when faced with unprecedented rains. The Red Cliff Treaty Natural Resources division continually monitors stream banks and culverts and when needed, performs necessary restoration. Stream bank restoration on Red Cliff is one example of work done that can help increase the resilience of a system.

Climate Change and Heat Waves



Number of days that exceed 90°F by 2055

Climatic changes will likely lead to more frequent, more severe, and longer heat waves in the summer throughout Wisconsin. Although Red Cliff has a rural location which isn't influenced by an urban heat island affect, and has a large moderating body of water in Lake Superior, there is still the potential for heat-related illness and death. Northern Wisconsin has typically had 5 days of high temperatures that exceed 90°F, but by 2055 there could be 12-14 days that exceed 90°F. There were 124 deaths in Wisconsin attributed to the 1999 heat wave, and in 2012, the hottest year on record, there were 27 deaths. Of the deaths during the 2012 heat wave:

- 100% lacked functioning residential air conditioning
- 75% had a cardiovascular disease
- 70% were over age 65
- 52% had a mental health condition

Heat waves affect certain populations of people including: the elderly, infants and young children, people with chronic heart and lung problems, people with diabetes, the overweight, those who work outdoors, and people who are isolated.

Heat waves can lead to heat stroke and dehydration, and are the most common cause of weather-related deaths. Because the United States population is aging, by 2050 adults over the age of 65 will have grown from 12% to 21% of the population, leading to a larger number of at risk individuals.

Education is one of the best tools for adapting communities to the projected changes in heat waves. Because the majority of people in northern Wisconsin don't think of heat waves as a potential public house threat outreach to at-risk individuals can go a long way. Adaptation options include having support networks to check on at-risk people and having cooling centers for people without air conditioning to spend a few hours during the hottest part of the day. Even small steps like ensuring that at-risk individuals have a window fan and have adequate supplies of medications can help prevent deaths.

Although heat-related illnesses and deaths comprise a small percentage of deaths in Wisconsin all of them are preventable. It's important for residents in areas who aren't accustomed to long, intense heat waves to be prepared moving in the middle and later half of this century.

RED CLIFF BAND OF LAKE SUPERIOR CHIPPEWA

Melonee Montano Environmental Director
Vacant: Air Program Manager
Program in Existence since – 2010
Program Projects – IAQ-Basic Source Emissions Inventory
Location – Bayfield WI

Red Cliff is located on the northern most point in Wisconsin on the Bayfield peninsula; it is surrounded on three sides by expanses of Lake Superior water and to the south by relatively undeveloped forest or farm lands. The lack of heavy industries nearby means Red Cliff enjoys near pristine air quality. It is the goal of the Red Cliff Tribe to protect and maintain all aspects of our environment while promoting responsible future development. This year's projects are a continuation of IAQ assessments and the basic source Emissions Inventory.

The Red Cliff Tribes' **Indoor Air Quality (IAQ) Program**, is an established program in its fourth year and falls under the Treaty Natural Resource Division, Environmental Department. The program focuses on the completion of basic residential assessments to determine the need for insulation, ventilation and moisture control measures. Problem moisture areas are identified and the source documented. Areas lacking insulation and ventilation in each home are also documented. Homeowner and office management education is carried out in order to increase the community knowledge on basic measures that can be taken to control indoor air quality (moisture control, additional ventilation, piping insulation, etc.). When feasible, the information is then utilized to fix the problems with these systems in each home.

The benefits are twofold; better overall indoor air quality and better energy efficiency. Better indoor air quality should decrease the number of asthmatic episodes for asthma sufferers and increase well-being for all. Better energy efficiency will decrease the amount each household pays out in energy bills on a yearly basis.

The Red Cliff Tribe recognizes that the incidence of asthma and allergies is increasing, especially among our children. Proper management of moisture, air flow and insulation results in a benefit to both health and cost for heating and cooling a home. A good number of homes on the Reservation were built prior to 1980 and have serious moisture intrusion problems. Additionally members have recently purchased over 45 FEMA Trailers, many with sever roofing leaks and insulation issues. The Red Cliff Health Center has many patients that are suffering from respiratory problems that are exacerbated by poor indoor air quality in their homes.

