

Treaty Natural Resource Division

Red Cliff Band of Lake Superior Chippewa



Ganawenjigaade

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



At the mouth of Chicago Creek, Biboon (Winter) is here



Volume 2, Issue 4

Winter 2013/2014

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...and more!



FROG BAY TRIBAL NATIONAL PARK LOGO CONTEST

We are looking for local artists and photographers to help us create the Frog Bay Tribal National Park logo. We have received a couple of entries over the last year, but we really would like to see more local artists step forward!

GRAND PRIZE for the winning logo design will be \$100 gift certificate. Plus your art will symbolize Frog Bay for years to come!

DEADLINE for submissions is June 1st 2014. Please bring your submissions to the Red Cliff Fish Hatchery or email.

CONTACTS for the contest are Bryan Bainbridge or Chad Abel. They can be reached at 779-3750. Email them at chad.abel@redcliff-nsn.gov or bryan.bainbridge@redcliff-nsn.gov.

Biboon - Winter

Zoogipon - It snows

Goonikaa - a lot of snow

Akwa'waa - fish through the ice with a spear



Waabooz - snowshoe hare



Okeyaw - fish decoy

Aagimose - She/He Snowshoes

Traditional Ecological Knowledge (also known as TEK): What it is and Why it's Important



Pictured: Labrador Tea

Traditional Ecological Knowledge (also known as TEK) is the knowledge, practice, and belief held by those with a direct dependence upon local resources. It exists wherever people are materially and more important, spiritually, dependent upon their landscape. The knowledge directly relates to the relationship of living beings to one another and the physical environment, and is handed down through generations by cultural transmission. The existence of TEK is not unique to just Native American culture. In fact, it is found throughout the world amongst various groups.



With TEK, the observers tend to be those that directly utilize the resources, such as hunters & gatherers. Their success of harvest directly correlates to the quality and reliability of their ecological observations. Their observations tend to be qualitative and are for a single locale over a long period of time. Also, the transfer of TEK into knowledge happens within a different context and consists of 'ecological data' but more importantly, spiri-

tuality, values, normative rules and cultural practices.

Western-science can be valuable in restoration efforts but it should be remembered that it is not the only option, nor the best. Unfortunately, majority of scientific professionals hold little understanding of the value of TEK or its cultural content. They instead solely rely on scientific ecological knowledge (referred to as SEK). Scientific observations are often made by a group of pro-



Left: unknown, Right: Ron Geyshick (deceased); formerly of Lac La Croix, Ontario, Canada
Agawa Rock, Lake Superior Provincial Park, Ontario

"TEK" page 2

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Look for future articles covering "TEK" in our Red Cliff Tribe Treaty Natural Resource Division Quarterly Newsletters!!



izhitwaawin
(culture)

gikendaasowin
(knowledge)



BEAVER IN THE HATCHERY POND

HOW A BEAVER DAM PROBLEM BECAME A ROAD PROBLEM

BY – CHAD ABEL

Have you ever heard the old expression, “busy as a beaver”? Much like humans, beaver are skilled workers at changing an environment to suit their own needs. Their ability to dam flowing water and completely change the hydrology of a site is so efficient it often leaves human engineers in awe of their quick progress. However, these same abilities can sometimes cause conflicts between humans and the hard-working beaver.

Such was the case on Bradham Road this summer. Seemingly without warning, the culvert on Bradham Road near the hatchery began to flood over the road almost overnight. This led to the scene in the below photo, where high water next to the road was causing the new culvert to float up.



Beaver activity in the wetland pond was the reason for the hatchery water’s sudden change of course. After well water flows through the hatchery fish tanks, it is designed to enter the wetland pond as part of a natural filtration process. The hatchery water is then slowly purified of nutrients before it leaves the complex and flows out to Red Cliff Creek. Or that was the way it was working anyway, until beaver moved in and “reengineered” the site this summer.



The above image is an aerial view of the Red Cliff Hatchery. The red #1 above shows where water leaves the hatchery after being used to raise fish. When working properly, hatchery water is filtered through the wetland pond and flows out to Red Cliff Creek at location #2 above. However, a beaver dam that was built at location #3 caused the water to flow toward the Bradham Road culvert (#4) and into Chicago Creek instead. The dam at location #3 was overburdening the Bradham Road culvert, and it was shortening the natural filtration process through the wetland pond.

Earlier this year, the Tribal Council ratified an agreement with APHIS - Wildlife Services, a federal agency with expertise in wildlife damage problems. Their staff came to assist the hatchery in removing the problem dam at no cost to the Tribe. This would have been a very difficult dam to remove on our own since it was in the middle of the pond and surrounded by deep muck. Removal of the dam was an instant fix to the problem.

I would like to thank the Red Cliff Public Works Division for their collaboration. Thank you also to Dave and Bob at Wildlife Services for restoring the function of the wetland pond and fixing the road issues.

How is Climate Change Affecting Lake Superior?

By Alex Strachota

The media commonly portrays the impacts of climate change as distant, global events like extensive flooding in Pakistan or a “super-storm” typhoon in the Philippines. However, many people in the Lake Superior region are unaware of the staggering—yet subtle—climate change story that’s playing out in our own backyards.

While it is often difficult to make a scientifically-defensible link between climate change and any *particular* storm or extreme weather event, the following Lake Superior trends are urgent, unprecedented, and likely the result of a greater global shift in climate patterns.



Extensive damage from heavy rains

First ever recorded Lake Superior algal bloom in 2012

Thought to be a first in Lake Superior history, scientists linked this event to warmer-than-average water temperatures and the extreme rain event and massive flooding that took place in Duluth in June 2012.



Sediment and runoff were implicated in the algae bloom of 2012.

