



BAY MILLS INDIAN COMMUNITY

BIOLOGICAL SERVICES NEWSLETTER

WINTER 2019

ISSUE 8



INSIDE THIS ISSUE

- IN THE NEWS: PFAS Testing at BMIC 1
- WATER QUALITY: Chemical Testing in Back Bay New Boat Wash Station 2
- INVASIVE SPECIES: Spotted Knapweed 3
- INLAND PROGRAM: CWD Update 4
- INVASIVE SPECIES PROGRAM UPDATE 4
- FOREST UNDERSTORY ADAPTATION PROJECT 5
- BACK BAY WATER LEVEL MONITORING 6
- GREAT LAKES FISH: Electroshocking 7
- COMMUNITY OUTREACH: Watershed Plan HHW Collection 8

IN THE NEWS: PFAS Chemicals NOT Detected in BMIC or BMRC Drinking Water Systems

On October 25, 2018 samples from Bay Mills Indian Community and Bay Mills Resort and Casino Public Water System were collected and analyzed as part of Michigan’s statewide *per-* and *polyfluoroalkyl substances* (PFAS) testing initiative. PFAS were not detected in either water system. PFAS are a group of man-made chemicals that have been used since the 1940s. PFAS are (or were) found in a wide array of products including firefighting foam. PFAS manufacturing and processing facilities, airports, and military installations are some of the contributors of PFAS releases into the air, soil and water. In 2016, the EPA established a health advisory level of 70ppt for PFOA and PFOS in drinking water. The EPA has also developed a new [management plan](#). For more information, contact Duane Bedell, Tribal Manager.

Sampling Location	PFOA (ppt)	PFOS (ppt)	PFOA + PFOS total
BMIC	Non-detect	Non-detect	Non-detect
BMRC	Non-detect	Non-detect	Non-detect

NOTE: non-detect indicates that the lab did not detect, or find, that the contaminant was in the water sample.

For questions about fishing/hunting licenses, current regulations, or if you wish to report poaching, please contact the Conservation Department at 906-248-8640.

WATER QUALITY PROGRAM

PHARMECUETICAL TESTING IN WAISHKEY BAY SURFACE WATER

Bay Mills Biological Services and Bay Mills Community College have teamed up to assess contaminants of emerging concern and their food web impacts in Waishkey Bay. They are investigating pharmaceuticals, pesticides, and microplastics within the Bay and its tributaries. Although these contaminants have been measured in waterbodies elsewhere, little work has been performed here, so this project fills an important knowledge gap for the Tribal community and Great Lakes research. The sampling of these chemicals will improve the knowledge base on chemical mixtures in the environment and preliminary results are in! The researchers tested water and sediment samples for 24 different 'Personal Care Product' chemicals taken from 10 different sites around Back Bay. These chemicals may enter Back Bay locally from runoff and septic systems/wastewater treatment plants as well as regionally from atmospheric deposition. Fortunately, preliminary results show that these chemicals are present in minimal amounts or below detection thresholds for most of the sites.

- Caffeine was found at all sites.
- Sulfamethoxazole (an antibiotic) and Carbamazepine (an anti-seizure medication) were both found at two sites.
- Bisphenol A (BPA, a plastic compound and is a hormone-mimicker) was found at two sites.
- Iso-Nonylphenol (used in detergents, paints, pesticides, personal care products, and plastics and is a hormone-mimicker) was found at all but one of the sites.

Additionally, researchers tested water and sediment samples for 76 different herbicides/pesticides from 10 different sites. These chemicals may enter Back Bay locally from runoff as well as regionally from atmospheric deposition.

- Low quantities of 7 herbicides/pesticides were found at nearly all the sites.

This project will continue for the next few years to build a more robust data set. Stay tuned for further results. This project is funded by the USDA-NIFA Tribal College Research Grants Program.



FREE BOAT WASH TODAY



STOP AQUATIC HITCHHIKERS!
Be A Good Steward. Clean. Drain. Dry.
StopAquaticHitchhikers.org

Stop the Transport of Invasive Species:

- REMOVE plants, fish, animals & mud from boots, gear, boat, trailer & vehicle.
- CLEAN your gear before entering & leaving the recreation site.
- DRAIN bilge, livestock, wells & buckets before you leave the area.
- DRY equipment before launching/watercraft into another body of water.
- DISPOSE of unwanted bait in a sealed container.