The Tribe is also interested in air quality as a natural resource and environmental health issue that has not yet been explored thoroughly. Therefore, in 2016, the Tribe will apply for additional funds to complete an emissions inventory for the Reservation and surroundings as a first step in developing capacity in air quality. Ambient air quality has potential to affect the health of Tribal members in several ways, directly and through the consumption of fish, for example. Therefore it is important that the Tribe have the capability to participate in regional issues affecting air quality.

Slow it! Spread it! Sink it!

Accepting the Gift of Water

By Alex Strachota

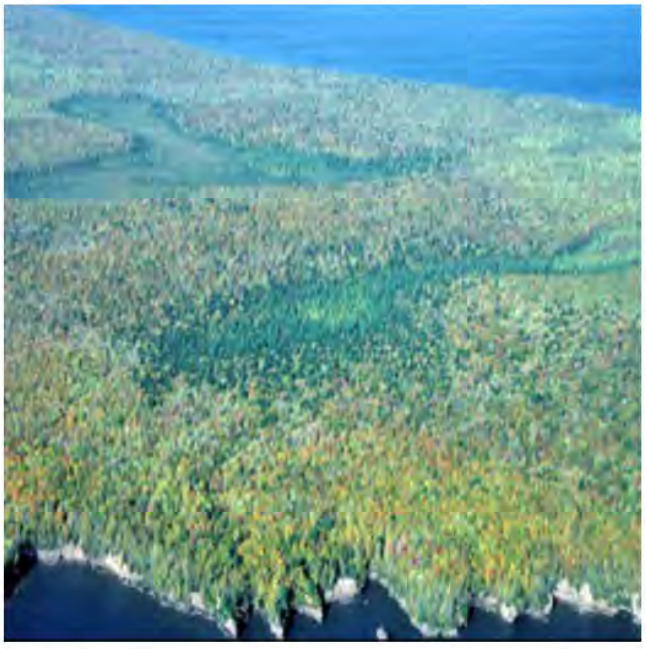
Quality vs. Quantity

In the relatively temperate, moist climate of Eastern North America, public concern over water is often over the *quality* of the water—that is, is the water "clean?" Is it free of contaminants like mercury and lead from industry, or from nutrients and bacteria from septic systems or farm runoff? Due to our favorable climate with abundant rain and snow, we are fortunate in the Lake Superior basin in that we rarely concern ourselves with the issue of water *quantity*. Compared with others in the American West and in arid places around the world, there appears to be plenty of water here to satisfy all.

Superior Coastal Plain Ecological Landscape (WI DNR)

Too much of a good thing?

However, on the clay plain of the Lake Superior Basin, where many of us live, the life-giving moisture that enriches our ecosystems and communities can quickly become a force for destruction, as we have all experienced in witnessing the flooding, erosion, and dangerous roadway conditions the can follow a quick spring melt or powerful rainstorm. Those familiar with climate change predictions are also aware that scientists expect extreme weather events to happen more regularly with more water-holding capacity in a warming atmosphere (see the climate change article on extreme precipitation in this newsletter for more information on this.)



Healthy wetlands surrounded by upland forest on Stockton Island (WI DNR)

The Historical Picture

Interestingly, the massive floods and destruction caused by "too much water" have been scientifically shown to be a much rarer occurrence in intact ecosystems, and was likely the case in our region just over 100 years ago. Wooded areas with thick duff layers of leaves and needles carpeting the forest floor were interspersed with wetlands, which all served to intercept, take up, and hold back large volumes of water from rushing immediately to nearby streams. In fact, some water was slowed to such a degree that it regularly sank through the subsoil and into groundwater reserves, which, emerging in the form of springs, gave perennial flow

to many small streams. Today however, due to many factors (including soil compaction, logging, road building, non-native earthworms, draining wetlands, etc.) our landscape does not act like the "sponge" and conserver of water it once did—too often now, water is concentrated on hard, impervious surfaces and compacted soil and quickly directed to streams that are unable to handle such large volumes of water.

