



BAY MILLS INDIAN COMMUNITY

BIOLOGICAL SERVICES NEWSLETTER

WINTER 2020

ISSUE 10



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

IN THE NEWS: *Waawaatesiwag*, Fireflies Declining Worldwide

To some, *waawaatesiwag*, or fireflies, may be a simple small insect that children catch in jars in the summertime. In many cultures, fireflies are the subject of many stories, symbolizing enlightenment and beings/species that bring help to those in need. The Anishnabeg people also have stories about these little beings, often in connection with deer. In an assessment done by GLIFWC, most tribal members that mentioned fireflies being one of the first signs that it is acceptable to start hunting deer. Many generations observed that when fireflies are first seen in June or early July, that deer start coming around.

Little is known about firefly populations, as there are over 2,000 species, many of which are extremely difficult to identify, each with unique habitats and life histories. In 2018 GLIFWC performed a vulnerability assessment for fireflies in which they scored a low to moderately-vulnerable to climate change. Tribal members have observed fewer fireflies and appearing later in the season. This corresponds with worldwide reports of firefly declines. A recent CNN article reported fireflies around the planet are declining due to habitat loss, artificial light, and pesticides (especially neonicotinoids).



For more information visit https://www.glifwc.org/ClimateChange/GLIFWC_Climate_Change_Vulnerability_Assessment_Version1_April2018.pdf or <https://www.cnn.com/2020/02/03/world/fireflies-extinction-risk-scen/index.html>

Photo by Mike Lewinski on Unsplash

WAISHKEY RIVER WATERSHED PLAN UPDATE

RESULTS FROM DESIRED USES PUBLIC SURVEY

The Bay Mills Biology Department has been working for years and many partners on a watershed management plan for the Waishkey River. The goal of the management plan is to improve water quality in the river. Determining community desires for the Watershed is an important part of the planning.

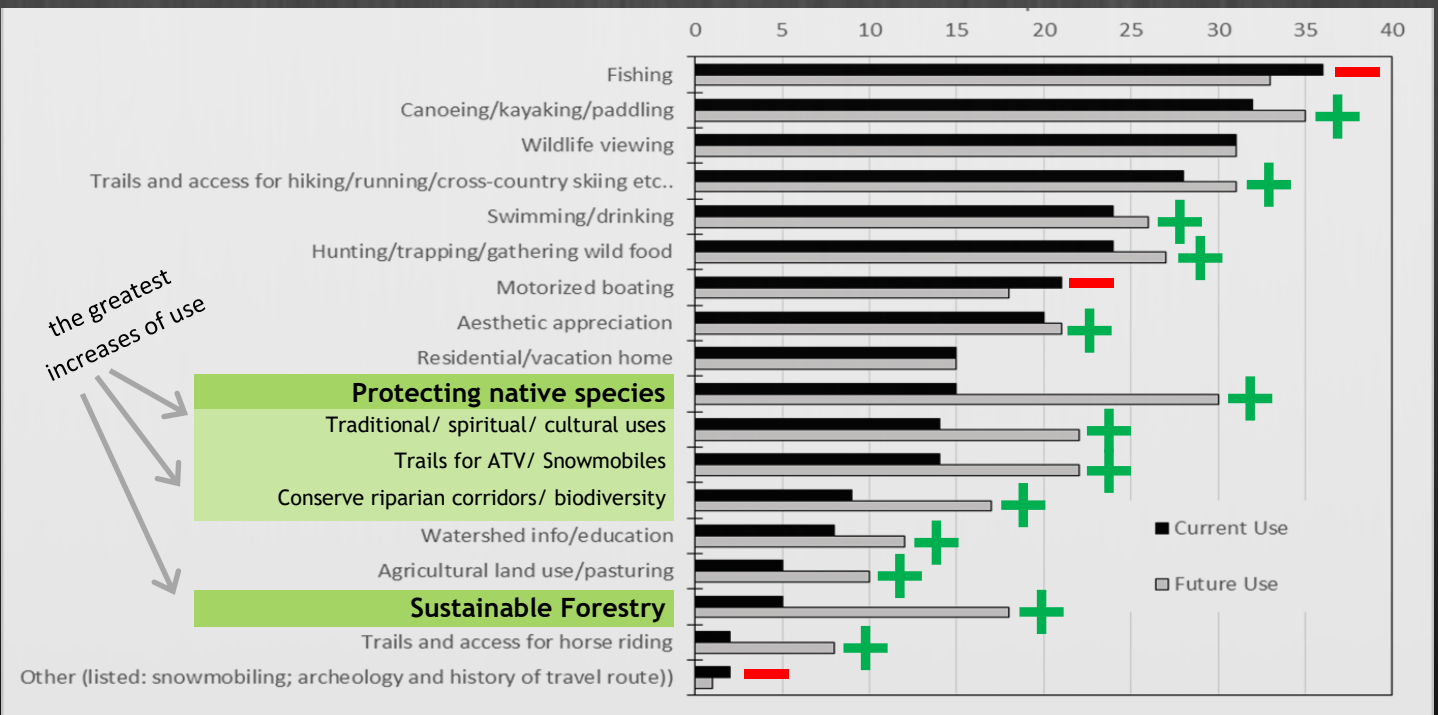
This winter, Biology staff surveyed community members on their desired uses for the watershed. 44 people responded. One of the questions asked people to list their “top needs and/or values around the Waishkey River and watershed?” These could include tangible uses and activities or intangible feelings.