Average annual ice-cover diminishing

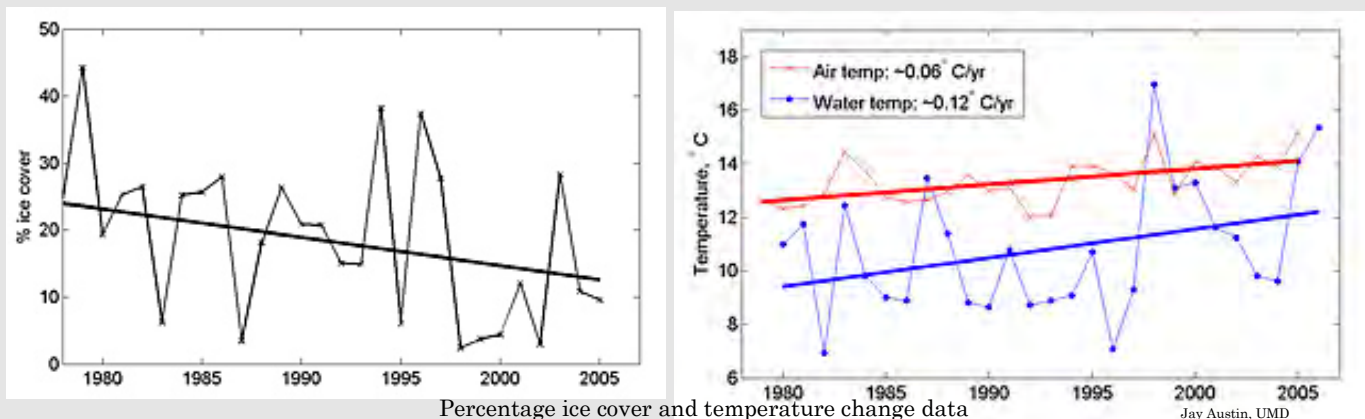
While ice-cover is notoriously variable on a year-to-year basis on the Great Lakes, studies from NOAA and the University of Michigan have found that the physical extent of ice coverage across Lake Superior has shrunk by 79% from 1970’s levels. Also, the average annual duration of ice cover has dwindled by nearly 50% in the same time period.

Water levels lowered

Ice and snow are very effective at reflecting light and heat. With less ice coverage in winter, the dark, open water of the Lake receives more direct sunlight, warming the Lake further and speeding evaporation, lowering the Lake's water level.

Over 6 degree Fahrenheit rise in Lake temperature over past 35 years

It may seem counterintuitive that the largest and coldest of the Great Lakes—Lake Superior—is warming faster than all of the other Great Lakes. Even more surprising may be the fact that some scientists, including Professor James Kitchell of UW-Madison, argue that Lake Superior is warming *faster than any other recorded lake on the planet*. Scientists hypothesize that it is precisely the Lake's claim to fame—the title as the world's largest lake by surface area—that has contributed to the Lake's rapid warming via extensive exposure to solar radiation on ice-free days.



So what can we do?

One positive outcome of feeling the impacts of climate change close to home is that we may be more motivated to act to confront and address climate change personally, culturally, and in our local economic and political systems. In recent years, insurance companies that compensate individuals, businesses, and municipalities for losses and damages to property from severe weather events have amassed the quantitative data necessary to “prove” climate change’s relevance (even to those skeptical of the science)—namely, that climate change impacts are *costing* us more each year, as unpredictable and unprecedented weather batters our infrastructure.

While we all have a role to play in significantly reducing energy use, halting deforestation, and other contributors to climate change, these massive, complex problems often overwhelm us rather than inspire us to action. Importantly, we must internalize the fact that *climate change is here*—that it is more than a future threat to avert, but a set of dynamics that we’re already living with today and must adapt to accordingly. Resilience, the ability to “bounce back” from stressors, will be a key concept going forward, and one that is appearing in more public conversation about climate change, including in President Obama’s Executive Order “Preparing the United States for the Impacts of Climate Change” from this past November. To protect the health and well-being of the human and natural communities in the Lake Superior basin, our work in both the personal and public spheres will be immense.

Notice Community

The Tribal Council is seeking individuals to serve on the following Committees/Boards/Commissions.

Conservation Committee	5 members – Open until filled
Friends of the Dirt	4 members – Open until filled
Membership Committee	2 members – Open until filled
Constitution Committee	Open to the Community
Tenant Association	7 members – Open until filled
Cemetery Committee	6 members – Open until filled
Kids Christmas Committee	Open to the Community
Pow Wow Committee	2 members – Open until filled
Library Board	1 members – Open until filled

If you are interested in serving on the Committee's listed above, you can pick up and return an application at the upper level of the Tribal Administration office.

If you have any questions, please contact the Tribal Administration Office at: 715-779-3700.



“The strength of a nation derives from the integrity of the home”
Confucius

THE SEVEN PRINCIPLES OF HEALTHY HOUSING

KEEP IT DRY: Damp houses attract mites, pests, rodents and mold.

Fix leaks around windows, fix holes in roof and cracked foundations, fix leaky pipes.

KEEP IT CLEAN: Clean homes reduce pest problems and other health hazards.

No pets on beds or furniture, wash dishes daily, no shoes tracking in mud, dirt or snow.

KEEP IT PEST FREE: Exposure to mice or other bugs, mites can trigger asthma attacks in children.

Using pesticides can make a bigger problem and must be chosen very carefully.

Keep empty food or soda cans in a sealed container, don't leave food out, block holes with copper mesh.

KEEP IT SAFE: Most injuries occur in the home including falls, burns and poisonings.

Use smoke/CO² detectors, lock up medicines, have fire extinguishers available, have emergency plans.

KEEP IT VENTILATED: Increasing fresh air in the home will improve air quality and lung health.

Proper air flow can reduce radon, mold, and moisture in the home, direct vent while cooking or bathing.

KEEP IT CONTAMINANT FREE: Dangers include, lead, radon, chemicals, and tobacco smoke.

Don't smoke, reduce the use of cleaners and chemicals in home, and be aware of the dangers of lead.

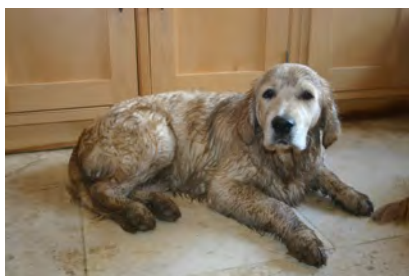
KEEP IT MAINTAINED: Poorly maintained homes are at risk to moisture, pests, mold, high energy use.

Change furnace, vacuum filters regularly, inspect plumbing, electrical, appliances and building envelope regularly for proper function. Use a Healthy Home Maintenance checklist and stick to the schedule.

This list is very simple. It is intended to educate people and get them looking at their home objectively. All homes are different. An inspection checklist will be very helpful. Some items should be inspected by a certified professional such as Furnace tune ups, Electrical wiring and load testing, Roofing, Insulation, Plumbing, and even Water & Sewer should be tested annually.

There are many resources available—Check out: www.tribalhealthyhomes.org A good checklist is available here: www.centerforhealthyhousing.org Much more information is available through EPA, HUD, DOE, and local programs such as weatherization programs, housing maintenance, and the health center asthma program. Red Cliff Environmental Dept. offers free IAQ assessments: call Mike Balber at (715)779-3650.

E.P.A. Region 5 Air and Radiation Division (ARD) has funded an Indoor Air Quality (IAQ) Ambient Air Emissions Inventory grant to the Red Cliff Environmental Department.



Invasive Species: Phragmites

Phragmites australis, or common reed, is a widespread plant that can be found worldwide. The plant can grow up to 15 feet tall and has an expansive rhizome (up to 80% of the plant is underground), or root system. It spreads by seeds, rhizome, and rhizome fragmentation (bottom right). It has the potential to take over an area and wipe out all other native vegetation by creating “monoculture stands”. The plant was believed to be introduced by ballast material in the late 1700’s or early 1800’s.



