



# *Treaty Natural Resource Division*

*Red Cliff Band of Lake Superior Chippewa*

*Volume 4, Issue 4 Winter 2015*

## *Ganawenjigaade*

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



Chad Abel poses with a lake trout caught during fall fish assessments.

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# Green Cleaning Workshop

## January 26th at Legendary Waters

Cleaning products are everywhere in our homes and offices: on dishes, countertops, furniture, clothes, floors, windows, and floating through the air. But most of the conventional cleaning products we all grew up with can have negative health and environmental impacts.

Come join the Environmental Department for a night of making homemade, non-toxic and eco-friendly cleaning products for your home

**Come by anytime between 5:00 and 8:00pm**

We'll have lots of green cleaning recipes and several stations to make **your own green cleaners to take home!**

Kids are invited to join in on learning about green cleaning and help with mixing your cleaning concoctions (must be accompanied by an adult).

Questions? Contact Gabrielle or Beth at 715-779-3650



# 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



## **October Employee of the Month— Mark Duffy, Chief Warden**

Mark Duffy celebrated his 35<sup>th</sup> year in service to the Red Cliff Tribe. In recognition of his extraordinary commitment and continued contributions, TNR Division staff members unanimously agreed to honor Mark as our employee of the month in October. Thank you Mark for all that you do!



## **November Employee of the Month— Zach Peterson, Warden**

Zach has been a Red Cliff warden since the summer of 2014. He has grown significantly in his position and has demonstrated his ability to learn the numerous facets to warden life at Red Cliff. He was nominated for volunteering to work odd hours, showing extra vigilance during the reservation deer season, and for promoting good working relations with Red Cliff commercial fishermen, the Red Cliff police department, DNR and GLIFWC.



## **December Employee of the Month—Jeremy St. Arnold**

Jeremy was nominated for building and enhancing the scientific merits of the wildlife program for the Tribe. He has been instrumental in developing research proposals to increase program funding that aid in our understanding of wold and American marten populations in and around the reservation. As employee of the month in December, we salute Jeremy for his unabashed enthusiasm for all things wildlife!

# Have Projects in Mind for 2016?

**Have a site you want to develop? Want to put up an addition?**

Start talking to the Environmental Department staff today to learn about the permits and environmental reviews you may need before breaking ground.

Due to environmental requirements and the number of project reviews that happen each year, the sooner you start talking with us the smoother and quicker the process will be for the upcoming year!

Melonee Montano  
Environmental Programs Manager  
[melonee.montano@redcliff-nsn.gov](mailto:melonee.montano@redcliff-nsn.gov)  
Phone: 715/779-3650

Linda Nguyen  
Water Resources Program Manger  
[linda.nguyen@redcliff-nsn.gov](mailto:linda.nguyen@redcliff-nsn.gov)  
Phone: 715/779-3650

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## Welcome New Employee Reed Saam, Commercial Fisheries Monitor

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Reed joined us this fall as our Commercial Fisheries Monitor. Reed grew up in Ann Arbor, Michigan, and has had an interest in fish since he was a kid. He has a bachelor's of science degree in Water Resources from Northern Michigan University. The past two summers Reed lived in a tent while working for the Little River Band of Ottawa Indians Natural Resources Department. While working there he gained a wide range of experience from wild rice surveys to lake sturgeon restoration techniques. Reed enjoys mountain biking, skiing and just being outdoors; so Bayfield has been a fun place to explore. Reed looks forward to continuing his work for Red Cliff, and getting to know this unique region more.





## Lake Superior Barrels Project Investigation Report Update Executive Summary



Since 2005, we have been working with the U.S. Department of Defense (DoD) and the U.S. Army Corps of Engineers (USACE) under the Native American Lands Environmental Mitigation Program (NALEMP) to locate and investigate approximately 1400+ barrels containing materials from the Twin Cities Army Ammunition Plant (TCAAP) that were dumped into Lake Superior between 1959 and 1962. It is the Tribe's priority to obtain sufficient information to assess and evaluate the environmental threat to the lake posed by the barrels and their contents.

Six dump sites have been identified to date (Lester River, Talmadge River, French River, Sucker River, Knife River, and Shoreview Road) that range in area from 0.4 to 4.5 square miles with water depths ranging from 37 feet to nearly 500 feet. As part of this investigation, geophysical survey work to locate the barrel dumps included collection of side scan sonar data during the summer of 2008 for 12 days. Approximately 116 square miles of the lake bottom were scanned, which resulted in the identification of 909 sonar targets that were considered to be potential barrel locations. Additional surveys were performed with a remotely operated vehicle (ROV) and sector scan sonar at selected locations to confirm the presence of barrels on the lake bottom.

Barrel recovery work was performed over a two-week period from July 31 through August 13, 2012. A total of 25 barrels were recovered from the Talmadge River, Sucker River and Lester River sites. Barrels from both the Talmadge River and Sucker River sites contained grenade parts in cardboard cases weighted with concrete. Barrels from the Lester River site contained partially incinerated munitions scrap, ash, slag, and production line refuse.

Samples were collected of barrel solid contents and water, as well as barrel-associated sediments. Samples were submitted to an analytical laboratory for analysis of explosives compounds, volatile and semi volatile organic compounds, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals, and conventional analytes. Samples of sediment and water from the environment surrounding the dump sites were also collected and analyzed for the same analytical parameters as the barrel samples.

Analysis of barrel contents detected PAHs, PCBs, and metals at concentrations that exceed Sediment Quality Targets (SQTs) established by the Minnesota Pollution Control Agency. This pattern of detections was not replicated in sediment samples collected near the recovered barrels, generally suggesting that at the sites investigated the barrels are currently containing the contaminants; however, barrel quality observed included a range of conditions: minor rust, surficial corrosion, dents, holes, and severe structural deterioration resulting in failure during retrieval.

Analysis of sediment samples collected along the perimeter of the barrel dump areas detected concentrations of metals higher than observed in the barrel-associated sediment samples. Contaminant concentrations in the samples collected outside of the barrel dump areas were higher than contaminant concentrations observed in barrel sediment samples, raising the possibility that these results represent some systematic error in the sampling or analytical process. These environmental samples, therefore, do not appropriately represent natural background conditions.