MOBILE BOAT WASH STATION AT BACK BAY

Preventing the spread of aquatic invasive species includes cleaning your boat with hot and/or high-pressure water. To ensure that boats are clean before they travel into or out of a lake, Bay Mills Biological Services will be operating a boat wash station at the Back Bay launch this summer. This new boat wash station has the option of high pressure and/or hot water spray to remove aquatic invasive species from the exterior of boats, trailers and equipment.

Some invasive species, such as Eurasian watermilfoil are already present in Back Bay. Washing boats and equipment will prevent this aggressive plant from spreading into Spectacle and Monocle Lakes and help prevent new invasive species from entering Back Bay. For more information on the boat wash station and what you can do to help, contact Tiffany at 906 248 8647 or tescherich@baymills.org

FEATURED INVASIVE SPECIES: Spotted Knapweed

Spotted Knapweed (*Centaurea stoebe*) is a perennial plant which grows on roadsides and right-of-ways, old fields, pastures, undisturbed dry prairies and oak and pine barrens; also appears on sand dunes and beaches.

Plants grow 1-3ft tall, topped with pink to purple flowers. The base of the flower has a bract resembling a thistle. Rosette leaves can be 6in long and deeply lobed. Leaves become smaller toward the top of the plant and have smooth margins. Spotted knapweed forms one or more new shoots each year from a taproot. Spotted knapweed has a stout taproot. Seedlings have deeply divided leaves in a rosette. The small brown seeds are wind-dispersed, germinate throughout the growing season; remain viable for up to 9yrs.



Photo: Cindy Roche



Photo: Great Smoky Mountains NP



Photo: John M. Randall, TNC



Photo: Elizabeth Czarapata



Photo: Barry A. Rice, TNC



Photo: Elizabeth Czarapata



Photo: Barry A. Rice, TNC

Photo courtesy of MISIN

Why it's a Problem

Around Bay Mills Indian Community, spotted knapweed has made its way into yards, displacing grasses that make yard space less desirable. On shorelines and sand dunes, it crowds-out rare native plants. It has been shown to increase erosion at shoreline properties. Nearby, it has degraded nesting sites of endangered piping plovers to the extent that the birds avoid the area. Spotted knapweed is a very aggressive plant that can completely take over properties if not managed.

Ways to Control Spotted Knapweed

Hand-pulling plants has shown to be effective without the use of herbicides. Wear gloves, long pants and sleeves to prevent skin irritation. Begin control efforts in highest quality areas; pull or dig plants in small infestations and remove entire root. Remove flower/seed heads from site. Continue control efforts annually until the seed bank is exhausted. Plant material can be bagged and placed in the garbage for disposal or burned.

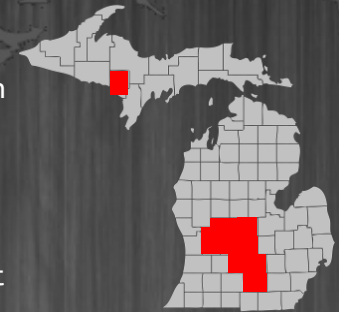
Reporting Spotted Knapweed

For more information on Spotted Knapweed or contact Bay Mills Biological Services at (906) 248-8647 or misin.msu.edu.

INLAND FISH AND WILDLIFE PROGRAM UPDATE

CHRONIC WASTING DISEASE

Chronic Wasting Disease (CWD) is a neurological disease that affects deer and elk and is highly contagious. In the past few years, it has become a hot topic in Michigan among hunters, biologists, and the general public. In 2015, a wild deer tested positive for CWD and since then 115 more positive deer have been identified in the Lower Peninsula. In addition, one positive wild deer was identified in Dickinson County at the western end of the UP. The spread of disease is concerning because of the potential for it to cause decline in deer populations. CWD is easily spread between animals through direct contact, food and water sources contaminated with saliva, urine, or feces, and contact with infected areas. Baiting or feeding animals, as well as keeping them in captivity, can increase the rate of disease spread. Because of the risk of disease spread associated with baiting, Michigan DNR has banned the use of bait in the Lower Peninsula (effective 1/31/19). Bay Mills has passed a ban on baiting in the same area as required by the 2007 Inland Consent Decree.



