



Treaty Natural Resource Division

Red Cliff Band of Lake Superior Chippewa

Volume 5, Issue 4 Winter 2016

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

October Employee of the Month

Lucas Cadotte, Assistant Chief Conservation Warden



Lucas is perennial in his commitment to the duties of the conservation enforcement department. Mark Duffy often credits Lucas for, “bringing our office from the pencil age to the computer age.” Lucas also shows his willingness to collaborate with others in the TNR Division, like his participation in the installation of the Chicago Creek fish ladder and his multi-day commitment to the restoration of the red barn at the farm. He also was a regular attendee to the collective Division effort to revamp Chapter 11 of RCCL in 2016. Lucas continuously acts as a team player and was recently promoted to be “Assistant Chief” of his department.

November Employee of the Month

Todd Norwood, Project Coordinator



Todd was rehired in the TNR Division in early 2016 to coordinate restoration projects and assist the Tribe in invasive species management. He contracted two restoration projects (Eagle Bay Wetland and Clinic Waterway) and assisted greatly in the installation of the Chicago Creek fish ladder as well. He also coordinated with NRCS on wild rice seeding efforts at Red Cliff, and he undertook an informative genetic analysis of non-native Phragmites in the greater Chequamegon Bay area. Currently he is our point person for the Spirit Island streambank rehabilitation project, with native plantings to begin there in May 2017. He does a lot to help the Tribe attain our natural resources goals. Thanks Todd!

December Employee of the Month

Nathanael Secor, Farm Manager / Food System Coordinator



Nathanael earned EOTM in December to recognize the significant progress that was made at Mino Bimaadiziiwin (the tribal farm) in 2016 under his direction. Sales to tribal programs and local businesses and a weekly farm market stand created much-needed revenue at the tribal farm for the first time. Nathanael also helped orchestrate major improvements to the farm last year, like fixing the historic red farm building, creating raised beds in the vegetable garden, and pruning all of the apples in the orchard. In the first year of his position, we thank Nathanael for his contributions and look ahead to the farm’s bright future!

New Employee at Environmental Department

Brian Cunningham Temporary Station Manager



Brian joined the Red Cliff Environmental Department in December of 2016 as the temporary Transfer Station Manager. He has many years invested in construction and industrial work. Born and raised in Detroit, Michigan, he moved across country for work - Montana, Nevada, and now here, at Red Cliff! It was in Las Vegas where he met his wife, Danielle Topping. They recently had a baby boy, named Zaiden. In his free time, you can find Brian enjoying the great outdoors. He especially likes to snowmobile, sled, bowl, shoot pool, but most of all, he loves spending time with his newly born son. He's just living life, taking care of his family, and learning about the recycling and sustainable practices implemented here at Red Cliff. Feel free to come on by the Transfer Station!

Contaminants of Emerging Concern

By: Gabrielle VanBergen –Water Resources Program Manager

You may have heard the saying “*all drains lead to the lake,*” but it can be hard to remember that includes what is sent down sinks, toilets, and washing machines. Many things we do in the course of a day can contribute to the contamination of surface waters (lake and streams) in ways we cannot see. Some of these “every day chemicals” are known as contaminants of emerging concern (Great Lakes Network, Resource Brief, Emerging Concern Among “Every Day Chemicals,” 2016).

Between 2013 and 2015, the Great Lakes Network sampled surface waters in four national parks- The Apostle Islands National Lakeshore, Indiana Dunes National Lakeshore, Isle Royale National Park, and Mississippi National River and Recreation Area. The sampling efforts were aimed at detecting wastewater indicators (except at Isle Royale), pharmaceuticals, personal care products, and pesticides.

As expected, more chemicals, at higher concentrations were found in the more urban parks (Mississippi River and Indiana Dunes). The following chemicals/substances were some of the most commonly detected at Mississippi River and Indiana Dunes:

- Estrogen (female hormones)
- Pain relievers
- Anticonvulsants (to treat seizures)
- Antidepressants
- Diuretics (to treat high blood pressure, kidney disease, etc.)
- Caffeine
- BPA (industrial chemical for making plastics)
- Herbicides (weed killers)
- DEET (an insecticide, bug spray)

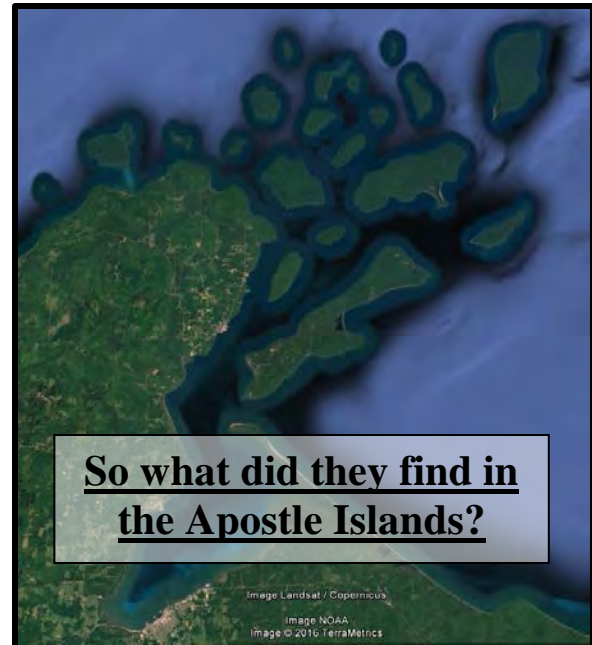


Image source: Google Earth

The Apostle Islands samples detected far fewer substances than the other three parks. The concentrations for each of the following substances were all found to be at levels far below benchmarks for concern.

- **BPA**- Detected in 12% of samples

Sources: coatings on the inside of food/beverage cans, water pipes, plastic bottles, storage containers, building materials, toys, and electronics.

Concerns: There are possible human health effects with children (brain, behavior, prostate glands). Impacts to aquatic organisms are suspected.



Image source: Your Local Markets

Contaminants of Emerging Concern cont'd

By: Gabrielle VanBergen – Water Resources Program Manager

- **Tri(dichloroisopropyl) phosphate-**

Detected in 12% of samples

Sources: used as a flame retardant in plastics, foams, nonwoven fabrics, automotive seats, and upholstery.

Concerns: Possible human health effects include altered hormone levels. Environmental effects could not be found.

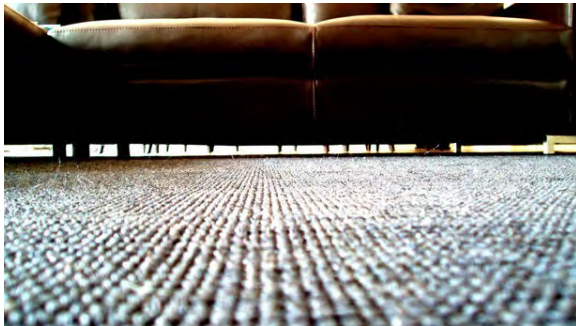


Image source: The Atlantic

- **Triclosan-** Detected in 12% of samples

Sources: antibacterial compound found in; soaps, deodorants, toothpastes, cosmetics, fabrics, toys, and personal care products.

Concerns: Can be converted to dioxin once in the environment (a toxic substance). Can also combine with chlorine in tap water and be converted into chloroform (a carcinogen).

May also be an endocrine disruptor.

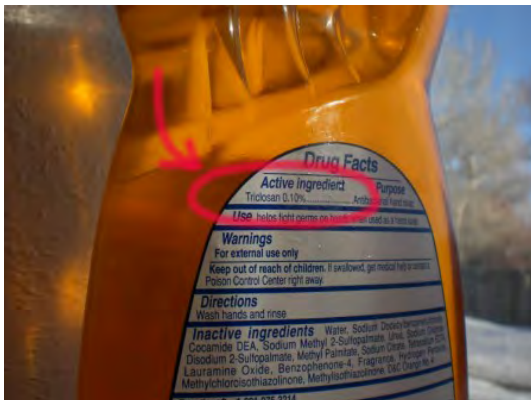


Image source: Scientific American

- **Gabapentin-** Detected in 30% of samples

Sources: nerve pain and anticonvulsant medication

Concerns: Unknown.