Based on these preliminary investigation results, additional recovery and sampling of remaining barrels is recommended given that the cumulative dataset is limited relative to the number of barrels dumped. The presence of the barrels as solid waste in the lake continues to adversely affect the cultural resources and potentially the natural resources also. Remaining barrel contents are still uncharacterized, and the potential exists for inadvertent recovery by the general public. While the barrels are presently containing their contents, they should not expect to do so into the indefinite future.

To learn more, please contact Gary Defoe Jr at 715-779-3650, or by email: [gary.defoejr@redcliff-nsn.gov](mailto:gary.defoejr@redcliff-nsn.gov). Miigwech!



# Hatchery News

This fall most of the hatchery attention was given to our coaster brook trout. This time of the year is when the Broodstock fish are ready to spawn. Over the course of the next month egg collection will take place. Eggs will be taken and brought over to the production facility to be incubated. (The picture on the right



shows eggs immediately after they have been taken from one of our Broodstock females). After a few weeks in the incubation trays, eyes become visible and the eggs turn a mild pink (see picture on left). Eventually the fish will hatch and be moved from the trays to the raceways. (see next page for multiple egg stages during incubation). While new eggs are coming into the hatchery the older production fish are getting ready to leave. The fish from 2014 are getting clipped and sorted and will be stocked before the end of the year. An earlier stocking event took place in which roughly 20,000 fish from the 2014 class were

stocked (the picture on the right shows staff releasing the first fish at the Legendary Waters boat launch). It is anticipated that there will be another 50,000 fish released by the end of the year. The hatchery would also like to thank all of the Northland College students and environmental office staff that helped in the clipping of the fins. With over 50,000 fish to clip their help is greatly appreciated.








**Top Photo:** Early Life stages of the Coaster Brook Trout at the hatchery

**Mid Left:** Year old coaster brook trout before they are stocked

**Mid Right and Bottom Left:** Sorting brook trout by size to stop predation in tanks

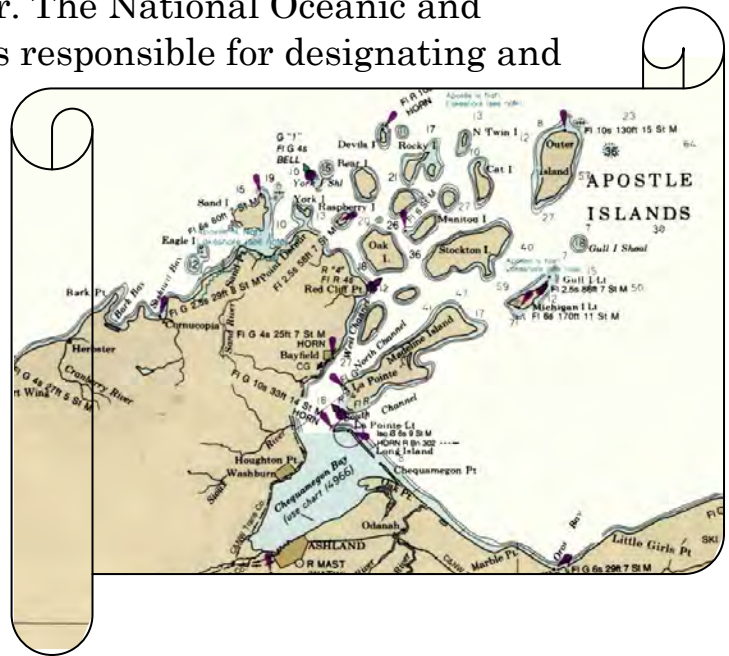
**Bottom Right:** Brook trout in the stocking tank during release

# Nominating the Chequamegon Bay & Apostle Islands Area as a National Marine Sanctuary



The National Marine Sanctuaries Act (NMSA) was created in 1972 to designate and protect marine environments with special recreational, educational, cultural, historical, archeological, aesthetic, and/or natural resources. Note: Protections only include resources within the water. The National Oceanic and Atmospheric Administration (NOAA) is responsible for designating and protecting National Marine Sanctuaries (NMS), which are used for research and education.

A local grassroots group has started organizing a nomination for the Chequamegon Bay and Apostle Islands area (the specific area has not been determined). This committee hopes to partner with all Lake Superior Tribes and is beginning to reach out to the public for input.



## Designation of a NMS

Designation of a NMS is a 2 step process:

1. Nominating the site- Nominations are community based and are usually submitted by local governments, environmental organizations, or other groups. This nomination must meet federal criteria and have overall public support. A successful nomination would put a possible WI-Lake Superior NMS on NOAA's list of areas for consideration.
2. A possible second step is NOAA's sanctuary designation process (if they decide to create a WI-Lake Superior NMS). NOAA would develop an environmental impact statement (EIS) and a management plan.

Public involvement is key in all parts of the designation process, and it could take a couple years to complete.



## **The benefits of a WI-Lake Superior NMS**

Sanctuaries support resource protection, education and community engagement, research and monitoring, and economic development. An NMS designation would bring financial and technical resources from NOAA (no local taxes or funding is required) to local communities and all of Lake Superior. As a nationally designated site, a local NMS would attract visitors to the area, supporting our local economy and allowing others to engage in and learn about our beautiful area.

*Success story:* The Thunder Bay NMS, located in Alpena, MI, attracts 100,000 visitors a year that spend over \$110 million in the nearby counties.



## **How would a NMS protect our marine resources?**

Designated sanctuaries use many different tools to protect the resources within them. New or existing regulations can be used to protect resources from damage, such as shipwrecks, underwater sea caves, etc. Research and education are also major tools that can be used to increase understanding and conserve protected areas. The state and tribal conservation wardens, along with the coast guard, will continue to implement regulations on the lake.



## **Would a NMS designation affect use of our local waters?**

Definitely not- All currently allowable uses of Lake Superior would still be allowed, and encouraged! Treaty rights will always come first and the Red Cliff

Band will be consulted on a government-to-government basis in management decisions.

For more information, visit: <http://sanctuaries.noaa.gov/>  
To see cool photos from NOAA's currently designated NMS areas,  
**NOAA Office of National Marine Sanctuaries** on Facebook!



# Our New Compost Bin

Treaty Natural Resources now has a compost bin. All three offices within the division have begun collecting our office's kitchen scraps to recycle as compost.



We had fun constructing our bin. Since we made it using pallets we got for free, the cost of materials was pretty low. As you can see from the pictures, we set up the seven pallets to form a long rectangle divided down the middle. We plan to slowly fill one side at a time with kitchen scraps mixed with straw and dry leaves. When one side fills up we can let it finish composting while we add to the other side. We plan to use the finished compost to grow native plants to use in our restoration projects (like at the casino ponds). We can also share the compost with the community garden or with home gardeners.