Forest establishment and wetland restoration on marginal farmland (WI Lake Superior Basin Partnership Team)

Learning from Nature

Managing some forests to function like old growth and protecting and restoring our remaining wetlands is important ecological restoration work, and it can help prevent and heal damages caused by excessive runoff. This isn't simply work for specialized professionals, however: everyone can play a role in protecting our home ecosystem and rebuilding a healthy human co-existence with the great gift of plentiful water we are given around Lake Superior. If we heed the simple phrase of "**Slow it, spread it, sink it**" we will be reminded of how nature has worked to *receive* the gifts of rain and snow and not be harmed by it. By **slowing it down** we reduce water's ability to carve out erosive gullies or pick up pollutants; by **spreading it out**, we prevent the quick concentration of water in valleys while ridges and hills dry out; finally, by **sinking it in**, we allow the water to soak into the soil to feed plant roots and recharge our groundwater.

What do we do?

There are plenty of ways—large and small—to apply the "Slow it, Spread it, Sink it" philosophy. At home or work, we can install gutters and divert downspouts from running directly onto driveways and parking lots. Installing a rain barrel or planting a rain garden are a couple other simple ways to use rainwater on site, to grow vegetables or ornamental plants. On a larger, community-wide scale we can make sure new construction and development includes stormwater retention ponds, swales, and other landscaping features that retain and naturally purify water. Installing waterbars on roads (which look like small speedbumps that redirect water off roads to prevent too much concentrated flow) or incorporating permeable pavement into parking lots or driveways can likewise have a large impact in our public places.

Using a diversity of water-conscious designs and techniques in our built landscape, along with supporting ecological restoration in our forests and wetlands, we can restore our watersheds and return to a more balanced relationship with water.

Installing a rain barrel is a simple activity that can collect rainwater for gardening or other uses

Waabizheshi/American Marten Research in Michigan's U.P.

written by Assistant Wildlife/Forestry Biologist Jeremy St.Arnold

Recently, I completed a week long live trapping session in Sault Ste. Marie of Michigan's Upper Peninsula. The main reasons for attending the trapping session were to gain hands-on experience conducting marten trapping research and to evaluate what has made Michigan's reintroduction and subsequent population so much more successful than Wisconsin's.

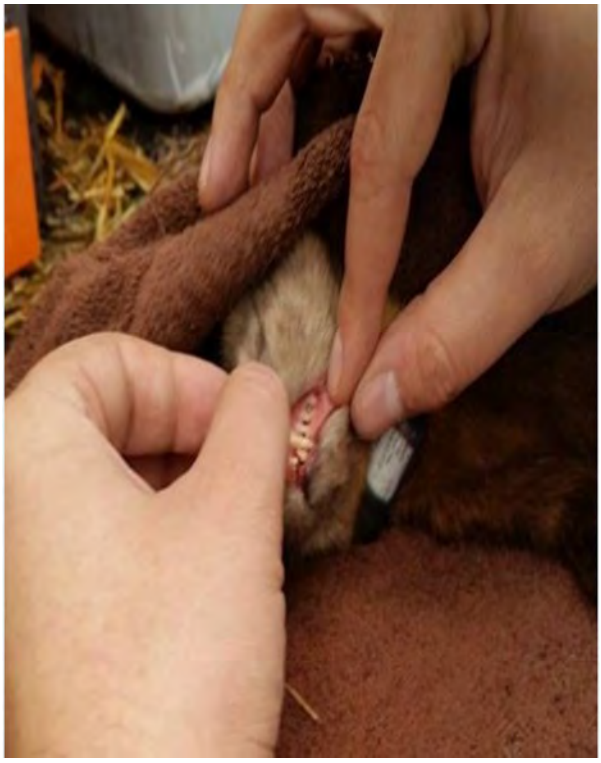
Right: Red Cliff Assistant Wildlife/Forestry Biologist Jeremy St.Arnold with female American Marten.

Left: Biologists collecting data from marten while under anesthesia.

The trapping partners included biologists from the Inland Fish and Wildlife Department of the Sault Tribe of Chippewa Indians, a biologist from the Little River Band of Ottawa Indians, as well as a professor and PhD student from Michigan State University. During this session I assisted staff from the Sault Tribe in live trapping, collaring, and collecting genetic information from American Marten. The Sault Tribe conducts assessments on 1836 Ceded Territory in order to evaluate the success of American Marten reintroduction, in addition to making harvest and management recommendations to the Michigan DNR.