Image source: gaba-supplement.com

Conclusions

It is important to be mindful of what we are putting down our drains, and of the products we are using in our homes. Many consumer products have hidden ingredients that can be harmful to our own personal health, as well as the health of our environment and the plants and animals that rely on clean water to thrive.

While we do not know the full effects of these substances, they are reaching Lake Superior, and as a community that both enjoys and relies on the beauty and pureness of the big lake, it is our duty to do all that we can to protect it and keep it clean.

Please check out and enjoy the green cleaning recipes on the next page.

Green Cleaning Recipes

By: Gabrielle VanBergen – Water Resources Program Manager

All Purpose Cleaner

4 cups water
¼ cup vinegar
1 tsp borax

Disinfectant

2 tsp borax
4 Tbsp vinegar
3 cups hot water

For stronger cleaning power, add ¼ tsp castile soap

Window/Glass Cleaner

2 cups water
½ cup vinegar
¼ cup isopropyl alcohol
A few drops of essential oil (scent of your choice)

Hand Soap

2 tablespoons castile soap
Fill remaining space with water
A few drops of essential oil (scent of your choice)

Stove Grease Powder

(4 parts baking soda to 1 part washing soda)
8 tablespoons baking soda
2 tablespoons washing soda

Oven Cleaner

Moisten oven surfaces with wet sponge, spread a paste of ¾ cup baking soda, ¼ cup salt, and ¼ cup water throughout interior. Let sit overnight, remove with a spatula and wipe clean (rub gently with steel wool for tough spots).

Coffee/Tea Stains

Wipe cups with vinegar. To clean a coffee pot or tea kettle, add 2 cups of water and ¼ cup vinegar, bring to a boil, let cool, and wipe and rinse thoroughly.

Mold and Mildew

Use white vinegar or lemon juice.
Grout mold: Mix 1 part peroxide with 2 parts water in a spray bottle and apply, let sit for 1 hour.

Marks on walls/painted surfaces

Remove ink/crayon/pencil/marker spots by gently rubbing with a damp sponge and baking soda.

Drain cleaner

Light clogs: ½ cup salt mixed with 1 gallon water, heat and pour down drain.
Heavy clogs: Pour ½ cup baking soda down drain, then ½ cup vinegar. Pour hot water down drain after 15 minutes.

Tub and Tile Cleaner

Rub in baking soda with a damp sponge and rinse with water. Four tougher jobs: wipe down with vinegar first, then baking soda and rinse (vinegar can break down grout, so use sparingly).

Rust Remover

Sprinkle salt on rust, squeeze lime over the salt and let sit for 2-3 hours. Use lime rind to scrub off the rust.

Toilet Bowl Cleaner

Mix ¼ cup baking soda and 1 cup vinegar.

Deodorizers

Carpets: sprinkle with baking soda several hours before vacuuming.

Garage, basements: set a sliced onion in the middle of the room for 12-24 hours.

Air freshener: place dishes around the house with baking soda OR vinegar with lemon juice, or; simmer water and cinnamon or other spices on the stove.

Floor Cleaner and Polish

Vinyl/Linoleum: Mix 1 cup vinegar, a few drops of baby oil, and 1 gallon of hot water. For tough jobs, add ¼ cup borax.

Wood: Apply a thin coat of 1 part vegetable oil and 1 part vinegar.

Brick/Stone Tile: Mix 1 cup vinegar and 1 gallon water, rinse with fresh water.

Environmental Impacts of Road Salt & Ice Melt

By: Gabrielle VanBergen-Water Resources Program Manager



Icy roads, driveways and sidewalks are an everyday issue for us all during the winter months. Road salt and other ice melt products however, contain impurities that make their way into our environment through rain/snowmelt runoff and spray from vehicles. 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 plants along the roadside. Salt causes dehydration which leads to leaf damage and also harms root growth and nutrient uptake.

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 minerals and inhibiting important soil bacteria, all of which decreases soil fertility.



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 Water Quality

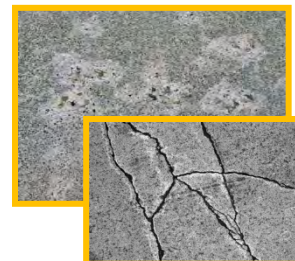
Contaminants from road salt enter groundwater and waterways by infiltration, runoff and through storm drains. Chloride remains in the watershed until it is flushed downstream. Meaning the road salt will remain in our waterways until it is flushed into Lake Superior, neither of which is good. Since groundwater takes much longer to recharge, chloride can remain for a very long time and contaminated wells often must be replaced.



Impacts on 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.

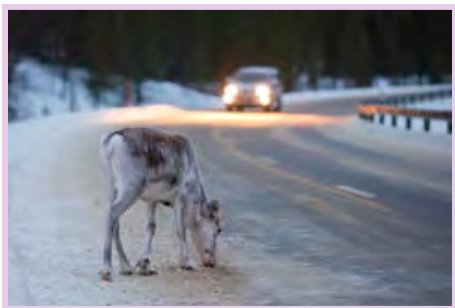


Environmental Impacts of Road Salt & Ice Melt

By: Gabrielle VanBergen-Water Resources Program Manager

Impacts on Aquatic Life, Wildlife, & Pets

Chloride in surface waters can be toxic to fish, aquatic 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.



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.



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.



Fish Aging

By: Michael L. Defoe - Assistant Fisheries Biologist

How old am I?

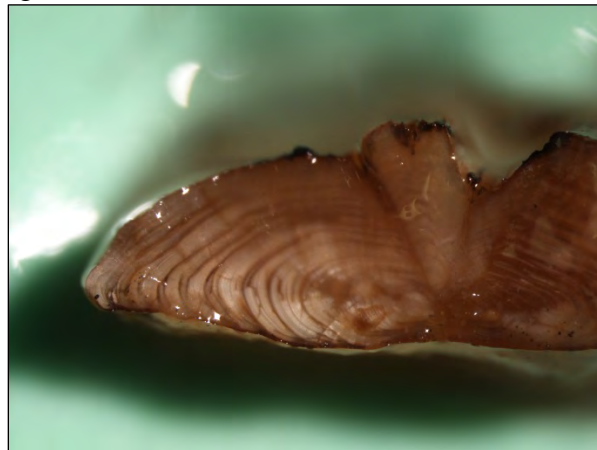
The image below is a Lake Superior Whitefish scale that is collected during the TNRD fisheries lake assessments. Scales are generally harvested from live fish that are released back into the lake after all biological data is collected. Scales are used to assist in determining the age of a fish.



Biological data collected includes the following:

- Length/Weight
- Sex/Sexual Maturity
- Sea Lamprey Wounds/Scars
- Scales
 - If the fish is deceased we also collect the following:
 - Stomach samples
 - Otoliths

The below photo is an image of a Lake Whitefish otolith. Otoliths are harvested from deceased fish only because it is considered an inner ear bone and requires extraction. An otolith is an aging structure that is used in determining the most accurate age of a fish.



Both of these images were taken on a microscope to zoom in more closely. Whitefish scales are generally 5x larger than an otolith. The above otolith is approximately 1mm wide.