Figure 1: These images give a great idea on the height, monoculture stands, and rhizome activity.

There is, however, a native form of phragmites, subspecies *americanus*, which served a cultural importance to some Southwestern Native American tribes. The Anasazi Indians from Tucson, Arizona used the plant to make arrow shafts, musical instruments, woven mats, ceremonial objects and other items as well. The Europeans also commercially grow phragmites for thatching, fodder for livestock and cellulose production.



Figure 2: (Top Left) Mat woven from stems, (Middle) mat woven from leaves, (Top Right) a flute.

The invasive form of phragmites is of special concern to the Red Cliff Treaty Natural Resources Division because it is used for fecal sludge dewatering management at the Waste Water Treatment Plant (WWTP), a system called reed bed technology. These systems are much more affordable and easier to manage than other dewatering technologies.

Unfortunately, the plant has spread from its desired location. It has been identified at 7 other locations outside the WWTP within the reservation boundary. The reed bed systems are being used at WWTP in Red Cliff, Washburn, and Ashland and at all three locals the plant is spreading. This year, with the assistance from GLIFWC, the tribe went out and surveyed and treated all known locations, within the reservation boundary.

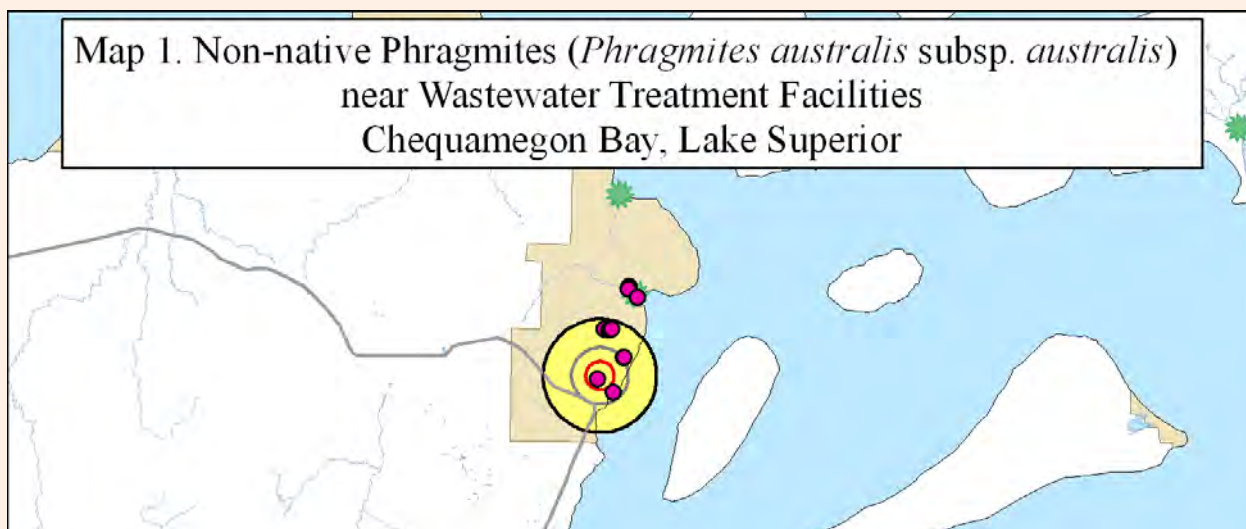


Figure 3: Identified locations of the invasive plant phragmites in Red Cliff.

If you have seen this plant please contact the Red Cliff Treaty Natural Resources Office at 715-779-3750.

Article by Michael Defoe



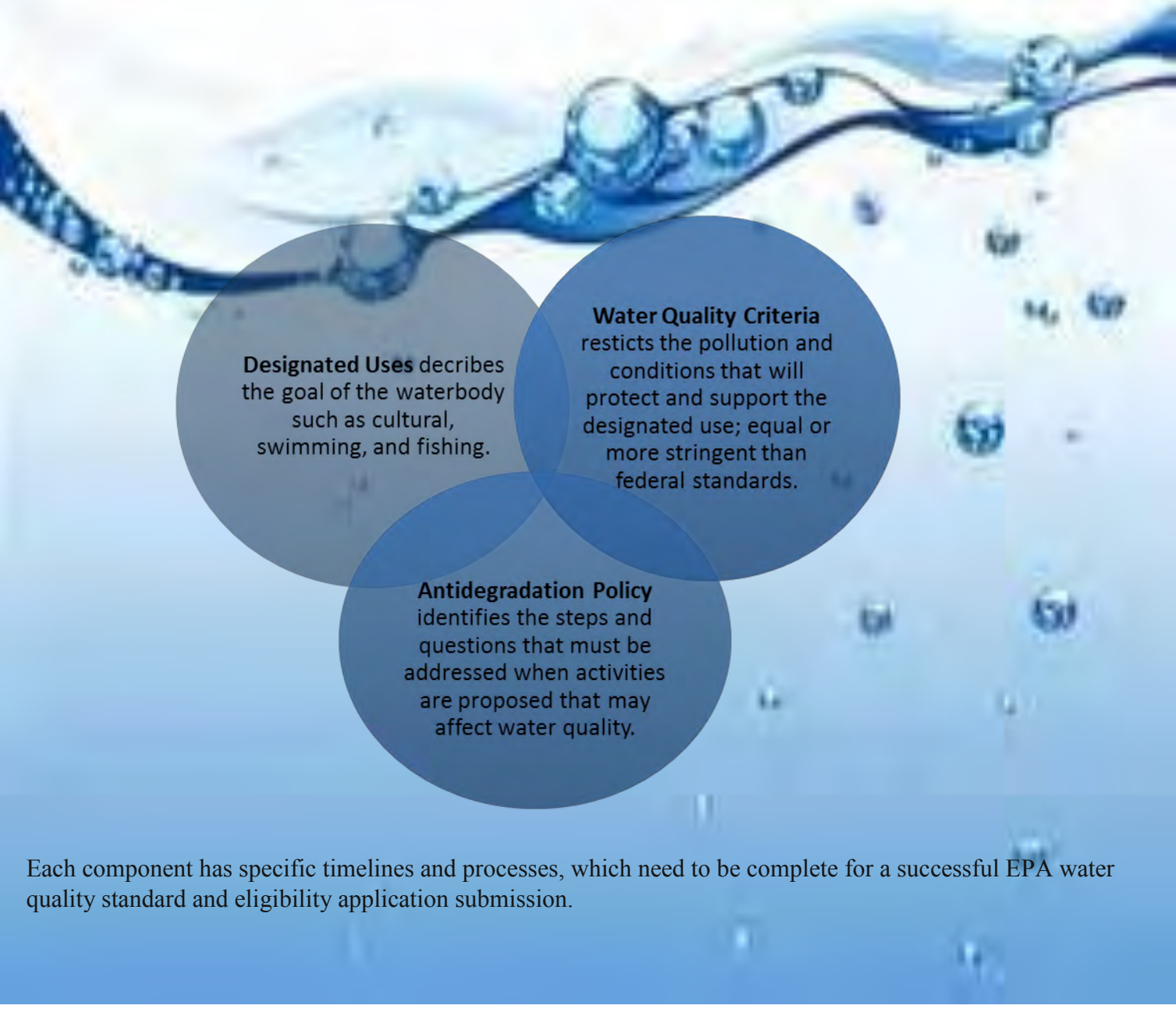
How Water Quality Standards Protect Tribal Waters

