



BAY MILLS INDIAN COMMUNITY

# BIOLOGICAL SERVICES NEWSLETTER

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## In The News: Jan 2024 Two Spills at Algoma Steel

Algoma Steel in Sault Ste. Marie Ontario, Canada suffered two hazardous substance release events at the end of January 2024. The first release occurring on Friday, 1/19/24 and the second release on Saturday, 1/20/24. Total amounts of the released substances have not been shared at this time. Environment Climate Change Canada (ECCC) has been the responding agency.

The first event happened just before noon on 1/19/24 where the hazardous substance “coke flushing liquor” was released and said to be contained into Algoma’s water treatment system. Since the coke liquor was said to be contained, it is believed that none of it reached the St. Marys River and no further testing was conducted.

The second event happened in the early morning hours of 1/20/24 where Algoma Steel experienced a collapse of a structure supporting utilities piping at their coke-making plant that resulted in the release of the hazardous substance ammonia. The released ammonia made it into Algoma’s stormwater system and potentially the St. Marys River. In response, Algoma had four vacuum trucks on scene in which two were used to recover the released ammonia in the stormwater system. The United States Coast Guard did a HELO overflight to visually assess any potential waterway impact, however, no sheens were detected. It appeared that most of the release was contained on site however, ECCC acquired water samples from Algoma’s stormwater, as well as downstream in the St. Marys River for testing. Their results were near baseline levels there was little concern for water quality impact due to the overall dilution of the ammonia detected.

**For questions about fishing/hunting licenses, current regulations, or to report poaching, please contact Conservation Officers at 906-248-8640.**



CTV viewer submitted photo



USGC HELO overflight photo

# PROTECT INDOOR AIR QUALITY AROUND THE HOUSE



## LIVING ROOM

Living rooms are a main gathering place for families and can harbor indoor air pollutants. Ventilating properly, keeping secondhand smoke outside of the house, and vacuuming and dusting regularly is very important for maintaining a healthy indoor air environment.

**HAIR, DUST  
AND  
DANDER**



Pets can trigger allergy and asthma attacks due to hair and dander. Vacuum, dust, and clean carpets, rugs and furniture often.

**SECOND-  
HAND  
SMOKE**



Secondhand smoke from cigarettes, cigars and other tobacco products can trigger asthma and other respiratory illnesses especially in children. Do not smoke or allow others to smoke inside your home or car.

**CARBON  
MONOXIDE**



Fireplaces and leaking chimneys are sources of carbon monoxide. Ventilate rooms that have fireplaces, make certain the flue damper and chimney are properly working. Install a carbon monoxide detector.



## BATHROOM

A bathroom is often the dampest area of a home. It is important to ventilate a bathroom during use and allow damp surfaces to dry.

**MOLD**



Humidity from showers can cause moisture problems, which will lead to mold growth. Mold can cause allergic reactions, asthma and other respiratory ailments. Installing and using a ventilation fan will help to control moisture and inhibit mold growth. Fix any leaks in the pipes or faucets and handles. If a ceiling ventilation fan is not able to be installed a box fan will work as well.

## CHANGING WINTERS AND WABOOZ: A ROUGH, BROWN WINTER FOR A WHITE BUNNY

Wabooz, snowshoe hare, (*Lepus americanus*) is a well-known inhabitant of northern forests who changes her wardrobe from brown to white and back with the seasons. But what is a little bunny to do in a winter without snow?

Currently, wabooz we see at Bay Mills are at the southern end of their range in the Ceded Territories, and its range continues to shift northward. Its range has shifted 28 miles north over the last 20 years in Michigan. The presence of wabooz in the Ceded Territories in the past is evident in TEK as Ojibwe place names. One example is Waboozo-minis (Rabbit Island), known today as South Twin Island, in the Wenaboozhoo Minisan (Apostle Islands) in northern Wisconsin.