Although as many as 62 traps were used, the trapping was slow in the beginning, possibly due to the unseasonably warm weather (and lots of melting snow) for most of the trip. However, we eventually were able to capture two marten on the 4th day: one female and one male. The female was a recapture, however her capture was still beneficial because her faulty collar was able to be replaced and the team was able to assess her physical condition after nearly a year being collared. Both marten were processed and released safely in accordance with ACAU and veterinary protocols. A myriad of data was collected including: length, weight, sex, physical condition, whether it was a recapture, approximate age, DNA, urine, etc. In addition to collecting data for their own use, the team also collected data for use in a Michigan State project, as well as a project being conducted by a veterinarian from Busch Gardens. These projects are looking into various aspects of marten including: genetics, spatial capture-recapture, mortality, population density, and habitat characteristics.

Close-up of marten.



Biologists assessing dental condition of marten.

In closing, the trip was very beneficial and the trapping partners shared a wealth of knowledge from their collective marten research experience. This knowledge will be used to ensure Red Cliff's marten research will be conducted properly, giving the best chance for success while keeping the health of the animals the top priority. It is essential to learn more about the American Marten population in Red Cliff in order to protect this endangered clan animal for future generations.

Above: Martin under anesthesia.

Far Left: Biologist from Sault Tribe holding female American Marten.

Left: Biologist from Sault Tribe holding male American Marten.

Tribal Natural Resources Departments Meeting with WI DNR

On December 9, Tribal Natural Resource staff from Bad River, Red Cliff, Lac du Flambeau, Sokaogon, and GLIFWC had a meeting in Rhinelander with members of the Wisconsin Department of Natural Resources (DNR) to talk about what Gogebic Taconite (GTac) and DNR staff have been doing related to the Penokee Mine project for the year of 2014. The following is a list of activities that GTac has done in the past year:

- Completed Bulk Sampling in February- They used existing access roads to take approximately 2400 tons of rock from three (3) different sites. Two of the sites have internal water drainage and one site has a slope drainage system. The rock was carried by heavy machinery to be transferred to semi-trucks, and then transported to Minnesota to have the geologic make-up of the rocks examined.

- Drilled 14 exploration holes (for a total of 22 in 2013-14). They applied for an additional 6 holes to be drilled. They have not drilled the additional 6, but their permit lasts until June 2015. Though GTac is not required to give notice prior to drilling, DNR is confident that the company will give at least 24 hour notice to the DNR.

- Baseline data testing:

    ◊ Surface water quality sampling began in 2013 and continued until September 2014 (DNR has not seen GTac's work plan for surface water testing).

    ◊ GTac contracted with US Geological Survey (USGS) to conduct stream gaging and monitoring. 5 Gaging systems were put in place (2 on Tyler Forks River, 2 on Bad River, 1 on Potato River). Monitoring was conducted from June 2014 until GTac cancelled the contract in September 2014. There was not enough data collected.

    ◊ Mapped out waterways- navigability determinations done by DNR. DNR does not know when data and maps will become available.

    ◊ Wetland delineation- US Army Corps of Engineers (USACE) was on site (85% complete).

    ◊ Groundwater **draft** work plan sent to DNR.

    ◊ Installed 5 Monitoring Wells- they are not complete for groundwater testing, no instruments were installed.

    ◊ Wildlife surveys conducted for raptors (spring), reptiles (summer), and targeted species.

    ◊ Historical and archaeological surveys were conducted. Their focus was on old mining areas.

Tribal Natural Resources Departments Meeting with WI DNR (Continued)

Environmental baseline data collection has been halted since September 2014.

- Access Road 3 renovation: 95% completed- timber mats installed to prevent water accumulation and sediment runoff, ditch armor installed, gravel put in place/
  - ◊Source of gravel is non-metallic mine waste from local construction company.
- Managed Forest Law (MFL) land status: MFL in 2 year closure status as stated in the law. Closed status will terminate if (1) GTac decides not to mine, (2) they are issued a permit to mine, (3) it times out end of 2015. Closed status applies to lands within 600 feet of any fixed sampling equipment and/or 600 feet from roads that are being used.
  - ◊Even though baseline data collection has been halted, the closed MFL status stands because they are still checking their Monitoring Wells monthly. It was suggested that since GTac isn't doing baseline data collection, the DNR open the MFL and give public notice on or before the one day per month that GTac workers would be in the field checking wells.

If you have any technical questions for the DNR about the GTac Penokee Mine project, Larry Lynch is the contact. His information is on the DNR website.