We are interested to see how much compost we can make in a year. We are also curious to see exactly how much less garbage we throw away. Plus, lots of us already compost at home. We figured it was about time to bring our good habits to the office.



Linda Nguyen likes composting, because it makes for cleaner water. Compost is a great addition to soils. It helps plants grow healthy and strong without the need for synthetic fertilizers and pesticides that can harm waterways. Linda and the water quality team will be able to use finished compost to help grow the plants we will use on future restoration projects.



# Our New Compost Bin

We are excited to share the fun with you, and we plan to offer composting workshops at the environmental office in the spring. At the workshops we can help answer questions about how to start your own compost piles. We can also talk through ideas on how we can all work together to make composting easier for everyone to do.

There is no need to wait until spring to stop by the environmental office and check things out. We are happy to answer your questions about composting, take your suggestions, or give a quick demonstration on how we compost. You can also call Beth, your sustainability coordinator, at 779-3650 or email me at [beth.raboin@redcliff-nsn.gov](mailto:beth.raboin@redcliff-nsn.gov). Happy composting!

## What can you compost?

You can compost kitchen scraps and yard waste. Things like vegetable and fruit peelings make great compost, but you can also put in coffee grounds, tea bags, even paper towels. Basically, you can compost anything you can eat with the exception of really greasy or fatty items. These foods take longer to break down and they can attract pests.



Above: The first additions to our compost bin.



## What about bears?

We secured our bin by stapling wire fencing around it. Although this isn't bomb proof, it does help to deter animals large and small from thinking they found a free meal. We also latched the doors to make them harder to open. Most important, whenever we add food scraps, we cover them with straw to speed decomposition and reduce smells. We avoid putting really stinky or greasy food into the bins, especially just before or after hibernation when bears are most likely to get curious.

# Red Cliff Fisheries Department: Whitefish Spawn Assessment

Fisheries staff conducted their annual Whitefish Assessment at four locations within the Apostle Islands. Those locations are Outer Island, Stockton Island, Gull Island, and Madeline Island. A total of 95 Whitefish and 19 Lake Trout were captured. The largest Whitefish captured was 30.6 inches long and weighed 3.4 pounds and the heaviest Whitefish captured weighed 4.3 pounds and was 24.8 inches long. Of the 95 Whitefish captured 75% were male, 24% female and 1% unknown.

A total of 4,500 feet of 4.5 inch gill net was fished during this assessment. For data collection, fisheries staff collects length, weight, sex, reproductive condition, stomach samples, and aging structures (otoliths). This information is used to harness a better understanding of Whitefish populations within the Apostle Islands.



Above: Chart of the Apostle Islands National Lakeshore and the Whitefish spawn assessment locations.

Right: Michael Defoe measuring a Lake Trout that was tagged and released during the Whitefish spawn assessment.





# What's Shakin, Bacon?

News from the CAFO Front



As early as January 26th the Bayfield County Board of Supervisors will be voting on an ordinance that if passed would require new or expanding large-scale livestock facilities to demonstrate that they will not cause pollution or a private or public nuisance before they are permitted to operate within Bayfield County.

We at Treaty Natural Resources are in full support of the Operations Ordinance, as it will help ensure that only responsible agricultural practices are allowed in our county. Under this ordinance new CAFOs or expansions would be required to prove that other similar facilities have been in operation for at least ten years without being cited for pollution or nuisance violations. This places accountability on the facilities rather than on local governments and agencies that would otherwise be unduly burdened with monitoring, enforcement, and countless other heretofore unaccounted for externalities.

We are hopeful that the Bayfield County Board will recognize the value of the Operations Ordinance. Over the past year, the Bayfield County Large-Scale Livestock Study Committee (LSLSC) met with 17 experts on livestock agriculture. Through these meetings and further research, the committee developed detailed recommendations designed to help the board adopt the best strategies for balancing all our community and environmental needs. In light of their intensive research, the LSLSC also recommends that the county adopt the Operations Ordinance.

You can view the LSLSC recommendations, the CAFO Operations Ordinance, a calendar of informational events, news and action items, and a whole bunch of useful information at:

[farmsnotfactorieswi.org](http://farmsnotfactorieswi.org)

The next Bayfield County Board meeting will be held at the Bayfield County Courthouse in Washburn at 6pm on Tuesday, January 26th. The meeting opens with a public comment period if you would like to attend and share your support for the CAFO Operations Ordinance or any other concerns that you have.

We encourage you to let your County Board members hear about your support for the Operations Ordinance. You can find contact information for all the board members at:

<http://www.bayfieldcounty.org/295/Board-of-Supervisors>

If you have any questions, please feel free to contact Beth at 779-3750 or [beth.raboin@redcliff-nsn.gov](mailto:beth.raboin@redcliff-nsn.gov)

# Red Cliff to Perform Energy Efficiency Upgrades:

After being awarded a grant from the Wisconsin State Energy Office, Red Cliff is getting ready to start work on several major energy efficiency upgrades that will save the tribe thousands of dollars each year.



Old Administration Building

In 2012 Red Cliff had energy audits performed on the Old Administration Building, ECC, and the Waste Water Treatment Plant. Recommendations from these audits guided decisions as to which upgrades would get us the most bang for the buck.

The Old Administration Building will be getting two new boilers to update the inefficient boiler system that now heats the building. New computerized controls mean the boiler components will run on an as-needed basis rather than all day every day as they do now. The new system is expected to save over \$3000 a year on energy costs, and the building should prove more comfortable after the retrofits.



Early Childhood Center

The ECC will benefit from three major upgrades. Like at Old Administration, the ECC will switch to a centralized thermostat that will control both the in-floor heat and the HVAC system. This will be a great improvement from the system currently in place which among other inefficiencies allows for the heat and air conditioning to be on simultaneously.

The ECC will also have the electric attic heater replaced by a more efficient gas fired furnace. In addition to the greater efficiency of the new unit, gas is one-third the cost of electric, meaning the switch to gas will make for big cost savings. Finally, the ECC will replace two hoods (fans that bring in fresh air and remove stale or polluted air). The new hoods will use a laser sensor that monitors heat and particulates (smoke, dust, other pollution). In this way, the hoods will run at whatever capacity is appropriate to the moment. In total, the retrofits of the ECC will result in savings of over \$6000 a year.