By Linda Nguyen

This article is a follow up to last winter's newsletter article, "The Clean Water Act: Protecting and Restoring Our Waters Q&A". Here is more information on how water quality standards are applied in order to protect the quality and use of waterbodies.

What are the components of a water quality standard?

Once a tribe is approved by the EPA to implement the water quality standards program (section 303) under the Clean Water Act (CWA), the tribe can then set water quality goals for all surface waters within, starting and flowing through, the reservation. Let's look at the components of a water quality standard. A water quality standard is made up of three components: **designated use**, **water quality criteria**, and an **antidegradation policy**.



Designated Uses describes the goal of the waterbody such as cultural, swimming, and fishing.

Water Quality Criteria restricts the pollution and conditions that will protect and support the designated use; equal or more stringent than federal standards.

Antidegradation Policy identifies the steps and questions that must be addressed when activities are proposed that may affect water quality.


Each component has specific timelines and processes, which need to be complete for a successful EPA water quality standard and eligibility application submission.

How do tribes enforce water quality standards?

Under CWA Section 303 and water quality standards for wetlands (section 404), when a permit request within the reservation comes in, a tribe will then determine whether activities that require a NPDES/federal permit meet the tribal water quality standards. If a facility shows discharges that negatively affect a waterbody or any other infringement of the tribe's water quality standards, the authorized tribe can deny, approve, or condition the requested permit. A big distinction of tribal water quality standards and state/federal standards is that tribes can include a designated use of traditional and cultural purpose and set criteria to continuously protect the use for generations to come.

Real life example application.

Here, I will state potential problems (not based on actual events) and how water quality standards provide a solution.



Hypothetical Problem #1: After the Water Resources Program conducted water sampling for a full season, it was found that high levels of agricultural activities and stream bank erosion resulted in high levels of nutrients, which caused a massive aquatic plant growth and limited fish production.

WQS Solution: The tribe has set numeric criteria for phosphorous and nitrates. This resulted in reduced discharges from agricultural activities.

Hypothetical Problem #2: High levels of ammonia are being discharged by a sewage treatment plant that causes high concentrations in a waterbody, which reduce fish populations and make it unsafe for swimmers.

WQS Solution: The tribe sets numeric criteria to limit ammonia. The sewage plant will need to change its treatment processes or pursue cleaner technology to reduce the amount of ammonia being discharged.

Hypothetical Problem #3: In-stream conditions are negatively impacting populations of aquatic life, even though multiple pollutants are not exceeding numeric criteria.

WQS Solution: The tribe adopted narrative criteria to describe the appropriate in-stream conditions to support the aquatic life use. This gives the tribe the basis to improve the in-stream habitat.

Pursuing the EPA approval of water quality standards for the Red Cliff Band is underway. Please be on the lookout for future public notices asking for your input! Stay tuned for further information on the Clean Water Act.

For further water questions, reach out to Linda Nguyen, Water Resources Programs Manager at Linda.Nguyen@redcliff-nsn.gov or 715/779-3650.



ICE Safety

Every year people who are out recreating have had either close calls or have broken through the ice of Lake Superior. Some of these people have been lucky enough to get away with no problem, while others have been injured through exposure to the elements causing hypothermia. The following contains several tips concerning ice safety:

1. Gauging the strength of ice is very difficult. **There is no such thing as 100% safe ice.**
 - o Never walk or drive on cloudy ice
 - o Only go on clear, thick ice
 - o Spring ice is **NEVER** safe
 - o The thickness of ice is never consistent - it will be flat on top, but not on the bottom
 - o Snow on ice acts as an insulator - it makes ice warmer and weaker
 - o Extreme cold snaps will weaken the ice
 - o Ice formed over running water (rivers & streams) is more dangerous than ice formed over standing water (lakes & ponds)
2. General ice thickness guidelines (on new, clear ice only):
 - o Less than 2 inches - **STAY OFF!**
 - o 4" and thicker - probably safe for walking and ice fishing on foot
 - o 5" and thicker - probably safe for ATV or snowmobiling
 - o 8-12" and thicker - probably safe for small cars or light pickups
 - o 12-15" and thicker - probably safe for medium trucks
3. Noisy ice doesn't necessarily mean unsafe ice. It's just the layer of ice shifting and moving on top of the water.
4. The safety of ice is ever-changing. It depends on a multitude of factors.
 - o thickness
 - o age of the ice
 - o temperature
 - o snow cover
 - o depth of water under the ice
 - o size of the body of water under the ice
 - o water chemistry
 - o currents
 - o local climate
 - o distribution of weight on the ice
5. Your most important tool is common sense.

What do you do if someone falls through the ice?

1. Act quickly and call 911 for help immediately. Make sure properly trained and equipped rescue personnel are alerted to respond.
2. **DO NOT** go out onto the ice. Many times would-be rescuers become victims themselves.
3. Reach, Throw, or Row. Extend a branch, pole, or ladder to the victim. Throw them a buoyant object such as a life ring or float tied to a rope. If a boat is nearby, row out to the victim or push it toward them.

Red Cliff Band of Lake Superior Chippewa

Wolf Management Plan – Comment Period



Red Cliff Wolf

Red Cliff Treaty Natural Resources recently completed a draft Wolf Management Plan. Copies of the draft will be available for public review in early January 2014. The plan will be made available in electronic format on the Tribal website and in paper format from the following offices: Fisheries, Natural Resources (broodstock building /fish hatchery), Environmental, and Warden's Office. Comments on the plan should be submitted *in writing* to the Fisheries or Natural Resources Office preferably by the end of day January 31st, 2014. Comments may also be emailed to:

todd.norwood@redcliff-nsn.gov

A community event to be held at Legendary Waters is tentatively planned for early February and will include a short presentation on the final draft of the plan followed by an open forum where oral comments will be accepted. Additional comments on the final draft will be accepted through February 28th, 2014.

Public postings and email notifications will be sent regarding the community event when the date and time are finalized.

