



# *Treaty Natural Resource Division*

*Red Cliff Band of Lake Superior Chippewa*

*Volume 6, Issue 1 Spring 2017*

## Ganawenjigaade

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



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## **Employee of the Month**

An office is only as good as its staff. And we here at the Treaty Natural Resources 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

### **January Employee of the Month**

#### **Linda Nguyen, Environmental Director**



In 2017, Linda will be surpassing 5 years of service to the Tribe. Since that time, she has moved from being the Water Resources Manager to the Director of the Environmental Department. She oversees a number of environmental programs for Red Cliff and was also recently awarded funds to complete a well inventory project. We thank Linda for her commitment and for working diligently to manage program objectives and grant funding.

### **February Employee of the Month**

#### **Mike Defoe, Assistant Fish Biologist**



2017 marks Mike's 7th anniversary working in the TNR Division for the Red Cliff Tribe. Mike was nominated as EOTM in February for volunteering to compile the annual report to BIA and for getting the report submitted timely. The report accounts for all the Division activities each year, so putting together a good annual report is no small feat. Thanks Mike!

### **March Employee of the Month**

#### **Ron Nordin, Jr., Wildlife Tech**



Ron was nominated for making himself available for odd hours and weekend shifts during the trapping season of the marten and fisher project. Ron stays positive in his work and rarely complains. He and Jeremy St. Arnold spend more time in the field than any other Division position, and we appreciate Ron's willingness to get out there when the project demands it. Thanks Ron!



## New TNR Employees



### **Erin Schlager, Seasonal Wildlife Technician**

Erin Schlager is returning to Lake Superior after spending three years in Maine as a seasonal wildlife technician with TNR this summer. Erin's focus will be tracking radio-collared sharp tailed grouse in the Moquah Barrens, but will also be helping with various wildlife related projects as needed. Her claims to fame are: being the first person in 95 years to trap an American marten on Isle Royale, and she is also a two time champion of the Orono, ME Spawning Run 5K costume contest.



### **Richard Peacock, Transfer Station Attendant**

Boozhoo, my name is Richard Peacock. I am an enrolled Red Cliff Band member. I will be working for the TNR-Environmental Dept. as the Transfer Station Attendant. My family and I moved back to the area last year. I will be glad to help you with all your recycling needs. Any questions, please feel free to call me at 715-779-0171 during regular working hours.



### **Tanner Bresette, Field Technician Red Cliff TNR**

Boozhoo my name is Tanner Bresette I have been recently hired to work as a field technician with the Red Cliff TNR. I will be working with invasive weeds, and helping out with assessments on Lake Superior. I am thankful for this job because I like being outdoors hunting, fishing, spearing, and netting.





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# The Nonesuch Shale

By: Amorin Mello – Environmental Justice Specialist

The Nonesuch Shale is a mineral deposit containing copper, silver, and hydrocarbons (oil). It stretches from the Keweenaw Peninsula to the Bayfield Peninsula of Lake Superior. If you have ever been to Potato River Falls in Iron County, or Copper Falls in Ashland County, then you have seen it – perhaps without realizing it.



1 Potato River Falls with the Nonesuch Shale (red) and an 1865 Chippewa mixed-blood allotment (blue).

The Nonesuch Shale was named as such during 1865 by Keweenaw copper range mineral speculators two reasons:

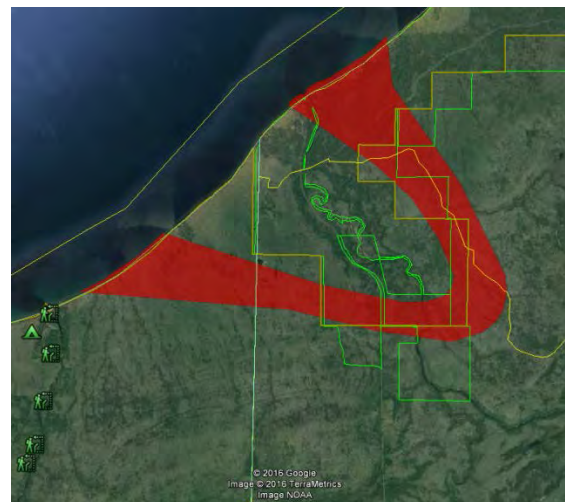
1. It is mostly buried and hard to see.
2. There is 'nonesuch' other ore found.

The most famous example of the Nonesuch Shale is the former White Pine Mine along the east end of the Porcupine Mountains. Originally started in 1880, and restarted during the Korean War, the White Pine Mine has produced more than 4.2 billion pounds of copper, 47 million ounces of silver, and oil has been known to seep from the walls and ceilings within the mine. The White Pine Mine was closed during the 1990's after a proposal to fill the mine with sulfuric acid was defeated by Lake Superior Ogitchidaa (including Walter Bresette of Red Cliff) during the Bad River Blockade.



2 White Pine Mine with the Nonesuch Shale (red).

The Nonesuch Shale is currently in the news again, this time as the proposed Copperwood Mine along the west end of the Porcupine Mountains. Very few details have been released about this mining proposal as of yet; the mining company Orvana Resources is still in their exploration phase at this time. However, it has been proclaimed by the industry to be the next big copper/silver mine of Michigan.



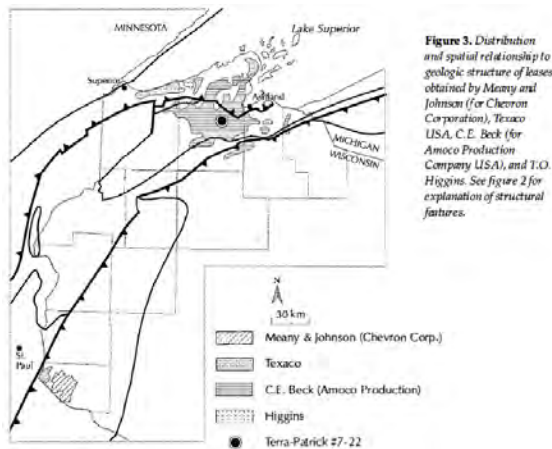
3 Copperwood location with the Nonesuch Shale (red).

While the Nonesuch has a rich history of copper and silver mine in the Keweenaw copper range, it is better known for its

# The Nonesuch Shale

By: Amarin Mello – Environmental Justice Specialist

hydrocarbon (oil) potential in Wisconsin. During the 1980's there was a rush among petroleum industry leaders to place mineral leases and being explorations here in Bayfield County. This was followed by a deep wildcat oil well, known as Terra Patrick #7-22, off of U.S. Highway 2 between Ino and Moquah during the 1990's.



4 Mineral leases held by oil companies circa 1980's.

The exploration of the Nonesuch Shale for oil alarmed many Chippewa and non-native residents of the region during this time, which may be why it is not often mentioned anymore by corporate mineral extraction proposals. What was particularly alarming at the time was the potential of drilling for oil within the waters of Lake Superior.

## Prices still too low to drill oil in Superior

SUPERIOR (AP) — Petroleum companies are confident that oil and natural gas can be found along the shores of Lake Superior, but there is no rush to drill a well, a geologist says.

The market price for oil is not great enough to justify the investment in sinking wells, University of Wisconsin-Superior geologist Bert Dickas says.

Oil companies have studied old rock strata in northern Wisconsin and Upper Michigan for several years. There were thoughts in 1985 of drilling a test well in Ashland County.

The promise of oil beds emerged decades ago when oil was found seeping from walls of a copper mine in Upper Michigan.

Dickas, a leader of a research team, says the catalyst to investing in wells is the price of oil.

After falling as low as \$8.75 a barrel, the price has rebounded in recent months. It now sells for

about \$14.50 a barrel, he said, and the consensus of geologists on last weekend's field trip was that active interest in Lake Superior deposits will resume at \$18 a barrel.