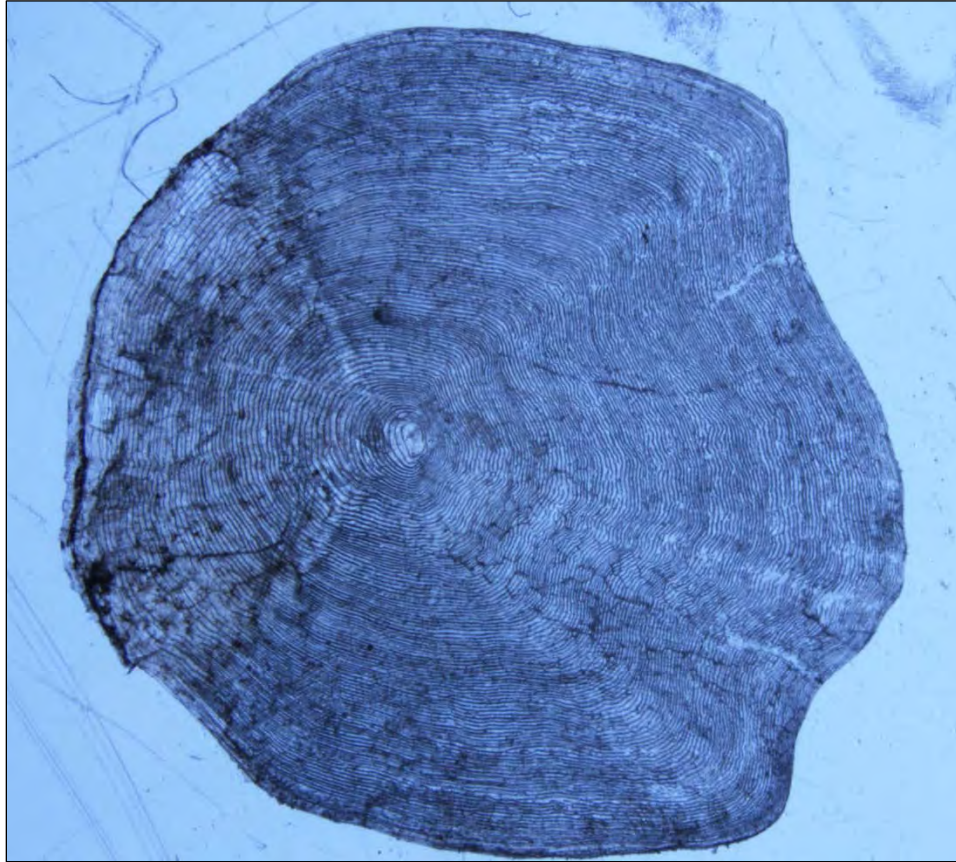
Similar to aging tree rings the scales and otoliths exhibit a seasonal flux between summer and winter growth. During the summer growth becomes more rapid, with availability of food sources, so the rings or annuli become more spacious. Winter growth is generally much slower so the annuli become more condensed creating separation in the rings. This difference in growth helps to determine the growth year.

Otoliths are generally easier to judge the age of the fish due to the clarity of the annuli compared to a scale. If you have further questions please contact the Red Cliff Fish Hatchery.

Happy Aging!

Fish Aging

By: Michael L. Defoe - Assistant Fisheries Biologist



Visit Frog Bay Tribal National Park

By: Michael Defoe –Assistant Fisheries Biologist

Let's get the hike out of here!

As you all know Frog Bay Tribal National Park (FBTNP) was established in February of 2012. After years of hard work and dedication we were able to create this amazing trail system throughout the park, including a high rise suspension bridge and multiple foot bridges along the way.

There is always on going work from trail maintenance, such as removing windblown trees, to trail development. In the fall of 2016, Treaty Natural Resources Division staff worked on the Beach Trail section of FBTNP. We harvested down woody debris from the forest floor and created an elevated walking path with logs and wood chips. The wood chips were dragged in using fish boxes.



Figure 1: Replacing steps on a foot bridge



Figure 3: Creating the elevated foot path for visitors to FBTNP

After all the work was completed we were able to stretch this elevated foot path approximately 200 feet through a cedar swamp area.

This past year TNRD guided multiple tours at the park. Including some of the following:

- Lake Superior Binational Program Tour: Climate Change Summit
- Bird and Nature Festival
- Bayfield High School
- Red Cliff Youth Center
- Red Cliff Early Childhood Center
- Bayfield Regional Conservancy

If you have not had an opportunity to walk at FBTNP please get out and take a hike.

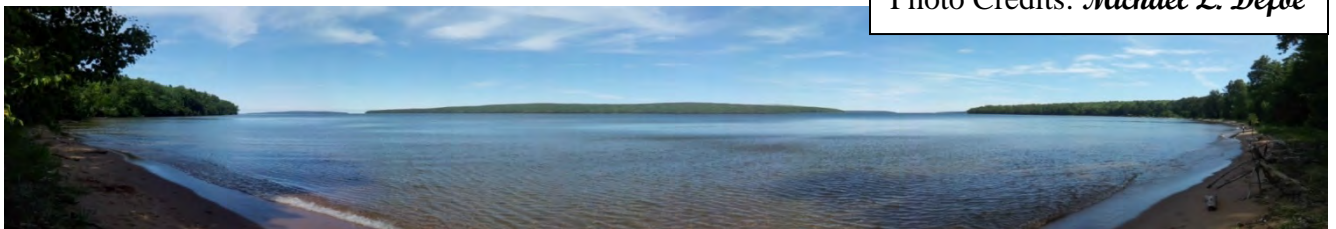


Figure 2: Panoramic view from Frog Bay looking into the Apostle Islands

Photo Credits: *Michael L. Defoe*

Prescribed Fire and the Return of Miinan

By: Todd Norwood – Project Coordinator

This spring, Red Cliff Treaty Natural Resources in cooperation with BIA Fire and Fuels is planning a prescribed fire at Raspberry Campground. The unit to be burned is just east of the campground; an area that many Red Cliff members recall miinan (wild blueberries) being plentiful many years ago. Without fire to create a disturbance in this area, the forest has matured and developed a thick understory of smaller trees and shrubs. As a result, not enough sunlight penetrates to the forest floor which prevents the sun loving miinan from flourishing, despite the plants still existing. Prescribed fire will help to set-back much of the understory vegetation along with select trees, opening the canopy and allowing more sunlight to the miinan. Results might not be immediate, but over the years you should see miinan returning to the area. The



benefits of fire on blueberries are fairly well known, both from a western science and traditional ecological knowledge viewpoint. Indeed, the Anishinaabe have a long history of using fire to encourage miinan production. We are excited to bring this part of Anishinaabe culture back to the reservation and to also have Red Cliff members certified as wildland firefighters that can assist with the burn.



Mino Bimaadiziiwin Farm Update

By: Nathanael Secor - Mino Bimaadiziiwin Farm Manager

2016 marked a year of transition and regrouping for the Mino Bimaadiziiwin Farm Project. January 2016 saw the hire of the farm's first full time farm manager, Nathanael Secor who set to work getting to know the community and planning for the spring planting. In March, natural resource staff completed a full pruning of the overgrown orchard. This was the first time in over a decade that the all of the trees in the orchard were pruned - quite an undertaking! The biomass from the trees was chipped for the farm's use on site as well as donated to tribal members for smoking fish and meats. We look forward to continuing this practice each year and revitalizing these elder trees.

Later in the spring, the farm teamed up with the alternative education class of the Bayfield High School in the spring to ready the farm for planting and prepping the garden beds. Each week, up to a dozen students as well as two instructors donated their time to better the farm and the Red Cliff community. This proved important to the students as well as farm staff as they learned together and developed a working relationship. The class returned near the end of the growing season to continue their contributions to the farm, harvesting apples and pears in the orchard, planting trees, and digging potatoes.

In June, farm staff continued the tradition of the Red Cliff wide plant giveaway distributing several thousand vegetable starts to close to 80 individuals and families for their home gardens. Around this time we also took a pause to formally recognize Carl Butterfield who contributed hugely to the Mino Bimaadiziiwin Farm for close to a



Figure 1. Friends and family gather to honor Carl Butterfield (seated) during the spring planting celebration

decade. Around 100 community participants gathered and celebrated Carl's legacy as we planted apple and pear trees in his honor, feasted, and enjoyed the summer day. We were thankful to have Carl in attendance to celebrate together as he passed on to the spirit world only weeks later.

The summer saw a series of improvements to the farm including construction of no-till raised beds throughout the garden, creation of raised beds in the high tunnel, comprehensive soil testing and soil



Figure 2. Staff and volunteers organize seedlings for the plant giveaway

Mino Bimaadiziiwin Update and 2016 Report cont'd

enrichment, and a significant increase in volume of produce grown, donated, and sold to the community at affordable rates.

A church group from the Twin Cities also came to offer assistance to the farm bringing nearly forty individuals to lend a hand for an afternoon. This generous effort helped the farm plant a dozen fruit trees, harvest our crops, and weed several overgrown beds.