Respondents felt fisheries and fishing (20%) were very important, closely followed by clean water (14%). Beyond that, answers were diverse. Survey results shown in this word cloud (to the right) lumped into 31 categories; words mentioned more frequently are displayed in larger font. This importance of gathering traditional foods and value for the sacredness of water and ceremony was also evident in the results.



Other questions posed in the survey were “how do you use the watershed NOW?” and “with improvements being made to the watershed, how would you like to use it in the FUTURE?” From a long list of activities, respondents generally felt they would use the river and the watershed more in the future (increases in use shown in green plusses). The most significant increases in future use are in the categories of Protecting Native Species and Sustainable Forestry. Followed next by Traditional/Spiritual/Cultural Uses, Trails for ATVs/ Snowmobiles, and Conserve Riparian Corridors/ Biodiversity.

To learn more about these survey results or the draft management plan, contact Biological Services.

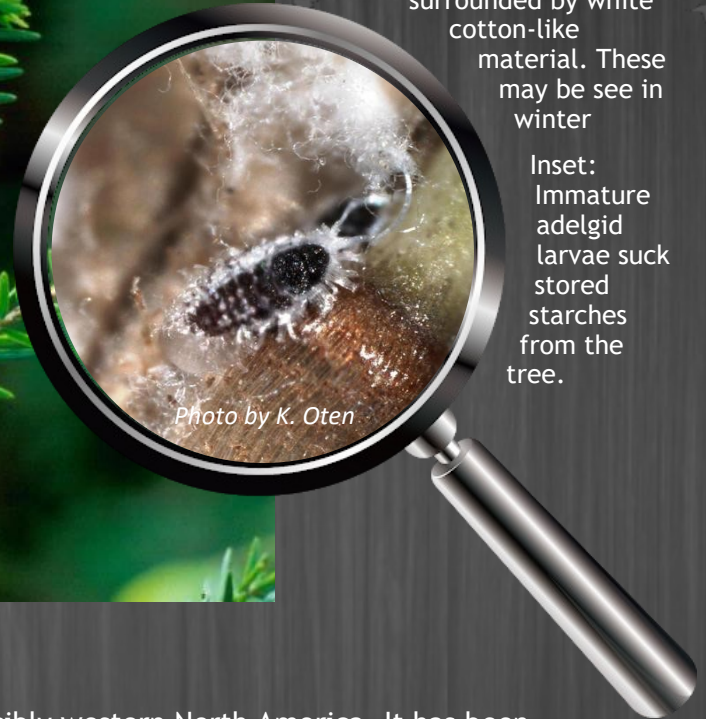


FEATURED INVASIVE SPECIES: Hemlock Woolly Adelgid

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.

