Clean Water Action Council

OF NORTHEAST WISCONSIN

Celebrating 34 years of working to protect public health and the environment in Northeast Wisconsin

FALL 2019

The Year of Clean Drinking Water How are we doing?

Introduction by CWAC President Dean Hoegger

In January 2019, newly-inaugurated Gov. Tony Evers declared 2019, **"The Year of Clean Drinking Water."** For so many residents, the action was long overdue. At a recent hearing, Kewaunee CARES cofounder Lynn Utesch reprimanded members of the state legislature for more than 10 years of inaction. He chided the group for studying the problem, but not taking action to improve private well water contamination rates as high as 47% in one Kewaunee County township.

Environmentalists were blaming well water contamination in Kewaunee County on the proliferation of concentrated animal feeding operations (CAFOs), while CAFO owners were blaming failing septic systems and antiquated wells. The contamination rates were so high that one researcher is often quoted as saying Kewaunee County's well contamination is like that of a third-world country.

While the evidence for the source of nitrate and pathogen contamination was apparent to many residents, it would take research presented by U.S. Department of Agriculture microbiologist Dr. Mark Borchardt, Ph.D., beginning in 2017 to prove them correct. The greatest threat to well water was, in fact, primarily from agricultural practices.

As early as 2014, Administrative Law Judge Jeffrey Boldt declared that a "massive regulatory failure is at the root of the county's polluted waters." The November, 2014, audit by the Legislative Audit Bureau found major deficiencies in Wisconsin Department of Natural Resources (WDNR) CAFO monitoring practices. Yet the governor at the time, Scott Walker, and the state legislature either remained silent or recommended more studies. It would take a petition to the U.S. Environmental Protection Agency (EPA) under provisions of the federal Safe Drinking Water Act (SDWA) by Clean Water Action Council, Kewaunee CARES, and other environmental groups to get the state to take action, but at a snail's pace.

Elsewhere around the state, Walker's Attorney General, Brad Schimel issued an opinion in 2016 that the WDNR must no longer consider the cumulative effects of high-capacity wells on lakes, streams, and ground water in the central sands region of the state. About 200 high capacity well permits that were on hold for WDNR review were then granted.

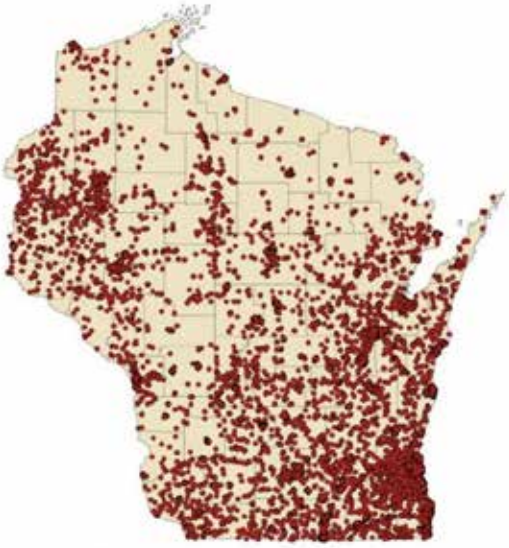
Wisconsin also ignored the research on the per- and polyfluoroalkyl substances (PFAS) referred to as "forever chemicals" because they are slow to break down and are bio-accumulative. The Environmental Working Group notes that the research has existed for years: "As far back as 1950, studies conducted by 3M showed that the family of toxic fluorinated chemicals now known as PFAS could build up in our blood. By the 1960s, animal studies conducted by 3M and DuPont revealed that PFAS chemicals could pose health risks. But the companies kept the studies secret from their employees and the public for decades." And, Wisconsin did little to seek access to the research, or do its own.

Lead has long been known to harm children's IQ development and was primarily thought to be from lead exposure from paint produced more than 30 years ago. But recent lead contamination in Flint, Mich., brought attention to contamination from lead lateral lines throughout the state, with the greatest contamination in Milwaukee. Again, an issue ignored for years.

With 2019 being declared the "The Year of Clean Drinking Water" by Gov. Tony Evers, let us take a look at how we are doing.

LEAD

Governor Evers' budget requested $40 million in bonding for the replacement of up to 50 percent of the cost to replace lead service lines through the Safe Drinking Water Loan Program. However, the Joint Finance Committee removed that item from the budget. In a response to a Tweet by a Republican committee member's criticism that so many tax dollars would go to Milwaukee, the governor Tweeted, "Every dot on this map represents an address where kids tested positive for lead poisoning. Why the heck wouldn't we do everything in our power to fix this?"



Lead Exposure —A Statewide Problem
Pockets of Risk. Lead poisoning is a statewide risk, as shown at the left; dots represent addresses where children under age 6 were poisoned in Wisconsin, 1996 - 2016.

In July of 2019 Evers signed an executive order that creates a "lead czar" to coordinate the state's efforts to eliminate major sources of lead in our communities, including lead pipes. The order creates a new interagency coordinator to tackle lead pollution in drinking water.

NITRATES & BACTERIA

The Governor travelled around the state for listening sessions regarding water quality. He made a stop in Sturgeon Bay this spring and then this summer he made a private visit to the home of a Town of Lincoln, Kewaunee County resident who is impacted by bovine waste contaminated drinking water. There he heard first hand from the homeowner and invited guests about how industrialized farming is impacting the quality of life in Kewaunee County.

In July, he announced that he would direct state agencies to create new rules about how nitrates from manure and fertilizer are applied to farm fields. About 10% of Wisconsin's private wells have high levels of nitrates. These rules could also reduce well water contamination from bacteria. Wells contaminated by nitrates are often also contaminated by bacteria.

The SWDA petition, previously mentioned, resulted in the NR151 revised manure spreading rules for the karst areas of northeast Wisconsin where fractured limestone lies under a limited amount of topsoil.

It is too early to tell if these modest rules will reduce ground water contamination because they have been slow to be implemented, primarily because current mapping shows soil depths in 20-inch intervals from 0-20 inches, 21-40, and so on. To determine where the new rules apply, mapping that shows 0-24 inches will be needed to determine where manure cannot be spread.

Citizens from around the state have high expectations for directives from the Evers administration, unlike the Walker administration that took nearly four years to implement changes in response to the SDWA petition, and it often took pro big agricultural positions over citizens of the state.

REVISION OF LIVESTOCK FACILITY SITING RULES

This is not an action by the legislature or the governor as these rules were scheduled for review this year. However, environmental groups did lobby the Evers administration to have the Department of Agriculture, Trade and Consumer Protection (DATCP) hold hearings on the proposed revisions to the Livestock Facility Siting Law, known as ATCP 51. Hearings with public testimony and opportunities to provide written comment were offered to the public.

While many of the proposed changes have a significant impact on the quality of life for those living near a CAFO, siting of manure storage facilities can also impact drinking water quality. Dr. Borchardt's research shows a strong link to distance from manure pits and well water contamination. It is hopeful the Evers administration will urge DATCP to increase these setbacks.

PFAS, FOREVER CHEMICALS

In May, 2019, State Sen. Dave Hansen (D-Green Bay) and Assembly Member Staush Gruszynski (D-Green Bay) and other Democrats introduced a bill to address containment and cleanup, and make stronger regulations for PFAS.

Gov. Evers, with DNR Secretary Preston Cole, Sen. Hansen, and AM Gruszynski at press conference to introduce PFAS bill.

Democrats proposed bill:
https://cswab.org/wp-content/uploads/2019/05/Wisconsin-CLEAR-Act-LRB-2297-2-2019.pdf

The Republicans also proposed a bill that was less extensive:
Republican proposed bill:
http://legis.wisconsin.gov/senate/02/cowles/news/2019/rep-nygren-and-sen-cowles-introduce-bill-curbing-use-of-pfas-fire-fighting-foam/

In August, understanding the urgency of addressing the problem, Governor Evers signed an executive order to curb the contamination. The order calls on the WDNR and DATCP to work together to create a website and to work with wastewater treatment plants to identify sources of PFAS. The WDNR must also consider PFAS when developing advisories for fish and wildlife consumption, and they must develop regulatory standards for the chemicals.

So, how are we doing in 2019 "The Year of Clean Drinking Water?" So far it has been a great start with a governor pledging to work for clean water and a DNR Secretary offering to support the work of CWAC. Please read the additional articles to learn more about threats to drinking water and the progress that is being made.

The Federal Safe Drinking Water Act: An important tool for citizen action to protect drinking water!

By Charlie Frisk

The Safe Drinking Water Act (SDWA) is the federal law that protects public drinking water supplies throughout the nation. Under the SDWA, the EPA sets standards for drinking water quality and implements various technical and financial programs to ensure drinking water safety.

The SDWA was passed by the U.S. Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 to provide protection for the sources of public drinking water; such things as rivers, lakes, reservoirs, springs, and ground water wells that provide the water for municipal water supplies.

According to the World Health Organization, at least 2 billion people worldwide use a drinking water source contaminated with feces. Because of the SDWA, very few people in the U.S. have that problem. The SDWA is designed to prevent Americans that are receiving their water from a municipal water supply from being among those 2 billion.

Does the SDWA guarantee that all Americans are drinking safe water? No, even with perfect regulation that would not be the case. The SDWA does not regulate private well systems. In states such as Wisconsin where a large percentage of citizens get their water from their own private wells, the SDWA provides no protection for those citizens. The problem of contamination of private wells in Wisconsin has been exacerbated in recent years because of the land spreading of liquid manure by large industrial type dairy farms. Because of this, there are residents of NE Wisconsin that have wells with fecal contamination.

There are also cases where citizens that are on municipal water services are receiving water that is unfit to drink. This can happen when municipalities fail to test their water supply on a regular basis, or they do test and keep the results out of the public eye. In Flint, Michigan government officials stonewalled on the water problems for 18 months, while Flint residents complained about foul-smelling, discolored, and off-tasting water leading to skin rashes, hair losses, and itchy skin.