Figure 3. Orders of fresh picked green beans prepped and ready to go out

This summer also saw expanded sales through our weekly on site farmer's market which ran from early August through the end of October. We also regularly sold produce to the Red Cliff Early Childhood Center, Bayfield Public Schools, Andy's IGA, the Rittenhouse, Wild Rice Restaurant, Good Thyme, and Legendary Waters. Additionally, we made regular donations to the elderly lunch program bringing fresh produce on a biweekly basis.

The fall apple harvest was a highlight for the farm following the pruning of all the trees in the spring. The apples were donated to the elders, sold at the farmer's market, pressed into cider for several visits from the Early Childhood Program classes, and utilized for an apple sauce canning workshop. Eight boxes of apples were also donated to the Standing Rock Sioux tribe to nourish water protectors resisting DAPL. Also in the fall, Natural Resource staff joined their coworkers at the farm for a series of workdays to rehabilitate the last original farm building on site. This small storage barn is nearly a century old and was in desperate need of renovation. NR Department staff cleaned out decades of accumulated rubbish, organized the useful contents, added a layer of packed sand and gravel inside, scraped and painted the outside of the barn, sealed broken windows, and attached gutters and downspouts to route water away from the barn's footings. This collective effort not only brought our team together for a good purpose, but added a decade or two to the lifespan of this historic building.



Figure 4. Squash harvest at Mino Bimaadiziiwin Farm

Mino Bimaadiziiwin closed out the harvest season with a community harvest feast. Staff and board members served venison chili with tomatoes and veggies from the garden, apple crisp using the farm's apples, kale

Mino Bimaadiziiwin Update and 2016 Report cont'd

salad using the garden's veggies, as well as a roasted potatoes and Brussel sprouts, and buttered squash all from the farm. Everyone left full and well-nourished with ample leftovers for their families. This dinner marked the first event of the fall harvest series which also included free community workshops to make canned apple sauce & tomato sauce, process the farm's corn into hominy and use the farm grown cabbage and veggies to make sauerkraut and kim chi. About a dozen participants came to the classes and left both with new skills and the fruits of their labors. All surplus food was brought to the Red Cliff elder center.

community, community workshops, and the fall harvest feast. Additionally, keep an eye out for the farm plan which will be put out for public review this spring/summer. 2017 will be a year of new projects including a revamped and more organized composting system, collaborations with other tribal programs to provide free and subsidized produce for qualified families, chickens and rabbits on site for eggs, meat, and fur, and increased plantings of fruit and nut bearing perennial shrubs and trees. We look forward to building on our successes in 2017 and incorporate the lessons learned from Natural Resource's first full season of involvement with Mino Bimaadiziiwin.

Farm Manager, Nathanael Secor
nathanael.secor@redcliff-nsn.gov
715-779-3782



Figure 5. A workshop participant checks on the hominy corn to see if it's ready

Overall, 2016 was a year of change but we met the challenges head on and learned a lot from our efforts. This upcoming season, tribal members can expect the farm to continue traditions such as the plant giveaway, helping establish gardens in the

Friends of the Dirt taking applications

By: Nathanael Secor - Mino Bimaadziwin Farm Manager

Are you interested in supporting Red Cliff's Tribal food sovereignty? Do you enjoy serving your community? Are you a gardener or wish to learn about gardening with others who share this same passion? Well, look no further – the Friends of the Dirt can use your help.

The Friends of the Dirt committee has served an important role for the farm and for over a decade in contributing to farm functions and determining the vision and objectives for Mino Bimaadziwin. While the role has shifted slightly in recent years, the need for this committee is as vital as ever. We're in need of volunteer members to help host workshops, assist with planting and weeding, and contributing to garden programs that benefit the Red Cliff community. The time commitment may vary. Depending on a member's preferences he or she can work 1 or multiple hours/weekly.

From the committee bylaws, the committee will work towards “sustainable operation of the Mino Bimaadziwin Farm, to increase gardening and food preservation education, and to improve the health and wellness of the community by encouraging participation in food production.”

Interested people are encouraged to call or email Nathanael at 715-779-3782 or nathanael.secor@redcliff-nsn.gov. You can also stop by the log farm building near the clinic or the Tribal Administration building to pick up an application to join. Enjoy the pictures below, of the fruits of everyone's labor from last year's garden!

Miigwetch!

Nathanael Secor Farm Manager



Red Cliff Tribal Fish Hatchery

By: Chase Meierotto - Hatchery Manager

The Fish Hatchery has been busy with our brook trout the past few months. It is a long process that takes months to complete. Below is a little description of some of the events that take place to make a successful spawning season.

Tank Preparation: First, the tanks need to be divided into multiple sections. One section for males and two for females (one for pre-spawn and one for post-spawn).

Fish Separation: Fish must be separated by gender. This is done so there is easy access to each fish during spawning. It is also a time saver when fish are being checked to see if they are ready to spawn.

Disinfecting the Gear: Anything that is used in the spawning process needs to be disinfected. This is also done before each spawning event to prevent disease transmission.

Separation of Ripe and Green Females: A ripe female is one that is ready to release her eggs and a green female is not ready to release her eggs yet.

This process is done weekly during the spawning season. Not every fish is ready to spawn at the same time; therefore they need to be checked weekly so that eggs can be collected if a fish is ready to spawn.



Above: A few photos of brook trout from 2017.

Egg Collection: Egg collection and fertilization takes place weekly during the spawning season as well. After ripe females have been separated, the eggs are taken from them, and fertilized, and brought over to the production building where they will be raised for a little over a year before being planted in the lake.

Egg Count and Stacking: Eggs are then measured in a graduated cylinder and placed in one of the stacking trays.

These last three events take place week after week until each fish is spawned out.

Egg Picking: Eggs are then sorted (Fertilized and Non-fertilized). The fertilized eggs are kept in the trays while unfertilized eggs are disposed of.

Egg Storage: Eggs are kept in the trays until they hatch and are then transferred over to the small rearing tanks.



Above: The stacks that the eggs are stored in until they hatch.

Potential Ma'iingan/Wolf Documentary on the Horizon

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

Recently, there was a collaborative effort between the Red Cliff Tribe and Wisconsin Public Television (WPT) to create an episode on the “History of Red Cliff”. On the heels of that successful collaboration; The Red Cliff Tribe, WPT, and other Wisconsin Tribes are in talks for a documentary on wolves.

The Proposed documentary would likely center on the telling of Ma'iingan role in Tribal culture from Tribal members of multiple bands and the Red Cliff wolf satellite collaring project, but may feature

wolf conservation efforts from other Tribes as well.

Stay tuned for more information on the potential documentary and on the Red Cliff Wildlife Program wolf satellite collaring project in the near future.

New trail cam videos are periodically uploaded to the Red Cliff Band of Lake Superior Chippewa YouTube page! Most recently some amazing wolf, bobcat, and coyote videos!