Chippewa Federation forms Mining Committee

During their meeting on August 21, 2014, the Chippewa Federation formed a Mining Committee in order to stay up to date on mining projects in Ceded Territory. The six Tribal Councils decided it was necessary to take a proactive approach to issues rather than reactive. The overall goal of the Committee is to address mining issues using holistic approaches, which include spirituality, politics, science, and economics. Each band is to appoint a representative to the committee. Committee members include Tina Van Zile (Sokaogon), Eric Chapman (Lac du Flambeau), Mike Wiggins (Bad River), Sandy Gokee (Red Cliff), Jim Schlender (Lac Courte Oreilles), and someone is yet to be appointed from St. Croix.

The Committee has decided that one of the ways to stay on top of mining in the area is to host a Mining Alternatives Summit. The event will outline the range of mining in Ceded Territory, then promote alternative ways of utilizing the area we live in to accommodate a more healthy and sustainable lifestyle for everyone. The Mining Alternatives Summit will be happening on January 7th through the 9th at the Legendary Waters Convention Center. The Committee has invited specialists from a variety of backgrounds to share their knowledge about the effects of mining on the environment, economically viable alternatives to mineral extraction in our area, cultural knowledge, youth presentations, and more. The event will be free and open to the public. On the first evening of the Summit, there will be a pot-luck style feast and round dance celebration to honor Gichi Manidoo Giizis.

With all of the mining issues currently plaguing our Ceded Territory, it is necessary for Tribal Governments to keep up to date and to make their voices heard. Another approach the Committee has taken is to participate in comment periods for permitting processes and project proposals. This is important because the regulating agencies that permit mines need to hear the tribal perspective on the projects which affect our way of life. If Tribes don't speak up and write formal comments on the proposed projects and permits, the agencies and companies will assume we're complacent, which is often not the case. **Note:** If anyone is interested in participating in comment periods and making your personal voice heard, stop down to the Red Cliff Environmental Office and Sandy will help you.

Wild Rice (Manoomin, *Zizania palustris*) in the Raspberry River-2014

To the Anishinaabe, wild rice is *manoomin*, a term derived from "***Manitou***," meaning Great Spirit, and "***meenum***," meaning delicacy. Wild rice is considered a special gift from the Manitou, this "spirit food" the "food that grows on water", has been a central component of Native American culture in the region for hundreds of years. **Wild rice requires water depths between 0.5 and 3 feet (1-2 feet optimum), and does best in flowing water. Soft organic muck bottoms are ideal. The water should be clear enough to allow light penetration to 2 feet, and water levels through the growing season should be stable or receding. Success of seed germination can be highly variable from year to year.**

The seed was provided by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC). Over 2 acres were reseeded in the Raspberry River with 175 pounds of wild rice. Two locations were identified with suitable water depth and substrate type, each approximately 1 acre large. Two different techniques were administered to spread the wild rice and the red lines on the image below indicate were the "mud ball" method was used and the blue lines indicate were wild rice was broadcast (thrown). The wild rice seeding will be monitored annually with the potential for reseeding for years to come.

Figure 1: Mike Defoe and Josh Lafernier broadcasting wild rice in the Raspberry River.

Figure 2: Marissa Balber using the "mud ball" method for seeding.

Figure 3: The aerial photograph indicates approximate acreage (2 acres) of wild rice seeded on the Raspberry River.

Frog Bay Tribal National Park Tours

Since the establishment of Frog Bay Tribal National Park (FBTNP), in 2012, the Treaty Natural Resources Division (TNRD) has been requested to perform multiple guided tours of the park. Most groups that attend these tours are interested in the creation of the park, and want to know how it came to be the 1st of its kind throughtout the whole country. Many individuals ask questions about the culture and traditional practices that are exercised within and around that park.

Figure 1: Leading a tour with the Lake Superior Work Group (SWG), Bi-national Program participants hosted at Red Cliff. Pictured above is Mike Defoe describing what Apostle Islands can be observed from the shore.

Providing guided tours allows TNRD staff an opportunity to educate and interact with groups that are interested in gaining knowledge of the park and the Red Cliff community. Tours to date include groups from the following areas: Teacher In-Services (Bayfield and Red Cliff), Bayfield School District, Northland College, Bayfield Regional Conservancy, WI Chequamegon Bay Birding and Nature Festival participants, Lake Superior Work Group, Indigenous Arts and Sciences program, and Lake Superior Bi-National Forum group.