The most publicized problem with Flint, MI water was the high lead levels. Large numbers of children had their lead levels double and even triple since 2014 in Flint. Elevated lead levels in children leads to delayed development, learning problems, behavioral problems, abdominal pain, loss of appetite and a host of other health issues.

Flint water also had elevated bacterial levels and is thought to have caused an outbreak of Legionnaire's Disease that resulted in several deaths.

More than 10% of children in Milwaukee, WI have elevated lead levels in their bloodstream. Some of the lead contamination comes from old peeling lead based paint. Lead was not banned from paint until 1978. But Milwaukee also has lead-lined pipes in the laterals coming off of the main water system. Most of these lead pipes are located in the poorest parts of the city. The WI State Legislature and Milwaukee city government have promised to replace the lead-lined pipes, but have consistently failed to allocate the funds to do so.

Citizens receiving their water from municipal supplies should be able to have confidence that their water is fit to drink. In cases like Flint, MI and Milwaukee, WI the failure to ensure clean water is an example of a lack of the political will to do what is right to protect citizen's health. In the Milwaukee case, several Republican leaders stated that taxpayers in the state should not pay for Milwaukee's problem. Just another reason why elections matter!

Editor's Note:

While the SDWA was primarily passed to protect public drinking water, CWAC and three other environmental groups petitioned the EPA, under provisions of the SDWA, to exercise its emergency powers to protect citizens from contaminated ground water in Kewaunee County. Although the contamination was primarily with private wells, it was however widespread and previous action by the EPA in Washington State in 2012 provided some historical support for the petition. While the EPA took limited direct action, the agency did pressure the WDNR to act and three years later more protective manure spreading rules known as NR151 were implemented in northeast Wisconsin.

Municipal Drinking Water Quality Report for Area Communities

By Michael Reno, CWAC Summer, 2019 Intern and Northeast Wisconsin Technical College environmental engineering student
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Wisconsin has 11,589 public water systems, the largest of any state. Research done by Wisconsin Department of Natural Resources reports that the vast majority of Wisconsin's public water systems rely on groundwater pumped from wells. However, 56 systems use surface water from Wisconsin lakes to provide drinking water to their customers. These surface water systems serve some of the state's largest communities, including Milwaukee and Green Bay. So, while more than 99 percent of the state's public water systems use groundwater sources, surface water systems serve almost one third of the state's population.

APPLETON

https://www.appleton.org/home/showdocument?id=22730

The source of Appleton's drinking water is Lake Winnebago. Lead was reported at 15 ppb, the AL is 15 ppb. Radium was found at 1.4 pCi/L, the MCL is 15 pCi/L. The drinking water meets or exceeds all Federal and State requirements.

CHILTON

https://chilton.govoffice.com/vertical/sites/%7B7A9CA024-E5D7-4C94-90C4-41FD2C22F01F%7D/uploads/2018_Consumer_Confidence_Report.pdf

The city of Chilton is provided water by Chilton Waterworks. Chilton Waterworks obtains their drinking water from five wells. Nitrate was reported at 5.28 ppm, MCL is 10 ppm. Copper was at 0.84 ppm, MCL is 1.3 ppm. Lead was reported at 8 ppb, MCL is 15 ppb. Radium was reported at 1.1 pCi/L, the MCL is 5. The drinking water met all Federal and State requirements.

FOND DU LAC

https://www.fdl.wi.gov/water/wp-content/uploads/sites/16/2019/06/CCR-2018-FINAL.pdf

The Fond du Lac Water Utility is supplied by groundwater that is pumped from 17 wells within and near the City of Fond du Lac in 2018. Copper was reported at 0.465 ppm, MCL is 1.3 ppm. Lead was reported at 11 ppb, MCL is 15 ppb. 2 of 60 were above the AL for Lead. The drinking water met all Federal and State requirements.

Data Table Key: Unit Descriptions

AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
ppb: parts per billion, or micrograms per liter (µg/L)
ppm: parts per million, or milligrams per liter (mg/L)
pCi/L: picocuries per liter (a measure of radioactivity)

GREEN BAY

http://www.gbwater.org/water-quality/ccr/

The city of Green Bay is provided water by Green Bay Water Utility. The Green Bay Water Utility's main source of water is Lake Michigan, known as surface water. Lead was reported at 11 ppb, the MCL is 15 ppb set by the EPA. Arsenic was reported at 1 ppb, the MCL is 10 ppb. Copper was reported 0.55 ppm, MCL is 1.3 ppm. Combined Radium 226/228 was reported at 4 pCi/L, the MCL is 5 pCi/L. The drinking water met all Federal and State requirements.

KEWAUNEE

http://www.cityofkewaunee.org/uploads/5/3/9/5/53954613/2016_consumer_confidence_report_data.pdf

Kewaunee Waterworks obtains their drinking water as groundwater from three wells. Arsenic was reported at 1 ppb, the MCL is 10 ppb. Fluoride was reported at 1.1 ppm, the MCL is 4 ppm. Copper was reported at 0.67 ppm, the MCL is 1.3 ppm. Lead was reported at 4.10 ppb, the MCL is 15 ppb. Radium was at 1.3 pCi/L, the MCL is 5.0 pCi/L. The drinking water met all Federal and State requirements.

MANITOWOC

https://www.mpu.org/images/2018-Drinking-Water-Quality-Report-update-June-3-2019.pdf

Manitowoc Public Utilities obtains water through two groundwater sources via wells and a third as surface water from Lake Michigan. Arsenic was reported at 1 ppb, the MCL is 10 ppb. Lead was at 9 ppb, the MCL is 10 ppb. Nitrate was reported at 1.3 ppm, the MCL is 10 ppm. Thallium Total was reported at 0.6 ppb, the MCL is 2 ppb. https://www.atsdr.cdc.gov/phs/phs.asp?id=307&tid=49. The drinking water met all Federal and State requirements.

MARINETTE

https://www.marinette.wi.us/DocumentCenter/View/396/2017-Consumer-Confidence-Report-PDF

Marinette Waterworks obtains their drinking water from three surface water sources from Lake Michigan. Radium was detected at 1.4 pCi/L, the MCL is 5.0 pCi/L. Copper was reported at 0.29 ppm, the AL is 1.3 ppm. The drinking water met all Federal and State requirements.

NEENAH

https://www.ci.neenah.wi.us/wp-content/uploads/2019/04/water-quality-report-18-3page.pdf

The Neenah Water Treatment Plant is supplied by surface water from Lake Winnebago. They also have an emergency intake in the Fox River near Riverside Park. Cyanide was reported at 11 ppb, the MCL is 200 ppb (Discharge from steel/metal factories; Discharge from plastic and fertilizer factories). Lead was reported at 6.1 ppb, the AL is 15 ppb. The drinking water met all Federal and State requirements.

OCONTO
https://www.ofmu.org/sites/ofmu.org/files/2018%20water%20Quality.pdf
The Oconto Falls Water Utility obtains groundwater from three wells. Arsenic was reported at 3 ppb, the MCL is 10 ppb. Lead was reported as 8.40 ppb, the MCL is 15 ppb. Radium was reported at 4.4 pC/L, the MCL is 5. The drinking water met all Federal and State requirements.

SHAWANO
https://www.cityofshawano.com/ArchiveCenter/ViewFile/Item/63
The Shawano water system presently consists of four active ground water wells. Arsenic was reported at 2 ppb, the MCL is 10 ppb. Lead was reported at 9.7 ppb, the AL is 15 ppb. Nitrate was reported at 5.48 ppm, the MCL is 10 ppm. Radium was found at 2.29 pCi/L, the MCL is 5 pCi/L. The drinking water met all Federal and State requirements.

SHEBOYGAN
http://www.sheboyganwater.org/assets/About-Us/fc9fc7f664/SWU-CCR-2019-English.pdf
Twelve of the fifteen municipal water systems in Sheboygan County have deep wells that use groundwater to supply residents with their water supply. The Cities of Sheboygan and Sheboygan Falls, and the Village of Kohler, obtain their water supply from Lake Michigan on a joint system run by the Sheboygan Water Utility. Lead was reported at 7.5 ppb, the MCL is 15 ppb. The drinking water met all Federal and State requirements.

STURGEON BAY
https://www.sbunet.com/sites/sbunet.com/files/2018%20CCR.pdf
Sturgeon Bay Waterworks obtains their drinking water through five wells. Bromate was reported at 8 ppb, the MCL is 10 ppb. Nitrate was reported at 4.80 ppm, MCL is 10 ppm. Copper was reported at 0.7260 ppm, MCL is 1.3 ppm. It's also noted that 1 of 40 results were above the AL for Copper. Lead was at 9.10 ppb, the MCL is 15 ppb. The drinking water met all Federal and State requirements.

WAUPACA
https://www.cityofwaupaca.org/wp-content/uploads/2019/03/CCR2018.pdf
The City of Waupaca receives 100% of its drinking water from groundwater sources via 7 shallow wells. Nitrate was reported at 7.73 ppm, the MCL is 10 ppm. Lead was reported at 4.30 ppb, the AL is 15 ppb. Radium was found at 3.4 pCi/L, the MCL is 5 pCi/L. The drinking water met all Federal and State requirements.

EPA Regulations for common drinking water contaminants and their impact on health:

Nitrate nitrogen
https://www.uwsp.edu/cnr-ap/watershed/Pages/GWNit.aspx
is a commonly used lawn and agricultural fertilizer. It is also a chemical formed in the decomposition of waste materials, such as manure or sewage. If infants less than six months of age drink water (or formula made with water) that contains more than 10 mg/L nitrate nitrogen, they are susceptible to methemoglobinemia. This disease interferes with the blood's ability to carry oxygen. Recent studies also suggest that high nitrate water may be linked to birth defects and miscarriages, so pregnant women should avoid drinking high nitrate water. High nitrate levels also suggest that other contaminants might be present. The natural level of nitrate in Wisconsin's groundwater is less than 0.2 mg/L.