"That's not exactly a green light for drilling," Dickas said, "but (local land) will again become of prime interest."

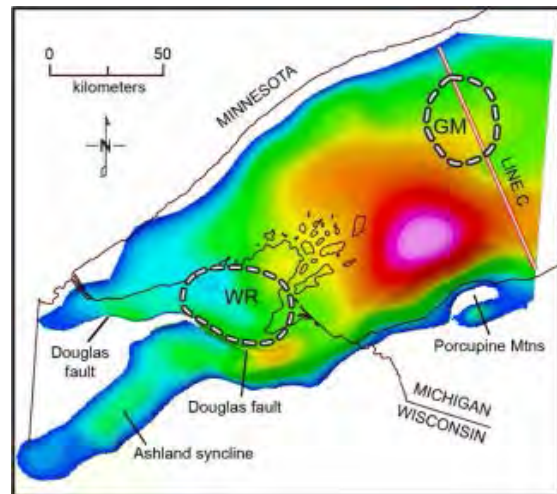
But speculative drilling is part of the oil industry, he said. Companies spend millions of dollars to lease land and drill even though most holes do not produce profitable quantities of oil or gas, he said.

Field trip participants examined major rock outcrops along the Mid-continent Rift, a 1,000-mile-long geological formation stretching from northeastern Kansas through Iowa and Minnesota to the Upper Peninsula.

Dickas said geologists feel the northern Wisconsin rock formations are suitable cap rocks for trapping petroleum, an important factor in preserving a fluid deposit.

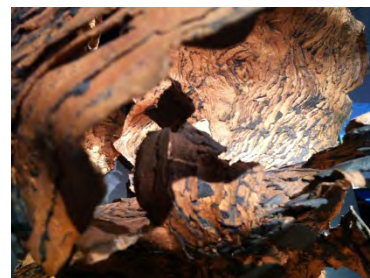
5 Eau Claire Telegram Reader, September 26, 1986.

In recent years, the potential of the Nonesuch Shale for copper/silver/oil minerals is being explored with modern techniques such as last year's aerial surveys by the USGS. Gravity (Bouguer) anomaly maps indicate a prominent 'gravity low' over the Bayfield Peninsula, known geologically as "White's Ridge".



6 2016 map by USGS of White's Ridge ("WR").

According to a 2016 USGS report, the Nonesuch Shale is "*a potential unconventional hydrocarbon resource, and a potential seal for carbon sequestration.*" While not a guarantee, 'gravity lows' such as White's Ridge indicate that it is a significant hydrocarbon (oil) deposit. Bayfield County may be a future target for hydraulic fracturing ("fracking") and other unconventional methods of oil extraction.



7 Nonesuch copper at Royal Ontario Museum.



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# Ma'iingan/Wolf Research Project

By: Jeremy St.Arnold -Assistant Wildlife & Forestry Biologist -TNR

Red Cliff Wildlife and Forestry staff have been monitoring wolves via trail cameras, radio telemetry, and tracking in preparation for the trapping portion of the research project. The trapping phase begins this June on the Reservation and will expand into the peninsula, including the National Forest. Wolf trapping by RC staff on Forest Service Land was agreed upon in the recently signed MOA between Red Cliff and the Washburn Ranger District of the U.S. Forest Service. Signage will be posted on trails with traps to help keep humans/pets/wildlife safe and help keep human scent off of the trap site. Traps will also be monitored via trail camera and will have tags placed on them identifying them as Red Cliff Wolf Research Traps.

The satellite gps collars that will be deployed on gray wolves are manufactured by Lotek and feature state of the art technology. The collars will give the location of the animal every 15 minutes for two years. Locations will be emailed and texted periodically throughout the day and clusters will be monitored, mapped and investigated by staff. These clusters of location points will yield locations to kills, den sites, rendezvous sites, bedding sites and more. These collars also have the ability to have their schedule changed remotely (from the computer), as well as having a remote drop off feature so we can retrieve the collar at the end of the study.

- New trail cam videos are periodically uploaded to the Red Cliff Band of Lake Superior Chippewa Youtube page!



*Example of virtual fence that will be used in conjunction with satellite gps collars to gain more insight about areas of interest such as timber harvests and Reservation use. The collar has the ability to recognize multiple virtual fences, one of which will be placed around the exterior boundary of Red Cliff to document Reservation use.*



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## Sharp-tailed Grouse Translocation Overview

By: Chad Abel - Division Administrator

Since 2015, the TNR Division has been an active partner with the US Forest Service – Washburn Ranger District to restore sharp-tailed grouse to the Moquah Barrens. Sharp-tailed grouse had declined to the point of near extirpation in Moquah; a 2015 spring lek survey documented only 3 birds in attendance.

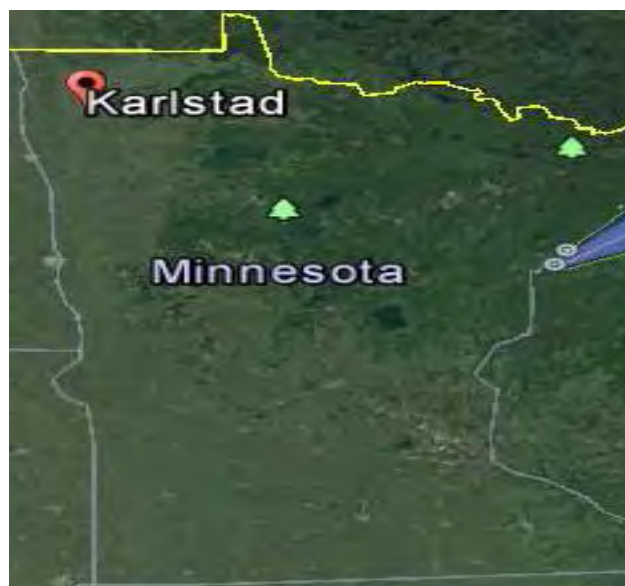
The Washburn District and the Tribe started to improve the habitat for the bird in 2015 by brushing and clearing lek sites and surrounding habitats along with increased fire prescriptions to restore the open habitat sharp-tailed grouse prefer. Further habitat improvements continue to occur on an annual basis.

In 2016 and again this year, sharp-tailed grouse were trapped near Karlstad, MN, where the species is abundant, and brought back for release in Moquah Barrens. The goal is to supplement the small Moquah population that remains.

The project is also radio collaring a subset of the released birds, like the female grouse receiving a neck collar in the below photo, to better understand the habitat use, survivability and movements of the birds after release. Red Cliff staff will track the movements of the collared birds over the next 6 months.



A female grouse being fitted with a necklace-style radio collar before release to Moquah Barrens.



Grouse are trapped near Karlstad, MN.



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# Sharp-Tailed Grouse Translocation Project

By: Michael Defoe – Assistant Fisheries Biologist

## “The Translocation Project”

The Red Cliff Treaty Natural Resources Division partnered with the US Forest Service and WDNR on a project that involved trapping and relocating sharp-tailed grouse from Northern Minnesota to the Moquah Barrens in Bayfield County. In recent time the sharp-tailed grouse populations have decreased in the barrens and this project hopes to replenish the birds.

A group of 20 partners arrived in Karlstad, MN, near the Canadian border, in hopes of trapping 160 “sharpies” for relocation back to WI. The birds utilize sites called “leks”, or dancing grounds. This is where the birds congregate and carry on display and courtship behavior. The males, or cocks, display by stamping their feet and spreading their wings. They also fill purple neck sacs during display as imaged below. A prominent feature on the male is a “yellow brow” which helps distinguish between males and females.



Figure 1: Male on full display.