Important Dates:

January 2014:	Review of 1 st draft – Wolf Management Plan
January 31, 2014:	End of 1 st draft comment period
February (early):	Community Event on Final Draft of Wolf Management Plan
February 28, 2014:	End of final draft comment period

Questions or concerns can be directed to Todd Norwood – Assistant Biologist:

Phone: 715-779-3795

Email: todd.norwood@redcliff-nsn.gov



WHAT'S HAPPENING AT THE LCO HARVEST EDUCATION AND LEARNING PROJECT (HELP) CAMP???

Written by Anastasia Walhovd

If you are currently holding this newsletter article in your hand or viewing it on your computer screen, then there is certainly more news to this story than is included here. This is the most current news in regard to the LCO Harvest Education and Learning Project Camp in the Penokee Hills as of December 11th, 2013.

Senate Bill 278 – The 600 ft buffer of the Managed Forest Law

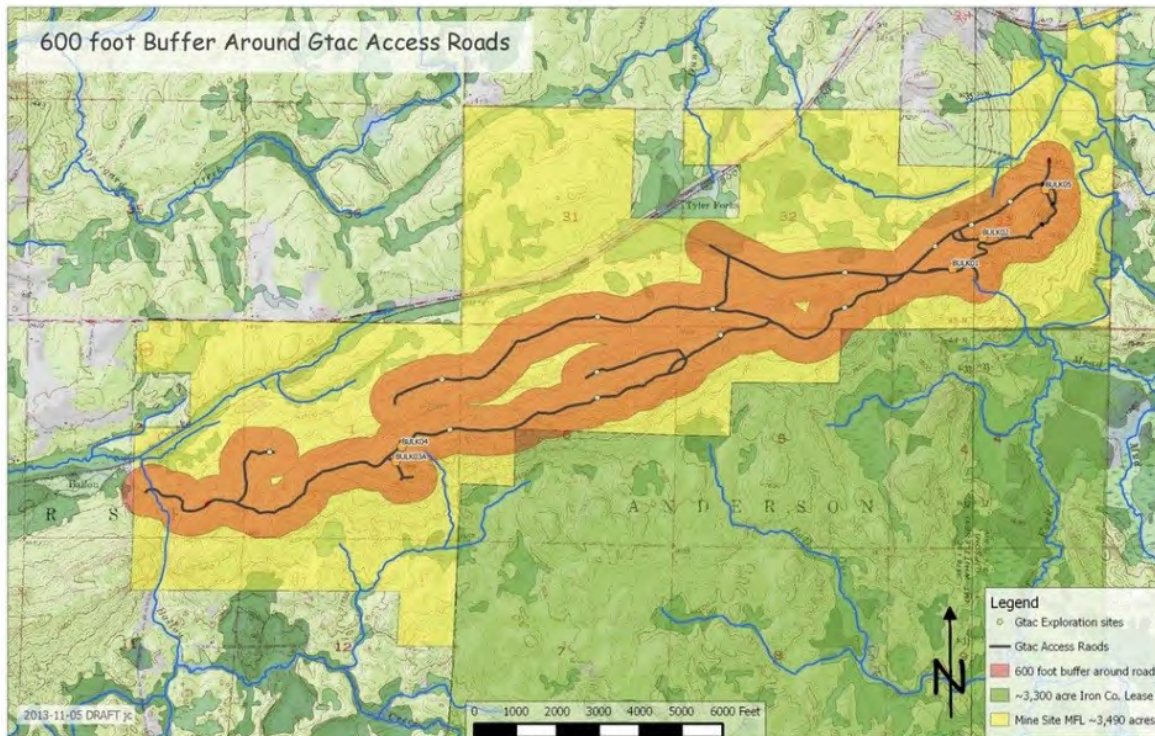
At the time of publication, this law is currently sitting on the governor's desk waiting to be signed into law. SB 278 is law that will create a "buffer" or a no-trespassing zone of 600 feet around ferrous mining activities.

What the boundaries of the buffer?

The DNR and local authorities are unaware of the exact boundaries that the 600 ft buffer will impose on the previously publically used land.

When will it take effect?

It is assumed that the bill will not come into effect in the Penokee Hills until Gogebic Taconite is successfully approved for a mining permit by the DNR. The 600 ft buffer would not apply during bulk sampling activities and/or exploration, which are not defined as "mining" activities by the DNR. When pressed about how the 600 ft buffer would be enforced in the event of its imposition, Bill Williams replied that individuals who ventured into the buffer zone would be treated as trespassers under the law.



One Interpretation of the 600 ft buffer. Source: Save the Water's Edge

The Threat of Eviction from Iron County

The Iron County Forestry Committee has requested the Iron County Board evict the LCO HELP Camp. Red Cliff vehemently opposes any decision to evict or relocate the camp and has demonstrated its opposition by delivering a letter to the Iron County Board on December 17th. This letter is included on the following page.

According to the Iron County Clerk Mike Saari, the subject would not be brought on the agenda until January. The Iron County board will consult with a legal team, as per the request of their insurance company and wait for a minimum of 30 days before discussing the eviction of the Harvest Camp.

WANNA KNOW MORE?

If you would like to be on our email list to receive updates on mining, please email Anastasia Walhovd at awalhovd@redcliff-nsn.gov or call at 715-779-3650.

The following is Red Cliff's letter of opposition to a motion under consideration by the Iron County Board to attempt to evict the LCO HELP camp in the Penokees. See the previous article (pp. 18-19) for more information.

December 17th, 2013

Iron County Board of Supervisors
Iron County Courthouse
300 Taconite St.
Hurley, WI 54534

Iron County Board of Supervisors:

The Red Cliff Band of Lake Superior Chippewa would like to formally express our objection with any attempt made by Iron County to evict or relocate the Lac Courte Oreilles Harvest Education and Learning Project Camp.

The Lac Courte Oreilles Harvest Education and Learning Camp is currently located on lands that are open to the public due to it being enrolled in the Wisconsin Managed Forest Law. More importantly, treaties signed in 1836, 1837, 1842, and 1854, hunting, fishing, and gathering rights were reserved by the Tribes themselves, in the areas ceded to the United States. The land currently in question falls within the ceded territory of the 1842 Treaty between the Lake Superior Chippewa and the United States of America. The Lac Courte Oreilles Harvest Education and Learning Project Camp is an exercise of the treaty rights and to serve an eviction notice to this group of individuals is not only a disregard, but a violation of the treaty rights under the 1842 Treaty and will be interpreted as such by tribal members of other Lake Superior Chippewa tribes such as the Red Cliff Band of Lake Superior Chippewa.

Lastly, efforts for these rights to be recognized and reaffirmed have been the subject of numerous court cases over the past forty years. The proposed actions by the Iron County Board to close the camp would likely trigger similar actions.