Lead and Copper
https://www.epa.gov/dwreginfo/lead-and-copper-rule
The treatment technique for the rule requires systems to monitor drinking water at customer taps. If lead concentrations exceed an action level of 15 ppb or copper concentrations exceed an action level of 1.3 ppm in more than 10% of customer taps sampled, the system must undertake a number of additional actions to control corrosion.

EPA has set the maximum contaminant level goal for lead in drinking water at zero because lead is a toxic metal that can be harmful to human health even at low exposure levels. Lead is persistent, and it can bioaccumulate in the body over time. *(Resource) https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water*

Children
Even low levels of lead in the blood of children can result in:

- Behavior and learning problems
- Lower IQ and hyperactivity
- Slowed growth
- Hearing problems
- Anemia

Pregnant Women
Lead can accumulate in our bodies over time, where it is stored in bones along with calcium. During pregnancy, lead is released from bones as maternal calcium and is used to help form the bones of the fetus. This is particularly true if a woman does not have enough dietary calcium. Lead can also cross the placental barrier exposing the fetus to lead. This can result in serious effects to the mother and her developing fetus, including:

- Reduced growth of the fetus
- Premature birth

Adults
Lead is also harmful to adults. Adults exposed to lead can suffer from:

- Cardiovascular effects, increased blood pressure and incidence of hypertension
- Decreased kidney function
- Reproductive problems (in both men and women)

Arsenic

https://www.epa.gov/dwreginfo/chemical-contaminant-rules

EPA set the arsenic standard for drinking water at 10 ppb (or 0.010 parts per million). This protects consumers from the effects of long-term, chronic exposure to arsenic. PWSs had to comply with the lower standard by January 23, 2006.

Arsenic is a semi-metal element in the periodic table. It is odorless and tasteless. It can enter drinking water supplies from natural deposits in the earth or from agricultural and industrial practices.

Non-cancer effects of arsenic can include:

- Thickening and discoloration of the skin
- Stomach pain
- Nausea
- Vomiting
- Diarrhea
- Numbness in hands and feet
- Partial paralysis
- Blindness

Arsenic has been linked to a number of cancers. These include cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate.

Arsenic is a naturally occurring element found in soil and rock and under certain conditions can be released into groundwater and enter wells. Elevated levels of arsenic have been found in a number of wells throughout the state with the majority of these being reported in northeastern Wisconsin. Because of an increased risk of health complications due to arsenic in drinking water there is a drinking water standard of parts per billion (or sometimes reported as 0.010 mg/L).

Radium

https://semspub.epa.gov/work/11/176334.pdf

EPA has established a Maximum Contaminant Level (MCL) of 5 picoCuries per liter (pCi/L) for any combination of radium-226 and radium-228 in drinking water. EPA has also established a MCL of 15 pCi/L for alpha particle activity, excluding radon and uranium, in drinking water. Radium-226 is covered under this MCL.

How can radium affect people's health? Exposure to radium over a long period may result in many different harmful effects. If inhaled as dust or ingested as a contaminant, risk is increased for several diseases, including lymphoma, bone cancer, and hematopoietic (blood-formation) diseases, such as leukemia and aplastic anemia. These effects take years to develop. If exposed externally to radium's gamma radiation, risk of cancer is increased in essentially all tissues and organs, though to varying degrees. However, in the environment, the greatest risk associated with radium is actually posed by its direct decay product radon. Radon has been shown to cause lung cancer.

Bromate

https://www.health.ny.gov/environmental/water/drinking/bromate.htm

Bromate is formed when ozone used to disinfect drinking water reacts with naturally occurring bromide found in source water. Bromate formation in disinfected drinking water is influenced by factors such as bromide ion concentration, pH of the source water, the amount of ozone and the reaction time used to disinfect the water.

The U.S. Environmental Protection Agency developed a level that it considers protective of non-cancer health effects from long-term exposure, including individuals who may be more susceptible including women of childbearing age and children. Assuming an adult drinks about two quarts of water a day at the drinking water standard of 10 micrograms per liter, their exposure is about a sixth of that level. The increased lifetime cancer risk from drinking this water everyday poses a moderate risk level of about two in ten thousand. These exposure and risk estimates are likely to be overestimates since most people would not consume two quarts of water containing bromate at the standard for their lifetime.

Thallium

https://www.atsdr.cdc.gov/phs/phs.asp?id=307&tid=49

Thallium is used mostly in the manufacture of electronic devices, switches, and closures. It also has limited use in the manufacture of special glasses and for medical procedures that evaluate heart disease. Up until 1972 thallium was used as a rat poison, but was then banned because of its potential harm to man. Thallium is no longer produced in the United States. All the thallium used in the United States since 1984 has been obtained from imports and thallium reserves.

How can thallium affect my health?

Thallium can affect your nervous system, lung, heart, liver, and kidney if large amounts are eaten or drunk for short periods of time. Temporary hair loss, vomiting, and diarrhea can also occur and death may result after exposure to large amounts of thallium for short periods. Thallium can be fatal from a dose as low as 1 gram. No information was found on health effects in humans after exposure to smaller amounts of thallium for longer periods. Birth defects observed in children of mothers exposed to small amounts of thallium did not occur more often than would be expected in the general population. The length of time and the amount of thallium eaten by the mothers are not known exactly. As in humans, animal studies indicate that exposure to large amounts of thallium for brief periods of time can damage the nervous system and heart and can cause death. Animal reproductive organs, especially the testes, are damaged after drinking small amounts of thallium-contaminated water for two months. These effects have not been seen in humans. No information was found on effects in animals after exposure to small amounts of thallium for longer periods of time. No studies were found on whether thallium can cause cancer in humans or animals.

Resources:

Wisconsin Public Water Systems 2018 Annual Drinking Water Report
https://dnr.wi.gov/files/PDF/pubs/DG/DG0045.pdf

National Primary Drinking Water Regulations
https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations

Wisconsin's Groundwater Data
https://wi.water.usgs.gov/gwcomp/find/index.html

Drinking Water Regulations and Contaminants
https://www.epa.gov/dwregdev/drinking-water-regulations-and-contaminants

Consumer Confidence Reports (CCR)
https://ofmpub.epa.gov/apex/safewater/f?p=136:102::::::

University of Wisconsin-Stevens Point. Common Water Quality Problems
https://www.uwsp.edu/cnr-ap/watershed/Pages/GWWell.aspx

Well Water Quality Viewer: Private Well Data for Wisconsin
https://www.uwsp.edu/cnr-ap/watershed/Pages/WellWaterViewer.aspx

Data on County Wells

By Michael Reno

Counties	2008	2019
Brown	26% of the wells did not meet the health standard for arsenic 8% of wells did not meet the health standard for nitrates	Percent of wells over 10 ppb arsenic: 13% Estimated % of wells over 10 ppm nitrate standard: 11% Estimated % positive bacteria tests in private wells: Coliform 16%, E. coli 11%
Calumet	100% of 38 private well samples collected in Calumet County met the health standard for arsenic. 22% of the wells did not meet the health standards for nitrates	Percent of wells over 10 ppb arsenic: 4% Estimated % of wells over 10 ppm nitrate Standard: 24% Estimated % positive bacteria tests in private wells: Coliform 28%, E. coli, 12%
Door	100% of 72 private well samples collected in Door County met the health standard for arsenic. 3% of the wells did not meet the health standards for nitrates	Percent of wells over 10 ppb arsenic: 3% Estimated % of wells over 10 ppm nitrate standard: 2% Estimated % positive bacteria tests in private wells: Coliform 23%, E. coli 10%
Fond du Lac	21% of the wells did not meet the health standard for arsenic 8% of the wells did not meet the health standard for nitrates	Percent of wells over 10 ppb arsenic: 7% Estimated % of wells over 10 ppm Nitrate Standard: 8% Estimated % positive bacteria tests in private wells: Coliform 17%, E. coli 3%
Kewaunee	100% of 31 private well samples collected in Kewaunee County met the health standard for arsenic 96% of 126 private well samples collected in Kewaunee County from 1990-2006 met the health-based drinking water limit for nitrate-nitrogen. Nearly 30% of the wells tested contain nitrates and/or bacteria (Kewaunee County Land and Water Conservation Office, 2014) Currently 15 CAFOs in the county	Percent of wells over 10 ppb arsenic: 3% Estimated % of wells over 10 ppm Nitrate Standard: 11% Estimated % positive bacteria tests in private wells: Coliform 19%, E. coli 12% Currently 16 CAFOs in the county
Manitowoc	98% of 42 private well samples collected in Manitowoc County met the health standard for arsenic. 15% of the wells did not meet the health standards for nitrates Water use supplied by groundwater was at 36% in 2005	Percent of wells over 10 ppb arsenic: 3% Estimated % of wells over 10 ppm Nitrate Standard: 10% Estimated % positive bacteria tests in private wells: Coliform 19%, E. coli 10%
Marinette	94% of 52 private well samples collected in Marinette County met the health standard for arsenic. 7% of the wells did not meet the health standards for nitrates Water use supplied by groundwater was at 35% in 2005	Percent of wells over 10 ppb arsenic: 13% Estimated % of wells over 10 ppm Nitrate Standard: 7% Estimated % positive bacteria tests in private wells: Coliform 18%, E. coli 7%
Oconto	92% of 203 of private well samples collected in Oconto County met the health standard for arsenic. 74% of residents get their water from private wells 9% of the wells did not meet the health standard for nitrates	Percent of wells over 10 ppb arsenic: 7% Estimated % of wells over 10 ppm Nitrate Standard: 2% Estimated % positive bacteria tests in private wells: Coliform 18%, E. coli 14%
Outagamie	36% of the wells did not meet the health standards for arsenic 96% of 293 private well samples collected in Outagamie County from 1990-2006 met the health-based drinking water limit for nitrate-nitrogen.	Percent of wells over 10 ppb arsenic: 22% Estimated % of wells over 10 ppm Nitrate Standard: 7% Estimated % positive bacteria tests in private wells: Coliform 11%, E. coli 0%
Shawano	20% of the wells did not meet the health standard for arsenic 8% of the wells did not meet the standards for nitrates	Percent of wells over 10 ppb arsenic: 17% Estimated % of wells over 10 ppm Nitrate Standard: 10% Estimated % positive bacteria tests in private wells: Coliform 17%, E. coli 6%
Sheboygan	100% of 4 private well samples collected in Sheboygan County met the health standard for arsenic. 5% of the wells did not meet the health standards for nitrates	Percent of wells over 10 ppb arsenic: 9% Estimated % of wells over 10 ppm Nitrate Standard: 2% Estimated % positive bacteria tests in private wells: Coliform 18%, E. coli 3%
Waupaca	100% of 30 private well samples collected in Waupaca County met the health standard for arsenic. 16% of the wells did not met the health standards for nitrates Water use supplied by groundwater was at 92% in 2005	Percent of wells over 10 ppb arsenic: 9% Estimated % of wells over 10 ppm Nitrate Standard: 9% Estimated % positive bacteria tests in private wells: Coliform 13%, E. coli 4%
Winnebago	37% of the wells did not meet the health standard for arsenic 96% of 532 private well samples collected in Winnebago County from 1990-2006 met the health-based drinking water limit for nitrate-nitrogen.	Percent of wells over 10 ppb arsenic: 34% Estimated % of wells over 10 ppm Nitrate Standard: 3% Estimated % positive bacteria tests in private wells: Coliform 11%, E. coli 7%