Echo Valley wolf pack member Red Cliff TNR Trail Cam Station January 2017



Echo Valley wolf pack member Red Cliff TNR Trail Cam Station January 2017

Tribal Timber Harvest Beginning Winter 2017

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

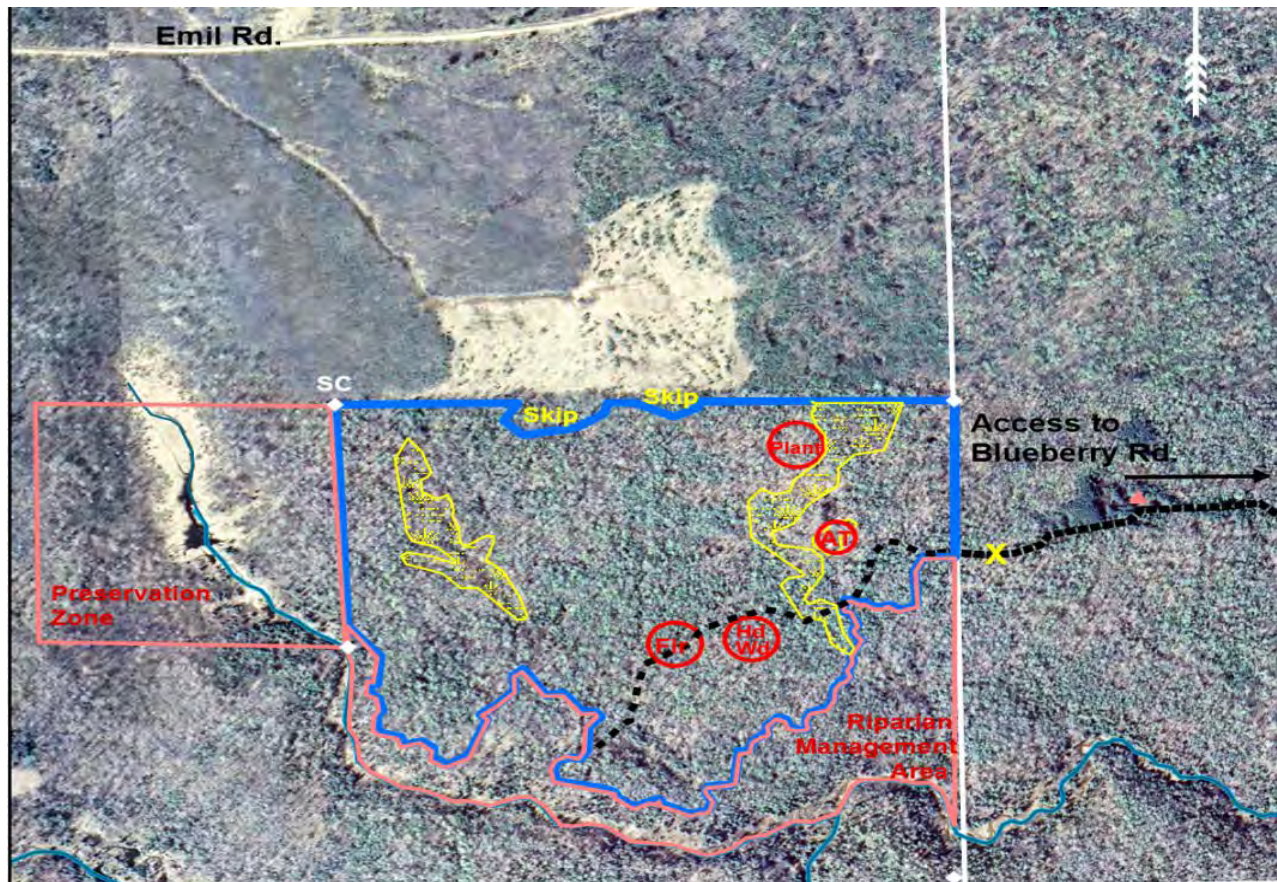
The Red Cliff Tribal Council approved this timber sale offering for bidding in a December 2014 resolution.

This sale will provide forest management on 103 acres, which is 245 percent of the Tribe's annual allowable cut (AAC: 25 percent of annual growth volume) of 42 acres per year. This 25 percent AAC rate was specified in the 2006 IRMP, but no cutting unrelated to urban development has occurred since then. Volume-wise, this is only utilizing 81 percent of annual growth volume of the forest.

The East boundary of the sale area is connected to Blueberry Rd., a half-mile west, by an overgrown 2-track logging road, which will be the access road for the sale.

The sale is in the SE quarter of Section 13, T51N R4W

The sale is entirely on Tribal Trust land. The South and West boundaries abut resource protection areas for a tributary of Red Cliff Creek (south boundary) and the Red Cliff Trust Preserved Zone. To the north is Bayfield County land where three clearcuts of different ages border the sale area. To the east is more Tribal Trust land with mature timber. All external boundaries are marked with blue paint blazes. Scattered, unmarked wetlands exist and are protected by Wisconsin Forestry Best Management Practices for Water Quality (BMPs).



Tribal Timber Harvest Beginning Winter 2017

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

Timber Harvest Goals

- Generate revenue for the Tribe
- Demonstrate high reserves harvest
- Induce increased growth, recruitment, and regeneration of reserve trees
- Preserve structural diversity of the forest for wildlife, vegetation, water resources, and other ecosystem protection and enhancement goals
- Demonstrate an alternative to clear cuts

Timber Harvest Notes

- Harvest will begin in winter 2016-2017 and will encompass 103 acres of a 200 acre tract.
- Approximately 2,734 cords of aspen (Only Aspen)
- Situated between Blueberry and Emil Rd.
- 4 small test plots will be done to draw conclusions for prescriptions on similar sites
- Heavy equipment warning signs will be located near the sale on Blueberry rd.
- Dislike for Bayfield County clear cuts within the reservation boundary was one of the main concerns from Tribal members.
- Winter harvest will help deer survive winter and provide more game for Tribal hunters

Pipelines in Indian Country

By: Amarin Mello – Red Cliff Environmental Justice Specialist

Pipelines for crude oil, natural gas, and other petroleum products have been a hot topic throughout Indian Country, especially in recent times. Many people believe that these pipelines are the physical manifestation of the “*Black Snake Prophecy*” of the Lakota people, which is said to destroy their sacred sites and poison the landscape and water. Red Cliff has been working on a number of pipeline issues on many fronts, from both official and grassroots approaches. Many members from the Red Cliff community (elders, youth, Tribal Council, ogichidaa(kwe), staff, etc.) have gone to the water protector camps near the Missouri River to offer their support to the Standing Rock Sioux and other Missouri River Tribes.

Closer to home is the issue of Enbridge Line 5. Originally constructed in 1953 with an expected lifespan of 50 years, Line 5 is now more than 60 years old. Line 5 begins in Superior, Wisconsin, and terminates in Sarnia, Ontario. It crosses Chippewa ceded territories, the Chequamegon-Nicolet National Forest, the Bad River Reservation, the Straits of Mackinac, and other sensitive lands and waters.

Earlier this month our neighbors and relations at the Bad River Band denied renewal of Line 5 easements on allotments within their reservation, which had expired in 2013. Furthermore, Bad River also called for the decommissioning and removal of Line 5 from the Bad River reservation and watershed. This is an unprecedented situation, and will likely result in a legal battle for years to come.

Red Cliff has recently been informed that Line 5 is also up for renewal of a special use permit within the Chequamegon-Nicolet National Forest within Bayfield County. Limited information received to date indicated that the special use permit had also expired in 2013. The United States Forest Service is currently collecting comments regarding renewal of this special use permit. Red Cliff’s Environmental Department is

working to gather more information about this situation.

In Michigan, Line 5 crosses the Straits of Mackinac beneath Lake Michigan and Lake Huron. If Line 5 were to leak oil at this critical location, it would have irreversible consequences upon the Great Lakes. For a list of Great Lakes Anishinaabe tribes calling for the decommissioning and removal of Enbridge Line 5 from the Straits of Mackinac, see OilAndWaterDontMix.org.

Red Cliff is also involved as a cooperating agency on the issue of expanding Enbridge Line 67, which begins in the tar sand oil fields of Alberta and terminates in Superior, Wisconsin, where it is redirected into other pipelines, such as Enbridge Line 5. During the preliminary drafting of a Supplemental Environmental Impact Statement for this pipeline, Red Cliff submitted 29 pages of concerns. For a copy of these concerns, please contact Amarin Mello at Red Cliff’s Environmental Department.





January 19th, 2017

Bad River Band of Lake Superior Chippewa
Bad River Tribal Council
Chief Black Bird Center; P.O. 39
Odanah, WI 54861

Red Cliff Band of Lake Superior Chippewa Indians

88455 Pike Road

Bayfield, WI 54814

Phone: 715-779-3700 Fax: 715-779-3704

Email: redcliff@redcliff-nsn.gov

Red Cliff Tribal Council

Boozhoo (hello) from the Red Cliff Band of Lake Superior Chippewa! We have received your media advisory and tribal council resolution about your nonrenewal of easements for right-of-way of Enbridge Energy's Line 5 twin pipelines through the Bad River Reservation, and call for decommissioning and removal of Line 5 on your Reservation. I am writing to extend our gratitude and support to the Bad River Band of Lake Superior Chippewa, and stand in solidarity with you, as well as with the Sault Ste. Marie Tribe of Chippewa Indians to oppose Enbridge's antiquated Line 5 twin pipelines at Bad River and at the bottom of the Straits of Mackinac.

Miigwetch (thank you) for your leadership and decision on this issue. We support your valuation of our nibi (water) and sacred aki (territory) over the risks of renewing this easement for negotiable terms. We support Bad River's exercise of sovereignty in self-determination and tribal jurisdiction. We understand that your call to decommission and remove Line 5 is an unprecedented situation, and will watch how this legal battle develops in the near future.