Frog Bay Tribal National Park Tours (continued)

Figure 2: Students from Northland College attend a tour at FBTNP. Linda Nguyen, Marissa Balber, and Mike Defoe help lead the tour and describe what activities are currently taking place in the park.

If you are hosting an event or your organization would be interested in a guided tour of FBTNP than please feel free to contact the TNRD office and schedule a time and date.

By: *Michael Defoe*

ATTENTION RED CLIFF TRIBAL MEMBERS
FEE-EXEMPT PARKING IS AVAILABLE AT USFS VALHALLA RECREATION AREA

Through an agreement between participating GLIFWC member bands and the U.S. Forest Service, Tribal members may park for free with a permit in U.S.F.S. recreation areas. The free parking permits are available at the Red Cliff Wardens Office (715-779-3732).

MEYERS BEACH/SEA CAVE PARKING AREA

To enhance the opportunity to exercise treaty-retained rights within the Lakeshore, **NO-FEE PARKING** may take place at Meyers Beach subject to the following conditions:

No member shall park at Meyers Beach without providing the following information **ON AN AVAILABLE FEE ENVELOPE (insert no money):**

1) Member's Name
2) Member's Address
3) Member's Tribal Affiliation
4) Member's Enrollment Number

ICE DANGER AND ICE SAFETY

Before going out onto a frozen lake, pond or river, it's important to take safety precautions to reduce the risk of falling through the ice. Knowing how to judge ice conditions will also help you make more informed decisions while fishing or recreating on frozen lakes.

Springtime can be an especially dangerous time to venture out on a frozen lake. The springtime's warming temperatures can create rapidly changing and unpredictable ice conditions. Remember there is no such thing as ice that is completely safe. Here are some important tips to follow before you decide to venture out.

Carefully Check Ice Conditions

- **Remember** you take a risk anytime you go out onto the ice.
- **Ice thickness is not consistent**. Water currents, particularly around narrow spots, bridges, inlets and outlets, are always suspect for thin ice.
- **When ice fishing**, it is always a good idea to drill test holes as you progress out onto a lake to help judge the thickness and character of the ice.
- **Beware of ice around partially submerged objects**, such as trees, logs brush, embankments or dam structures.
- **Don't judge ice strictly by appearance**.
- **Stay away from cracks, seams, pressure ridges, slushy areas and darker areas that signify thinner ice**.
- **Be aware of ice that forms at the edges of lakes.** Ice melts at the edges first in spring.

Carefully Check Ice Conditions

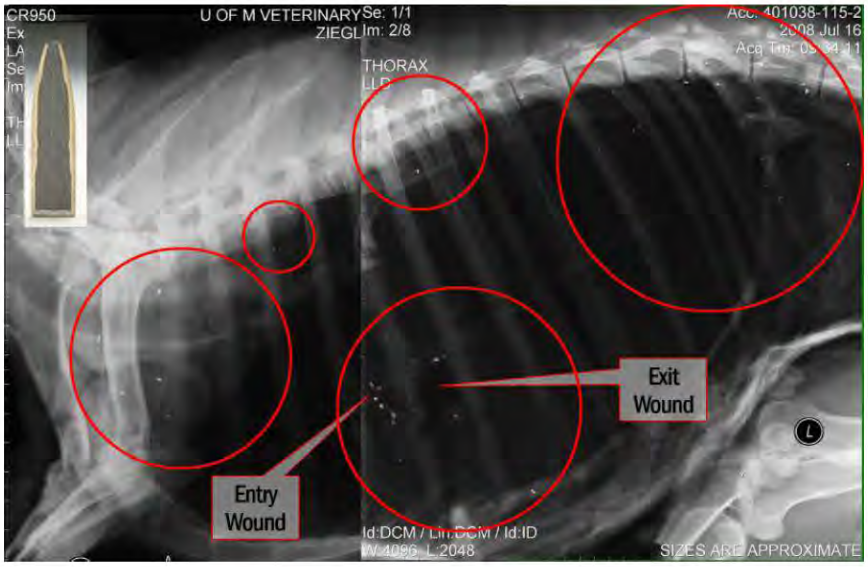
- **Never go out onto the ice alone.** A buddy should be able to rescue you or go for help if you fall through.
- **When changing locations on the ice always walk at least 10 yards apart from your buddy**. If one person falls through the ice, the other can go for help.
- **Before you leave shore**, inform someone of your destination and expected time of return.
- **Always wear a life jacket or personal flotation device (PFD)**, over an ordinary snowmobile suit or layered winter clothing. Life jackets can provide excellent flotation and protection from hypothermia. Specialized coats that float or dry suits are also highly recommended.
- **Assemble a personal safety kit**, no larger than the size of a man's wallet, and carry it on your body. The kit should include a lighter, waterproof matches, magnesium fire starter, pocketknife, compass and whistle.
- **In addition to the above safety equipment**, carry ice picks, a rope and cellular phone. These items could save your life.
- **Always keep your pet on a leash.** If a pet falls through the ice, do not attempt to rescue your pet. Go for help.