The partners were divided into multiple teams. There were driving teams, trapping teams, reconnaissance teams, and the most important land owner contact personal and overall coordinator.



Figure 2: Prescribed burn to help manage for sharp-tailed grouse.

The “sharptail” are also known as the *fire grouse* or *fire bird* by some Native Americans due to their reliance on fires to maintain their habitat. Trapping “sharptail” is easy once you understand where a “lek” is located and the movement of the females onto a particular site. An array of funnel traps and leads are established on a “lek” site. Some sites had upwards of fifteen traps and a maze of leads to draw birds in.



Figure 3: Close up image of a funnel trap.



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# Sharp-Tailed Grouse Translocation Project

By: Michael Defoe – Assistant Fisheries Biologist

Trapping was only allowed if a minimum of 15 males were on a “lek” site at the time of reconnaissance. Once the number is confirmed an allowable catch of 20% of the population at the site is harvestable for translocation back to the Moquah Barrens. A number of sites visited did not meet these requirements; other sites far exceeded the minimum requirement.



Figure 4: Curious females on the edge of a lek about to participate.



Figure 5: Cocks squaring off displaying on a lek site.



Figure 6: Reed observing the set-up of a funnel trap on a lek site.

Once trapped, they were brought to a processing location. Biological information was collected such as, weight, genetics (feather), beak length, and sex. The birds were also banded and some even received radio collars for future telemetry work. During our time trapping we translocated upwards of 30 sharpies, approximately 50% female and 50% male. I am looking forward to the continued success of the partnership and the future success of the sharp-tailed grouse.

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# Red Cliff Tribal Fish Hatchery News

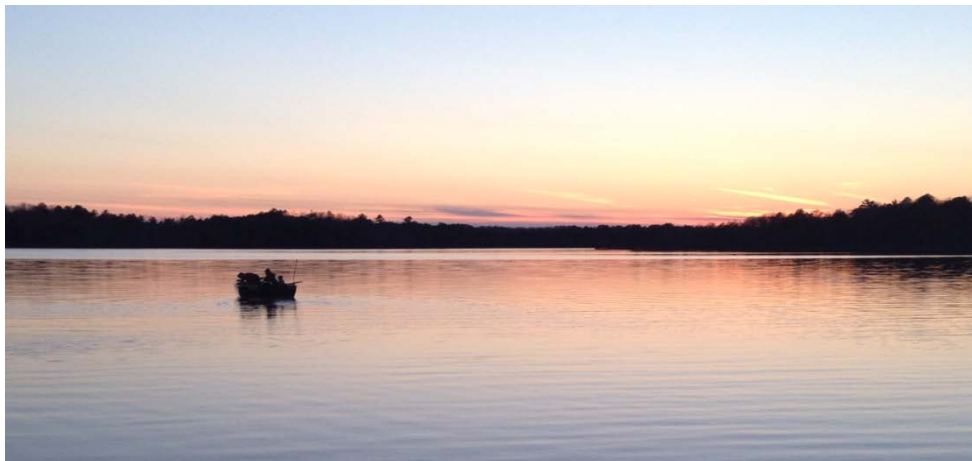
By: Chase Meierotto-TNR

## Walleye Season

The Red Cliff Fish Hatchery staff has been gearing up for the walleye rearing season this spring. A few last minute plumbing fixes in the Isolation Facility finalized the preparations. This year, the hatchery is working with the St. Croix band and NADF (Northern Aquaculture Demonstration Facility) to rear the walleye. Because the walleye ponds at Red Cliff will be getting a massive overhaul this year, rearing space is limited. Therefore, with the help of these outside sources, the hatchery will still have some walleye to stock. Depending on available funds, a few different life stages will be stocked including fingerlings and possibly extended growth. Eggs are currently in incubation at NADF and will be hatching in the next few weeks.

Hatchery staff was on hand for the youth spearing event, where they demonstrated how the walleye eggs are collected from tribal spearers. Youth from Bad River and Red Cliff were in attendance. About two liters of eggs were collected during the event. The Treaty Natural Resource staff would like to send out a special thank you to all parties involved in the youth spearing event, especially the youth.

**Hatchery staff during the youth spearing night demonstrating how to handle the fish and collect eggs (Photos courtesy of Eugena Defoe-Mertig)**





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# Improvements by TNR Division at Red Cliff Commercial Fishing Dock

By: Chad Abel - Division Administrator

Do you remember when Duffy's Dock used to look like this?



The above photo, from 2012, demonstrates how dilapidated Duffy's Dock had become. The Division contracted the resurfacing of the dock with concrete forms that year. And then it looked like this!



Between 2012 and 2015, a number of less noticeable improvements occurred with advice from the Fish Committee.

This included additional cleats, lights and electrical access at the dock, and installing bumpers to the dock where the boats' moored. This spring, the Fish Committee paid to have the inside L of the dock dredged, as seen in the photo below.



On Monday, June 20, 2016 another phase of the incremental improvements to Duffy's Dock began. The Division received funding to fix the eroded shoreline at the dock. This is what it looked like as shoreline stabilization activities began:



The sheet piling contains the eroding shoreline and ensures that the area no longer deteriorates the water quality in Buffalo Bay.

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# Improvements by TNR Division at Red Cliff Commercial Fishing Dock

By: Chad Abel - Division Administrator

Over the next few years, we hope to truly resurrect the use of the dock by adding cold storage, ice machines, and a fish cleaning area. Every step in the process matters as we pursue our end goal: A fish processing facility that distributes value-added fish products and markets them under the tribal brand.



Tribal Tug Moored at Duffy's Dock



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# Additional Work Being Conducted at Legendary Waters

By: Gabrielle VanBergen – Water Resources Program Manager

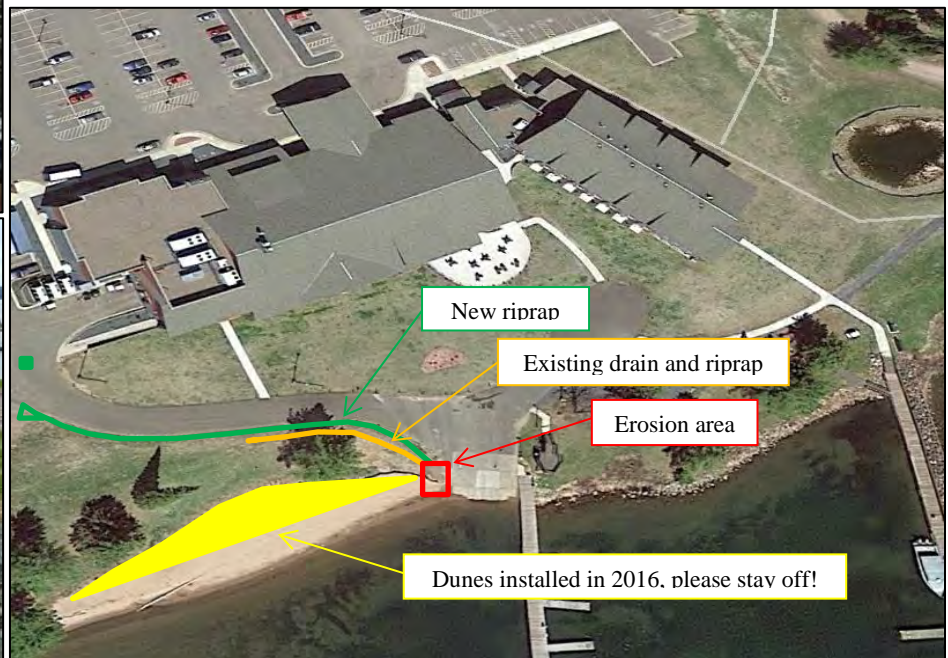
Last fall, Treaty Natural Resources Division staff noted renewed erosion problems between the Legendary Waters boat launch and beach area. In 2014, a trench drain with riprap was installed along the southern edge of the lake side driveway. While planting activities were being conducted last summer, the trench drain was disturbed from its original position. The existing riprap has also collected sediment over the last few years and is no longer performing its role in slowing down stormwater before it reaches the beach. These combined factors are likely contributing to the new erosion problem.

