

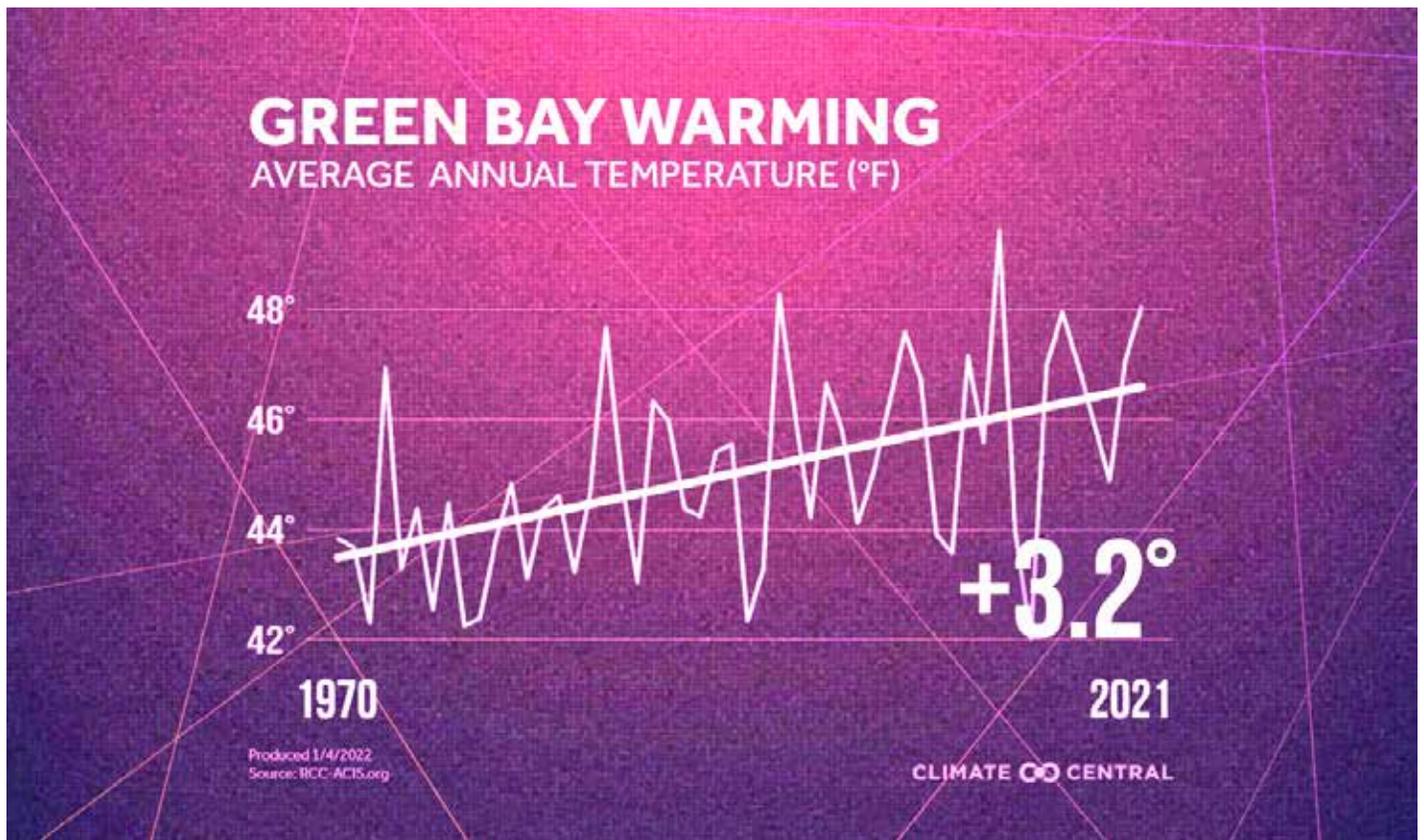
Clean Water Action Council

OF NORTHEAST WISCONSIN

CELEBRATING 37 YEARS OF WORKING TO PROTECT PUBLIC HEALTH AND THE ENVIRONMENT IN NORTHEAST WISCONSIN

SUMMER 2022

Recognizing and Preparing for Climate Change in Wisconsin



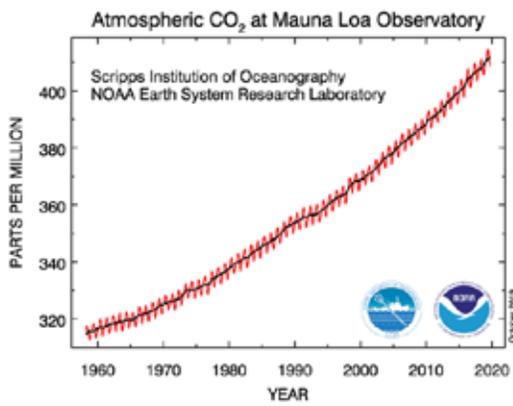
Introduction by CWAC President Dean Hoegger

The effects of climate change are upon us. For decades scientists have been warning us that increasing carbon dioxide (CO₂) in the atmosphere could create what they termed the “greenhouse” effect. Burning fossil fuels at 1970 rates would significantly raise the amount of CO₂ in the atmosphere they said. An early 1970s environmental science textbook written by UW-Green Bay professors devoted a whole chapter to this concern.

Since the last century we have made many gains in limiting CO₂. The federal government required motor vehicle manufactures to increase miles per gallon significantly from the 1970 level. Hybrid cars and trucks became common after 2000, and now electric

vehicles and charging stations are further reducing CO₂ emissions. Many coal-fired electrical generation plants have been replaced with more efficient natural gas, and wind and solar continue to make gains. There is improved awareness today of the serious harm to the atmosphere caused by the release of methane gas, and greater efforts have been made to capture or burn it.

However, CO₂ levels have continued to rise due to the failure of industrialized nations to take significant actions, as well as the increasing industrial activities of developing countries. An exploding human population, civil unrest, and wars around the world have often placed individual survival over survival of the planet, further exacerbating climate change.



The record of CO₂ measured at Mauna Loa, Hawaii shows seasonal cycles superimposed on a longer-term rise in the yearly average (black line). The seasonal cycles are related to seasonal variations in photosynthesis and soil respiration in the Northern Hemisphere, where most of the land mass is located at present. The long-term trend is related to the addition of CO₂ to the atmosphere through the combustion of fossil fuels. Credit: NOAA