**Questions on this report can be directed to Mike Reno at cosmosreno@gmail.com*

The Economics of Clean Drinking Water in Wisconsin

By Rebecka Eichhorn

Water plays a dynamic role in our lives here in Wisconsin. Not only is it essential to human and environmental health but also directly linked to our economic health. Safe and clean water is used in nearly all sectors of our society including healthcare, education, economic production and social activity. When a community faces polluted water, it can cause overwhelming damage to the environment, human health and the economic state of the community. When societies neglect contaminated water for too long, economic downfall and collapse is not out of the question.

Many of the large industries and businesses that are the lifeblood of our state are undeniably dependent on safe, pure water for operation and success. Some of these include cheese making, dairy farming, fruit and vegetable processing, meat processing and brewing. On a more local level, clean water is necessary for businesses up and down the streets in your own community, like restaurants, hairdressers, laundromats, and so many more. What happens to communities, large and small, when the groundwater we depend on in our home and for businesses is unsafe?

Governor Evers declared 2019 as the **Year of Clean Drinking Water** in Wisconsin in his recent State of State address. He stated, "According to the Department of Health Services, 1.7 million Wisconsinites depend on private wells for water, and 47% of these wells do not meet acceptable health standards. Meanwhile, according to the U.S. Environmental Protection Agency, we have an estimated 176,000 lead service lines across our state. Removing lead service lines could cost over $2 billion. But Pew Charitable Trusts estimates that for every $1 we spend on replacing lead drinking water lines, we will see a 133% return on our investment in higher lifetime earnings and better health outcomes."

Evers' focus on safe drinking water is something that needs high prioritizing and attention for the sake of our citizens as well as for the economic health of our state. Who would want to live and raise a family in an area where the drinking water is tainted? If safe drinking water is not sustained in Wisconsin, the health of our citizens and the state's economy is clearly threatened.

When people move away from small communities, jobs, schools, shops and other public facilities naturally fade as well. When young adults move to larger cities, the average age of the community inevitably goes up. Areas with populations of predominately older residents tend to be less attractive to businesses. Other trends that follow this demographic change include:

- Fewer schools due to there being less school age children
- A decline in the prices of homes due to more vacant houses
- Decrease in new neighborhoods and infrastructure, decrease in rental properties
- Less health care facilities and general businesses as a whole
- Decreased public transport being used leading to an increase in cost to operate
- A higher cost to residents to travel further to get to the facilities they need and want

A failure to protect out drinking water runs the risk of impacting human health and increasing healthcare costs due to waterborne illnesses. A less healthy population, including one affected by lead contamination, will impact learning and productivity.

Overall, individuals and families will feel the negative impact of this polluted resource on their standard of living over time. It is easy to see just how valuable clean drinking water is when you begin to look at how it impacts nearly every aspect of our economy. The direct and indirect benefits of clean drinking water in all sectors of our economy are widespread. I believe we can all agree that we must act today to protect the future for our children, ourselves, and our quality of life in Wisconsin.

How are we doing at "Getting the Lead Out"?

By Carol Pearson

Why do we have to try to get lead out of our drinking water in the first place? Mainly because in the 1900's using lead in water pipes was cheap and because it was easy to work with so it was used in the service lines to homes and interior plumbing lines and fixtures within the home. We now know the lead leaches out of the pipes and into our drinking water and is a health risk especially for young children.

A report by the Wisconsin Department of Health and Services in 2016 stated that the rate of lead poisoning in Wisconsin for children under 6 years of age was 5% while the national average was 4%. The EPA in 1991 enacted the *Lead Copper Rule* that regulated the level of lead and copper in drinking water.

So how are our communities currently doing on getting the lead out of the drinking water? The DNR every year releases a report on how communities are doing to comply with the regulations. In July 2019, the newest report, *Wisconsin Public Water Systems 2018 Annual Drinking Water Report* was published. It provides the following summary of information:

- Over 99% of Wisconsin public water systems met all of the Maximum Contaminant Level Standards
- Initiated more comprehensive monitoring of water quality
- Performed over 2,500 sanitary survey inspections to access compliance
- Provided technical assistance and training of public water system owners and operators aimed at helping them comply with regulations
- Awarded $57 million in financial assistance through the Safe Drinking Water Loan program. The monies helped 56 communities around the state make infrastructure improvements and replace lead service lines.
- For more complete information, see the following website: *https://dnr.wi.gov/files/PDF/pubs/DG/DG0045.pdf*

This all might sound great, but with nearly 176,000 lead laterals in the state in over 80 communities, it is a major problem that some people view as not getting the attention it deserves.

Governor Evers has made safe drinking water one of his major priorities and is trying to bring this issue to the forefront. He signed the state budget for 2019-2020 into law in July but his proposed $40 million for lead pipe replacement was cut by the Senate and State Assembly. Governor Evers' proposals would have increased access to clean drinking water for many residents in Wisconsin and it is very disappointing that the Senate and State Assembly did not support his vision.

A further sign of the Governor's commitment to eliminating lead is the executive order he signed on July 29, 2019 that creates a new inter-agency coordinator to tackle lead pollution in drinking water. Clean water initiatives, especially lead removal, need bipartisan support; so let your legislators know your thoughts on funding and tell them to support and work with the new coordinator.

One of the communities hardest hit by the cut in state funding for lead pipe replacement is Milwaukee because it has the most lead laterals in the state.

As a starting point to help eliminate the problem, in 1996 Milwaukee implemented corrosion control in its lines. It adds orthophosphate to the drinking water which coats the pipes and reduces lead leaching into tap water. Since then, the lead levels have fallen more than 50%. The city is aggressively replacing lead service lines as shown: 2017 – 621 lines, 2018 – 931, and 2019 – 471. With the new budget though, the number probably will drop due to lack of funding.

As with many issues it all comes down to "How does lead in drinking water affect me and what can I do about it?" Continue to self-educate yourself on the topic. If you suspect you have lead in your pipes or fixtures, have your water tested. If you uspect your child has been exposed either at home or school etc., have them tested.

Use cold water for drinking and cooking. Note: boiling **does not** remove lead if present in water. Don't use water that has sat in your plumbing for more than 6 hours. Make it a practice to run your faucet until you feel the temperature change to cooler before consuming or using. Install a filter that is certified to remove lead by NSF. For more information please see this EPA document: *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=500025PW.txt*

Dazed & Confused Over "Safe" PFAS Levels

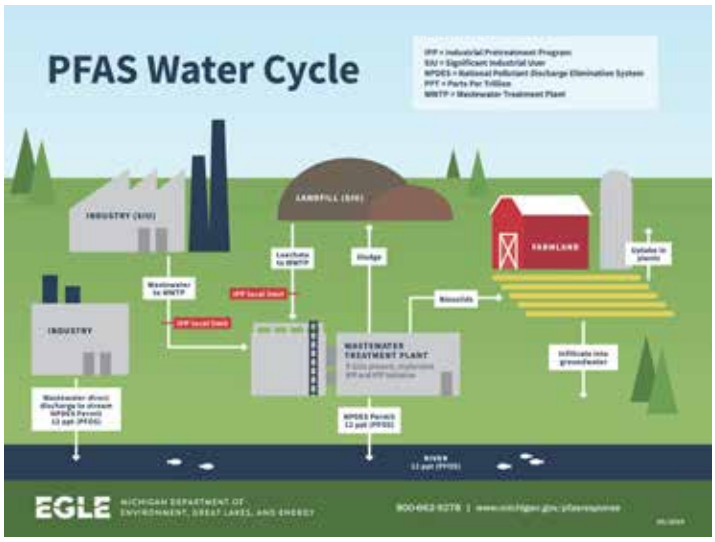
By Jim Wagner

Wisconsin became the 10th state in the nation to throw its hat in the ring when it comes to tracking and reducing the amount of PFAS in the environment. It also marks the 10th set of established safe limits for the dangerously persistent chemical found in food, commercial goods, drinking water, the workplace and living organisms.

Per- and polyfluroalkyl substances (PFAS) have been with us since the 1940s, when the man-made group of chemicals made a giant splash as the component used for everything from non-stick cookware to firefighting foams to stain repellents. You would be hard-pressed to find a consumer product in those areas that didn't have the chemical. *Consumer Reports* states there are more than 4,700 chemicals that fall under the PFAS umbrella. Studies on the effects of PFAS indicate reproductive, liver & kidney toxicity, and immunological issues that might be tied to low infant birth weights, cancer and thyroid problems.