To remediate the issue, TNR staff are working to install new riprap (and clean out the old riprap) along the edge of the asphalt to catch and slow down storm water as it makes its way to the lake. Riprap will also be installed around the erosion area itself and the wooden walkway between the boat ramp and beach will be moved. Work has begun and will continue as weather permits!

**Please also note:** the large piles of sand that were installed on the beach last summer are dunes that are currently being restored with native plants. Please stay off the dunes while the plants become established to avoid erosion.



Initial riprap installed on  
April 25, 2017



Aerial view of the project area

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## Spirit Island Bank Stabilization

Submitted by: Todd Norwood – Project Coordinator



If you spend time at Raspberry Campground and have wandered over to Spirit Island, you've probably noticed a long stretch of riverbank that is eroding along the southern side of the island. This erosion is causing soil loss along a 335 foot stretch of the island's bank and depositing much of the sediment at the mouth of the river. Originally thought to be caused by major rain events that would cause the Raspberry River to swell and erode the bank, recent engineering surveys suggest a different cause. A survey conducted by TNR staff and NRCS engineers during spring 2016 found that flow rates and stream channel composition shouldn't promote excessive erosion at the toe of the bank. Although heavy rainfall and elevated river levels may contribute to the erosion problem, it doesn't appear to be the root cause. Instead, the erosion is happening from the top down. This likely originates from years of foot traffic along the trail at the bank edge and from people traversing down the bank to the waterline to fish or swim. Anywhere a trail develops, a loss of soil supporting vegetation occurs.

At this particular site, vegetation loss in combination with a steep bank and sandy soils causes increased vulnerability to erosion. The problem is worsened when the large pine trees lose their soil base and fall into the river, taking a large part of the bank with them. In an attempt to stabilize the streambank, and ultimately preserve Spirit Island for future generations, TNR staff is holding a community event to help plant native vegetation along the eroding bank. Aspen fiber bio-logs will first be placed at the toe of the bank to help deflect any waterline erosion. This will also provide a substrate to plant native wetland species. Next, the sandy bank will be planted to native dry species. The plant species chosen for this project are based on what already exists at Raspberry Bay while many of the plants used are from seed collected on site. The community planting event will take place Tuesday, May 16<sup>th</sup> from 9am – 4pm. Lunch will be provided.



Aspen fiber log, stakes, and rope is completely biodegradable and will virtually disappear after a few years.



# Spirit Island Streambank Stabilization Community Event!

Tuesday, May 16, 2017



9am  
until  
4pm

Lunch  
provided!

Come help preserve Spirit Island for future generations by planting native vegetation in an effort to stabilize the eroding streambank. Additional plants will be installed in early June to increase site diversity and reinforce stabilization.

Contact: Todd Norwood –Treaty Natural Resources  
715.779.3795 or [todd.norwood@redcliff-nsn.gov](mailto:todd.norwood@redcliff-nsn.gov)

# World Water Day

Gabrielle VanBergen, Water Resources Program Manager

In 1993, the United Nations officially declared March 22<sup>nd</sup> of each year as World Water Day. World Water Day is centered on taking action to deal with the water crisis. “Today there are over 663 million people living without a safe water supply close to home, spending countless hours queuing or trekking to distant sources, and coping with the health impacts of using contaminated water” (worldwaterday.org).

**This year’s theme for World Water Day is Wastewater, prompting the question “why waste water?”**

Across the globe, the majority of wastewater (80%) from residential, commercial, industrial, and agricultural sources flows back into the environment without proper treatment or being reused (worldwaterday.org). This year’s campaign urges us to reduce our water use and reuse wastewater when we can. We are fortunate to live in an area where our water is plentiful and clean, but as environmental stewards it is our responsibility to maintain that bounty of clean water for today and for the next seven generations.

**Reduce your use!** Saving water, and \$\$\$, can be done by simply being mindful of your consumption and getting into the habit of conserving. Below are some facts and tips from WaterSense, an EPA Partnership Program ([www.epa.gov/watersense](http://www.epa.gov/watersense)) to help you conserve.

- The average American family of 4 uses about 400 gallons of water per day.
- Newer toilets on average use 1.6 gallons per flush, while older toilets can use between 3.5 and 7 gallons per flush. TIP: replace older model toilets.
- Running toilets can waste about 200 gallons every day. TIP: fix leaks!
- Bathroom faucets use an average of 2 gallons per minute. TIPS: turn off the tap while brushing your teeth or shaving, this alone can save an average of 200 gallons of water per month! As with leaky toilets, fixing leaky faucets can also be a huge water saver.
- Standard shower heads use 2.5 gallons per minute and also require energy to heat water.

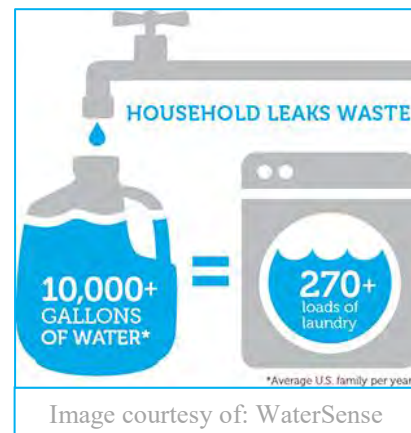


Image courtesy of: WaterSense



Replacing just one showerhead with an efficient one can save the average family 2,900 of water per year, plus enough energy savings to power your home for 13 days! TIP: replace old showerheads, and take shorter showers!

- Washing dishes with an open tap can use up to 20 gallons of water. TIPS: filling the sink or a bowl can save at least 10 gallons. Skipping rinsing dishes before loading them into the dishwasher can save an additional 10 gallons.
- Older washing machines can use anywhere from 27 to 54 gallons of water per load. Newer, efficient models use less than 27 gallons per load.
- TIP: Keeping a pitcher of water in the refrigerator saves you time and water instead of running the tap until the water gets cold.
- Of the estimated 29 billion gallons of water used daily by households in the United States, nearly 9 billion gallons (30%) is devoted to outdoor water use. TIPS: install rain barrels at your gutter outlets for a plant watering source. Sweep driveways and sidewalks rather than hosing them off. Wash your car with water from a bucket, or utilize a commercial carwash that recycles water.