In seven years the cost savings from these four retrofits will exceed the initial monetary investment. Since these projects are nearly entirely grant funded, the tribe will see savings immediately. Hopefully, we can apply these savings to fund energy audits on other tribal buildings that will lead to future efficiency upgrades and even greater energy and cost savings in the future.

Through retrofits like these, prioritizing energy efficiency with all new construction, and investment in renewable energy production on tribal lands, we can make great strides towards energy sovereignty.



# The Power and Glory of Power Strips

Power strips are awesome. They protect our appliances and electronics from power surges. They allow us to plug 10 cords into 1 outlet (which is unsafe and isn't recommended). Most importantly they help us conserve energy.

Appliances still draw energy when not in use, even if they are powered down—these are known as phantom watts. For example, in my office the microwave draws 1.6 watts when not in use. True, this is a small amount of energy but that adds up to \$2.05 each year of wasted electricity for just 1 appliance.

Add up all the appliances; computers, printers and gadgets in an office or home and true savings can be realized.

A Kill-a-Watt was used to determine the number of phantom watts as well as how many watts a given electronic device uses when operating. It's a pretty handy device bought locally at Ace Hardware that easily pays for itself (\$24.99). Simply plug the Kill-a-Watt into an outlet, and plug any device into it. It gives an instant reading in watts. With a quick look at your electric bill you'll be able to determine the cost of running any appliance.



## Toilet Water Conservation

Toilets have come a long way in terms of water conservation. Prior to the 1990's we used to flush down 3.5 gallons of water every time we flushed the toilet. Since the mid-90's with the introduction of "low-flow" we now only flush down 1.6 gallons of water with each flush. The average household is now saving 3,468 gallons of water each year with these low flow toilets.

If you own a toilet that was made before the 90's it's probably a good idea to buy a new, more water efficient toilet. But most toilets in homes are rather new, and your pocket book might not be interested in splurging for a new toilet with the latest and greatest technology.



Here's an idea that can save water without putting a dent in your pocket book: the amount of water in the toilet tank determines how much water is flushed down the drain with each use. By putting a water displacing device in the toilet tank one can reduce the amount of water the tank holds. A plastic bottle filled with water is a great, free option. A quick search on amazon for "toilet tank displacement devices" bring up many purchasable options such as the Toilet Tank Optimizer and the Toilet Tummy Water Saving Device both of which are essentially fancy water bottles. By displacing a 1/2 gallon of water a family of four can save up to 3,000 gallons of water each year.





On December 28th, President Obama voted to phase out the use of plastic microbeads in beauty products such as face wash, body wash, hand soap and tooth paste. These particles can vary in size from 10 micrometers to a few millimeters (credit cards are about 1 millimeter in width) and are small enough to pass through most wastewater treatment facilities. Microbeads then make their way into waterways where they can absorb chemicals and pass them onto fish and wildlife that mistake them for food.

There are several exfoliating alternatives to microbeads such as ground up fruit pits, oatmeal, sea salt or pumice, and if the Microbead-Free Waters Act of 2015 becomes law, companies producing personal care products that contain microbeads will be required to utilize other options such as those listed here by January 1st, 2018.

Microbeads are a known pollutant in the Great Lakes and action on the federal level to ban their use sends a strong message that the greatest solution to this problem is by preventing microbeads at their source.

2018 is a long ways away,

what can you do in the meantime to avoid microbeads and help protect Lake Superior?

Check before buying personal care items- if it contains any of the following, do not buy it!

*Polyethylene, polypropylene, or acrylate (co)polymer*

Look for personal products that use natural ingredients such as ground up fruit pits (such as apricots), oatmeal, sea salt or pumice.

**Try making your own hand scrub by mixing 3 simple ingredients:**

1 cup coarse salt

1/2 cup melted coconut oil

A few drops of essential oil (pick your favorite scent)

# Zebra and Quagga Mussels Found in the Apostle Islands

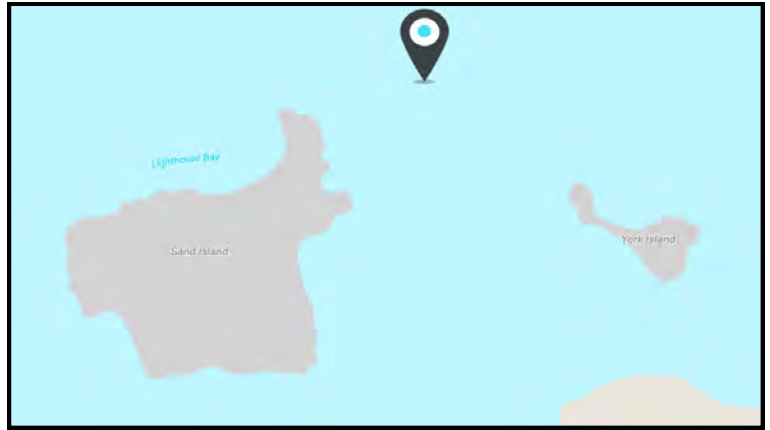
Gabrielle VanBergen

During a dive training at the *Sevona* Shipwreck located near Sand Island (see map) on September 16th, employees of the National Park Service found Zebra and Quagga Mussels on both the shipwreck and surrounding substrate.

These foreign mussels have hitchhiked into the Great Lakes from Europe through the ballast water of international shipping freighters. These mussels reproduce very fast, spread easily, and have no natural predators in North America.

Although they are generally limited to industrial areas of Lake Superior such as the Duluth and Thunder Bay Harbors, as well as Sault Ste Marie, the mussels have been wreaking havoc in the other four Great Lakes.

Park employees believe the mussels on the *Sevona* are an isolated case, do not appear to be thriving, and they have not found the mussels in other areas of the islands. There will be further investigation and discussion about how to prevent the spread of mussels within the Apostles.