[SIGNED]

Rose Gurnoe-Soulier, Chairperson

New Employees in the Environmental Department

The environmental department has seen the arrival of three new employees in the past few months. Meet the new hires and learn a little about their work below!

Alex Strachota began this Fall, splitting his time between serving as the Lakewide Management Plan (LaMP) Coordinator and as a Water Resources Assistant.

Through the LaMP program, Red Cliff is able to stay informed of and involved in large-scale decision-making that affects Lake Superior—especially in critical areas like toxics reduction, habitat restoration, human health, and sustainability. Through LaMP funds, Red Cliff has also been able to hire Anastasia Walhovd to address mining impacts and ongoing threats to Lake Superior. Alex's role in Red Cliff's Water Program is in addressing nonpoint source pollution through Clean Water Act Section 319 funds. This winter Alex is working to complete a Watershed Management Plan for the Red Cliff Reservation. See the last page of this newsletter for an opportunity to have your voice heard in the development of this plan! In Alex's free time he likes to garden, bike, and play music.



Anastasia Walhovd will be serving as the Tribal Mining Resource Specialist and is responsible for permit review, education, outreach, and agency coordination in regard to mining and mining permitting.

She graduated Washburn High School in 2009 and most recently from Harvard College in 2013 with a degree in Anthropology and an emphasis in Archaeology. She has previously worked with as the Red Cliff Summer Youth Crew in the summers of 2013 and 2012. She enjoys swimming, boating, camping, and traveling. Please feel free to reach out to her with your concerns in regard to mining.



Gary Defoe Jr. is the new NALEMP Coordinator, and will be furthering the progress Red Cliff has made in the Lake Superior Barrels project.

"Boozhoo, I grew up here in (Miskwabiikong) Red Cliff. I have a fiancé and a daughter. Stop down at the EPA office if you have questions or knowledge of this unique project that has been a topic among many minds for many years. Miigwech"



CHICAGO CREEK FISH PASSAGE: RECONNECTING THE STREAM, RECONNECTING THE FISH BY – CHAD ABEL

Driving down Blueberry Road is a daily routine for many in the Red Cliff community. But many of us probably don't consider the culverts that run beneath the road and how those culverts can affect stream health, or at least not on a daily basis.

Chicago Creek is a small, relatively pristine cool water stream with humble beginnings just northwest of Aiken Road. The creek gradually gets bigger as it flows downstream, crossing through a culvert on Highway 13 and a second culvert on Blueberry Road before emptying into Lake Superior by the campground.

Chicago Creek has good numbers of small resident brook trout. *Resident* is a term for fish that spend their entire lives in the same stream, usually by choice. Some brook trout in Chicago Creek may give up their resident status by swimming out to Lake Superior, but the number that do is probably low.

Fish movements are peculiar sometimes. Even if a resident brook trout decides to never leave their home stream, they undoubtedly still move throughout the stream at different times of year in search of food, shelter and, if it's autumn and the leaves are changing color, possibly a mate. Brook trout spawn in Chicago Creek around September each year.

Other fish may choose to swim from the lake into Chicago Creek, usually motivated by their own spawning event in the spring or fall. Fish that spend the majority of their time in a lake but seasonally migrate into streams are often considered to be using an *adfluvial* life strategy. Though the spawn for a species only occurs for a short time each year, it is extremely important that spawning fish are successful so the next generation of fish can be born. In that way, the health of our streams is vitally important to a number of fish that live in Lake Superior but need healthy, well-connected streams to reproduce.

Last year, Red Cliff Fisheries staff identified a barrier for fish movements on Chicago Creek at the Blueberry Road culvert. The culvert was perched by nearly a foot, making it extremely difficult if not impossible for upstream fish movement. The site was also being harmed by an ATV trail that crossed the creek just downstream of the culvert. The photos below show the perched culvert (left) and eroded ATV trail (right) in the summer of 2012.



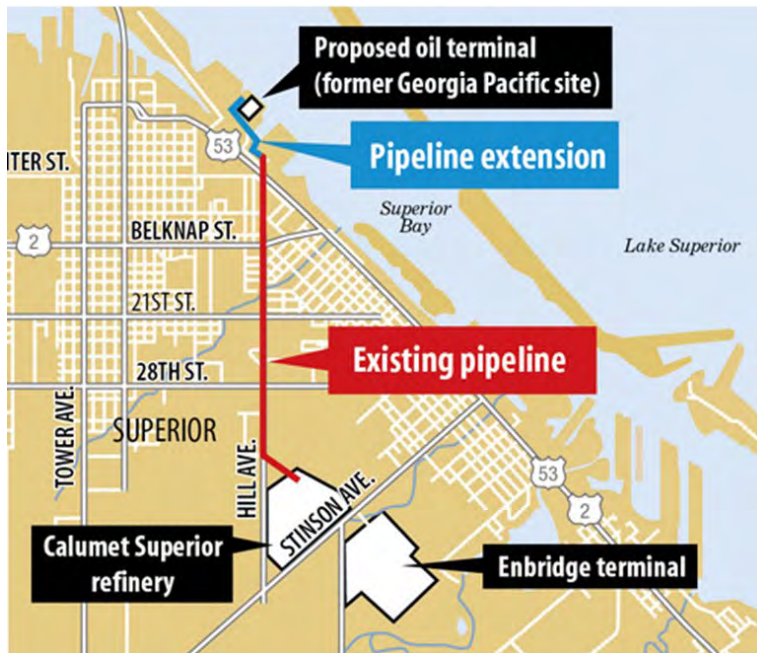
Instead of replacing the culvert – which would have cost over \$500,000 – we decided to build a series of drop pools to raise the water back into the culvert. We also blocked off the old ATV trail and reseeded the areas of bare earth. Now the site looks like this:



Reconnecting the stream back to the level of the culvert reconnects brook trout and other fish to the upstream habitat of Chicago Creek. We will continue to monitor this site over the next few years to prevent ATV use of the old trail and diagnose potential fish passage issues at varying water levels. Ideally this fix will allow passage during both high and low water events.

If you have questions about this project, or if you have seen other culverts at Red Cliff that you think might prevent fish passage, my office is at the Hatchery. The number is 779-3750.