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

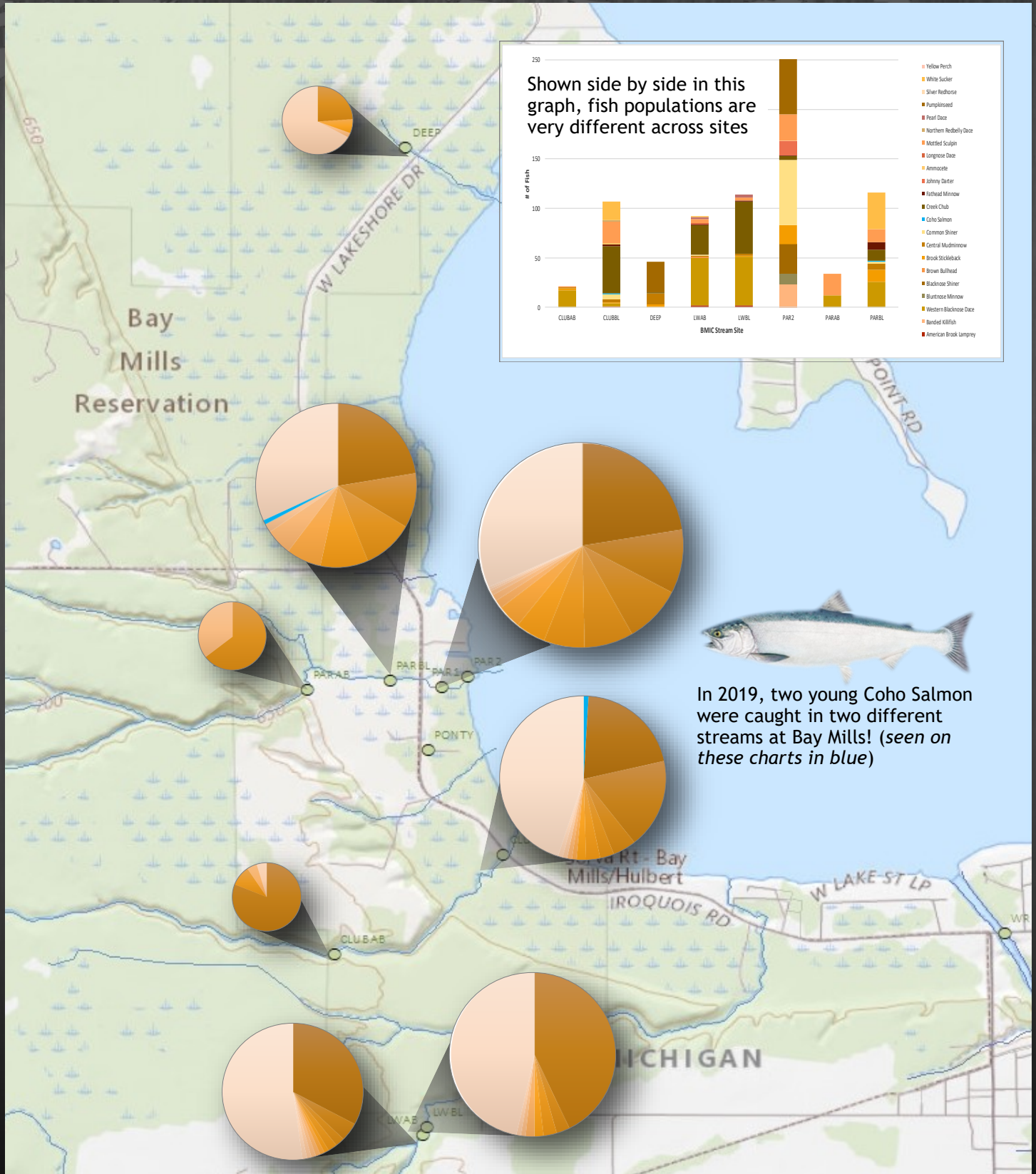
The most successful treatment methods for HWA are foliar-sprayed insecticides or injectable insecticides. Biological control of HWA with another insect is still undergoing testing.

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

WATER QUALITY PROGRAM UPDATE

Minnow Populations of Bay Mills Streams



Electrofishing Streams on Reservation

Bay Mills Biological Services Department conducts fall electrofishing surveys of reservation streams. Fish are unharmed by the process and released after the survey. Most fish found in these streams are only 1-4 inches long. Surveys in fall 2019 showed diverse fish populations that varied greatly between sites. Even in the same stream, species ratios and abundance could be very different (the stream near the golf course/ casino is a good example of this. Also interesting this year, two young Coho salmon were caught in two different streams! This species was last seen in the same sites in 2000 (and even larger salmon were caught).

The following species were captured and released in the 2019 study: American Brook Lamprey, Banded Killifish, Western Blacknose Dace, Bluntnose Minnow, Blacknose Shiner, Brown Bullhead, Brook Stickleback, Central Mudminnow, Common Shiner, Coho Salmon, Creek Chub, Fathead Minnow, Johnny Darter, Ammocete, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pearl Dace, Pumpkinseed, Silver Redhorse, White Sucker, Yellow Perch.

For more information about this study or water quality in the locals waters, contact Biological Services Department at 906-248-8648.