Above: Counties with CWD positive deer

When an animal becomes infected with CWD, the disease causes brain degeneration that eventually leads to death. Prions, which are misfolded and infectious proteins, are the agent that causes CWD. Since the disease is not caused by bacteria or a virus, there is no known way to treat infected animals and the infectious proteins are very difficult to denature or “kill.” The prions can remain in the environment for years and infect other deer that come into an infected area. Though there have been no reported cases of CWD in humans, recent research suggests that there is a risk of CWD being transferred to primates after they ingest infected meat or come into contact with other parts of infected deer or elk. If you are hunting within the CWD management areas in Michigan (or any other state) it is recommended that you have your deer tested for the disease prior to processing or consuming the meat.

For more information on CWD signs/symptoms and how to prevent disease spread, contact Emily Martin at emartin@baymills.org or pick up an informational brochure at the Conservation Office.

INVASIVE SPECIES PROGRAM UPDATE

The Bay Mills Biology Department wrapped up a productive year for invasive species removal. Kudos to the crew for all your hard work!

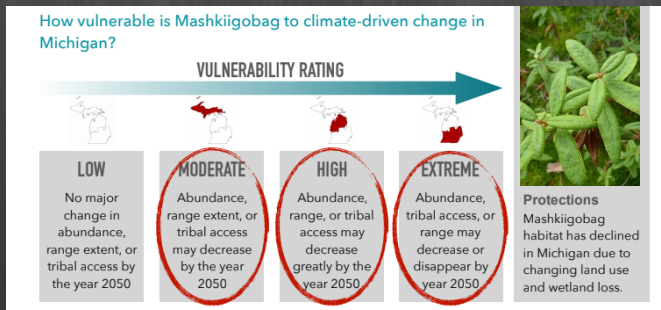
- 327 bags of Spotted Knapweed
- 20 bags of Purple Loosestrife from East Campus/9 Mile park and ride
- 6,272 Garlic Mustard seedlings/plants pulled on 55-stretch
- 177 Scotch Pine seedlings
- 3 bags pulled of Birdsfoot Trefoil, Leafy Spurge and White Sweet Clover

FOREST UNDERSTORY CLIMATE ADAPTATION PROJECT

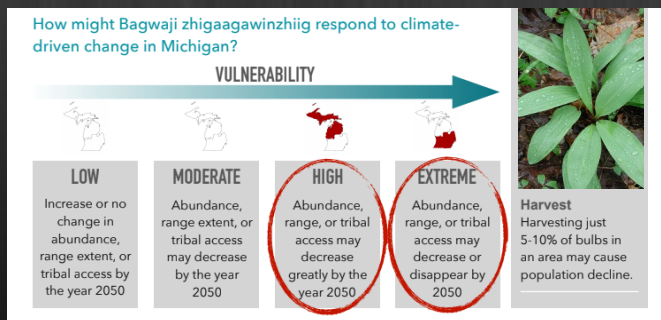
Anishinaabe Tribes, tribal communities, and citizens maintain important relationships with and knowledges on local forests, waters, seasons, and cycles. Tribal cultures and ways are inter-woven with the lands, waters, plants, and wildlife of this region. Tribal community members maintain important traditional and community knowledge on local and regional lands, seasons, and cycles - including recent changes in climate and forests. Over the past several decades, the Great Lakes region has seen changes in weather, warmer annual air and lake water temperatures, shorter winters, and longer summer seasons. At the same time, land ownership and management has changed. These changes impact local forests in many ways. The impacts on forest understory plants, which grow under the canopy of trees, are not well understood. These understory plants are often used for traditional foods and medicines (such as blueberries and labrador tea) and are important to cultural traditions and ways of life. The Inter-Tribal Council of Michigan facilitated a collaborative adaptation project with the Bay Mills Indian Community, Lac Vieux Desert Band of Lake Superior Ojibwe, Pokagon Band of Potawatomi, and Saginaw Chippewa Indian Tribe, with assistance from Michigan Natural Features Inventory and the Northern Institute for Applied Climate Science.