Map: Location of the *Sevona* Shipwreck (WI Shipwrecks)

Photo: Zebra mussels from the *Sevona* (Brenda Lafrancois)



## Impacts of Zebra and Quagga Mussels

- Colonize substrates; leaving lake bottoms, docks, buoys, boats, etc. covered with sharp mussels
- Attach to native mussels, reducing their ability to move, feed, and reproduce, which eventually kills them
- Outcompete native mussels and fish for food
- Cause a decline in plankton, which is the base of aquatic food webs (primary source of food)
- Cause a decline in fish populations due to decreased food

availability (especially whitefish)

- Filter lake water very quickly, increasing water clarity and promoting the growth of nuisance lake bottom algae. After dying, this algae known as cladophora, washes to shore in large decaying mats. The decaying algae contains harmful bacteria that can have health implications for humans, fish, and wildlife



Algae on Esch Road Beach at Sleeping Bear Dunes, MI (Photo: John Russell)

- Transfer contaminants from the water column into their tissues, which can then be consumed by fish and birds, which will bioaccumulate the contaminants (more contaminants the higher up the food chain)
- Attach to water intake structures, causing the structures to become clogged. This greatly



### Help Prevent the Spread

Zebra and Quagga mussels can be spread from one body of water to another by hitchhiking on boats, trailers, sea planes, shipping freighters, and other aquatic equipment such as scuba gear. They do so by attaching themselves

to boat bottoms, props, anchors, and engines. They may also be carried on aquatic plants that get caught on boats and trailers. In their microscopic juvenile stage, the mussels can even be carried in boat bilge water, live wells, and bait buckets.



**By taking a few simple steps before and after boating or fishing, you can help prevent the spread of these invasive mussels and protect our lakes.**



- Inspect your boat and trailer carefully for mussels and aquatic plants and discard them in the trash
- Drain all water from the boat, including the bilge, live well and engine
- Dry the boat and trailer in the sun for at least 5 days. If you use your boat sooner, rinse off the boat, trailer, anchor, bumpers, and engine with hot water
- Leave live aquatic bait behind – either give it to someone using the same waterbody, or throw it in the trash
- Home owners and businesses who draw water directly from a zebra/quagga mussel infested water body will need to protect their system from being clogged

There are currently no known methods for eliminating zebra and quagga mussels without causing major damage to the ecosystem of the water body. Public assistance is needed to help prevent the spread of this highly invasive species that has major negative effects on the local environment and economy.

Please take the proper precautions when moving a boat from one water body to another and report zebra or quagga mussel sightings.

# **DON'T MOVE A MUSSEL**

# Environmental Impacts of Road Salt & Ice Melt

With winter on its way, icy roads, driveways and sidewalks are soon going to be an everyday issue for us all. Road salt and other ice melt products however, contain sodium, chloride, ferrocyanide (anti-caking agent), and other possible impurities such as phosphorus and iron. These materials make their way into our environment through rain/snowmelt runoff and spray from vehicles, which allows them to affect the local plants, soil, groundwater, streams, Lake Superior, the health of humans, aquatic life, wildlife & pets, and even infrastructure.

According to The Salt Institute in Alexandria, Virginia, about 17 million tons of deicing salt is applied to roadways in the U.S. each year.



**Impacts on Plants & Soil:** The most visible impact of road salt on our environment is in the grass, shrubs, and foliage along the roadside. Salt causes dehydration which leads to leaf damage and also harms root growth, nutrient uptake and cause injury to seed germination, stems, leaves, and flowering ability.



Salt can ultimately lead to plant death, which can allow invasive species to take over an area.

Road salt can also influence the chemistry of soils by leaching out calcium, magnesium and potassium and inhibiting important soil bacteria, all of which decreases soil fertility.

**Impacts on Water Quality:** Contaminants from road salt enter groundwater and waterways by infiltration, runoff and through storm drains. Accumulation and persistence of chloride poses a risk to the water quality and the plants, animals, and humans who depend upon it. Chloride cannot be treated or filtered with BMPs (Best Management Practices, such as the retention ponds with plant buffers at the Legendary Waters casino), so once salt is applied, chloride remains in the watershed until it is flushed downstream. Meaning the road salt will remain in our waterways until it is flushed into Lake Superior, neither of which is good. Since groundwater takes much longer to recharge, chloride can remain for a very long time and contaminated wells often must be replaced.

## **Impacts on Human Health**

Sodium in drinking water is a health concern for individuals restricted to low-sodium diets due to hypertension (high blood pressure). Chloride is not toxic to human health at low levels but does cause taste and odor issues.





## Impacts on Aquatic Life, Wildlife, & Pets

Chloride in surface waters can be toxic to fish, macroinvertebrates (bugs) and amphibians. Birds and other wildlife often consume road salt, which can lead to dehydration, confusion and toxicity as well as cause increased vehicular accidents because animals are drawn to roads more often . Damage to vegetation can also limit food resources, shelter, and nesting sites.

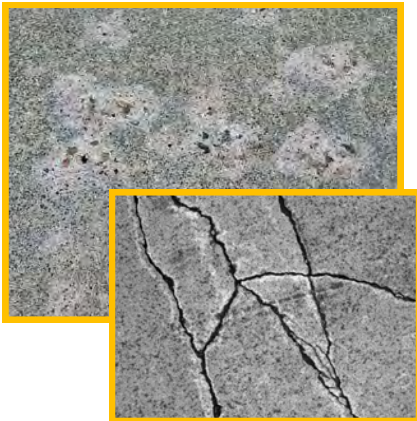


### **Your Pets**



The 2 biggest concerns for pet owners are ingestion of salt and paw health. The ASPCA's Poison Control Center says that ingestion of salt melt can cause vomiting, diarrhea, excessive thirst, weakness, seizure, coma, and even death.

Exposure of your pet's paws to road salt can produce painful irritation, inflammation, and cracking of the feet pads that can be prone to infection and are slow to heal.



## Impacts on Infrastructure

Chloride ions increase the conductivity of water and accelerate corrosion. Chloride can penetrate and deteriorate concrete on bridges, roads, sidewalks and parking garage structures, and damage reinforcing rods, compromising structural integrity. Salt also damages vehicle parts such as brake linings, frames, and bumpers.

The cost of corrosion damage and corrosion protection practices for highways and vehicles costs millions of dollars every year.

## Alternatives to Ice Melt Products

### **For Roads:**

- Cheese brine: In Wisconsin, cheese brine is now part of the de-icing process. The liquid is used in factories to soak certain cheeses. As a bonus, because it's a byproduct that's thrown away after the cheese is made, it's free.
- Molasses: Some towns in the U.S. are favoring sweet over salty as they turn to molasses. Mixing it into a salt brine solution apparently helps salt stick to the roads and makes it less corrosive.
- EcoTraction: Invented by a Canadian company, EcoTraction is made of non-toxic, all-natural volcanic rock. The granules embed into ice and snow, creating a solid, non-slip surface. Founder Mark Watson developed the product after his dog died of cancer, which may be triggered by toxins in road salt.