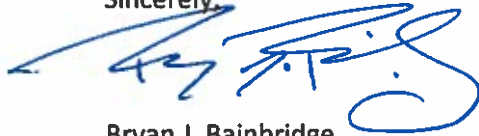
We recognize the Kakagon and Bad River Sloughs, downstream of Line 5 on the Bad River Reservation, is a Wetland of International Importance under the Ramsar Convention. The Sloughs are the chosen ground in the Third Fire and seventh stopping place of our peoples' Seven Fires prophecies, where the food grows on the water. The Sloughs' unique and rare features are a major source of sustenance and spirituality for the Lake Superior Chippewa community, which must be protected for our future generations.

Additionally, Line 5 crosses an area of the Chequamegon Nicolet National Forest in close proximity to Red Cliff reservation lands, and threatens the integrity of our treaty rights in our Chippewa Ceded Territories. Line 5 traverses some of the most sensitive wetland and headwater areas in Wisconsin, and is not equipped with the safety precautions we deem necessary to be considered reliable infrastructure. We are also conscious of the risk that Line 5 poses to the other four Great Lakes downstream of Lake Superior by crossing the bottom of the Straits of Mackinac, and we believe that the Line 5 pipelines should be decommissioned entirely.

"The Hub of the Chippewa Nation"

As Gichigami Anishinaabe (Lake Superior people), we share a sacred instruction from Nokomis (grandmother): Nibi (water) is life. We share the same commitment to protect the water, land, and air of our ancestral homelands for the generations to come. As we stand united, our thoughts and prayers are with you and your people to give you the wisdom, strength, and courage to defend our ancestral homeland and relations from any leaking or rupturing of the antiquated Line 5 twin pipelines.

Sincerely,



Bryan J. Bainbridge
Red Cliff Tribal Chairman

Cc: Chad Abel, Red Cliff Treaty Natural Resources Division
Linda Nguyen, Red Cliff Environmental Department
Amorin Mello, Red Cliff Environmental

Styrofoam – What's the Deal?

By: Linda Nguyen - Environmental Director

What do throw-away coffee cups, soup bowls, and trays all have in common?

Check out photo 2.

None of them can be recycled at the Red Cliff Transfer Station. Some commercial mailing houses may accept packing peanuts, but for the most part, community recycling centers do not accept throwaway foam food containers.

Also, styrofoam does not decompose in the environment under normal circumstances. Much like plastic, styrofoam is made from a polystyrene-based petroleum product that is not biodegradable. Plastic takes hundreds of years to decompose, and styrofoam takes much longer because it is a stronger form of plastic, while it can also release hazardous toxins into the environment. When it is littered in the environment, turtles and fish can mistake it for food, causing mortalities.

How do we reduce styrofoam litter in the environment and landfills?

Check out photo 1.

Some cities like New York City, Seattle, Minneapolis, and San Francisco have banned styrofoam! Here at Red Cliff, we can reduce styrofoam litter by reducing our



Photo 1. Styrofoam cup in swept up on the shoreline and landfills

usage of it. Some ways include:

-Take your own containers to restaurants for any leftovers.

-Hold off on purchasing single-use cups, plates and bowls. Instead, use reusable cups, plates, and bowls.

-Avoid using non-recyclable packaging for mailings.

-If you have to use single-use, use plant based or compostable materials. Some restaurants in the area, like Maggie's, uses these!



Photo 2. Common styrofoam products.

I challenge each and every one of you to help clean up and protect our natural resources!



Photo 3. Plastic debris caught up in waterway

Transfer Station - FAQ

By: Linda Nguyen - Environmental Director

1. Why have the Transfer Station business hours changed?

At this time, the Transfer Station hours are 8am-6pm on Tuesdays and Saturdays. There is one week day and one weekend day open to the membership to accommodate scheduling for those that can't dispose of solid waste on weekend days or vice versa. Thursdays are not open to the membership, as it is a day set aside for the Transfer Station Manager, as well as other Environmental Department staff, to maintain the Transfer Station area, repair and maintain equipment, and conduct off-site errands.

2. Why have we switched from the green bags to tags?

The transition from the green bags to tags is to address the excessive use of plastic bags. Lots of patrons are using their own plastic bags and then putting them in the green bags, as the green bags are not strong enough to handle household trash by itself. In order to cut down on plastic pollution, tags are being implemented on both the small and large bags. As a reminder, all bags must be tagged and all bags must be clear or white. Green bags will still be accepted, but there is a limited supply to be purchased.

3. Where can I buy tags?

Tags **cannot** be bought at the Transfer Station. Tags **can be** purchased at the Tribal Administration Building, Buffalo Bay Gas Station, Peterson's Food Store, and Housing Authority.

4. Why do I have to unbag my recyclables?

Plastics bags can only be recycled at specific deposit areas in the country; one of them being at the Walmart in Ashland. Therefore, bags must be ripped open and the bags discarded separately. Also, not everyone is aware of what can't and what can be recycled, and the Transfer Station Manager is there to ensure the items being thrown in are recyclable (please refer to these posters in this newsletter). We don't want to contaminate recyclables with solid waste or even hazardous materials; cross contamination could also harm the workers sorting through it.

5. When will there be another hazardous waste collection?

The last electronic and hazardous waste collection occurred in 2013. If all goes well with funding, another sweep should occur in conjunction with the annual spring clean-up this May. Please stay tune for the announcement!

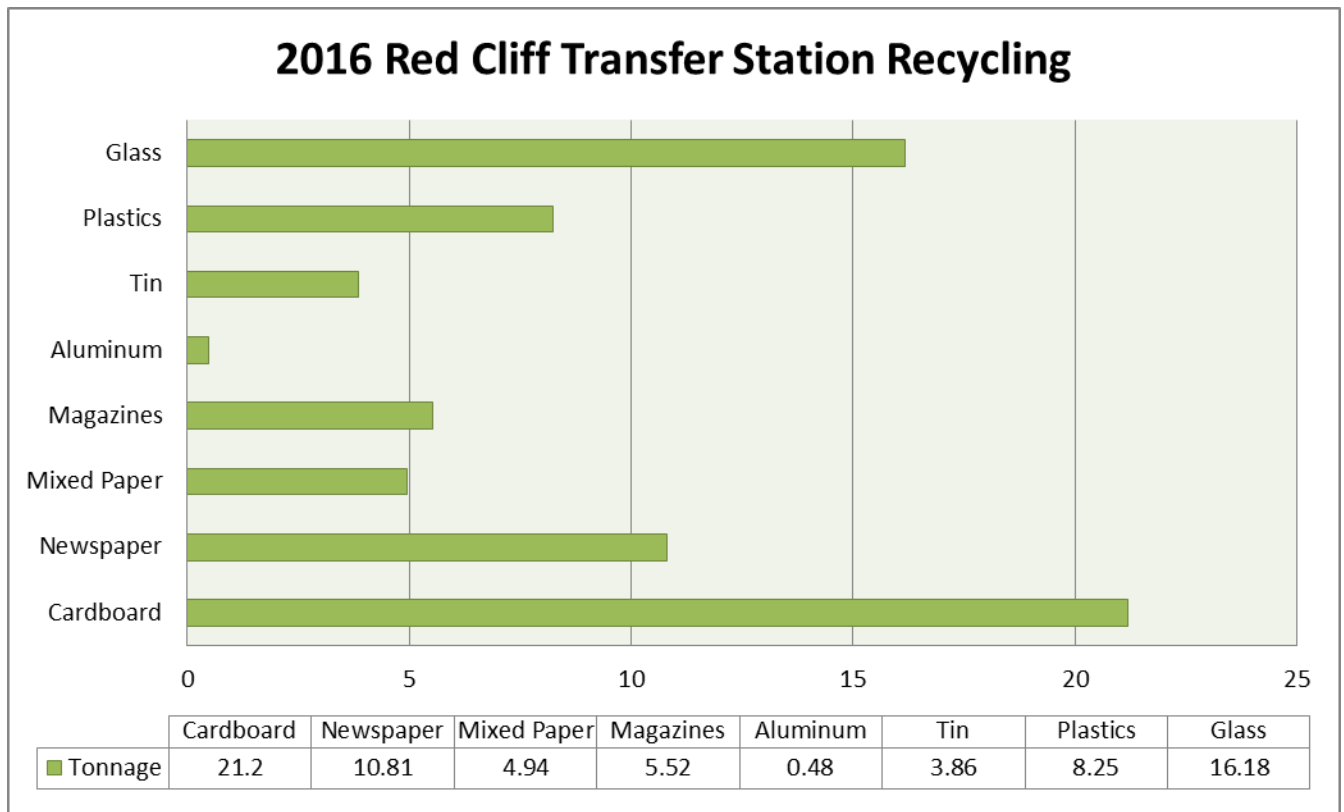
6. What can't be disposed of in the open-top dumpster?