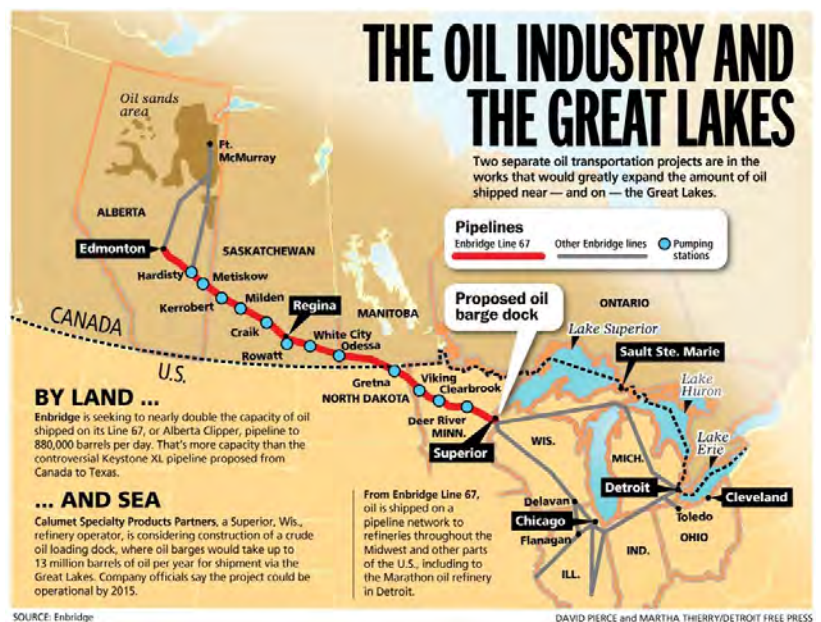
Elkhorn Dock and Tar Sand Shipping in Superior, WI



Written by Anastasia Walhovd

As Red Cliff and Chequamegon Bay is nestled safely behind the beauty of the Apostle Islands, it may be easy to think of Lake Superior as a pristine and untouched piece of piece of the world, guarded by state, federal, and international laws. And while that is true to a great extent, it does not fully reflect the reality of Lake Superior and its role in the Great Lakes Waterway shipping channels and the risks that shipping poses to this body of water we call home. According to statistics provided by the US Army Corps, 3.93 million tons of crude petroleum products were shipped via water vessels within the Great Lakes in 2011.

In Superior, WI, a warehouse and trucking services operation known as Elkhorn Industries has submitted a permit to the Wisconsin Department of Natural Resources to expand their dock with the intent to ship oil products from the Calumet Specialty Products Partners refinery operator. Calumet Specialty Products Partners reports that it would be able to ship up to 13 million barrels of crude oil a year from the Superior port. That equals roughly 1.7 million tons more crude oil being shipped through Lake Superior. The Wisconsin DNR held a public hearing on the Elkhorn Dock permit on November 26th. The DNR's contact for this permit is Steven LaValley and can be reached at steven.lavalley@wisconsin.gov.



FACTS ON PETROLEUM PRODUCTS AND SHIPPING ON THE GREAT LAKES

- Enbridge's Line 67 transports tar sands and is processed by Calumet L.P. in Superior, WI to create finished petroleum products.
- There have been 220 spills in the Great Lakes area (this includes waterways that connect to the Great Lakes) since 2003. Most have been under 10,000 gallons.
- A typical Great Lakes cargo ship is 400 ft long and can hold 77,000 barrels.
- An Enbridge pipeline released an estimated 843,000 gallons of tar sand into the Kalamazoo River in 2010. An estimated 180,000 gallons remain in the river.
- A typical Great Lakes barge is about 400 ft long and can hold 118,000 barrels.
- In 2005, the Egan Marine Corporation discharged 84,000 gallons of oil in the Chicago Sanitary and Ship Canal after a large explosion about the tank barge.



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 water-proof. 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 at once.
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 feel that someone is violating Red Cliff Ordinances you can call the Red Cliff Wardens at (715) 779-3732 or email lynna.gurnoe@redcliff-nsn.gov.

Summary of Ice Fishing Regulations in the 1842 Ceded Territory and on Lake Superior for members of the Red Cliff Band of Lake Superior Chippewa

I. Ice Fishing Seasons, Bag Limits and Size Limits (apply to all methods except netting) for areas within 1842 Ceded Territory (not including Lake Superior)

Walleye, White Bass, Rock Bass, Bluegill, Crappie, Pumpkinseed, Yellow Perch, Bullheads, Yellow Bass, Catfish, Cisco, Whitefish, Rough fish

Season: continuous open season

Bag limit: none

Size limit: none

Largemouth and Smallmouth Bass, Northern Pike

Season: continuous open season

Bag limit: 10 per person per day

Size limit: none

Sturgeon

Season: continuous open season

Bag limit: 1 per person per year (all methods)

Size limit: 45 inch minimum (Sturgeon must be registered and tagged by the Tribal Conservation Department by 5:00 p.m. of the working day following the harvest.)

Muskellunge

Season: continuous open season

Bag limit: none

Size limit: first fish may be of any size; thereafter at least half the catch must be at least 32 inches in length

Lake Trout

Season: continuous open season

Bag limit: 2 per person per day

Size limit: 26 inch minimum size limit

Paddlefish

No open season

II. Methods and Particular Regulations (not including Lake Superior)

A. Hook and Line (includes attended and unattended tip ups, hand-held lines, and any device using a fishing hook and line)

1. Fishing holes (for attended or unattended lines) cannot be larger than 12" in diameter.
2. Limit of 30 total attended and unattended lines may be used at any one time. Lines cannot be used on more than 3 lakes at any one time.
3. Special rules applying to unattended lines.
 - a. "Unattended line fishing" means fishing with a line that is beyond visual contact without the aid of a magnifying device for a period of more than 1/2 hour. Unattended lines:
 - can only have one single iron hook with a maximum 1/2" point to shank gape;
 - must be of a material that will naturally deteriorate in water over time (note: monofilament line will not, but cotton twine will);
 - must be securely anchored so that they cannot be dislodged by a hooked fish;
 - must be tagged with an identification tag from the tribal conservation department;
 - must be checked at least once every 24 hours unless severe weather makes this impractical;
 - must be marked so that they are visible to vehicular traffic on the lake.
 - b. Prior to using unattended lines, you must inform the tribal conservation department of the lakes you intend to fish.

B. Spearing Through the Ice

1. Ice spearing is legal. The seasons, bag limits and size limits noted above apply to ice spearing.
2. Spearing holes cannot be larger than 24" by 36".

3. When not in use, spearing holes must be marked to identify them as a hazard.
4. No special spearing permit is required. Your Tribal ID is all that is necessary.

C. Netting Through the Ice

See your tribal conservation department for more information.