In recent years we have seen more significant weather events, which scientists and meteorologists have concluded are a result of global climate change. In 2012, a UW-Green Bay climate change conference focused on the need for departments of public works to prepare for more frequent significant rain events. Participants were told that improved infrastructure would be needed to handle these events, noting that Wisconsin’s infrastructure was built for the climate of the past.

One example of the inadequate infrastructure was the severe flooding of roads and businesses on Green Bay’s east side at the intersection of Main and East Mason streets in September 2019 when as much as 3" of rain fell overnight. In other areas of the city, drivers noted manhole covers being lifted from the roadway by rising water in the sewer. In March of that year, the East River flooding displaced even more Brown County residents. Some still have not returned to their homes.

An increase in significant rain events is expected in the coming decades. The University of Wisconsin Nelson Institute Center for Climate Research predicts Northeast Wisconsin is likely to see 10 rainfall events of over two inches in a 24 hour period per decade in the coming years. Are we ready?

From the graph on page 1 we see that the average yearly temperature in Wisconsin has increased 3.2 degrees and + 1.6 degrees for summer temperatures

since 1970. By 2050, the typical number of heat wave days in Wisconsin is projected to increase from around 10 to nearly 60 a year according to projections by Climate Central. This may put tens of thousands of people at risk who would be vulnerable to extreme heat; even more if there are brownouts or blackouts caused by higher air conditioning usage.

A hotter climate can make extreme storms even more intense. The 2018 National Climate Assessment predicts that the frequency of these storms could increase in Wisconsin between 25% and 45% as early as 2070 if we do not significantly reduce CO₂ emissions. Intense storms will likely threaten electrical grids, placing more people at risk from heat exhaustion or even heatstroke. Extreme heat kills more people in the state than all other weather disasters.