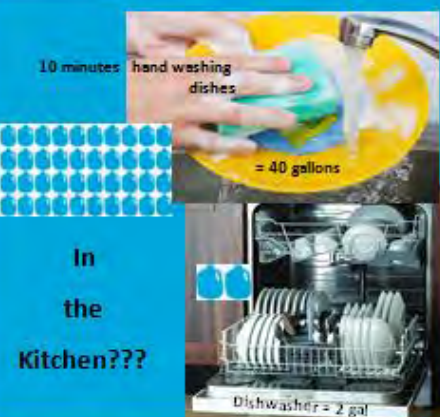
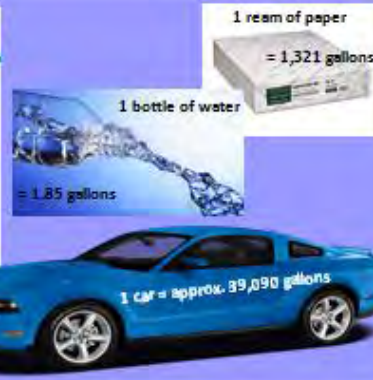
**Reuse! Greywater** is gently used water from sinks, showers, tubs, and washing machines; it is not water that has come into contact with feces (toilet water). Here are some easy ways to reuse greywater on a daily basis:

- Save unused drinking water. Instead of throwing away that partial bottle of water (a reusable bottle of course, because plastic bottled water is wasteful) that's been lying around, water your plants with it, let your pets drink it, or refrigerate it and drink it yourself.
- Place a bucket in the sink or shower while you're waiting for the water to warm up; again, you can water your plants with it, let your pets drink it, drink it yourself, or you can even use it to flush your toilets by pouring the water directly into the bowl. For baths, siphon or scoop the water out of the tub!
- Place a bucket in your kitchen sink and wash your fruits and veggies above it, and wash your dishes in it as well. You can then use the water to water plants, pour it in your compost pile, or flush the toilet. Note: small amounts of soap in the garden can actually help control pests, but check your label to make sure you are not putting hazardous chemicals out in the environment!
- Capture rinse water from your washing machine (plumbing work required), run it through a filtration system to remove any potential harmful chemicals from your laundry detergent, and use it for plant watering. Again, be sure that you are not putting chemicals into the environment!

**Check out the 2017 World Water Day Factsheet and learn more.**

# How Much Water Do You Use?

## In Everyday Products???



In  
the  
Kitchen???



## In the Bathroom???



## Outside ???



## In the Laundry Room???





# Red Cliff Spring Clean Up 2017

Help keep our Mother Earth and the Red Cliff Community clean!!!

## May 20th (Saturday) - May 26th (Friday)



No hazardous waste  
collection at this time.  
Scheduled for a later date!



**Appliances -- \$5.00 each**

**Appliances with Freon -- \$25.00 each**

**Electronics -- \$10.00 each**

**Car Tires -- \$2.50 each**

**Full Pickup Truck Load -- \$40.00 each**

**Half Pickup Truck Load -- \$20.00 each**



Full pricing available at the  
Red Cliff Transfer Station!  
Pamphlets available on site!

## Transfer Station Open Daily 8am to 6pm

First truck load only is free for elders (55+), all others must pay in advance at Tribal Administration or Transfer Station.

You must call in to sign up for pick up, if not located in a Housing Authority unit.

Questions or to sign up to be a volunteer (incentives available) please call the Environmental Department at 715-779-3650!

Construction materials include ONLY drywall, insulation, roofing materials, and siding accepted!

# Tips to Prevent the Spread of Aquatic Invasive Species

By: Tony Gilane - LAMP Outreach Coordinator

How can I prevent the spread of aquatic invasive species with my boat? How do I find out what aquatic invasive species are in my lake?

Before we know it, the boating season will be upon us. Waves and water recreation activities will be in full swing with the welcomed warm weather coming our way soon. Here are a few reminders of various prevention practices concerning aquatic invasive species (AIS). Look for and read the Aquatic Invasive Species signs that are posted at the boat landings, like Raspberry River boat landing. Take the time to read them - it only takes a minute!

The AIS signs will look like this:



Not only is it good practice to *Inspect, Remove, Drain, and Dry* your boat, it is the **LAW**!

It is a common practice to *inspect* and *remove* any AIS by washing and disinfecting your boat and any equipment that touched the water on the lake you were just in. A light bleach solution of two and half table spoons of bleach per gallon of water is recommended to clean your boat and equipment.

The following steps should be taken every time a boat, equipment, or gear is moved between waters to avoid transporting AIS and other pathogens.

1. Inspect: your boat and trailer.
2. Remove aquatic plants, animals, and mud from your boat, trailer, equipment and gear.
3. Drain: all water from your boat, motor, live well, bilge, transom wells, as well as from your equipment and gear.
4. Dispose: of unwanted aquatic plants and animals in an appropriate way.
5. Disinfect: your boat, equipment and gear by either, Washing with ~212° F water (steam clean), -OR-
6. Disinfecting: with either 500 ppm (1.25 oz per gallon or 2.5 Tablespoon per gallon) of Chlorine bleach for 10-minute contact time
7. Drying: thoroughly for 5 days after cleaning with soap and water and/or high pressure water is also acceptable to kill invasive micro-organisms.



# Tips to Prevent the Spread of Aquatic Invasive Species

By: Tony Gilane - LAMP Outreach Coordinator



Remove all weeds from motor and spray boat and trailer with bleach solution.

Photo Courtesy: Clean Boats Clean Waters

More tips from Wisconsin DNR to prevent accidental introduction of AIS to state waters:

1. Never leave a boat launch with any lake water in your boat or live well.
2. Never leave a boat launch with any live fish in your live well. A fish flopping around in an empty live well is considered to be dead.
3. Dispose of unwanted bait in the trash.
4. Buy minnows from a Wisconsin bait dealer.
5. Use leftover minnows only under certain conditions: if you intend to use them in the same waterbody. You may use leftover minnows on other waters only if no lake or river water or other fish were added to their container.

Most folks don't own a power sprayer but you can purchase a 3-gallon hand held sprayer from Ace Hardware or other local stores that carry them. You can mix your own chlorine solution.

All these tips and regulations can be found

at: <http://dnr.wi.gov/topic/Invasives/prevention.html>

If we all get into a practice of cleaning your boat and equipment, it will make a difference in slowing the spread of AIS. While there are unknowns concerning invasive species and climate change, climate change is expected to result in warmer water temperatures and shorter duration of ice cover as we have witnessed this year. The shift in water ecology will create conditions that are favorable for AIS. This makes being diligent about disinfecting and cleaning our equipment all the more important when moving from lake to lake!



We are wishing for everyone to have a safe and fun boating season while on the water this summer!

# HELP! I HAVE A BEAR PROBLEM!

It is that time of year when encounters with black bears in residential areas are increasing. At this point, many of you may have had encounters or have at least seen bears near your homes. But before you contact the wardens and request attempts be made to remove the bear, there are some things to think about.



As both human and bear populations increase on the reservation, so will the bear/human conflicts. Seeing and encountering bears in residential areas is becoming more normal and may be unavoidable. There are ways to reduce CLOSE encounters with bears near your home.

In almost all cases, nuisance wildlife, in the spring and summer seasons are looking for food. If you have a dumpster at your home, you have a bear's equivalent to thanksgiving dinner sitting in your driveway. You may want to consider having the dumpster removed for the spring and early summer months. You may also want to consider upgrading to a "bear proof" dumpster with a metal lid. These types of dumpsters are highly effective in keeping out unwanted pests and are usually available for an additional fee. If this is not a viable option for you, then you may want to consider other means to secure your dumpster such as placing boards under the lids and securing them with straps or chains. For other ideas on ways you can secure your dumpster, call the Red Cliff Wardens. It is important to remember that no attempt to "bear proof" a dumpster is 100 percent effective and the only way to eliminate the problem is to have the dumpster removed.



Also if you have a grill that is stored outdoors, a bird feeder or garbage that is left outside, **YOU ARE** attracting bears. This also applies to other nuisance wildlife such as raccoons and skunks. Do not store garbage outside for even a short period of time. Go to the dump frequently. The Red Cliff transfer station is open three days a week (Sunday, Tuesday, Thursday from 800am-600pm). Something as small as a discarded juice box or empty tuna can may be enough to attract the attention of unwanted wildlife.



Sadly, some wildlife have or will become dependent on humans for food, can destruct property and can become a threat to public safety. If you are continuing to have animal issues, call the Red Cliff Wardens. The wardens can help you by providing additional information to help you reduce or eliminate your animal problem and if needed, remove them.