III. General Regulations That Apply to All Ice Fishing

1. You may not share ice fishing gear with any non-member unless:
 - a. the person is part of your immediate family or household; or
 - b. the person is legally fishing under state law.
2. Ice fishing houses:
 - a. must be able to be opened from the outside when occupied;
 - b. must display owner's name and address on the outside;
 - c. must be removed no later than March 15 (note: portable shelters can be used after that date as long as they are removed daily).
3. You must comply with any request to complete an ice fishing catch report or to take part in a creel survey.
4. You may possess only double the daily bag limit of "fresh" fish. "Fresh" means unspoiled and never frozen after being taken from the lake (note: fish that become frozen which are still on the ice are considered fresh). There is no possession limit that applies to fish that are not fresh or that are already in your freezer.
5. You may not use the following live bait: carp, goldfish, redhorse, fresh water drum, burbot, bow-fish, garfish, buffalo fish, lamprey, alewife, gizzard shad, smelt, goldeye, mooneye, carpsucker, quillback, and crayfish.
6. You must comply with fish refuge regulations. See your tribal conservation department for details.
7. If your tribe allows the sale of fish harvested off-reservation, you cannot sell fish without first getting a tag from the tribal conservation department for each fish you wish to sell. If the fish is filleted, the fillets must be tagged together or packaged together with the tag in the package.
8. You must have your Tribal ID on you at all times.

Lake Superior Hook and Line Fishing Regulations for Red Cliff Tribal Members:

General Provisions:

No tribal member shall fish the waters of Lake Superior, pursuant to this ordinance, without possessing their tribal identification card.

"Hook and line fishing" means fishing with a rod and reel or similar device such as a hand held line, and includes trolling.

No person may use more than thirty (30) attended or unattended lines while hook and line fishing on Lake Superior.

No person may fish in a refuge, as described later in this section, or other area closed by order of the Red Cliff Tribal Council.

No member may take the catch of a non-member while actively fishing.

Unattended Lines:

All unattended lines shall have attached a single iron hook with a maximum ½ inch point to shank gape.

All unattended lines shall be securely anchored so as not to be dislodged by a hooked fish.

All unattended lines shall be tagged by the fisherperson with a tag that states Red Cliff, and the fisherperson's tribal identification number.

Each unattended line shall be checked at least once every 24 hours unless severe weather conditions render it impractical to do so.

Ice Fishing:

No person shall ice fish by the use of hook and line through a hole larger than 12 inches in diameter.

No person shall place, maintain or use a house or other enclosure for ice fishing, and leave said ice fishing enclosure unattended for more than 12 hours, unless the owner's name and address is clearly displayed on the outside of the house.

No member shall fail to remove an ice fishing house or other enclosure on or before March 15, except that portable shelters may be used while ice fishing after that date provided the portable shelter is not unattended while on the ice.

Ice Fishing Regulations continue on next page

Ice Fishing Regulations continued from previous page**Live Bait Restrictions:**

The following species may not be used as live bait: crayfish, carp, goldfish, redhorse, freshwater drum, burbot, bowfin, garfish, buffalofish, hamprey, alewife, gizzard shad, smelt, goldeye, mooneye, carpsucker, and quillback.

Refuges:

All refuges as described in the Tribal Ordinances should be honored, including the Devil's Island Refuge, Gull Island Refuge, and "Hot Pond" Refuge. Please refer to ordinances for specific coordinates on these areas.

Seasons, Size Limits, and Bag Limits for Both Open and Ice Fishing:

Walleye, northern pike, white bass, rock bass, bluegill, crappie, pumpkinseed, bullheads, yellow bass, catfish, cisco, whitefish, rough fish, largemouth and smallmouth bass, muskellunge, trout, and salmon.

Season:	year round
Bag Limit:	none
Size Limit:	none

Sturgeon

Season:	year round
Bag Limit:	one per person per day
Size Limit:	none

The Red Cliff Tribal Council may issue an emergency order(s) that restricts the season, bag limit, and/or the size limit.

Reminder

Meyers Beach 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)**:

Member's Name
 Member's Address
 Member's Tribal Affiliation
 Member's Enrollment
 Number



Employee of the Month

By Chad Abel

An office is only as good as its staff. And we hear 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.



October Employee of the Month

The team member that was selected for Employee of the Month in October chose not to be recognized. I would like to say however that this person was very deserving of the nomination.



November Employee of the Month – Todd Norwood, Assistant Biologist

Todd has been on staff nearly two years, and he continues to show his devotion to working for the Tribe on a daily basis. In the last year alone, Todd completed the Emerald Ash Borer Management Plan, he secured funding for his Department to study American Marten, the draft Wolf Management Plan he wrote is ready for community feedback, and he has continued to advance the forestry program at Red Cliff. Add to that the assistance he provided in developing trails at Frog Bay, scores of maps he has produced for our office, and continued maintenance of our wolf cameras, and you begin to get a sense of his tremendous contribution. Keep up the good work, Todd!



December Employee of the Month – me!

When I returned from a week off of work early in December, I was told that I was nominated for Employee of the Month. I want to thank the Treaty Natural Resource Division for recognizing me! I couldn't have been successful at my job without the hard work of everyone around me.

Hatchery News



Pictured above Left: Hatchery Staff Power Washing the floor.

Pictured Above Right: New recirculating tanks

Pictured Right: New tanks and filter parts.



Out With the Old & In With the New

Over the past year the hatchery has been looking into getting a recirculating system installed. Converting from our original flow through system to this new recirculating system is going to be no easy task. Over the last couple of weeks the hatchery staff has been working on getting the old blue rectangular tanks out, cleaning the floor, painting the



floor, bringing in new equipment, bolting together pieces, and lifting pieces into place.

Within the next few weeks we are hoping to have most of the system plumbed and in place. We are taking small steps with hopes that we will be fully functional this time of next year.

Along with the large project of installing the RAS system we are still going about our day to day activities of caring for the fish in house. We have begun to spawn the brook trout and have the first couple trays of eggs stacked and are patiently waiting for them to hatch. With the installation of the new system and the down time that we are experiencing we will be at a limited capacity for this seasons hatch. Coming off of one of the most successful released the hatchery has had we may have to follow up with a limited production this season.



Pictured above: New tanks on left. On right is a 16 feet tall gas management tower and 16 feet tall sand bio-filter.

How can we be better stewards of Red Cliff waters?

We need your input!

The Red Cliff Environmental Department is in the process of writing a Watershed Management Plan for the Reservation. This plan will help the Tribe identify and address impairments to our water bodies and further protect those waters currently in good health.

Your input in this brief survey will help us understand the current use of Red Cliff waters, perspectives on the state of Red Cliff water quality, and help identify those restoration and pollution-prevention methods that are most desired within the Reservation.

If you are a Red Cliff tribal member or reside on the reservation, please fill out our 10-question Water Stewardship Survey here:

<https://www.surveymonkey.com/s/LT5B9BR>

Complete the survey and be entered into a drawing for a \$50 Buffalo Bay gas station gift card!



Department Numbers

Fisheries	715-779-3750
Environmental	715-779-3650
Natural Resources	715-779-3795
Transfer Station	715-779-0171
Conservation wardens	715-779-3732