Photos by Biological Services Dept

All Drains Lead to the Lake: Maintain Your Home's Septic System

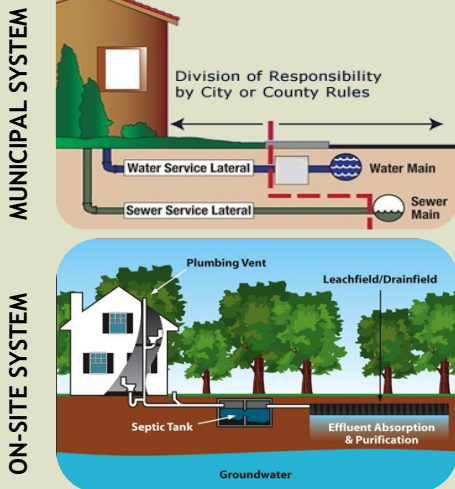


Figure by Garfield County, Colorado

- Tank & Drain Field *Pump septic tank every*
 - Tank & Mound *tank every*
 - Tank & Sand Filter
 - Tank & Lagoon
- 3 years**

At Bay Mills, even neighboring homes may have different septic systems. Know your home's system & maintain it! Homeowners have a responsibility to protect and maintain their septic system. This protect the environment and human health! Cut back woody vegetation, avoid parking heavy objects, and limit what goes down the drain.

Know the Signs of Septic System Failure

- Water and sewage from toilets, drains, and sinks are backing-up into the home.
- Bathtubs, showers, and sinks draining very slowly.
- Gurgling sounds in the plumbing system.
- Standing water or damp spots near the tank or drainfield.
- Bad odors around the septic tank or drainfield.
- Bright green, spongy lush grass over the tank or drainfield, even during dry weather.
- Algal blooms in nearby ponds or lakes.
- High levels of nitrates or coliform bacteria in water wells.

INLAND FISHERIES PROGRAM



Left: Carp captured as part of Waishkey Bay study.

Right: Wild rice plant.

Below: Wild rice seeded in plots across Waishkey Bay

Photos by Biological Services Dept



SPECIAL TWO-YEAR STUDY IN BACK BAY: CARP AND WILD RICE ARE A POOR COMBINATION

Wild rice is an important resource to Lake Superior Ojibwe. While few opportunities currently exist to harvest wild rice in the eastern Upper Peninsula, it was historically abundant along portions of the St. Marys River and in inland lakes and rivers. Efforts to re-establish wild rice within lands managed by BMIC have produced mixed results. Seeding efforts in Waishkey Bay began in the mid-1990s and continued through the late-2000s with varying success. While no seeding has occurred in the past 5 years, some wild rice continues to grow. Water quality testing and direct observation of wild rice growth have shown that conditions in Waishkey Bay are appropriate to support wild rice, especially in the western portion of the bay. Biological conditions can also be a factor affecting the success of wild rice. For example, Common Carp (*Cyprinus carpio*) are an invasive species which has been present in the Great Lakes since the late 1800s. Carp are omnivorous and will aggressively feed in the sediments of lakes, rivers and bays. This feeding habit can result in the uprooting of vegetation and decreased water quality due to the disturbance of sediments. Carp are often seen in large groups during the summer when they congregate in shallow areas to spawn. The combination of their feeding and reproductive habits can have destructive effects on aquatic vegetation, especially wild rice.

METHODS OF CARP AND RICE STUDY

In spring 2019, Biological Services began the first of a two-year project in Waishkey Bay to determine the impacts of Common Carp on wild rice. The first part of the project looks at the movement patterns of Common Carp while the second part measures the success of wild rice seeding when protected from carp.

To address the first part of the study, biologists used a series of acoustic receivers throughout the bay to triangulate carp movements relative to areas of the bay suitable for wild rice.

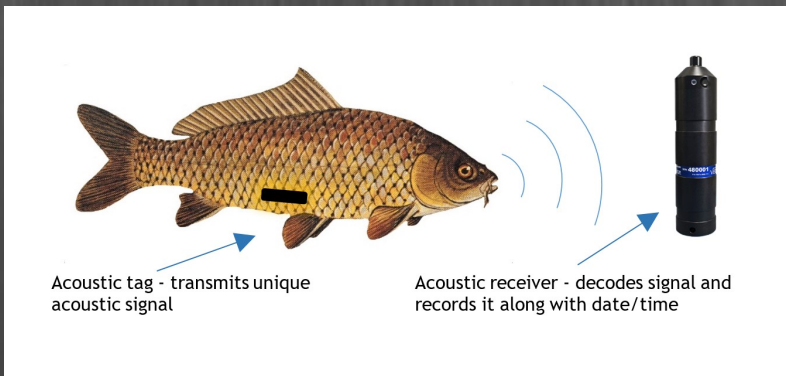
Carp were implanted with a tag which emits a signal that can be recorded on receivers. When carp swim near the receivers, we can calculate a fine-scale track of positions and determine when and how long each fish spent in certain areas of Waishkey Bay. By pinpointing areas of the bay that carp use during the growing season for wild rice, we hope to adjust our seeding efforts to areas that are less susceptible to the disturbances that carp create.