Source: Adapted from IPCC AR6 WGII Ch7 (2022) & health2016.globalchange.gov Ch8 (2016)

In addition to the mental stress from heat and increased severe storms, we can expect an increase in the number of days that are suitable for disease transmission by mosquitoes. Climate Central reports that for the Green Bay area, the number of transmission days has increased by 16 from 1970 to 2017. With warmer and wetter summer days forecasted for the Northeast Wisconsin climate, the number of at-risk days will increase.

Warmer water temperatures, along with a failure to control nonpoint pollution, such as manure and fertilizer over-spreading, will increase the nutrient load in area waters thus promoting algae growth. These algae blooms can not only cause oxygen depleted dead zones but can cause the growth of dangerous blue green algae. The sport fishing community will suffer from the loss of fishing opportunities. Water recreation enthusiasts will suffer from the loss of safe recreational waters.

The American Psychiatric Association asserts, **“The mental health consequences of events linked to a changing global climate include mild stress and distress, high-risk coping behavior such as increased alcohol use and, occasionally, mental disorders such as depression, anxiety and post-traumatic stress.”**

Read more in this issue about the impact of climate change in Northeast Wisconsin and what can be done to curb it. The Citizens’ Climate Lobby market-based Carbon Fee and Dividend policy has potential to “drastically reduce emissions, create jobs, and support small businesses and families—all without growing government.” It may be our best bet to reach net zero carbon emissions by 2050.

Local Organizations Provide Climate Change Education and Actions

By Gracyn Holcomb and Zea Miller, CWAC Interns

The impacts of climate change can be seen across the globe, but two organizations are working hard to protect our planet right here in northeast Wisconsin. Climate Change Coalition of Door County is a non-partisan group that has focused their efforts into education and creating civil dialogue about the effects climate change has on the world and at home.

Another organization, Citizens Climate Lobby, is a nationwide organization with multiple chapters within northeast Wisconsin. Their mission is to create the political will for a livable world by enabling individuals with the knowledge needed to advocate for change to happen from their political leaders.

Both organizations are combating the effects of climate change at a local and national level by educating the public about the detrimental impacts climate change will have on the environment.

Climate Change Coalition of Door County

“Climate Change Coalition of Door County is a non-partisan organization that through education, outreach, and civil dialogue increases public understanding of climate change and its many detrimental impacts at home and around the world. Our objective is to inspire prompt action by individuals and policymakers at all levels to address the causes and challenges of climate change and to help communities adapt to its impacts.”

-Mission Statement of Climate Change Coalition of Door County

Operating out of Sturgeon Bay, Wisconsin, Climate Change Coalition of Door County (CCDC) is one of the many organizations in northeastern Wisconsin that is dedicated to protecting our citizens and natural resources from the adverse effects of climate change.

CCDC is an organization that seeks to empower Door County citizens to contact their representatives and take action in their local and state communities through a variety of programs such as the Door County Big Plant, the Climate Declaration, the Door Community Compost Initiative, and educational programming. As the group states in its Core Climate Change Statement, “business as usual spells disaster.”

The organization is made up of a Steering Committee, a group of volunteers that acts on behalf of CCDC’s mission through the creation of various programs, events, outreach, and media. Co-chairs Mary Smythe and Roy Thilly have long been involved in the world of environmental justice. Smythe is a long-time environmental activist and Thilly is a previous co-chair of Governor Doyle’s Global Warming Task Force. Other committee members are involved with various universities, government agencies, and Wisconsin businesses.

Their contact information and events, can be found at <https://www.climatechangedoorcounty.com/>

CWAC is a cosponsor for their event, “Warmer, Wetter, and Wilder” with Bart De Stasio on June 22. See the event poster on page 17.

Citizens Climate Lobby Northeast Wisconsin Chapters

“Citizens’ Climate Lobby is a climate change organization that exists to create the political will for a livable world by enabling individual breakthroughs in the exercise of personal and political power.”

-Mission Statement of Citizens Climate Lobby

The Citizens Climate Lobby is a national organization with numerous chapters throughout northeast Wisconsin. The organization uses the developing respectful relationships, cultivating and demonstrating local support, and promoting a climate solution that has appeal across the political spectrum, in hopes to move the leaders towards action that will preserve a healthy climate and a livable world.