According to the Centers for Disease Control and Prevention (CDC), the primary concern with PFAS is they don't break down over time and bioaccumulate in fish and wildlife and then biomagnifies as it moves up the food chain. The chemicals are so persistent that a U.S. Environmental Protection Agency (EPA) study released earlier this year found a combination of 14 different PFAS in all 50 samples of water

collected at 25 water treatment plants. It's expected that PFAS are present in the bloodstreams of an estimated 110 million Americans and 1,500 drinking water systems, according to the Environmental Working Group (EWG):



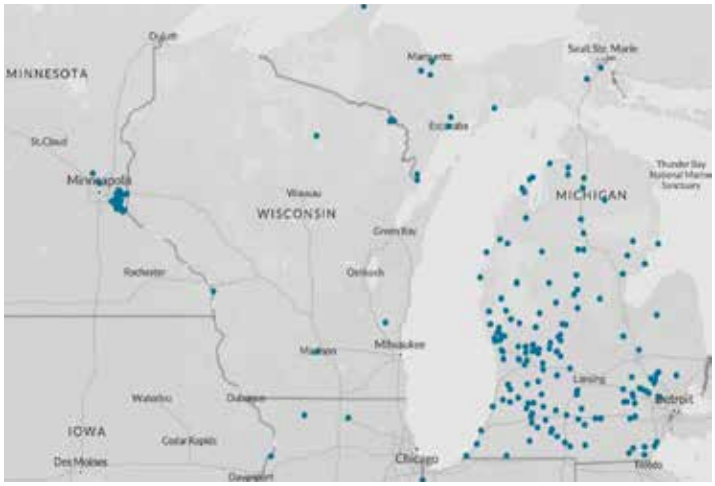
Courtesy of WDNR

As if that wasn't bad enough, and it is plenty bad, the federal government is punting on its obligation to define, monitor and reduce environmental hazards in the U.S. Under this administration's pro-business atmosphere, the EPA has been sitting on drafting rules under the Safe Drinking Water Act to set a guideline limit of 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS, two chemicals under the umbrella PFAS group. It is an amount even the CDC finds entirely too high and has its own maximum contaminant level of 7-11 ppt established for the two chemicals.

Actions by states have sought to remedy the lack of regulatory guidance from the federal government. In New York, for example, they have set a ppt limit of 10 and 10 for PFOA and PFOS, respectively; in New Hampshire, 12 and 15; in Minnesota, 35 and 15; in California, 14 and 13. For a more in-depth breakdown, visit the Association of State Drinking Water Administrators PFAS page at *https://www.asdwa.org/pfas/*.

While Wisconsin has entered the ring, it still doesn't have an established safe drinking water limit for PFAS. Wisconsin Gov. Tony Evers, in his first year, has declared 2019 the **Year of Clean Drinking Water** and has sought to redress many of the water woes caused by the previous administration and current state legislature. His directive to the DNR launches the PFAS effort, which will rely on the Wisconsin Department of Health Services (DHS) to provide science-based recommendations.

Accurate testing is going to be the next great challenge for the EPA and states. After all, what do you do when you are testing for a chemical that is everywhere? The EPA's current testing method, 537.1, highlights the difficulties, as it calls out meticulously cleaning all glassware and rinsing in tap water — the same water the EPA found PFAS in all of its samples in its latest report. They recommend following up with a reagent water and solvent rinse, but note test interference may be caused by contaminants (i.e., PFAS) "in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware." Essentially, anything the sample comes in contact with could already be contaminated with PFAS. Good luck bringing a lawsuit against a company for exceeding thresholds using this test method.



Sites of PFAS drinking water contamination. (Courtesy of EWG)

What You Can Do:

- Despite the above, knowing whether you have PFAS in your drinking water is the primary concern to protect you and your family. While accurate testing seems to be an issue, finding out whether there's a presence of the chemicals in your drinking water will be the first step in taking action to reduce and eliminate your exposure. For a number of weeks, CWAC has been promoting (this is a cue to read your CWAC Weekly Update!) PFAS test kits by Freshwater Future and the University of Michigan Biological Station, though the lab is not PFAS certified. If you need a certified lab result, the only such lab in the state is the Wisconsin State Laboratory of Hygiene *http://www.slh.wisc.edu/*
- Make your voice loud and clear with the DNR. The agency will be holding public listening sessions at the Marinette Community Rec Center through February 2020. Go here *https://dnr.wi.gov/topic/Contaminants/Marinette.html* for the list of dates and times.
- There is also a PFAS Technical Advisory Group meeting open to the public in Madison on Sept. 30 and Dec. 13.
- Contact your state representatives! Unless our elected representatives take action in support of DNR activities, the process will be delayed when immediate action is the most required. Click on the map *https://maps.legis.wisconsin.gov/#* to find your legislator.

Dig deeper into the issue:

CDC Report on *PFASs: Good Start But Improvements Needed* (Natural Resources Defense Council) *https://www.nrdc.org/experts/anna-reade/cdc-report-pfas-good-start-improvements-needed*

Exclusive: Trump EPA won't limit 2 toxic chemicals in drinking water (Politico)
https://www.politico.com/story/2019/01/28/epa-toxic-chemicals-drinking-water-1124797

PFAS in source and treated drinking waters of the United States (Science of the Total Environment)
https://www.sciencedirect.com/science/article/pii/S004896971834141X#ec0005

PFAS Contamination (Wisconsin DNR)
https://dnr.wi.gov/topic/Contaminants/PFAS.html

EPA's PFAS Action Plan
https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf

EPA Method 537.1
file:///C:/Users/jim1w/Downloads/METHOD%20537_1_FINAL.PDF

Improve Manure Application to Protect Drinking Water Quality

By Dave Verhagen

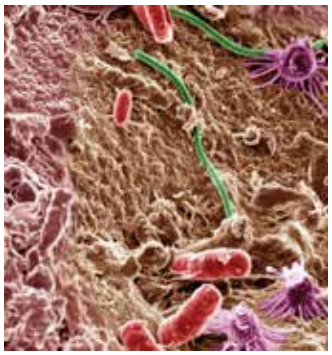
On Governor Tony Evers first Earth Day, he visited a farm that adopted no-till practices to build soil fertility and protect against runoff that contaminates streams and surface waters. The governor visited Brickstead Dairy in Greenleaf, highlighting the role of sustainable farming practices that are the future of farming.

The Governor went on to declare 2019 the **Year of Clean Drinking Water** and called for new regulations to protect rural wells. The primary focus of the new regulations will be nitrates, which have been found in as many as 27% of the wells in Lafayette County and are estimated as contaminating at least 10% of wells statewide.

The primary source of nitrates in well water is agriculture. The legislature has rejected the governor's proposals thus far as they reject any attempt to further regulate the agricultural sector. They have established their own water quality task force and are holding hearings around the state this summer and fall. It is almost impossible to address the nitrate contamination of well water, however, without addressing farming practices.

In an ideal world, spreading manure would enrich the fertility of cropland without risk of contaminating well water, streams and lakes. When the rules for application of manure were developed in Wisconsin, they were based upon 1950's research data on soils and crop production. Farms were smaller then and synthetic fertilizers had not been in heavy use for very long.

Since the 1950s we have learned much about soil health and its contribution to crop production. Think of soil as the earth's microbiome. Soils rich in microbes digest manure waste and make it available to plants as minerals and nutrients. Heavy use of plowing and nitrate rich fertilizers have resulted in reduced organic content of soils, a reliable measure of microbial content. Higher nitrate levels are altering the makeup of this reduced microbial population as well. Thus the ability of the soil to process manure has been impaired and is not as effective as it was in 1950.



Microbes do not decontaminate pathogens. Manures must be left exposed to the ultraviolet radiation of the sun for that to happen. When freshly applied manure is plowed into soil, nitrates and those pathogens get safe passage and a head start on their way to well water. Plowing them under is a mistake.

During the heavy rains this summer, runoff and erosion were easy to see in every stream and river. Plants growing on the soil surface help to hold back soil, but holding water in the soil is more effective. Organic rich soils have been measured to absorb as much as six inches of water per hour. Rain doesn't fall that fast, so building soil should be fundamental to runoff and flood control.

Liquid manure spread on the surface of microbe rich fields is absorbed quickly into the soil and there are no puddles left at the end of the day. Odors are greatly reduced as soon as the liquids are absorbed. The manure solids are broken down by aerobic microbes that are most present near the soil surface and are able to build greater fertility than when manure has been injected deep into soils already depleted of any microbial populations.

This is a significant point. Kewaunee County is among the places where soil depths are very shallow. Plowing and excessive chemical use have degraded the ability of the soil to decompose manure. Liquid manure is often stored for extended periods and has a strong odor when it is spread that offends most people. To mask the odors, the manure is injected deep into the soil or plowed under the surface. You can see the problem.

Concentrated Animal Feeding Operations (CAFOs) are not likely to go away any time soon. The amount of manure they create, however, must be dealt with effectively. The State and the industry both agree that application of wastes to fields is the only cost effective way to deal with manure. So to protect public health and the future of farming, sustainable practices will be required.

Microbes in the soil decontaminate waste. We know they exist in direct proportion to the organic content of soil. Their presence should determine the suitability of a field for applying manure. Every field where waste is to be spread should have its soil organic content measured. **The amount of manure spread per acre should then be limited in proportion to the organic content present.**

Combined with soil depth, a carrying capacity for every field could then be defined that would protect water quality and build soil fertility even while the land is being actively farmed.

Sustainable, regenerative agriculture must be a broad based solution for problems vexing today's farmers. Its cost efficiencies may provide them a financial lifeline as well.