### Summary of climate threats:

Wabooz was the most vulnerable four-legged being in the GLIFWC 2023 climate change vulnerability assessment (GLIFWC 2023) and in the 99th percentile relative to other beings in the assessment. Its population is strongly linked to the duration of snow cover, which is likely to continue to decline, especially at the southern end of its range. Many other factors contribute to its vulnerability, including natural and human-caused barriers, sensitivity to increasing temperatures, increased predation risk, and phenological mismatches (like having a white coat and no snow). This being is the subject of much ongoing research, including models projecting its future range, and it is likely to be severely impacted by climate change.

- Dependence on snow or ice: Snow cover is a critical component of wabooz habitat and may be the primary factor in its vulnerability to climate change. Decreases in duration and depth and increases in the density of the snowpack are expected to negatively impact wabooz. Reductions in the depth of the snowpack will decrease its ability to forage on upper branches. Wabooz is also dependent on snow cover for camouflage to avoid predation. Decreasing duration of snow cover has been found to be the most important driving factor in the range shift of wabooz in Wisconsin. (GLIFWC 2023)
- Phenological response: Two Montana studies found wabooz fur color did not vary the date or rate of fall molt (turning color from brown to white) with the timing of snowfall, indicating that fall molt is initiated by day length and not presence of snow. The spring molt did vary with longer or shorter snow seasons. The consistent timing of the wabooz fall color change will cause wabooz to stand out to predators if snows come later in the year. Models in Wisconsin and Michigan show wabooz is currently not able to keep pace with recent declines in snow cover. Continuing phenological mismatches will cause wabooz to lose its camouflage, particularly in the fall, and be subject to increased predation. (GLIFWC 2023)

As part of their assessment, GLIFWC researchers interviewed people from three tribal communities; all mentioned wabooz decline. When interviewees were asked how long they had been noticing the population decline, the average response was 15 years. Most interviewees also noted a decrease in snowfall during that time frame, which some feel is contributing to the wabooz decline. There are concerns about the loss of traditional teachings and stories regarding the wabooz and wabooz trapping. Tribal members fear the traditional knowledge and stories about wabooz will soon only be memories and the younger generations will likely never see a wabooz in their backyard.



Large photo: Hare on trail camera at Bay Mills March 2022 seen with ample snow pack. Inset: Photo of hare in seasonal mis-match this past December 2023.

For more information on wabooz and other beings vulnerability to climate change, refer to Great Lakes Indian Fish and Wildlife Commission. 2023. Climate Change Vulnerability Assessment. <https://data.glifwc.org/reports/> [https://www.glifwc.org/ClimateChange/GLIFWC\\_Climate\\_Change\\_Vulnerability\\_Assessment\\_Version2\\_2023.pdf](https://www.glifwc.org/ClimateChange/GLIFWC_Climate_Change_Vulnerability_Assessment_Version2_2023.pdf)

# RAIN GARDENS: CAPTURING RUNOFF

## WHAT ARE RAIN GARDENS?

Rain gardens are a type of green infrastructure that are often located near parking lots, sidewalks, and roofs to catch storm water that has run off of surfaces. These surfaces are often polluted with oils or pesticides that would be damaging to the watershed. Rain gardens filter and absorb the runoff water and release clean water back into the environment. Installing a rain garden can play a major role in protecting our waterways from pollution.



## BEAUTY AND HABITAT

Rain gardens offer additional benefits for the environment, such as adding natural beauty to the community and providing habitat for pollinators and other wildlife. The flowers give insects and birds a source of food and shelter.



## HOW CAN YOU HELP?

- Slow the flow: Redirect downspouts away from paved surfaces
- Keep organic material out of streams/ storm drains: Pick up pet waste swiftly; rake up leaves/debris
- Only allow rain water down a storm drain (never any chemicals)

### SOURCES:

<https://www.epa.gov/green-infrastructure/what-green-infrastructure#raingardens>  
<https://vackersign.com/products/rain-garden-signs/>