Active chapters in northeast Wisconsin include locations in Appleton-Fox Cities and Green Bay. These chapters continue to strive to achieve the national organization’s goals but have more local-based goals they are advocating for in northeast Wisconsin.

The Appleton-Fox Cities Chapter currently has their focus on a specific piece of legislation and a proven strategy to gain its passage, of a bi-partisan Energy Innovation and Carbon Dividend Act (HR 763), a climate change solution that bridges the partisan divide.

This proposed market-based policy would drastically reduce emissions, create jobs, and support small businesses and families, without growing the government. The organization meets 6:30-8:00 pm on the 3rd Monday of every month, and more information can be gained by contacting Kate at 920-729-6730, or John at 920-841-2799.

The Green Bay Chapter is also working towards the passage of Carbon Fee and Dividend, which climate change solution economists and climate scientists say is the “best first-step” to protect against the worst impacts of climate change.

The Green Bay chapter meets the Wednesday after the second Saturday each month, from 6:30 to 8:00 pm. They are currently meeting online on Zoom due to the COVID-19 pandemic, but when they will resume meeting in person it will be at the Brown County Volunteer Center at 984 Ninth.

More information about CCL-Green Bay and how to contact them can be found at: <https://www.facebook.com/CCLGreenBay/>

Energy Independence from Out of State Fuel Sources Could Be in Our Future

By Carla Martin

In August 2019, Governor Tony Evers issued Executive Order #38 in which he directed the Office of Sustainability and Clean Energy (OSCE) to create a comprehensive clean energy plan. In April of this year the Clean Energy Plan (CEP) written in conjunction with the governor's Office of Sustainability and Clean Energy was released, placing Wisconsin on a path for all electricity consumed within the state to be 100 percent carbon-free by 2050 and identifies dozens of strategies meant to reduce Wisconsin's reliance on out-of-state energy sources.

The current state of clean energy in Wisconsin continues to see high energy end-use expenses, despite important strides being made in the consumption of clean energy, such as the development and investment in solar and wind energy. Only a small percentage of the energy consumed in Wisconsin is produced in the state. In 2020, in-state renewable energy production was 10%, consequently much of the money Wisconsin spends on energy is sent out of state. "For the most part, Wisconsin doesn't have its own oil and gas. Instead, the state spends more than \$14 billion a year on out-of-state energy," according to Governor Evers.



State regulators approve construction of Wisconsin's largest renewable energy plant in Dane County. Image courtesy of Wisconsin Public Radio

As the state of Wisconsin assessed its path to a clean, reliable, and affordable energy future, four key pathways emerged:

- Accelerate clean energy technology deployment – increasing funding options for projects, investing in infrastructure, new emissions goals, expanding state energy resources for generation, technology innovation, equitable expansion of clean energy, and leveraging existing policies and programs.
- Maximize energy efficiency – strengthening energy efficiency standards and goals to reduce energy waste, create jobs, and save consumers money on energy costs.

- Modernize buildings and industry – addressing building codes, supporting electrification, expanding funding, and supporting industry and businesses in their transition.
- Innovate transportation – supporting the transition to low- or no-emission vehicles and supporting refueling options, along with planning and increased options to move people around.

In addition to the four pathways identified above, the Clean Energy Plan also includes several workforce development recommendations to ensure Wisconsin has a clean energy workforce to meet these needs, including establishing clean energy apprenticeship tracks, working with technical colleges to develop pathways into the industry, supporting reentry skills with training programs for incarcerated individuals, and creating the Clean Energy Workforce Advisory Council to bring leaders together across industries.

A study released in March by the Midwest Economic Policy Institute found if Wisconsin meets its goal of transitioning to 100% clean energy over the next 30 years, it could grow the state's economy by \$21 billion, and create more than 34,000 jobs.

Sources:

State of Wisconsin sent this bulletin at 04/19/2022 09:44 AM CDT. Press Release: "Gov. Evers, Office of Sustainability and Clean Energy Release State's First-Ever Clean Energy Plan".