What to Do if You Fall Through the Ice

- If you **cannot** get out of the cold water by yourself, take the appropriate actions to extend your survival time while waiting to be rescued.
- **Stay calm.** Do not attempt to swim; swimming will cause our body to lose heat much faster than if you stay as still as possible.
- **Use a whistle to attract help. Act slowly and deliberately to conserve heat** and move slowly back to where you entered the water. Expect a progressive decrease in your strength and ability to move. Make the harder moves to attempt to get out of the beginning while you can.
- **If you are wearing a snowmobile helmet and your face is in the water**, remove the helmet as quickly as possible because it can fill with water and cause you to drown. Hold onto it to keep afloat.
- **Once on the ice, try to push yourself forward on your stomach** or roll on your side to keep the weight distributed over a greater surface area. Do not stand up until you have moved onto the ground or an area of solid ice.

If you would like more information on ice safety, contact the Red Cliff Wardens at 715-779-3732.

Why your deer may be dangerous even after you shoot it……



A recent study conducted by the USGS at the National Wildlife Health Center has shown that there were elevated ammunition-associated lead levels in consumers' wild game. In the adjoining photo it shows the placement of lead from ammunition in the study's carcass (with white specks being lead). In surveys distributed to food banks the surveys showed that 8-15% of WI donated venison to food shelves contained lead fragments.

These lead fragments are not only **harmful to humans** but are also hurting our Wisconsin wildlife. Some of the many affected animals include *carrion* birds such as **eagles** and vultures, canines such as wolves and coyotes, and waterfowl such as ducks and geese. An unusual bird that is dropping in populations due to lead poisoning is woodcocks. Some other examples of lead that animals ingest are spent shot (waterfowl, upland game), sinkers (waterfowl), mine tailings (waterfowl), and paint chips.

Lead can cause neural degeneration, kidney damage, bone damage, and inhibits blood formation and nerve transmission. The body mistakes lead for calcium and then transports it to nerve cells and other tissues.

What can I do to help?

Switching to ammunition that does not contain lead will greatly reduce mortality in wildlife a*nd limit the chance of human ingesting lead fragments.* Unfortunately this ammunition does cost more but saving a few dollars to help the conservation of wildlife and *humans health* is worth it.

On left: Lead rifle bullet with fragments produced. On right: Ammo made out of copper has no fragments

For more information please contact the Red Cliff Wardens at (715) 779-3732

Movie Night—Chasing Ice

A story of change to our planet and our climate

When: January 22nd

Time: 6:00-8:00pm

Where: Legendary Waters Casino

In the spring of 2005, acclaimed environmental photographer James Balog headed to the Arctic on a tricky assignment for *National Geographic*: to capture images to help tell the story of the Earth's changing climate. Even with a scientific upbringing, Balog had been a skeptic about climate change. But that first trip north opened his eyes to the biggest story in human history and sparked a challenge within him that would put his career and his very well-being at risk.

Chasing Ice is the story of one man's mission to change the tide of history by gathering undeniable evidence of our changing planet. Within months of that first trip to Iceland, the photographer conceived the boldest expedition of his life: The Extreme Ice Survey. With a band of young adventurers in tow, Balog began deploying revolutionary time-lapse cameras across the brutal Arctic to capture a multi-year record of the world's changing glaciers.