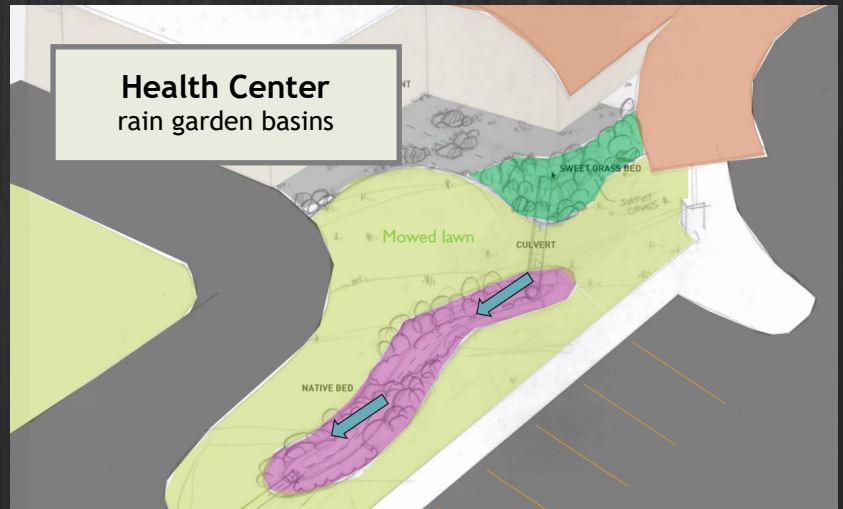
# RAIN GARDENS TO BE INSTALLED AT BAY MILLS 2024

## NEW GARDENS COMING TO ELDERS HOUSING AND HEALTH CENTER

Coming in autumn 2024, multiple garden basins will be planted at two locations at Bay Mills. Off of Spectacle Lake Road, the rain gardens will be installed at low-laying spots around the new Health Center building and around the parking lot. Between the new Elders' Housing and Spectacle Lake, new gardens and walking path will be installed near Elders' Housing. Located at the end of the road, east of Spectacle Lake, the new garden will be designed to intercept, treat, and infiltrate stormwater at the source, before it reaches the lake or nearby streams.

All the gardens will include perennial plants that are native to the county and retain contaminants from roads and sidewalks. Rain gardens are beautiful, low-maintenance, and inexpensive gardens.

COMING  
AUTUMN  
2024



Garden installation will begin in summer 2024 and complete in autumn.



Made possible by  
Great Lakes RESTORATION

# AN AS-SALT ON OUR LAKES: THE SEASONED TRUTH ABOUT ROAD SALT

## ROAD SALT POLLUTION IN THE GREAT LAKES

**Winter Salt Awareness Week:  
Jan. 22–26, 2024**

**Be Salt Wise!**

**It only takes 1 teaspoon of salt to pollute 5 gallons of water to a level that is toxic for freshwater ecosystems.**

**Once fresh water is polluted by salt, it is very difficult and expensive to remove.**

**A coffee mug of salt is enough to treat an entire 20-foot driveway.**

**HELP PROTECT OUR WATERS**

For more information, visit [www.wisaltwise.com/Overview](http://www.wisaltwise.com/Overview)

### Ways to Reduce Road Salt Usage:

- **SHOVEL:** Clear driveways and sidewalks before snow freezes into ice; the less snow left on these areas, the less salt you'll need to use.
- **SCATTER:** If you use salt, scatter it more evenly so there is more space between grains; there should be no piles or clumps of salt.
- **SWITCH:** Salt doesn't work in temperatures less than 15 degrees, so switch to a different ice-melter that is more environmentally-friendly, such as magnesium chloride (MgCl<sub>2</sub>), which has a lowest melting temperature of -10 degrees.

Throughout our rough Michigan winters, road salt is used to keep the roads safe and drivable. However, when spring rolls around, the salt doesn't just disappear. Instead, it dissolves with the snowmelt and travels down into the watershed, and eventually into streams and the Great Lakes. Road salt causes significant harm to many parts of freshwater ecosystems. One animal that is highly affected by increased salt levels is zooplankton, which are unable to survive in heavily salinized (salted) waters. Zooplankton are a major base of freshwater system food webs, so this causes food shortages for the entire ecosystem. Larval fish have also had declining overall growth rates in salinized waters. The breakdown of salts also negatively impacts the growth of wild rice. Unfortunately, current regulations are not strict enough to protect widespread salinization from harming freshwater ecosystems.