### **For Sidewalks and Driveways:**

- Sand, light gravel, pea rock, and cat litter: can provide traction without melting ice. Can use in combination with a small amount of ice melt
- Safe Paw Ice Melter: a no-salt melter that's safe for the environment and pet friendly.
- Shoveling: Keep ice from building up by shoveling regularly, or use a small amount of ice melt to loosen ice and shovel it off



# Wildlife Spotlight: White-tailed Deer and Elk

*Red Cliff Wildlife & Forestry*

*Treaty Natural Resources: Winter Newsletter 2015*



Red Cliff Buck Fall 2015



Two Translocated Kentucky Bull Elk in Velvet:  
Black River Falls Elk Range 2015

## Wisconsin Elk: Background

Historic records show elk once inhabited at least 50 of Wisconsin's 72 counties. Elk were extirpated from Wisconsin in the mid to late 1800s due to unregulated hunting, land use practices, and poor forestry practices that changed habitat. There was an attempt at translocating elk into Wisconsin in the 1930's but it was unsuccessful. Land conversion in southern Wisconsin from prairie to agriculture, coupled with high human occupancy, has resulted in little to no suitable habitat in the Southern half of the state. However, suitable elk habitat can now be found in the northern and central forest regions of the state.

In February 1995, 25 elk were trapped, held in a quarantine facility for 90 days while undergoing rigorous disease testing, and transported to the Clam Lake release site. After being held in a pen for a two week acclimation period, the elk were released May 17, 1995. The herd has been intensively studied and monitored since the release, and has helped guide management decisions.

Since 1995, the herd has grown at an average rate of 13 percent annually. However, growth rates have varied from as high as 30 percent to as low as -16 percent since 1995. Primary causes of mortality include predation and vehicle collisions, although several causes of death have been recorded. Primary habitat used by the elk consists of aspen and other young forest growth interspersed with mature forest, forest openings, and lowland conifers. (WDNR 2015)

## Current Elk Reintroduction

- An agreement with the state of Kentucky to import as many as 150 elk over a 3-5 year period.
  - Up to 75 will be added to the existing Clam Lake herd
  - Up to 75 will be used to establish a new elk herd in the Black River State Forest
- Allow for the assisted dispersal of elk to suitable habitat within the existing elk ranges;
- Recognize the importance of quality habitat and the factors that correspond with reducing predator impacts; and
- Increase the size of the current Clam Lake range to include more and better habitat.
- Overall goal is to grow the Clam Lake elk herd to roughly 1,400 animals, while approximately 400 are desired in the Black River Elk Range.



# Current Elk Population

As of post-calving in 2015, approximately 160 elk are present in the state, comprised of the main herd near Clam Lake and a second smaller herd located near Butternut. Various herd growth strategies have been used to help the elk occupy their designated 1,600 mi<sup>2</sup> Clam Lake Elk Range, including assisted dispersal.

Current management practices were updated with an amendment to both the Black River and Clam Lake Elk Management Plans in 2012. These updated plans focus on continued research and monitoring, assisted dispersal to quality habitat, and a supplemental increase and reintroduction by importation of wild elk from Kentucky.

Beginning January 2015, twenty-eight wild elk were trapped in Kentucky. They underwent a 120 day quarantine period, the first 45 days of which took place in Kentucky. They have since been released into the Black Riv-

er Elk Range in Jackson County.

The current translocation effort is expected to cost about \$600,000 and to date has received over \$550,000 in contributions from the Ho-Chunk Nation, Jackson County Wildlife Fund, Rocky Mountain Elk Foundation, and various county governments and other partners.

The Wisconsin Elk program expenses currently run about \$200,000 per year. While this is expected to increase somewhat with the establishment of a second herd, increasing elk numbers also means new opportunities to help fund the program. Currently, Wisconsin's elk herd generates over \$200,000 of revenue per year in the Clam Lake area (according to the Cable Chamber of Commerce. (WDNR 2015)



## Elk Reintroduction:

### Ongoing WDNR Projects

- Posting elk management area signs prior to the deer hunting season to ensure that hunters are aware of elk in the area;
- Distributing elk identification sheets to local registration stations and popular establishments to educate hunters prior to deer hunting season;
- Retrieving trail cameras that were deployed and looking at captured photos in order to obtain a bull population estimate and assess calf production and survivorship;
- Completing habitat work for elk including creating two large wildlife openings in the Flambeau River State Forest that are planted with winter wheat and rye - they will be replanted with clover and timothy next spring or early-summer;
- Working on an assisted dispersal of Clam Lake elk to ensure that the entire Clam Lake elk range is utilized; and obtaining weekly locations on all currently collared elk including males, females and calves as well as doing a weekly mortality check.



## Bull Elk Near Clam Lake

Photo: Jeff Morden





## White-Tailed Deer

There has been considerable public mistrust of WDNR deer population estimates, which led to an audit of the SAK method used by the WDNR. This audit by an international panel of experts found the Wisconsin DNR's deer population modeling system to be a sound program that is as good or better than that of any other state. One of the primary recommendations was to conduct an adult buck mortality study. This type of study is important because the proportion of bucks harvested during hunting seasons vs. those killed by predators/cars/winter weather is essential in using the SAK method to estimate deer populations.

The WDNR estimates deer populations using a formula called the Sex-Age-Kill (SAK) method. This method uses the number of harvested deer and the age and sex structure of the harvest, along with other supporting assumptions, in order to reconstruct the deer population size.

Researchers categorize deer into three age groups, Fawns 0-12 months, yearlings 12-24 months and adults 2+ years. These groups are important in understanding the age structure of the herds, which plays into how rapidly the herd can grow. (WDNR 2015)

### 2015 Deer Hunting Season

- Buck harvest was up 7.19% from 2014 to 2015 in Bayfield County
- Overall Wisconsin harvest for 9 day gun hunt (preliminary totals) went up from 199,583 to 201,812, representing a 1.12% increase.
- No wolf hunt during 2015, yet deer harvest numbers increased

### Current Wisconsin White-Tailed Deer Research Projects

- Estimating survival and cause specific mortality of adult male white-tailed deer.
- Impact of predation, winter weather, and habitat on white tailed deer fawn recruitment.
- Evaluation of Wisconsin's deer population monitoring and management system.
- Relationships of deer ecology, disease ecology, and hunter behavior to manage chronic wasting disease (CWD) in Wisconsin



**Red Cliff Buck 2015**

### Local Deer Status

- 2014 Bayfield County Overwinter Deer Density Estimate 12 deer/sq. mile (Highest density county=Waupaca: 48)
- Although elk and deer share similar habitat preferences, research has shown that having elk on the landscape does not produce negative competition with deer.
- Red Cliff total deer harvest: 2014 = 8 2015=11 (as of 12/16/2015)
- Estimated fall deer population for Bayfield County in 2014 was: 20,600 deer.