Through this project, each Tribe engaged tribal citizens to understand how selected forest understory plants might respond to climate-driven change and identify ways to support these plants on tribal lands and across the region. Biologists reviewed scientific data and used a Climate Change Vulnerability Index to estimate how vulnerable these focal plants are to climate change. They then presented their findings at a workshop to tribal foragers to hone-in on the ranking and threats to tribal access.



Due to time constraints, five species were selected. For the eastern UP, leeks were ranked highly vulnerable; ginseng was ranked highly vulnerable; labrador tea was ranked moderately vulnerable; groundnut was ranked highly vulnerable; and blueberries were ranked low vulnerability. Additional species will be studied in the future.



From here, biologists will develop broader management recommendations to share with region-wide forest managers to foster habitat for these plants. Biologists will also work on a coordinated monitoring network for at-risk species and further community outreach.

To read the full report on this project, go to <http://www.itcmi.org/departments/environmental-services/> or contact Aubrey Maccoux-LeDuc, Environmental Specialist (906) 248-8652
AMaccoux-LeDuc@baymills.org

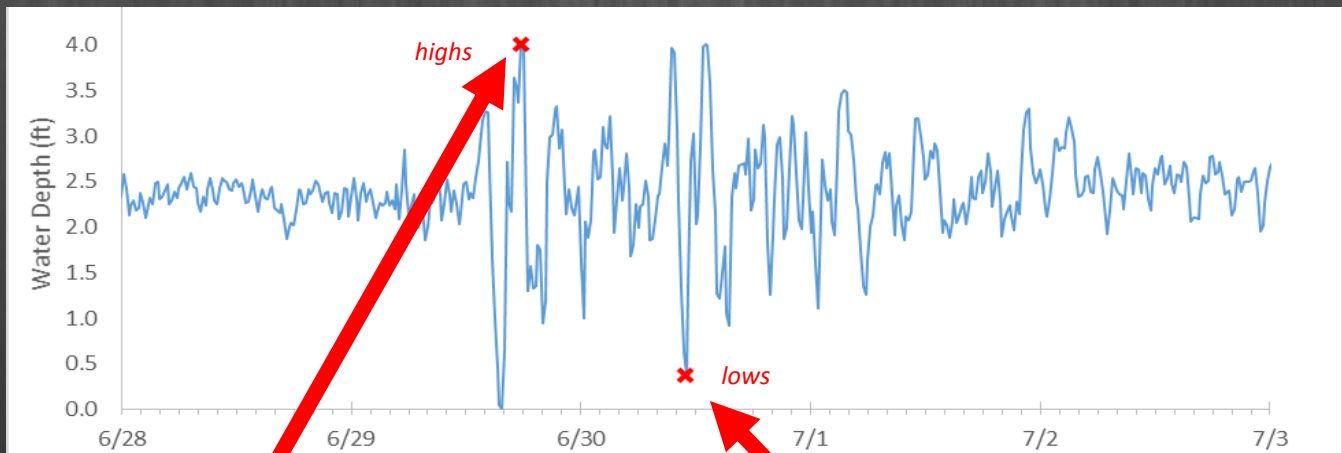
THE HIGHS AND LOWS OF BACK BAY WATER LEVELS

Sometimes called the Great Lakes tide, *seiche* is a French word meaning “to sway back and forth”. Seiches are common across the Great Lakes and occur when changes in barometric pressure combined with large wind events push water in one direction. Just like water sloshing in a bath tub, when the water level rises on one end, it drops at the other. This occurrence may be familiar to anyone who has seen the water level flooding into the parking lot near the casino. A good example of a seiche happened this past summer at the end of June where we saw a swing of more than four feet in the water level of Waishkey Bay.