The following items are not allowed to be disposed of in the open-top: appliances, electronics, waste oil, car batteries, yard waste, fluorescent bulbs, medical waste, recyclable materials, tires, construction debris, or hazardous materials.

2016 – How Much Did We Recycle?

By: Linda Nguyen - Environmental Director

The Transfer Station is happy to announce, the Red Cliff community has diverted 71.24 **tons** of recyclable materials from landfills in 2016! Check out this graph below:



Let's continue our recycling efforts to make 2017 a better year! If there are any questions, please feel free to reach out to Linda Nguyen at 715-77 9-3650 or linda.nguyen@recliff-nsn.gov



NSP/EPA Ashland Super Fund Update

By: Ernie Grooms – Red Cliff Air Program Manager/Technician

Boozhoo to All,

As many of you may remember, In September of 2010, the USEPA published a Record of Decision (ROD), documenting the cleanup approach for soils, groundwater, and sediments impacted by non-aqueous phase liquids (NAPL) and/or tPAHs (contaminants) along the Ashland lakeshore (Site). With the successful completion of the Pilot Study in August of 2016 (Phase One-upland area), the lakefront soil contamination has been addressed and remediated (cleaned up). This brings us to the Phase Two-sediment area, which is comprised of Wet Dredging the lake bed to remove remaining contaminated soils from our waters.

The Site is located in the city of Ashland (City), Wisconsin, along the southeast shoreline of Chequamegon Bay (Bay), which is part of southwestern Lake Superior (**Figure 1-1**).



Figure 1-1

The Site was historically industrialized and encompasses several upland properties, including the sites of a former manufactured gas plant, former lumber operations, a former wastewater treatment plant, and several acres of impacted sediments offshore (Phase Two-sediment area).

As the new breakwall is now complete (**Figure 1-2**), the design for the Phase Two Wet Dredge project has been-submitted to the EPA for construction in 2017.



Figure 1-2 Phase One Break Wall Construction 2016

I have recently attended meetings with the Ashland Citizens Advisory Committee. One was held on January 11th, 2017 at the Ashland DNR office, in which the Design for Phase Two-Wet Dredge report was dispersed among attendees for review (all 3,391 pages of it), with a second “public” forum on January 26th, 2017, held at the Great Lakes Visitor Center. This forum was set for 6:30 pm in hopes of getting public interested individuals to attend “after working hours”. I, however, set up a meeting much earlier (5 pm), as I wished to express concerns with certain aspects listed within the report (yes, I read it), and I did not want to “wade through” public commentary (as we all know that the same question can be re-hashed nine different ways). In attendance were: Scott Hansen- EPA Regional Project Manager, Craig Melodia- EPA

NSP/EPA Ashland Super Fund Update

By: Ernie Grooms – Red Cliff Air Program Manager/Technician

Attorney Officer of Regional Council, Jamie Dunn-
DNR Project Manager, Jess Kramer- DNR Attorney,
John Robinson- DNR Project Supervisor, and myself.

In this meeting, I posed several questions regarding areas I felt were important. Listed below are my findings;

1. Wave Attenuation Barricade/Silt Management: The “open area” barricade (the area between existing break wall and newly constructed break wall **Figure 1-3**), will be comprised of sand filled flexible piping stacked and arranged to be a solid barrier for wave attenuation (minimizes wave activity from disturbing or halting dredging operations), versus the 2016 failed attempt with the use of “floating curtains”. The inside area of the “lagoon” will be layered with two separate curtains to contain silt dispersion to the lake (**Figure 1-4**). The previous version (listed in the Consent Decree), showed silt monitors placed at intervals “inside” the curtain, however, the location of the monitors had been changed. The new location setting will be between the first curtain layer and the break wall/dock. This will work much better by creating the ability to catch silt escaping the curtains before it ends up in open waters.

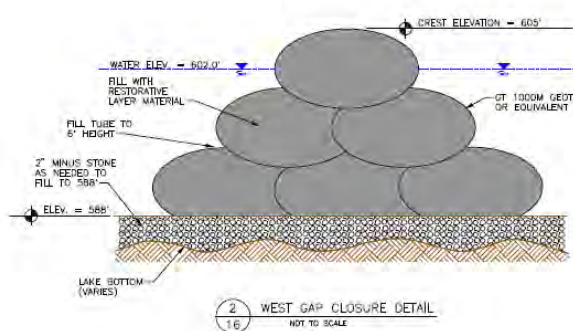


Figure 1-3 Geo-tube barricade (removable)



Figure 1-4 Dual Silt Curtain Layer (black dotted line)

2. Silt Management: Inside the “lagoon”, during higher wind/inclement weather, alum will be used to aid in sequestering (gathering), higher silt content to keep level buildup from being blown/washed to open waters.
3. Lime Mixing Tent: Air exchange units (five in total), will utilize charcoal filters. As only two of the units would have to be used during operations, maintenance and filter changes will be made appropriately by taking units offline while engaging additional units. This will aid greatly in continuous operations (minimal shut downs).
4. Exhaust Stack(s): Two benzene emissions monitors will be installed on the smoke stack (one at the inlet and one at the outlet), to ensure harmful emissions (HAPs), will be monitored for and maintained.
5. Route Safety: As 80 diesel “dump” trucks per day are scheduled for this project, traffic safety is a concern with trucks integrating into traffic from “site side” roads onto State Highway 2. It was stated

NSP/EPA Ashland Super Fund Update

By: Ernie Grooms – Red Cliff Air Program Manager/Technician

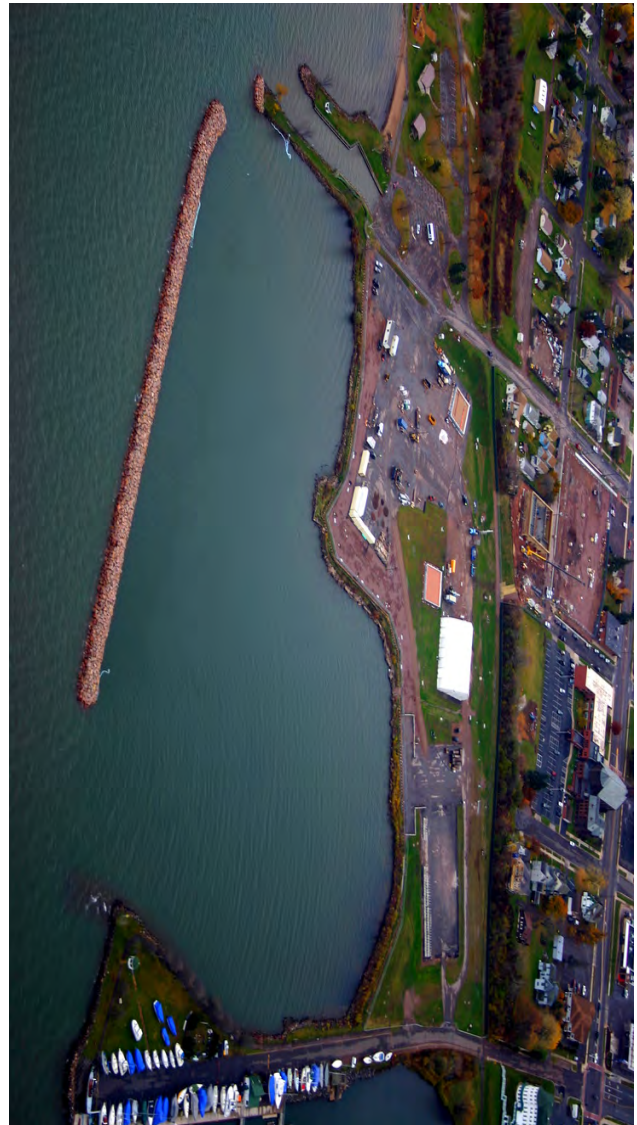
that flaggers/road guards will be used during heavy traffic portions of the day to minimize the potential for vehicle incidents/accidents.