# DON'T SHOOT AN ELK!

Elk have been reintroduced to Jackson County

Watch for similarities and differences between elk and white-tailed deer

## ELK Cow/Calf



## WHITE-TAILED DOE/FAWN



A 5-6-month-old calf will be about the same size as an adult white-tailed doe.

## BUCK DEER



## BULL ELK



## Similarities and differences

### ELK CALVES & WHITE-TAILED DOES:

A 5-6-month-old elk calf will be about the same size as an adult white-tailed doe.

### TAILS:

Elk have a short tail; Deer have a long tail with a white underside.

### SIZE:

Adult Elk stand 4 - 5 feet at the shoulders; Deer stand 3-3½ feet at the shoulders.

### COLORING:

Elk have a tan rump patch, black legs and dark brown, furry neck. Deer have legs the same color as their bodies, and a white throat patch.

### ANTLERS:

Elk antlers sweep back; Deer antlers curve forward.

### JEWELRY:

Most elk have been marked with collars and ear tags.

ALWAYS BE SURE OF YOUR TARGET AND BEYOND!



dnr.wi.gov  
PUB-WM-634-2015



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



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



**MEYERS BEACH/SEA CAVE**  
**PARKING AREA**

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

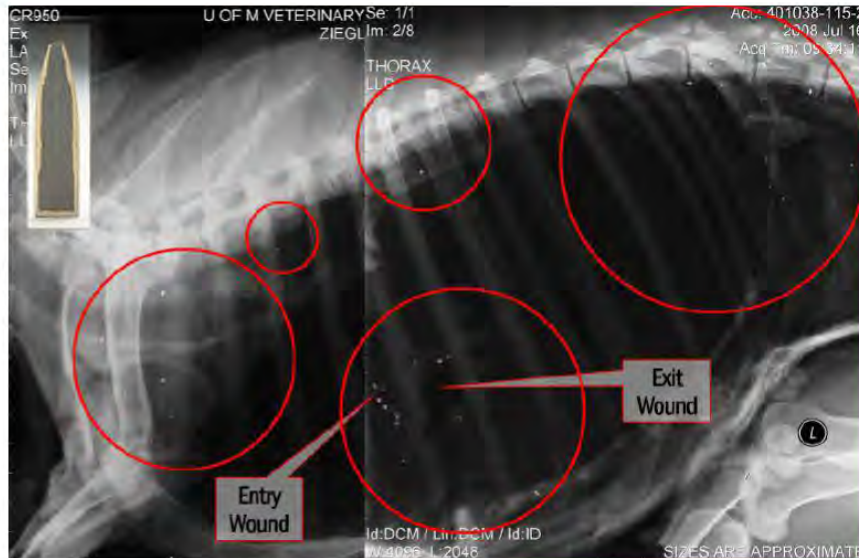
No member shall park at Meyers Beach without providing the following information **ON AN AVAILABLE FEE ENVELOPE (insert no money):**

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





# Why your deer may be dangerous even after you shoot it.....



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

These lead fragments are not only **harmful to humans** but are also

hurting our Wisconsin wildlife. Some of the many affected animals include *carrion* birds such as eagles and vultures, canines such as wolves and coyotes, and waterfowl such as ducks and geese. An unusual bird that is dropping in populations due to lead poisoning is woodcocks. Some other examples of lead that animals ingest are spent shot (waterfowl, upland game), sinkers (waterfowl), mine tailings (waterfowl), and paint chips.

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

## What can I do to help?

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



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

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



# TNR's Lighting Efficiency Upgrade




The Treaty Natural Resources Division in cooperation with the Red Cliff Energy Team is in the process of upgrading the division's lighting to energy efficient LEDs. We plan to use the upgrade to track energy and cost savings over a year. We hope that our demonstration of cost and energy savings will encourage other offices and homeowners to make similar upgrades in the future.

Although LED lighting can be expensive to install, if you can financially plan for the initial investment, the savings soon add up. LEDs use less than a quarter of the energy of conventional lighting. LEDs also do not burn out the way other lightbulbs do. In fact, an LED's lifespan is about twenty years, so you don't have to pay for replacements for a long, long time. As technologies improve, the cost of LEDs is steadily falling. LEDs are also becoming easier to install with options compatible to most existing light fixtures.

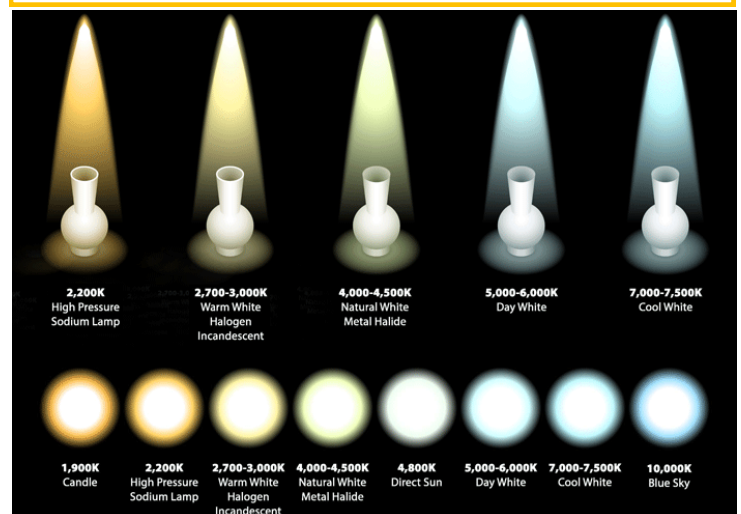
TNR's switch to LEDs took some planning. Now we are excited to see how our investments pay off. We will keep you posted on how our little lighting experiment progresses. If you have any questions on what we are up to or if you want to talk about how you can update your home or office's lighting, please feel free to be in touch with Beth at 779-3650 or [beth.raboin@redcliff-nsn.gov](mailto:beth.raboin@redcliff-nsn.gov).