Additionally, biologists used exclosures to measure wild rice seeding success under conditions both protected and exposed to Common Carp. Each group of exclosures had four treatments which included all combinations of fenced/unfenced and seeded/unseeded.

CARP COME AND GO FROM WAISHKEY BAY

Initial results suggest that while carp use the bay during portions of the summer, most leave the bay at some point. One example of this was a carp that we tagged in May which left Waishkey Bay a few weeks after we tagged it. It was picked up on receivers in Whitefish Bay, Tahquamenon River, Whitefish Point, Au Sable Point and Marquette before returning all the way back to Waishkey Bay by the end of the summer. While this magnitude of movement was not seen with all the carp we tagged, it was common for fish to leave the bay and head into the St. Marys River and Whitefish Bay.

Wild rice successfully grew in all of the seeded exclosures with no significant difference between fenced and unfenced treatments. We did, however, observe large variability in the stem density across different areas of the bay.



This project will continue through summer 2020. Comments and questions may be directed to Frank Zomer (fzomer@baymills.org).



Above: Carp were implanted with a tag which emits a signal to special receivers. When carp swim near the receivers, their position in Waishkey Bay can be tracked.

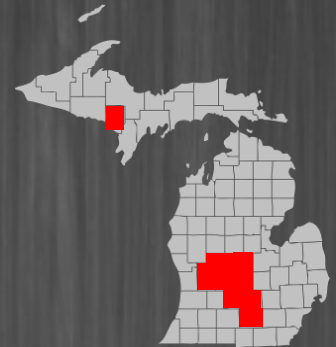
Left: Carp feeding and spawning behavior may disturb young rice plants. Wild rice was planted in plots across Waishkey Bay—some fenced, some unfenced. Rice growth protected and unprotected from carp will be measured.

INLAND FISH AND WILDLIFE PROGRAM UPDATE

CHRONIC WASTING DISEASE: 2019 SEASON TEST RESULTS

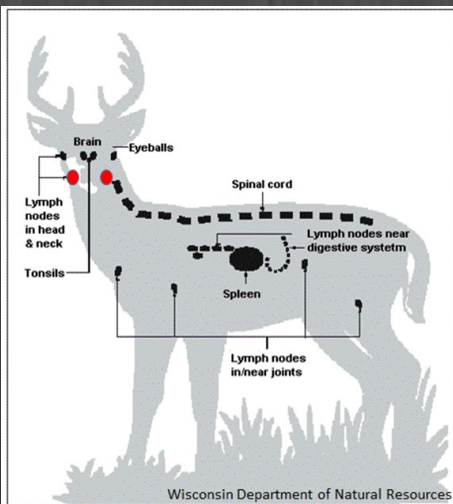
Chronic Wasting Disease (CWD) is a neurological disease that affects deer and elk and is highly contagious. In the past few years, it has become a hot topic in Michigan among hunters, biologists, and the general public. As of February 2020, 185 deer that have tested positive in Michigan, of 80,342 tested. Out of the 17,308 deer tested from the 2019 season, 65 were found to be positive for CWD. The majority of these positive animals were in Montcalm (36) and Kent (17) counties. A smaller number of animals were positive in Gratiot (3) and Jackson (7) counties. Dickinson remains the only county in the Upper Peninsula to contain CWD positive animals, but it is important to continue monitoring.

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.



Location of lymph nodes and organs where concentration of CWD prion proteins are located. Lymph nodes highlighted in red are tested.

This year Bay Mills Indian Community hunters submitted 6 deer heads to the Michigan DNR to be tested for Chronic Wasting Disease (CWD) through the Biological Services office. None of these deer were determined to have the disease. Dickinson remains the only county in the Upper Peninsula to contain CWD positive animals, but it is important to continue monitoring. For more information on this testing or general information about CWD signs/symptoms and preventing disease spread, contact Gael Sanchez at gsanchez@baymills.org or pick up an informational brochure at the Conservation Office.



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SCAN ME