In 2017, Biological Services placed two measuring devices in Waishkey Bay. These instruments collect temperature and water depth every 15 minutes during the ice-off season. Data collected from these devices is used across other projects that occur in the bay, including a project that will begin this summer looking at the effects of common carp on wild rice restoration efforts. It also serves as a long-term monitoring effort of temperature and water level changes in our area.

For more information about Back Bay monitoring, contact Bay Mills Biology Department.



Photos courtesy of B. Newland

Above: Graph showing Back Bay water levels before, during, and after the seiche event starting on 6/29/2018. Two photos (below graph) showing Back Bay water levels corresponds to peak high and low water levels.

GREAT LAKES FISHERIES PROGRAM UPDATE

THE BIOLOGY DEPARTMENT HAS A SHOCKING NEW WAY TO SAMPLE FISH AND IT'S FIN-TASTIC!

In 2018 Biological Services finished building a 20-foot electrofishing boat. This piece of equipment allows for fish capture in areas that are not accessible with a seine net. Electrofishing is an active form of fish sampling that allows us to collect information on our local fish populations. This method of fish capture can be easily moved around to different areas and requires few people to operate. After capture, fish can be measured, weighed and released back into the water.

Electrofishing is intended to be a safe and non-lethal fish sampling method and biologists take great care when sampling these animals.

So how does it work? These boats often have two large booms on the bow of the boat (see picture below) that help to conduct electricity. With the use of an on-board generator, an electrical field is set-up between the two booms and the hull of the boat. The electrical field draws nearby fish towards the booms or the hull and temporarily stuns them as the boat floats over them. After netting, fish can be transferred to a live well until the crew is ready to work with them. The number of personnel needed to electrofish usually includes one pilot/generator operator with one or two people on the bow to net up stunned fish. Boat electrofishing is typically limited to waters less than 10ft deep.



Photo by USFWS

Above: USFWS biologists surveying a wide river hold nets ready to scoop up stunned fish.

“Electrofishing is intended to be a safe and non-lethal fish sampling method and biologists take great care when sampling these animals...”

Electrofishing boats are easy to use and portable, making them a valuable tool for fisheries data collection. The data collected helps biologists to monitor our local fish populations and in turn, give the best information to managers. The Bay Mills electrofishing boat took its inaugural trip last spring to assist the Sault Ste. Marie tribe in their juvenile walleye survey.

COMMUNITY OUTREACH



Photo by Biological Services

Waishkey River Watershed Management Plan

The Waishkey River Watershed Management Committee was created in 2015, with the goal of protecting and restoring the ecological integrity of the Waishkey River. Interested citizens are encouraged and welcomed to attend meetings and offer advice and knowledge as BMIC Biological Services writes the Management Plan in collaboration with numerous partners. Contact Aubrey Maccoux-LeDuc or Brian Wesolek for meeting dates and more information amaccoux-leduc@baymills.org or bwesolek@baymills.org (906) 248 6852.

HAZARDOUS HOUSEHOLD WASTE COLLECTION SUCCESSFUL

Biological Services hosted a very successful Household Hazardous Waste (HHW) collection event this past fall. Community residents dropped off a range of hazardous items including empty aerosol can, batteries, stains, cleaners, and more. These items contain chemicals that can leach out of regular landfills contaminating groundwater and entering the food chain. HHW items were sorted and transported to a facility that can dispose of those items safely.

- 1,392 lbs stain/polyurethane/ oil-based paint
- 177 lbs batteries
- 63 lbs aerosol cans
- 673 lbs automotive liquids/ motor oil
- 617 lbs other chemicals



Photo by Biological Services

Only oil or lead-based paint requires disposal through a HHW event, so latex paint was not accepted. When allowed to dry and harden, latex paint and paint cans may be safely disposed of in regular household garbage. Paint hardening powder or kitty litter can quicken the drying process. For more information on how you can keep nasty chemicals out of our environment, or for future HHW events, contact Biological Services at 906-248-8652. This recycling event was made possible by the Great Lakes Restoration Initiative.

Above: Collected hazardous waste before getting shipped to a specially-designed hazardous waste landfill.

NEW in 2019: ELECTRONIC WASTE NOW ACCEPTED YEAR-ROUND AT Goodwill!



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