Mercury Continues to Enter Wisconsin's Waterways and Threaten Drinking Water

By Caitlin Cravillion

Nearly half of Wisconsin's waterways are federally listed as impaired due to mercury, nitrates, phosphorus, and total suspended solids pollution. In fact, mercury pollution is so widespread in Wisconsin that every water body in the state is under a fish consumption advisory that limits how much fish people should eat. Many Wisconsin communities rely on lakes for drinking water, primarily Lake Michigan, Green Bay, and Lake Winnebago.

Although mercury is found naturally in our environment, the concern is with human contributions. The primary source of mercury in our surface waters is from deposition of airborne sources resulting primarily from coal-fired utility and incinerator emissions. Another significant source includes discharges from municipal and industrial waste water treatment facilities.

The naturally occurring levels of mercury have never been a health threat for Wisconsin, but human-made levels are, and continue to increase. Studies of the sediments from Wisconsin lakes show a quadrupling of mercury since the late 19th century, when industry came to our state.

Once mercury enters our water systems, it can remain there for years as it accumulates. It cannot be removed, and instead it becomes even more hazardous because it biomagnifies.

Biomagnification is the incremental increase in a contaminant's concentration at each level of the food chain. For example, humans eat large fish, which eat lots of small fish, which eat lots of macroinvertebrates. Mercury bioaccumulates in every organism along the way, so humans end up ingesting all the mercury accumulated during each step.

Mercury is a neurotoxin, meaning that it can affect the brain, kidneys, and nervous system. Small children and fetuses are most at risk for damage from mercury poisoning because their brains are developing. Ingesting contaminated fish is not the only way humans can be negatively affected by mercury. When a water supply is contaminated, people can be contaminated.

Under the Safe Drinking Water Act, the Environmental Protection Agency (EPA) has set an enforceable regulation for mercury, called a maximum contaminant level (MCL), at 0.002 mg/L or 2 ppb. However, this MCL is being threatened for communities relying on lake water for public water supplies. The WDNR is regularly granting variances for mercury discharges into the waters of the state above the 1.3 Nanogram/liter (ng/L) water quality criterion.

In these instances, the facilities may be given approval to emit higher than the EPA standard. Variances must be approved by both DNR and EPA. Variances may be given on a facility-specific basis for the length of a Wisconsin Pollutant Discharge Elimination System (WPDES) permit term.

A variance may be appropriate in some cases when a facility is unable to meet the standard for mercury discharge, and a treatment solution is not readily available, but should only be granted in the short term.

The variance approval may be granted based on other factors. Examples include proof that the application of the 1.3 ng/L discharge standard will cause substantial and widespread adverse social and economic impacts in the area where the permittee is located, or that naturally occurring pollutant concentrations prevent the attainment of the standard. Permittees with approved variances are expected to minimize the sources of the variance pollutant in their discharge where possible, and track and report on their progress toward achieving water quality criteria.

Unfortunately, variances are being approved too easily and they are being requested multiple times by the same offenders. We see repeated variances being granted at the amount of the highest exceedances during the previous permit period. We also see little effort to mitigate the source of the mercury prior to entering the waste stream.

Thus, we are failing to reduce mercury levels over time and our lake sources of drinking water continue to see an increase of mercury. It is not uncommon to find concentrations of 3 to 5 ng/L in Wisconsin lakes or rivers, significantly above the 1.3 ng/L water quality criterion.

In February, 2019 We Energies asked the Wisconsin DNR to increase the amount of mercury they can release into Lake Michigan. The proposal was to allow We Energies to dispose of up to 4.1 ng/L of mercury into Lake Michigan on any given day, an amount that is over three times higher than the 1.3 ng/L that is considered safe for wildlife and human health. State records show monthly maximum figures for We Energies have gone from 1.2 ng/L between 2005 to 2008 to 2 ng/L from 2012 to 2018. The DNR also granted mercury variances for other wastewater plants in northeast Wisconsin this year. Waupaca Wastewater Treatment Facility was granted a variance to 4.5 ng/L. Georgia-Pacific was granted a variance to 3.4 ng/L. In 2017, the Oconto Utility Commission was granted a variance eight times the 1.3 ng/L standard.

So, what can be done? With some of our major mercury contributors coming from the energy industry, we must hold polluters accountable and ask them to move to renewable energy solutions. In 2018, about 80% of Wisconsin's electric

energy production came from fossil fuel — coal (49%), gas (26%) and oil (3%). Reducing mercury emissions through conservation also reduces acid rain, smog, particulates, other toxic emissions, and some of the causes of climate change. However, since airborne mercury can be transmitted great distances, we must insist that the federal government return to a policy of reducing dependence on burning coal.

Here in Wisconsin we must insist that mercury variances should be granted on an emergency basis rather than as a way of doing business. All of these efforts will lead to cleaner water for Wisconsin.

Blue Gold: What is the True Value of Water?

Lora Jorgensen

Water scarcity is one of the biggest threats to the entire world. Where it was once only considered an issue in third world countries and certain climates, it has reached a point where it affects every single person on the planet. For those living near one of the world's largest fresh water sources, the Great Lakes, the concern has come to the forefront in recent years. For many, the luxury of turning on your kitchen faucet and being able to use water for cleaning, showering or even drinking without complicated and expensive treatment processes is becoming just that…a luxury.

What is the true value of clean, drinkable water? This is a question that has perplexed many. Some consider water as an infinite and free resource. Others argue that factoring in the costs of maintaining or even restoring contaminated water sources should be considered. You can purchase a gallon of drinking water for less than a dollar in most cases. But, if water's price were truly reflective of its value, the price per gallon would increase dramatically. This has prompted business leaders, economists, and think-tankers to reclassify water as a kind of buried treasure: "blue gold." Willem Buiter, Citigroup's chief economist, sums up the thinking of many these days: "Water as an asset class, in my view, will eventually become the single most important physical commodity — dwarfing oil, copper, agricultural commodities, and precious metals."

The EPA projects that the United States will have to spend $140 billion over the next 20 years just to maintain minimum required standards for drinking water quality. If water's price were truly reflective of its value, investors would pour an increasing amount of capital into desalination and nano-water- filtering technologies. Big-data companies would track water usage and leakage, and water utilities would immediately begin rehabbing our old water infrastructure or build anew.

Water quality related businesses are a $600-billion-a-year industry, but unfortunately, companies have had a tough time making money in it. If water's price swam closer to its true value for businesses and consumers, water prices would rise, demand would fall, and this precious resource could be saved.

Water is an increasingly important commodity in international trade. When nations trade grain, produce, or even timber, they are in effect trading water, since agriculture is so water intensive. This concept will become increasingly important as water grows scarcer. Food security is directly connected to water security.

Seventy percent of the water used each year is consumed in agricultural production — and most of that, in turn, is free or dirt-cheap (provided by rain, well water, and government agencies). When farmers do have to buy water on the spot market, it is sold in acre-feet (enough to cover an acre of land with a foot of water) and is a lot cheaper than the municipal tap.

Mass consumerism has one of the largest and most detrimental impacts on water scarcity. Consider this — to produce one half-pound cheeseburger, it takes 968 gallons of water, the slice of cheese (24 gallons), wheat bun (19 gallons), and tomato and lettuce (under 2 gallons) are a relatively small part of the total. The eight-ounce patty, by contrast, requires an estimated 924 gallons to produce. If the consumer had to pay even a minimum of only $1 per gallon for each gallon of water that was used in the production of that cheeseburger, it would cost almost $1000.

One could argue that the answer to water scarcity is simple: Let water's price swim closer to its value. Let the "invisible hand" of the market place do its job, and water prices will rise, demand will fall, and this precious resource will be conserved. Monetizing natural resources and charging accordingly is one way of reversing the increasing degradation of our planet.

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https://fortune.com/2014/05/01/what-is-water-worth/

https://www.nwf.org/en/Magazines/National-Wildlife/2005/How-Much-Is-Clean-Water-Worth

http://www.thevalueofwater.org/the-facts/waters-value

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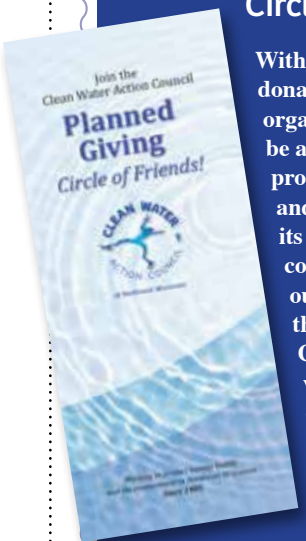

Without planned giving donations or legacies, our organization would not be able to do the work of protecting human health and the environment at its current level. Please consider supporting our endowment fund at the Greater Green Bay Community Foundation with a gift in your will or bequest.

Contact us for a Planned Giving Brochure

The Action in Clean Water Action Council

By Dean Hoegger

Our membership drive for 2019 began with the winter newsletter issue. Please join the many members who renewed their membership if you have not already done so. For membership status, please check the date on your mailed newsletter address label for the last renewal year. For emailed newsletters check your status in the body of the email.

To renew, use the enclosed membership form, or go to *http://www.cleanwateractioncouncil.org/membership/* ***to use a credit card.***

Read below about actions we have taken in the last three months. Be sure to contact us if an environmental issue arises in your community. CWAC is here to support citizen action.

LEGAL ACTIONS

As a citizen organization, an important function of CWAC is to take legal actions on behalf of our members to protect human health and the environment. Because individual members may be reluctant or unfamiliar with how to file a legal action, the CWAC board of directors believes that taking legal action on behalf of our members is an important part of our mission. Here are some current legal actions and our efforts to improve environmental laws.