EVOLUTION OF EFFICIENCY

Energy Comparison For Residential Lighting			
Light Type	 Incandescent	 CFL	 LED
Life Span (hours)	1,500	10,000	50,000
Bulb Cost	\$ 1.50	\$ 3.00	\$ 30.00
Wattage (W)	60	14	6
Price of electricity per kWh (\$0.30)	\$ 0.02	\$ 0.004	\$ 0.002
Running cost over 50,000 hours	\$ 900.00	\$ 210.00	\$ 90.00
Bulbs needed for 50,000 hours of use	33	5.00	1.00
Replacement cost total	\$ 50.00	\$ 15.00	\$ -
Total 50,000 hour lighting cost	\$ 950.00	\$ 225.00	Only \$90.00!

LEDs are available in a range of colors, so efficient lighting is no longer confined to a grossly bright white that can make your living room feel like a doctor's office. Use the chart below to match your lightbulbs with the color that's right for you.







# Winter Pet Care

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

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



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





## Now save 20% At the waste transfer station!

It's easy. Just buy the regular tags then make less garbage.

### Three easy steps to savings:

⇒ Recycling is free at Red Cliff.

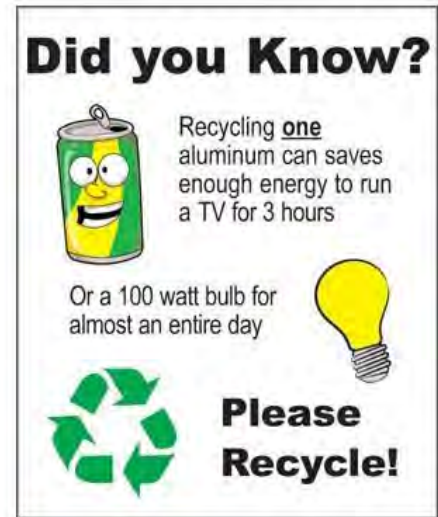
Not sure what to recycle?

Guidelines are listed on the next page. You can also ask George at the waste transfer station or check out our brochure at:

<http://redcliff-nsn.gov/divisions/TNRD/TS.htm>

⇒ A lot of our garbage is made of stuff that we can compost. In fact nearly 20% of our garbage at Red Cliff is made of things like food and yard waste. To hear how the TNR Division is composting and how you can compost too, check out the article on page 11.

⇒ Quit buying garbage! Take note of the packaging on what you buy, and steer clear of heavily packaged items. Why should we pay companies to pollute Earth?



# Can you recycle it in Red Cliff?

## YES! Recycle it!

- #1 and #2 plastic food and beverage containers
- Glass Bottles: any color, rinsed out
- Aluminum cans separated from other recyclables
- Bimetal cans: Cleaned soup cans, pet food cans
- Cardboard: Corrugated boxes and cereal boxes
- Paper: Newspapers, magazines, office paper, mail

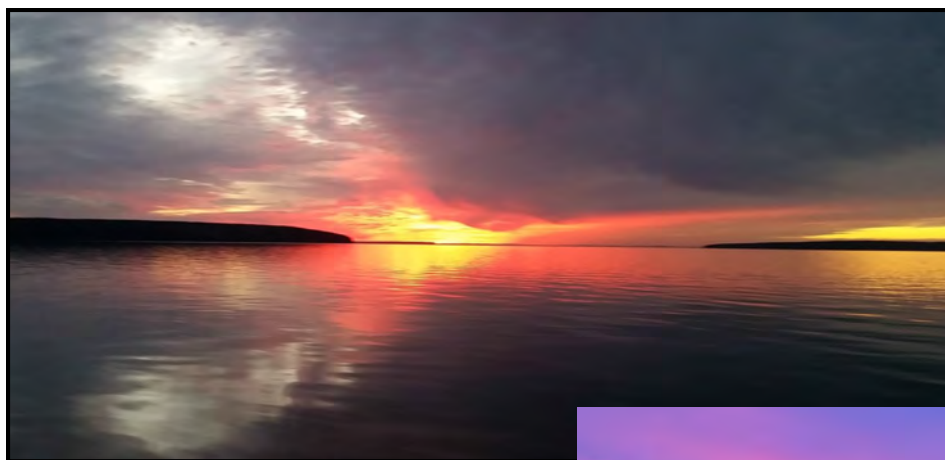


## NO, we CANNOT RECYCLE these items!

- Plastic bags
- Paper or plastic plates clean or dirty
- Napkins, paper towels, toilet paper, cloth
- Plastic or compostable silverware
- Plastic containers that once held automotive products such as oil, gas, and coolant
- Cigarette butts
- Clothing
- Diapers
- Broken windows/mirrors



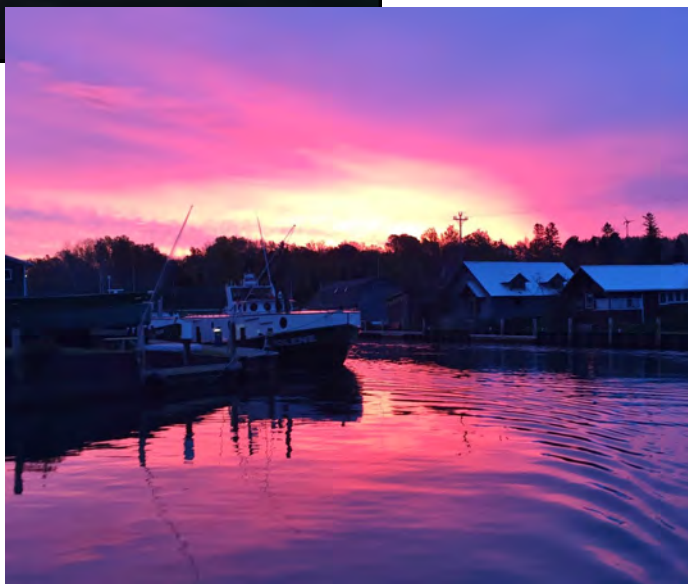




**Left:** Sunrise fish assessment by Mike Defoe

**Bottom Left:** Early snow at frog bay by Linda Nguyen (footsteps of Mike Poch)

**Below:** Sunrise on the water taken by Chad Abel



RED CLIFF BAND OF LAKE SUPERIOR CHIPPEWA

## Treaty Natural Resource Division



Fisheries

715-779-3750

Environmental

715-779-3650

Natural Resources

715-779-3795

Transfer Station

715-779-0171

Conservation Wardens

715-779-3732