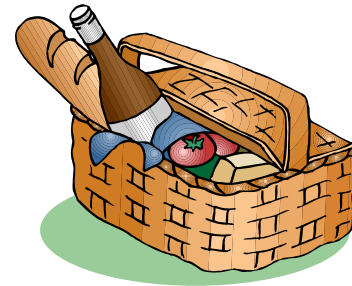
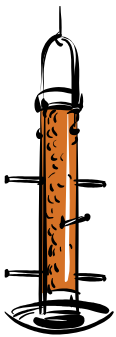
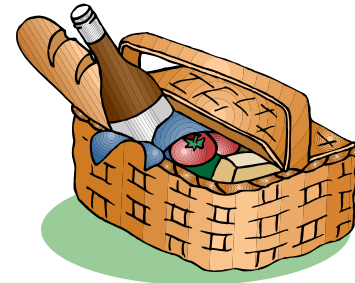
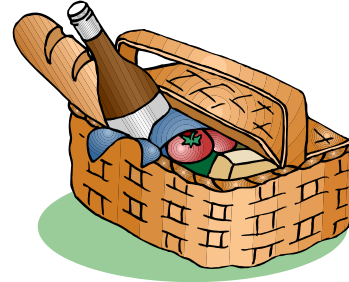
**THE RED CLIFF WARDENS CAN BE REACHED AT 715-779-3732**





SPRING TIME IS HERE AND WE  
WILL BE WAKING UP SOON!

REMEMBER...



**DUMPSTERS, HOUSEHOLD GARBAGE AND BIRD FEEDERS WILL ATTRACT BEARS. TO AVOID ATTRACTING UNWANTED WILDLIFE CONSIDER TAKING DOWN BIRD FEEDERS IN THE SPRING AND EARLY SUMMER MONTHS. GO TO THE DUMP OFTEN. DO NOT STORE HOUSEHOLD GARBAGE OUTSIDE. IF YOU HAVE A DUMPSTER, A BEAR WILL FIND IT. MAKE SURE YOU SECURE THE LID USING BOARDS, STRAPS OR OTHER MEANS. CONSIDER REMOVING OR NOT USING YOUR DUMPSTER IN THE SPRING AND EARLY SUMMER OR UPDGRADING TO A BEAR PROOF DUMPSTER WITH A METAL LID. HOMEOWNERS/RENTERS WILL BE RESPONSIBLE FOR CLEANING UP ANY LITTER CAUSED BY NUISANCE WILDLIFE. IF YOU HAVE QUESTIONS OR WOULD LIKE MORE TIPS ON HOW TO AVOID CONTACT WITH NUISANCE WILDLIFE. CONTACT THE RED CLIFF WARDENS AT 715-779-3732.**



# ATTENTION CAMPERS



## Fee-exempt Camping at National Forest Campgrounds

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



### To Use A Fee-Exempt Campground You Must:

1. Be a Red Cliff Tribal member or member of another Band that has ratified the Tribal/USFS Campground Agreement.
2. Obtain a Tribal camping permit from the Red Cliff Wardens. Call to make an appointment A list of fee-exempt campgrounds, and the booklet entitled *Regulations Summary: National Forest Treaty Gathering and Camping* are available at the Wardens Office.
3. Follow the camping registration procedures at the campground. Generally, this involves providing information requested on the registration envelopes found at the campground and placing it in the deposit box. Free parking passes are also available.
4. Camp only at the campsite for which you have registered.
5. You may not leave your possessions unattended at a campground for more than 24 hours. If left unattended for 24 hours or more, your possessions may be confiscated and retained by GLIFWC law enforcement personnel.

**Other information regarding to camping or other Treaty Rights may be found on the GLIFWC website or by calling the Red Cliff Wardens at 715-779-3732.**



# Indoor Particulate Matter

By: Air Quality Program

Particulate matter (also referred to as PM or particle pollution) is a complex



mixture of solid and/or liquid particles suspended in air. These particles can vary in size, shape and composition. EPA is

especially concerned about particles that are 10 micrometers in diameter or smaller because these particles are inhalable. Once inhaled, particles can affect the heart and lungs and in some cases cause serious health effects. The human health effects of outdoor PM are well-established and are used to set health-based standards for outdoor air (National Ambient Air Quality Standards, NAAQS). PM is also found in all indoor environments. Indoor PM levels have the potential to exceed outdoor PM levels and the NAAQS. However, less is known about the specific impacts of indoor PM on health.

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## Health Effects of Inhalable Particles

Exposure to inhalable particles can affect both your lungs and your heart. Many studies directly link the size of particles to their potential for causing health problems. Small particles (less than 10 micrometers in diameter) can get deep into your lungs, and some may even get into your bloodstream. People with heart or lung diseases such as coronary artery disease, congestive heart failure, and asthma or chronic obstructive pulmonary disease (COPD), children and older adults may be at greater risk from PM exposure. Scientific studies have linked PM exposure to a variety of health impacts, including:

- Eye, nose and throat irritation;
- Aggravation of coronary and respiratory disease symptoms; and
- Premature death in people with heart or lung disease.

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## Indoor PM Sources

PM found indoors will include particles of outdoor origin that migrate indoors and particles that originate from indoor sources. Indoor PM can be generated through

cooking, combustion activities (including burning of candles, use of fireplaces, use of unvented space heaters or kerosene heaters, cigarette smoking) and some hobbies. Indoor PM can also be of biological origin. For more information on major indoor combustion related sources see also:

- Stoves, Heaters, Fireplaces and Chimneys
  - Environmental Tobacco Smoke
- 

## **Levels of PM Indoors**

Indoor PM levels are dependent on several factors including outdoor levels, infiltration, types of ventilation and filtration systems used, indoor sources, and personal activities of occupants. In homes without smoking or other strong particle sources, indoor PM would be expected to be the same as, or lower than, outdoor levels.

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## **Steps to Reduce Exposure to Indoor PM**

- Vent all fuel-fired combustion appliances to the outdoors (including stoves, heaters and furnaces)
- Install and use exhaust fans vented to the outside when cooking

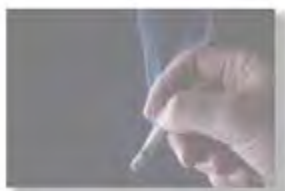
- Avoid the use of unvented stoves, fireplaces or space heaters indoors. If you must use unvented appliances follow manufacturers' instructions especially related to ventilation..
- Choose properly sized woodstoves, certified to meet EPA emission standards; make certain that doors on all woodstoves fit tightly.
- Use appropriate wood in stoves and fireplaces. Check EPA's BurnWise program for Safe Wood-burning Practices
- Have a trained professional inspect, clean and tune-up central heating system (furnace, flues and chimneys) annually. Repair any leaks properly.
- Change filters on central heating and cooling systems and air cleaners according to manufacturer's directions.

***Please call 715-779-3650 to schedule an indoor assessment to check on your indoor PM levels!***



# Reduce Indoor Allergens This Spring: Tips for a Healthier Indoor Environment

By: Air Quality Program



*Allergy triggers, or allergens, can be found on surfaces and in the air in your home.*

## Get Busy This Spring With Practical Tips to Control Allergens Indoors:

### Limit the amount of allergens that enter your home.

- Use doormats to help trap allergens before they enter the home. Clean doormats frequently.
- Consider removing shoes after entering the home.
- Change heating, ventilation and air conditioning (HVAC) system and air cleaner filters on schedule (see the manufacturer's instructions).
- Do not smoke indoors.

### Reduce allergens that are produced or can develop indoors.

- Dry wet items quickly. Prevent mold growth from water spills or leaks by acting quickly when home furnishings or other items get wet. Usually mold won't grow if items are dried within 24–48 hours. Make sure to fix any leaks promptly as well.
- Dust often. Vacuum and wash bedding weekly. House dust mites, animal dander and other allergy-causing agents can be reduced, although not completely eliminated, through regular cleaning.