6. Particulate Matter 2.5 (PM2.5): In the Consent Decree (Design Report), documentation (located in the Air Quality Section), PM2.5 is classified as a household emission from wood burning/natural gas use, and will not be monitored for. My expressed concerns are the fact that the increased DIESEL equipment activity (ie. Dump Trucks), throughout the rural setting will increase the amount of PM2.5, and with prevailing winds, could potentially affect persons/homeowners within the truck route area, and Possibly even those further away. Persons with Chronic Obstructive Pulmonary Disease (COPD), Emphysema, Acute Asthma, and/or Upper Respiratory Sensitivity may begin to experience an increase in reactions due to the increase level of Particulate Matter dispersion from the increased activity. Due to the project parameters/classification, legally, only PM10 (much larger particulate), monitoring is mandatory, so for the time being, this will be all that is monitored for. The DNR Project Manager did state that he himself, along with City Management will be going from door to door throughout the truck route and polling/questionnaire those residents for any health issues/concerns (in which was NOT performed in the 2016 Phase One portion of this project). Contact information will be provided to residents should any issues arise in the relation to this project.

I am confident this meeting showed the Red Cliff Tribe's concern's, both in Water Quality and Air Quality, and the representatives present

at this meeting were appreciative regarding our willingness to meet and discuss project issues. There will be another meeting before project "start-up" in which I will be informed by both phone and email invite.

If you would like to keep up on the progress of the NSP/Ashland Super Fund Project, check them out online on their Facebook Site. Just search for "Ashland Superfund", and it will bring you right to them.



Aerial photo of new break wall



BAYFIELD
CARNEGIE
LIBRARY

WINTER LECTURE SERIES

SOCIAL JUSTICE: The Fight for Equality

FOUR DIFFERENT
PRESENTATIONS OVER
FOUR MONTHS OF WINTER

JANUARY 13
Janet Bewley
"Civic discourse in
a time of change"

FEBRUARY 23
Screening and
discussion of the
PBS documentary on
Red Cliff

MARCH 30
Social Justice from
the point of view of
PFLAG Allies

APRIL 27
Mary Dougherty
Environmental Issues and
her work to protect our area.

Screening & Discussion of PBS Documentary:

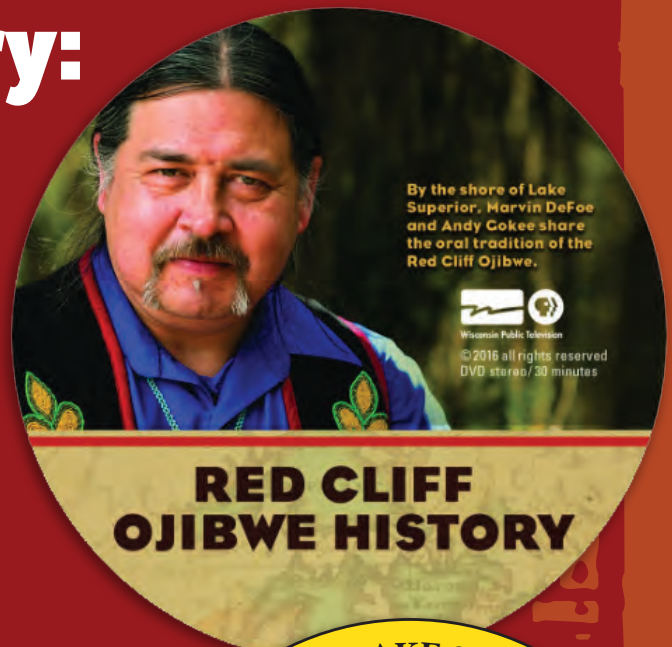
Red Cliff Ojibwe History

**Thursday, Feb. 23
at 7:00 PM**

Panelists for discussion after
the movie include:
Marvin DeFoe and Marlene Paap

more info at bayfieldlibrary.org
or call **715-779-3953**

Bayfield Library • 37 North Broad St. • Bayfield, WI 54814



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



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.



What Can't Be Recycled?



LIGHT BULBS &
LIGHTNING FIXTURES



PAINT, OIL, GASOLINE,
PESTICIDES, FLAM-
MABLE LIQUIDS



FOOD WASTE



PLASTIC BAGS & OVERWRAP
(PLASTIC FILM)



Styrofoam



MEDICATIONS &
USED NEEDLES



CELLPHONES



Diapers



Cigarette Butts



Clothes



Broken Mirrors/Windows



Used Napkins, Utensils, or Paper
Plates

What Can Be Recycled?

Please empty all bags that you brought recyclables in!

Do not dispose of bags in recycle bin.

**Cardboard Boxes
Flattened**



**Mixed
Papers**



**#1 and #2
Plastic Bottles**



look for this!



**Steel, Tin and
Aluminum Cans**

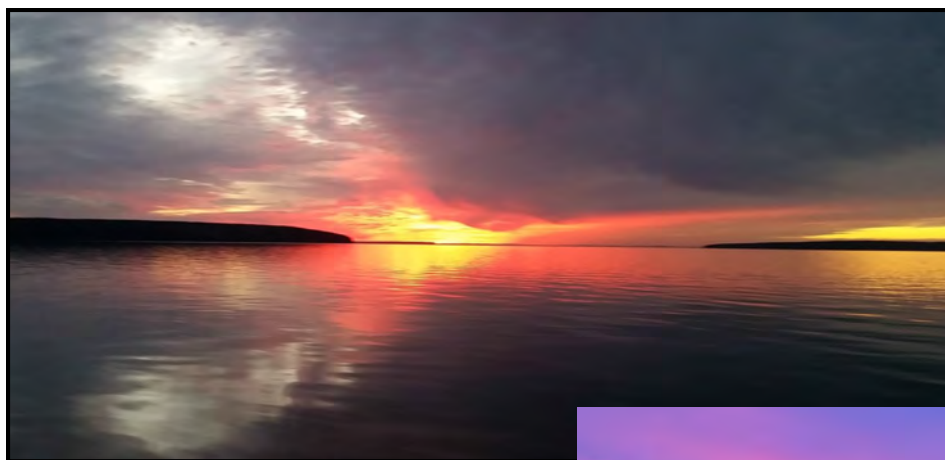


**Glass
Bottles**



Aluminum Cans

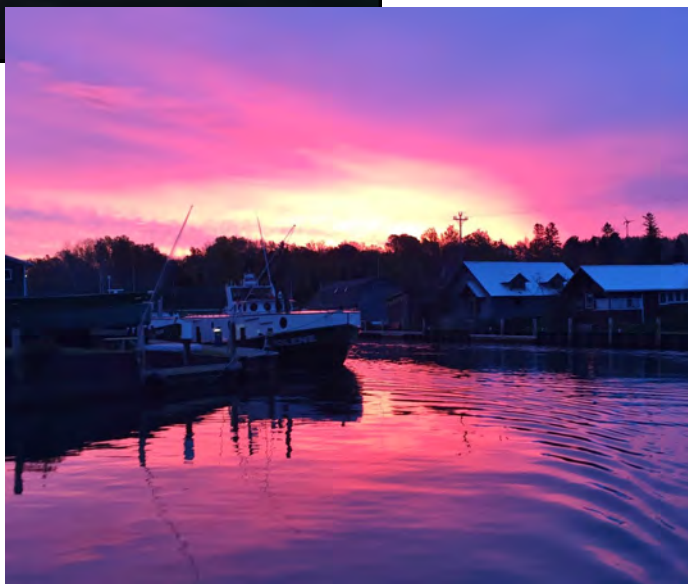
Cans are placed
in a separate
container at the
Transfer Station.
Please watch for
signs!



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