CWAC promotes ordinances to ban pavement sealants containing PAH

CWAC has been giving community presentations about the dangers of coal tar pavement sealants containing polycyclic aromatic hydrocarbons, or PAHs. We recently completed a mailing to 75 recipients in Door County who we identified as persons who should be working to protect children from this carcinogen. Children growing up near pavement treated with this sealant are thought to have a 14 times higher lifetime cancer risk. As a result of this recent effort, both the City of Sturgeon Bay and the Town of Sturgeon Bay are considering banning the product. We previously supported education efforts in Brown, Oconto, and Marinette counties. Green Bay City Council voted to have a ban written and De Pere is considering a ban. Thanks to partners Clean Wisconsin and Lakeshore Natural Resources, bans were recently passed in Manitowoc, Sheboygan, Brown Deer, Racine, and Port Washington.

CWAC works to improve Wisconsin's Livestock Facility Siting Rules

Working with Sustain Rural Wisconsin Network and other organizations, CWAC lobbied for public hearings and accepting citizen comments on the draft of the new rules. To encourage comments, we mailed background information and testimony suggestions to 80 members, emailed the information to 1100 Weekly Update recipients, and made many follow-up phone calls. We have received numerous copies of comments and reports from those who testified, so we are hopeful that the new rules will be more protective of water quality and quality of rural life.

CWAC promotes ordinances to ban manure spraying.

CWAC continues to offer presentations to residents and town officials. Thus far, at least 17 northeast Wisconsin towns and cities have passed a ban. If your town has not passed an ordinance, contact us to help get a ban and protect your family from this health threat.

For more information on this concern, go to our website for Priority Issues: "Ban Manure Spraying." *http://www.cleanwateractioncouncil.org/issues/spray-irrigation/.*

If your town has not passed a ban, contact us for assistance.

Update on Safe Drinking Water Act Petition for Emergency Action, filed with the EPA October, 2014.

One result of the Petition was to revise the NR151 manure spreading rules in northeast Wisconsin karst regions. CWAC was a member of the DNR's Technical Advisory Group and all of CWAC's recommendations are in the new rules, with the exception of requiring three feet of soil over karst bedrock for spreading liquid manure. However, we feel more is needed to protect our groundwater.

We will continue to work with other state environmental groups to monitor NR151 enforcement and to seek other strategies for protecting the groundwater. We also are asking residents of Brown and Calumet Counties to urge elected officials to have their county adopt the rules as a county ordinance. At this time, it appears Brown County is moving forward.

The petition and supporting documents can be found at: *www.cleanwisconsin.org/kewaunee-safe-drinking-water*

Update on Citizen Petition for Corrective Action for the Clean Water Act, filed October, 2015.

We previously reported that 68 of the 75 deficiencies have been resolved. There appears to be a need for a lawsuit to resolve the remaining issues. However, in the current political climate in the federal executive branch, waiting may provide more success. We will continue to follow the advice of our legal counsel provided by Midwest Environmental Advocates.

Spring brought monitoring of plowing setbacks from streams.

Each spring, during periods of high water, we monitor for plowing setbacks from streams. The state only requires a setback of five feet. Yet we found and reported four significant

An example of plowing too close to a stream in Brown County.

violations this spring in Brown and Door counties. Brown County reported that as a result of our complaints they were able to negotiate a greater setback of 25 feet and planted with a cover crop.

CWAC monitors water pollution permits.

We monitor for new permit notices and hearings and publish those in our Weekly Update and at times attend hearings and/or submit comments. Please monitor the emailed Weekly Update for permit renewals and variances.

Join the Clean Water Act Enforcement Network. CWAC is sponsoring this group and providing training on how to monitor for pollution permit compliance. Group members monitor for pollution permit violations online and through onsite observations. Midwest Environmental Advocates is providing technical and legal support for the group. Research work can be completed at home, shared with the group online, and then reviewed during a monthly meeting in person or by telephone. Contact us if you would like to work on this enforcement effort to protect the waters of northeast Wisconsin.

COMMUNITY ACTIONS AND OUTREACH

CWAC Board members and numerous members testified at the Green Bay hearing regarding their views on what the state should be doing to protect our water resources.

Water Sampling at Baird's Creek

CWAC is participating in the DNR's Lower Fox River water quality monitoring project with monthly sampling from May through October. Volunteers are encouraged to sign up to help with the sampling done the 3rd Thursday of the month

CWAC VP Charlie Frisk testifies at the hearing.

EDUCATIONAL EFFORTS IN THE COMMUNITY

Coal tar pavement sealant education to protect human health and water ecosystems.

Polycyclic aromatic hydrocarbons (PAHs), found in coal tar pavement sealants, are found to be a serious cancer risk in humans, and a risk to aquatic wildlife. We offer presentations to government bodies and the public, and they can be tailored to as little as 10 minutes to a more in-depth 45 minute talk. We gave a presentation in Sturgeon Bay in July which led to the city's Protection and Services Committee taking up a discussion of a ban. We also were invited to present to the Town of Sturgeon Bay Board at their September meeting.

CWAC continues to monitor the PFAS Contamination in Marinette County and beyond.

Perfluorinated chemical contamination from the Fire Training Center in Marinette is found at alarming levels in drainage ditches and creeks discharging to Green Bay and in well water in Marinette County. Concern about agricultural fields being contaminated from waste from Marinette's sewage treatment plants being land spread is also surfacing. CWAC is providing education and promotion of state legislation to protect citizens from this group of chemicals.

Health Forums

Contact us if you have suggestions for topics or speakers and please consider sponsoring a health forum at the $150 level, or contact a business who will be a sponsor. We are currently working to bring well known weatherman and climate change expert Bob Lindmeier to Green Bay on November 2. Climate change and human health certainly are interrelated. Please watch the Weekly Update and our Facebook pages for the details.

Presentations and Exhibits

Contact us to schedule a presentation for your group on a variety of environmental issues or exhibit at your event. Presentations include The Health and Environmental Threat from Coal Tar Pavement Sealants, The Hazards of Manure Spraying, Citizen Action to Protect the Waters of Northeast Wisconsin, The Hazards of Burn Barrels, Communities on the Road to Zero Waste, and more. The presentations can be tailored to your group's age and available time. Also, contact us if you would like us to promote or co-sponsor your event or presentation.

Since the last newsletter we exhibited at the Lake Michigan Day Conference in Manitowoc and on Saturday, October 12 we will exhibit at the Green Bay Downtown Farmers Market.

CWAC serves on Congressman Gallagher's Save the Bay committee for the Lower Fox River watershed

CWAC continues to serve on the committee's education and outreach subcommittee.

Efforts to Stop the Back 40 Mine

We continue to monitor these efforts and lend support when requested. We publish the latest developments in the Weekly Update. Unfortunately, Aquila Resources has now obtained all of the permits needed to open the mine. However, they still lack a social license. We will need to work even harder to convince potential investors that the overwhelming opposition to this mine suggests a bad investment.

Outreach through Newspaper and Radio

CWAC President Dean Hoegger was interviewed by Door County Daily News about coal tar presentations to Door County municipalities, and he gave a more in depth talk on

Continued on page 17 >>>

MARK YOUR CALENDAR! Meetings, Events and Happenings

Farmer's Markets:

Saturdays, September – October 26, 7 AM – 12 PM
Green Bay Downtown Farmers Market
South Washington, Green Bay
Meet our interns and discuss issues at the October 12 market. Look for us just north of the Meyer Theater.

Saturdays, September – October 26, 9 AM – 12:30 PM
Downtown Appleton Farmers Market
100 W. College Ave, Appleton

Saturdays, September – October 19, 8 AM – 12 PM
Future Neenah Farmers Market
135 W. Wisconsin Ave, Neenah

Saturdays, September – October 26, 8 AM – 12:30 PM
Downtown Oshkosh Farmers Market
400 & 500 Blocks of North Main St., Oshkosh

Saturdays, September – October 5, 8 AM – 12 PM
Shawano Farmers Market
235 S Washington St, Shawano

Saturdays, September - October, 8 AM – 1 PM
Manitowoc Farmers Market
Quay Street Parking Lot, 720 Quay Street, Manitowoc

Saturdays, September – October 26, 8:30 AM – 12 PM
Sturgeon Bay Farmers Market
Market Square, Sturgeon Bay

Tuesdays, September – September 24, 4 PM – 7 PM
Howard Farmers Market
Howard Village Center, Howard

Wednesdays, September - September 25, 3 - 8 PM
On Broadway Farmers Market
163 N Broadway, Green Bay
**Note: Markets end at 7 PM in September*

Thursdays, September – October 24, 3 PM – 7 PM
Market on Military
1505 W. Mason St Green Bay

Thursdays, September – September 26, 3 PM – 8 PM
Definitely De Pere Farmers Market
George Street Plaza, De Pere

Thursdays, September – October 3, 12 PM – 6 PM
Meet me at the Market
N7332 Water Circle Place, Oneida

OTHER EVENTS:

Sept 25, 1:30 PM to 2:30 PM
Discovering Wildflowers
Kohler-Andrae State Park
1020 Beach Park Ln, Sheboygan

Join master naturalist Karen Merlau and discover the many wildflowers growing along the Black River Trail. As the seasons change, so does the variety of wildflowers. Wear comfortable shoes and dress for the weather. Bring insect repellant, sunscreen, binoculars and field guides if available. The hike will last at least an hour. Children must be accompanied by an adult. Meet at Black River Trail parking Lot. Please, no pets on this walk. All vehicles will need a state park admission sticker.

Sept 30, at 8:30 AM to Oct 1, at 3:00 PM
Northeast WI Road-Stream Crossing Workshop
Mole Lake Casino & Lodge Conference Center
3084 Hwy. 55, Crandon

Trout Unlimited and their partners are hosting a road-stream crossing workshop on September 30th and October 1st at the Mole Lake Casino and Lodge Conference Center in Crandon, WI. The workshop will focus on designing and installing cost-effective and long life-span structures that improve fish passage and flood resiliency. The training will include both field and classroom components. Registration is $25 and includes food both days and materials. I have attached a flyer with more details on the event.