As the debate polarizes America and the intensity of natural disasters ramps up globally, Balog finds himself at the end of his tether. Battling untested technology in subzero conditions, he comes face to face with his own mortality. It takes years for Balog to see the fruits of his labor. His hauntingly beautiful videos compress years into seconds and capture ancient mountains of ice in motion as they disappear at a breathtaking rate. *Chasing Ice* depicts a photographer trying to deliver evidence and hope to our carbon-powered planet.

Mining Alternatives Summit Agenda

Chippewa Federation
Mining Committee

Summit Agenda

Mining Alternatives Summit

Track 1	Legendary Waters Convention Center Large Room
Track 2	Legendary Waters Convention Center Small Room

Wednesday, January 07, 2015

10:00 am - 4:00 pm	Registration	
11:00 am - 12:00 pm	Welcome- Rose Soulier Red Cliff Chairwoman Opening Ceremony	
12:00 pm - 1:00 pm	Focus of the day: Mining effects Distribution of Mining Activity and Overview of Environmental Effects- GLIFWC	
1:00 pm - 1:45 pm	The Midwest Mining Rush and Conflicts over Tribal Sovereignty: the Mole Lake and Bad River Ojibwe- Al Gedicks	Available Meeting Space
1:45 pm - 2:30 pm	Dispossessing Mixed-bloods and Capitalizing Mining in 19th Century Wisconsin- Larry Nesper, Bret Deutscher, Amorin Mello	
2:30 pm - 3:00 pm	Afternoon Break	
3:00 pm - 3:45 pm	Petroleum Strip Mines, Bakken Fracking, and Oil Pipelines- Grassroots Pipeline Awareness Group	Available Meeting Space
3:45 pm - 4:30 pm	Panel Discussion "Looking Ahead 7 Generations"	
5:00 pm - 6:00 pm	Gichi Manidoo Giizis Ceremony and Feast	
6:00 pm - 9:00 pm	Gichi Manidoo Giizis Round Dance Celebration	

Exhibits Open

MINING ALTERNATIVES SUMMIT AGENDA

Thursday, January 08, 2015

8:00 am - 4:00 pm		Registration	
8:00 am - 9:00 am		Coffee and Pastries	
9:00 am - 10:00 am	Exhibits Open	Welcome Back Focus of the day: Mining Effects (cont'd) and Alternatives Ideas and Methods of Implementing Alternatives- Mike Wiggins	
10:00 am - 10:45 am		Solid Waste/Recycling Project Panel Discussion	Youth Activities
10:45 am - 11:30 am		"A Return to the Past: Penokee Gold, Sustainable Tapping and Forest Product Diversification" - Paul DeMain	
11:30 am - 12:15 pm		Local Economies- Scott Griffiths	
12:15 pm - 1:30 pm		Lunch Break (Provided)	
1:30 pm - 2:15 pm		Youth Presentations	Canning Demonstration
2:15 pm - 3:00 pm		Food Sovereignty/Seed Library-Joy Schelble Minobiimaadiziwin Garden Project-	
3:00 pm - 3:30 pm		Afternoon Break	
3:30 pm - 4:15 pm		Climate Change Adaptation and Solar Communities- Roger Aiken	Canning Demonstration
4:15 pm - 5:00 pm		Alternatives to Clearcutting- Charly Ray Land-Based Livelihoods: Regenerating Communities and Ecosystems- Alex Strachota	

Friday, January 09, 2015

8:00 am - 9:00 am		Coffee and Pastries	
9:00 am - 10:00am	Exhibits Open	Welcome Back Focus of the Day: Strategic Planning	
10:00 am - 11:00 am		Panel of Elders	
11:00 am - 12:15 pm		Panel of Tribal Councils/ Legislative Officials	
12:15 pm - 1:30 pm		Lunch Break (Provided)	
1:30 pm - 2:30 pm		Panel of Regional Groups	
2:30 pm		Closing Ceremonies Traveling Song	

RED CLIFF BAND OF LAKE SUPERIOR CHIPPEWA

Treaty Natural Resource Division

Fisheries	715-779-3750
Tribal Historic Preservation	715-779-3795
Environmental	715-779-3650
Natural Resources	715-779-3795
Transfer Station	715-779-0171
Conservation Wardens	715-779-3732