A study by W. D. Hintz et al. showed decreased growth rates in young rainbow trout that have been exposed to high salinization after 25 days.



After 25 days



Photos by W.D. Hintz et al, 2022.

SOURCES: <https://www.wisaltwise.com/Overview>  
 Hintz et al. 2022. <https://www.pnas.org/doi/10.1073/pnas.2115033119>  
<https://www.wwdmag.com/wastewater-treatment/>

[news/10940649/research-finds-salting-roads-impacts-freshwater-ecosystems](https://www.wisaltwise.com/news/10940649/research-finds-salting-roads-impacts-freshwater-ecosystems)  
<https://www.wisaltwise.com/documents/PDFs/Product%20Options.pdf>

# FEATURED INVASIVE SPECIES: Hemlock Woolly Adelgid

## ANOTHER TINY BUG DEVASTATING TREES



Left: a hemlock branch with woolly adelgid eggs surrounded by white cotton-like material. These may be seen in winter

Inset: Immature adelgid larvae suck stored starches from the tree.

Photo by K. Oten

Photo by J.M. Randall

### Hemlock Woolly Adelgid (*Adelges tsugae*)

Hemlock woolly adelgid (or HWA) is native to Asia and possibly western North America. It has been devastating Eastern Hemlock trees in New England and Appalachia since it was introduced. It's best identified from November - April. Look for white woolly masses at the base of hemlock needles. HWA has been found in southwestern Michigan along Lake Michigan. It has not been detected in the Upper Peninsula. A UP-wide effort is under-way to survey local hemlock trees.

### Why it's a Problem

This tiny insect uses a piercing stylus to remove nutrients from hemlock needles, depleting the entire tree and killing it in 4-10 years. Trees of any size are susceptible and a forest may be decimated—changing the character of a landscape for decades.

### How it Spreads

The Hemlock Woolly Adelgid travels by wind and hitching a ride on animals, logs, or firewood. Potted nursery hemlock trees are also a vector.

### Ways to Control Hemlock Woolly Adelgid

The most successful treatment methods for HWA are foliar-sprayed insecticides or injectable insecticides. Biological control of HWA with another insect is still undergoing testing.

For more information about HWA, please check out <https://savemihemlocks.org>

John M. Randall, The Nature Conservancy, Bugwood.org; Kelly Oten, North Carolina Forest Service, Bugwood.org

## Join our summer staff!

Every year Biological Services brings on entry-level assistants to help with summer projects and field work. Perfect for youth, teachers, and some elders. High school diploma and driver's license are preferred. Contact Bay Mills Human Resources for more information about joining our team.



Jason Smith, Great Lakes Fisheries Assessment Biologist

## STAFF CHANGES in BIOLOGICAL SERVICES

Jason Smith's path from remodeler of historic houses in southern Michigan to BMIC Great Lakes Fisheries Assessment Biologist has been a bit crooked, with stops at the University of Washington, University of Michigan, Jackson College and finally a BS and MS from Michigan State University. From there, Jason was hired by the Little Traverse Bay Bands of Odawa Indians mostly researching Otoonapii (Lake Herring) in Lake Michigan. Afterwards, he spent four years at Sault Tribe as their assessment biologist. Jason is happy to be at the last stop in his fishery tour - at the Place of the Pike! Looking forward to many years of promoting Tribal sovereignty and protecting Treaty Rights in the Bay Mills Biological Services Department!

Welcome Jason!



Charlotte Patyi, Lead Environmental Programs Technician

Charlotte is from Clinton Township in the lower peninsula, and she moved up to Sault Ste. Marie in 2018 for school. Charlotte graduated from LSSU with a Bachelor's degree in Conservation Biology in 2022. She's been with our department since 2021! This winter, we welcome her as a full time member of the crew where she will continue inventorying aquatic life in wetlands and monitoring water quality in local streams and lakes. She will also be assisting with other programs such as air quality monitoring, environmental education, and waste reduction.

Welcome Charlotte!



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SCAN ME