### Control indoor humidity to help prevent the growth of mold and other organisms.

- Use kitchen exhaust fans when cooking. Exhaust fans should be vented to the outdoors.
- Use bathroom exhaust fans or open the window when showering.
- Consider using air conditioners or dehumidifiers as needed to help control indoor humidity. Air conditioners reduce humidity as they cool the air.
- If using a humidifier or dehumidifier, routinely empty the water and clean the unit according to the manufacturer's instructions to prevent mold and bacteria from growing or getting into the air.

### Did you know?

*You can measure the humidity at home with a small, inexpensive moisture or humidity meter, available at many hardware stores.*

*Try to keep indoor humidity below 60 percent and ideally between 30 and 50 percent.*



- Clean window-unit air conditioner drip pans routinely, and replace filters per the manufacturer's recommendations.

For information on scheduling a free indoor air assessment, please call the Environmental Office at 715-779-3760. Just ask for Ernie!

Have an awesome day!!

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# Pet Waste and Water Quality – Protecting Our Waterways

By: Linda Nguyen – Environmental Director

Scooping your pooch's poop isn't just a courtesy for those walking behind you; it is also the healthy and environmentally sound thing to do. Untreated pet fecal matter is harmful to waterways. Rain washes dog waste and the associated disease-causing organisms, such as giardia, E.coli, and salmonella, into rivers, beaches and bays via storm drains. Enough bacteria make water unsafe for drinking and swimming and also contribute to beach closures.

The Water Resources Program is reaching out to community members to improve water quality through pet waste education and deploy three (3) pet waste stations. Pet waste station locations have been picked based on: moderate/high human traffic, reoccurrences of left behind pet waste and high E.coli levels. These stations are located at **Raspberrv Campground**, **Point Detour Campground**, and **Legendary Water Casino's Campground**.



Pictured above is an example of a Station

The biodegradable bags are located in the higher box; after scooping poop, a water-tight waste container is conveniently provided for easy discard.



## *Make a Difference*

Fact: A little pet waste goes a long way; according to Washington DNR, a day's waste from one large dog can contain 7.8 billion fecal coliform bacteria, enough to close 15 acres of shellfish beds!

If you're not near one of these stations, there are still ways to help ensure improved water quality:

- ✚ Bring bags with you on walks.
- ✚ Dispose of waste in community or personal trash bins.
- ✚ Don't let your pet pollute, and encourage those around you to be responsible pet owners, too.

## *What We Hope to Accomplish*

- ✚ Bacterial contamination from dogs will be reduced in the waterbodies.
- ✚ Pet owners will pick up after their dogs and dispose of the waste in a safe and environmentally sound way.
- ✚ Reduce stepping in poop occurrences.
- ✚ Reduce public health risks associated with domestic dog poop.
- ✚ Increase awareness that water carries this and other types of pollution into water bodies that people use to swim, fish and recreate.

For more information, contact the Water Resources Program 715/779-3650!



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## GLOBE Observer (smartphone app)

By: Amarin Mello – Environmental Justice Specialist

One of the pleasures of living on the shores of Lake Superior is being a witness to the incredible dynamics between clouds and this great body of freshwater. Photos of colorful sunrises, sunsets, and other cloud conditions are popular subjects on the social media networks of Chequamegon Bay residents.

Everybody is familiar with the challenge of listening to the weather person say one set of conditions, while looking out the window and seeing another set of conditions. This is especially true living here on Gitchigami (Lake Superior), where the Lake is the Boss, and the weather conditions change can change from pleasant to deadly in a matter of minutes.

As you may know, it can be snowing here at Red Cliff while the live weather radar may suggest clear skies.



**1 Lake Superior Modis Imagery of Sea Smoke forming.**

For example, “Sea Smoke” is a phenomenon that occurs when freezing air moves across unfrozen water, sublimating water from the Lake into the atmosphere, resulting in a winter fog. This fog becomes lake-effect snow as it travels downwind.

NASA and other science partners have recently published a smartphone app called GLOBE Observer to help connect atmospheric scientists with the actual observations of citizens. The Global

Learning and Observations to Benefit the Environment (GLOBE) Program is an international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process, and contribute meaningfully to our understanding of the Earth system and global environment.

GLOBE Observer invites you to make environmental observations that complement NASA satellite observations to help scientists studying Earth and the global environment. The GLOBE Observer smartphone app can be downloaded online: <https://www.globe.gov/globe-data/data-entry/globe-observer>

To use the app, an account must first be created using your e-mail address. Then you can submit reports detailing atmospheric conditions (high/medium/low clouds, contrails, etc.), surface conditions (muddy, dry, snow, etc.), and photos of the six directions (E, S, W, N, up, and down). This is an opportunity for Indigenous climate knowledge to guide modern science!



**2 Screenshots from the GLOBE Observer app.**

Please note that Red Cliff is not inventorying any information collected through this app, that GLOBE is an outside organization not associated with Red Cliff, and that any information is submitted on a volunteer basis.



## Become a GLOBE Observer/Citizen Scientist



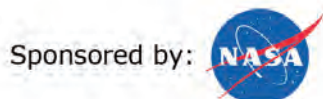
GLOBE students have been doing “Citizen Science” for the past 20 years by engaging in data collection, entry and analysis, partnering with scientists and Earth observing satellites, and participating in scientific measurement campaigns. The GLOBE database now holds approximately 140 million measurements provided by its “student citizen scientists” over a period of two decades. Technology has evolved, providing the ability to measure more phenomena with greater accuracy. GLOBE has become part of the digital revolution with the release of its recent app; solitary efforts have given way to large-scale collaborations, with the power to transform how we think about the world and how we live in it.

### Mobile Apps Make Data Entry Easy for Existing GLOBE Members

Recently, GLOBE released its first mobile app for data entry, allowing GLOBE students the opportunity to enter GLOBE science protocol data directly from an iOS or Android device for any of GLOBE’s science protocols. After an initial download of forms, students can enter measurements in the field, and then choose to send the data to GLOBE when an internet connection is available. The app streamlines some aspects of data entry, allowing users to employ the phone’s camera to document sites and measurements. This app is intended only for users who have an existing GLOBE account.

### New Mobile Apps Are Coming that Will Expand the Numbers of GLOBE Citizen Scientists

After 20 years of working with student citizen scientists, GLOBE thinks the time is right to engage people beyond the formal education areas (schools) in Citizen Science. GLOBE has released an app which allows anyone in a GLOBE country to enter data about clouds directly into the GLOBE database. Called the GLOBE Observer app, it is available in iOS and Android formats and will have additional GLOBE science protocols in coming years.



[www.globe.gov](http://www.globe.gov) [help@globe.gov](mailto:help@globe.gov)

Implemented by: UCAR





## Become a GLOBE Observer/Citizen Scientist

Through the GLOBE Observer, anyone can join the international GLOBE network of citizen scientists, students, teachers, and scientists while learning more about our shared environment. To participate, an individual must download the GLOBE Observer app and submit observations.



The GLOBE Observer initially allows the GLOBE science protocols to be implemented outside of a school setting, including in informal education institutions, out of school programs, parks and refuges, and homes. GLOBE alumni and families of GLOBE students are particularly encouraged to participate. Ultimately, the GLOBE Observer will provide data for student research, strengthening science education as well as additional data for scientists.

### How are GLOBE Observer measurements collected?

The GLOBE Observer app provides step-by-step instructions for each requested measurement. For example, the app asks you to submit cloud photos with your location. You will also be guided through a cloud key to identify cloud types and to record how cloudy the sky is. The app also provides additional information such as a training overview and background scientific information.