If you are interested in attending you can register at this link: *https://events.r20.constantcontact.com/register/eventReg?oeidk=a07egfbc2ud05bf0529&oseq=&c=&ch=*
Registration payment can be made here: *https://gifts.tu.org/WI_RSX*

Oct 9, 4 PM
What Birds Are Telling Us About Climate Change
UW Oshkosh, Sage Hall, Room 1235

Citizens Climate Lobby Oshkosh Chapter and Winnebago Audubon are sponsoring this presentation by Alan Haney; UW Stevens Point Emeritus Professor of Forestry. It is free and open to the public. Free parking is available in Lot 7 next to Sage Hall, 845 High Ave.

Oct 12, 2 PM to 5 PM
Fall Family Fun Fest
Harmony Arboretum & Demonstration Gardens
N3890 County Rd. E, Peshtigo

A family oriented event for kids. Hands-on nature crafts, games, farm animal learning & petting area, with many more activities. Check the website for more program details. Free, but food pantry donations accepted at entrance.

CWAC will exhibit at the Green Bay Saturday Farmer's Market on October 13

Meet our interns and discuss issues.

Calendar continued...

Sunday Oct 13, 11:00 AM-3 PM
Water-Fall Event:
Farming and Clean Water Celebration
Full Circle Community Farm
W2407 Hofa Park Rd, Seymour

Tour this "clean water farm" and see Managed Grazing, Organic Vegetable Production, Pasture pigs, Pasture egg-laying hens, a 35Kw wind turbine that powers the farm, and a water monitoring station that measures agricultural drain tile discharge of phosphorus and other pollutants.

Enjoy local organic food grown on the farm and prepared by Tenet restaurant. Network with other clean water advocates, healthy food advocates, and local policy makers, and others who care about the connections between land, water and communities.

Need more info? Contact Val Dantoin at 920-590-1511 or visit *https://www.facebook.com/fullcirclecommunityfarm/*

Oct 18 and Oct 19, 6:30 PM to 9:30 PM
Halloween Nature Hikes
Kettle Moraine State Forest - Northern Unit, Mauthe Lake
Campbellsport

Traverse through the dark autumn woods to meet those things with wings: the fast-flying bat, the radiant scarlet tanager, dazzling dragonfly, and many more. This is not a scary hike and is best for those over 5 years of age. Groups leave every six minutes. The last hour-long hike leaves at 8:30 pm. While waiting for your hike, enjoy playing fun-filled games, making a craft to take home, or snacking by the glow of a campfire. In the event of severe weather, the event will be canceled for that night.

Oct 28, 6 PM to 7:30 PM
Astronomy at the Arboretum
Harmony Arboretum & Demonstration Gardens
N3890 County Rd. E, Peshtigo

Introduction to stars, constellations, star lore and other space-related topics – includes a stargazing tour. Dress for the weather, hot beverages will be provided; if rain/snow or mostly overcast, event will be cancelled.

November 2, 10 AM-11:30 AM
"Solving the Climate Crisis"
Brown County Library Auditorium
515 Pine Street, Green Bay

Bob Lindmeier, chief meteorologist at WKOW-TV Madison, will speak about the science of climate change. Why is the earth warming? How much of this warming is human induced? The consequences of climate change, with an emphasis on local changes. He will discuss the solutions and what we can do to reduce our carbon footprint and take a look at national legislation that will be a key to mitigating the climate crisis.

Dec 14, 10 AM to 2:30 PM
Gifts from the Heart of Nature
Kettle Moraine State Forest - Northern Unit, Ice Age Visitor Center
N2875 State Hwy 67, Campbellsport

Why not create a gift using materials from nature? We will make several crafts from ornaments and sun catchers to pressed flower note cards. Space is limited. To ensure plenty of supplies, register by calling (920) 533-8322 by December 12. Time: 10:00 a.m.-12:00 p.m. or 12:30-2:30 p.m.

Continued from page 15 ...

the topic while speaking on the Eddie Allen show on WDOR radio.

Website Updates

Articles and resources on our website continue to be updated as new information is available and past newsletter issues can be found at www.cleanwateractioncouncil.org

CWAC provides interns with valuable experiences

We provide our interns with valuable experiences and strategies for managing a non-profit organization. We invite them to attend area conferences and meetings providing them with networking opportunities in environmental fields, encourage them to research and write for our newsletter, invite them to attend board meetings, and we provide them with training to run a nonprofit organization. Bios for the fall interns can be found in Meet Our Interns.

Get Our Weekly Update by email.

Each Tuesday we email the CWAC Weekly Update of actions, alerts, events, and the latest information on topics of concern. Send your postings by Monday evening. If you are a member with an email address and you are not getting the CWAC Weekly Update, check your spam folder before emailing us to request to be put on the mailing list. If you are reading this newsletter as a non-member, email us to be placed on the free Weekly Update list. Emails are sent via BCC to protect your privacy.

Not receiving the Update? Send us an email request. It is sent out once a week via BCC email.

CWAC's Non-Profit Status

To learn more about our non-profit status and financials go to the Wisconsin Department of Financial Institutions and then go to Credential Search for Clean Water Action Council: *https://www.wdfi.org/ice/berg/Registration/OrganizationCredentialSearch.aspx*

Please follow us on Facebook.
Click here for our page: ***Facebook***

Have you renewed your membership?

See your newsletter label or e-mail notice which indicates the last year that you donated.

Meet Our Interns

Cassandra Fricke is going into her third year at the University of Wisconsin-Green Bay, majoring in Environmental Policy with a minor in Environmental Science and pursuit of the Environmental Management and Business Institute (EMBI) program's certificate in Sustainability. She is from Cudahy, Wisconsin and enjoys soaking up the sun outdoors, spending time with her friends and family, and watching movies in her free time. After graduation, Cassandra hopes to earn her Masters in Sustainability and become a park ranger for the National Park Service to help promote the well being of the planet for generations to come.

Justin Mulder is a UWGB senior with Economics and Business Administration majors as well as a certificate in Sustainability through the Environmental Management and Business Institute (EMBI) program. In his free time, Justin enjoys downhill skiing in the winter, and traveling around the country. In his senior year, Justin is hoping to bring a sustainability campaign into housing to help teach students about the importance of sustainable practices.

Brenna Nicholson is a junior at the University of Wisconsin-- Green Bay. She is double majoring in Spanish and Biology with an emphasis in Ecology and Conservation. She is also minoring in International Environmental Studies and Environmental Policy and Planning. She has interned previously at the Neighborhood House of Milwaukee as a Conservation Crew member within the Land Stewardship Program. She is from Muskego, Wisconsin and enjoys fishing, kayaking, reading, and baking in her free time. She is very interested in learning about the legal proceedings involved in environmental lobbying. She hopes to apply the knowledge obtained from this internship experience to a future career in lobbying with a firm or a non-profit organization.

CLEAN WATER ACTION COUNCIL of Northeast Wisconsin

Farming and Clean Water Celebration

Tour this "clean water farm" and see

- **Managed Grazing**
- **Organic Vegetable Production**
- **Pasture pigs and egg-laying hens**
- **35Kw wind turbine**
- **Agricultural drain water monitoring station**

Enjoy local organic food grown on the farm and prepared by Tenet restaurant. Network with other clean water advocates, healthy food advocates, and local policy makers.

Sunday Oct 13, 11:00 AM-3 PM

Full Circle Community Farm

W2407 Hofa Park Rd, Seymour, WI 54165

Need more info? Contact Val Dantoin at 920-590-1511 or visit https://www.facebook.com/fullcirclecommunityfarm/

Solving the Climate Crisis

November 2

10:00 - 11:30 AM

Brown County Library Auditorium

515 Pine Street
Green Bay 54301

Bob Lindmeier, chief meteorologist at WKOW-TV Madison, will speak about the science of climate change. Why is the earth warming? How much of this warming is human induced? He will discuss the consequences of climate change, with an emphasis on local changes, what we can do to reduce our carbon footprint, and national legislation that will be a key to mitigating the climate crisis.

Join or Renew Your Membership to Clean Water Action Council for 2019!

☐ Renewal ☐ New Member Date_____

( ) $20 Individual ( ) $30 Family **(this amount would really help)**

( ) $50 Sustaining ( ) $100 Donor ( ) $500 Benefactor

( ) Non-member donation of $ _____for_____

( ) Other $_____

( ) Please send me information about making a planned gift to CWAC

Name(s)_____

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Receive FREE newsletters with each membership.

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PLEASE VOLUNTEER!
(BE SURE TO PROVIDE PHONE NUMBER ABOVE)

☐ the newsletter ☐ events ☐ work at office ☐ mailings

☐ joining or leading one of the committees ☐ other

Send check or money order to: **Clean Water Action Council**
P.O. Box 9144
Green Bay, WI 54308

CWAC is a registered non-profit organization.
Your contributions may be tax-deductible. ***Thank you!***

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www.cleanwateractioncouncil.org

Find us on Facebook or updates on hearings and current or upcoming events.

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in this issue...

Page 1:
- **The Year of Clean Drinking Water How are we doing?**

Page 3:
- **The Federal Safe Drinking Water Act: An important tool for citizen action to protect drinking water!**

Page 4:
- **Municipal Drinking Water Quality Report for Area Communities**

Page 7:
- **Data on County Wells**

Page 8:
- **The Economics of Clean Drinking Water in Wisconsin**

Page 8:
- **How are we doing at "Getting the Lead Out"?**

Page 9:
- **Dazed & Confused Over "Safe" PFAS Levels**

Page 11:
- **Improve Manure Application to Protect Drinking Water Quality**

Page 12:
- **Mercury Continues to Enter Wisconsin's Waterways and Threaten Drinking Water**

Page 13:
- **Blue Gold: What is the True Value of Water?**

Page 14:
- **The Action in Clean Water Action Council**

Page 16-17:
- **Mark Your Calendar!**

Page 18:
- **Meet Our Interns**

For previous newsletters, go to: www.cleanwateractioncouncil.org