### How are GLOBE Observer data used?

GLOBE Observer data can be combined with other GLOBE data to support research led by students and professional scientists related to Atmosphere, Biosphere, Hydrosphere, and Soil (Pedosphere).

- » **Student Research Examples:** Past examples of GLOBE data include research on precipitation, phenology, climate and mosquitoes and represent every region in the program. Examples can be found on [www.globe.gov](http://www.globe.gov)
- » **Scientist blogs using student data:** Scientists involved in the program give reports back to the community on the use of data through blogs. An example is the blog by Dr. Kevin Czajkowski on his surface temperature field campaign found under the Scientists' Network Blog on [www.globe.gov](http://www.globe.gov)
- » **Publications by Scientists:** Over the years, scientists have used the data in their research. Publications by scientists using the data can be found at [www.globe.gov](http://www.globe.gov)

Everyone can access data in the GLOBE data and information system by visiting [www.globe.gov](http://www.globe.gov)

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## Red Cliff Conservation Dept. New Truck

By : Mark Duffy - Red Cliff Chief Warden

On behalf of the Red Cliff Conservation Department, we would like to give a special thanks to BIA Great Lakes Agency and especially Fred VanderVenter.

It is a great asset to our division to have reliable equipment at the ready-see you on the road, or off!

With collaboration from BIA Great Lakes Agency, Red Cliff Police Department and Red Cliff Conservation Department the new 2017 Ram was purchased and fully equipped. This vehicle will be used by the conservation department to uphold the rights of tribal members and to provide safety and security for the community.

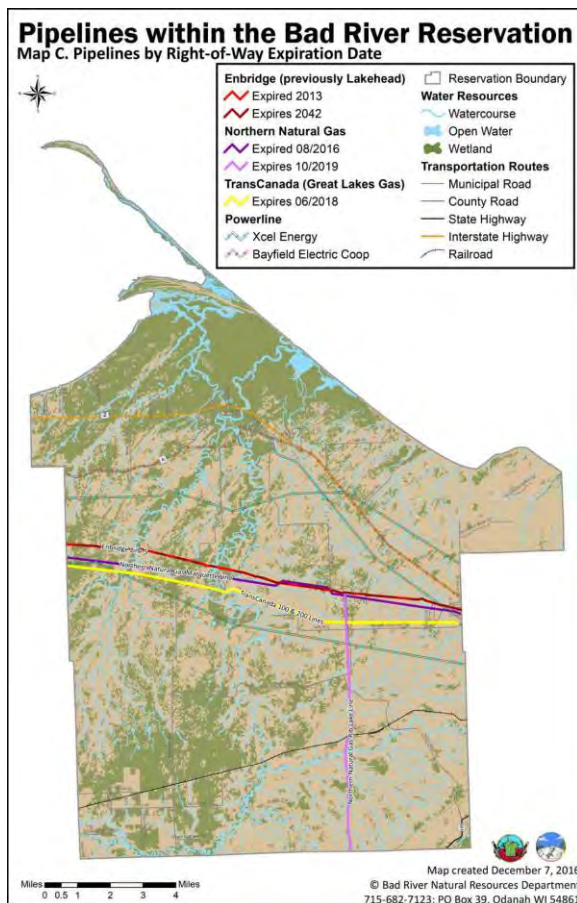




# Is Enbridge Line 5 Expired?

By: Amorin Mello – Environmental Justice Specialist

Enbridge Line 5 has been making news in recent months, due to a number of issues. First built in 1953 by Lakehead Pipeline Partners, Enbridge Line 5 starts in Superior, Wisconsin, passes through the upper peninsula of Michigan, then into the lower peninsula across the Straits of Mackinac, and terminates just past the Canadian border at Sarnia, Ontario.



Enbridge Line 5 passes through the heart of the Bad River Reservation, and has been making news since late 2016 due to the fact that easements for it on tribal allotments have been expired since 2013.

Communications between Enbridge and Bad River broke down after Enbridge failed to initiate an Environmental Assessment on the existing conditions of Line 5 through the

Reservation. Bad River has decided to terminate the expired easements for Line 5, and ordered Line 5 to be removed from the Reservation. The outcome of this legal battle shall be fought in the courts, and may test the power of the Chippewa Treaties, and tribal sovereignty over foreign corporations.

Enbridge Line 5 also passes through three national forests along the south shore of Lake Superior: Chequamegon-Nicolet National Forest; Ottawa National Forest; and Hiawatha National Forest. This is due to special-use authorizations from the United States Forest Service (USFS) that were granted to Line 5 in 1953. Enbridge Line 5 runs through the Washburn Ranger District of the Chequamegon-Nicolet National Forest from west to east, parallel to U.S. Highway 2 between Iron River and Moquah in Bayfield County.

Just like at Bad River, the special-use authorization for Enbridge Line 5 in the Chequamegon National Forest has also been expired since 2013. The USFS is currently collecting public comments regarding the issue of whether to renew the special-use authorization for Enbridge Line 5 in the Washburn Ranger District or not. Red Cliff tribal and community members are welcome to submit their comments directly to the USFS via [their website](#).

The Red Cliff Environmental Department is currently drafting comments to submit to the USFS regarding the expired special-use authorization for Enbridge Line 5 in the Washburn Ranger District in Bayfield County. Please contact us with questions and concerns by contacting our Environmental Justice Specialist, Amorin Mello, at 715-779-3650 and/or at [amorin.mello@redcliff-nsn.gov](mailto:amorin.mello@redcliff-nsn.gov).

## Environmental Wordsearch Puzzle

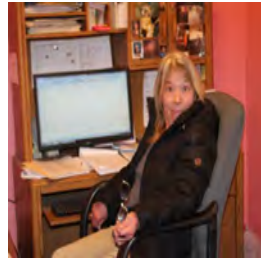
CLIMATE CHANGE  
CONSERVATION  
CONSUMPTION  
CONTAMINATION  
DESERTIFICATION  
ECOSYSTEM  
ENERGY

ENVIRONMENT  
GREEN-HOUSE GASES  
NATURE  
ORGANIC  
OZONE LAYER  
POLLUTION  
PRESERVATION

RECYCLE  
RENEWABLE  
SOIL EROSION  
SOLAR POWER  
SUSTAINABLE  
WASTE

Try to find **all 20** words on this board.

U J G F L T Z P R E S E R V A T I O N M  
U U R E C Y C L E C O N S U M P T I O N  
U A I E R U T A N O I T A V R E S N O C  
Q K G N V O V E R P O P U L A T I O N H  
N S N E D E S E R T I F I C A T I O N T  
O O I C M U M Z P L T E L B A W E N E R  
I I M O R T S M C E F I Z K N B Z I U A  
T L R S A Y H T Z L M S W O Y G R E N E  
A E A Y F P T N R A N O I T C N I T X E  
N R W S D M D E T I Z T U W A S T E L H  
I O L T N H J E F O A C I D R A I N K T  
M S A E I O C O N T N L H W U N E K R F  
A I B M W H K E I M C Z I C I N A G R O  
T O O K A N L O D F J K S Z X S L T L S  
N N L N V A L G R E E N P E A C E A Q D  
O Y G H Y P O L L U T I O N S T O C F N  
C E N E X H T L H T N E M N O R I V N E  
R G R E E N H O U S E G A S E S Z O L I  
T J M J E L B A N I A T S U S Y X H N R  
R E W O P R A L O S L E U F L I S S O F



TNR doing the big work

RED CLIFF BAND OF LAKE SUPERIOR CHIPPEWA

## Treaty Natural Resource Division



Fisheries  
Environmental  
Natural Resources  
Transfer Station  
Conservation Wardens

715-779-3750

715-779-3650

715-779-3795

715-779-0171

715-779-3732