<https://content.govdelivery.com/accounts/WIGOV/bulletins/31407e5>,

<https://osce.wi.gov/Documents/SOW-CleanEnergyPlan2022.pdf>

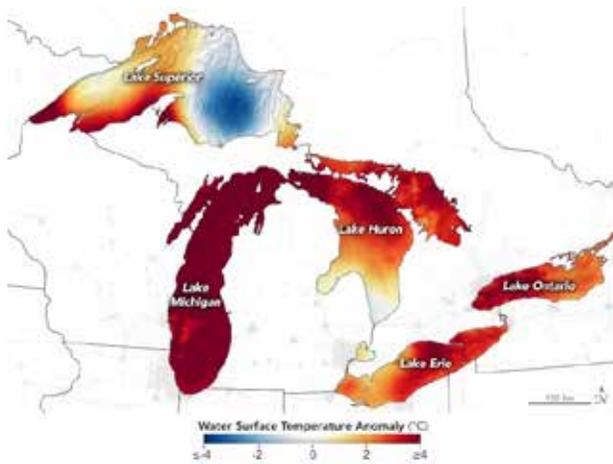
<https://www.jsonline.com/story/money/2022/04/19/wisconsin-clean-energy-plan-seeks-carbon-free-power-lower-fuel-costs/7370161001/>

Think Global, Act Local – How Local Governments are Responding to Climate Change

By Lauren Felder

Climate change has and will continue to affect anything and everything we know, including our local environment. These affects have become more and more apparent in recent years. Wisconsin weather is trending toward warmer summers and colder winters. Wind speeds are increasing and more severe storms which cause more rain in shorter periods of time, as well as tornadoes, will become more common. These weather events cause numerous issues for agriculture and city infrastructure, including but not limited to damage to fields, roads, and buildings from flooding, sewer overflow, and damage to crops due to extreme wind, rain, and/or drought.

The Great Lakes will not escape the effects of the warming weather, and nor will any local bodies of water. Algal blooms will increase, which can harm fish and degrade water quality. Dead zones, where aquatic life cannot survive due to low oxygen levels from increased algae and pollution, have increased in size and rate in lakes across the U.S. Increasing storms cause increased runoff and higher risk of sewer overflow, both of which can increase the risk of algal blooms and drinking water contamination.



Temperature Anomalies in the Great Lakes in 2020, photo courtesy of NASA Earth Observatory



Algal blooms in the Great Lakes in 2011, photo courtesy of Wikimedia Commons

Wisconsin wildlife feel the effects as well. Migratory birds are arriving earlier, tree species including balsam fir and paper birch are declining in the Northwoods, water is becoming too warm for some fish to survive, and increasing erosion is causing habitat destruction. These shifts in habitat and animal behavior threaten to disrupt entire ecosystem webs. Some animals may not be able to adapt to a new habitat or find enough food to survive, causing extinction.

Air quality has decreased in recent years, and not just from pollution. Of course, pollutants such as ozone are harmful to human, animal, and plant health, but there are other considerations as well. Allergens have become more prevalent and allergy season lasts longer. Cases of asthma and other respiratory issues have increased as a result.

It may seem impossible that small actions on the part of individuals or local groups and governments will make a difference, but small actions add up. Wisconsin joined the U.S. Climate alliance in 2019 and committed to the Paris Climate Agreement following the U.S. withdrawal from the document. 20 communities in Wisconsin joined the United States Conference of Mayors in reaffirming the Paris Climate Agreement as well. These communities include La Crosse, Madison, Menomonie, Milwaukee, Oshkosh, and Superior. 148 additional communities have taken the Energy Independent Community 25x25 pledge to generate 25% of their energy from local renewable sources by 2025.

The city of Menomonie put their pledge into action in April of 2020 by a unanimous vote of the city council to move to 100% carbon free energy by 2050, which is the same goal as the state of Wisconsin. To achieve this goal, Menomonie council members set drawdown targets of 25% by 2030 and 60% by 2040. The city of La Crosse passed a resolution containing the same goals in 2019 while La Crosse County passed a similar resolution in April 2020, the only difference being inclusion of the idea of an equitable transition to clean energy.

The city of Green Bay formed its Sustainability Commission in summer of 2018, adding its name to a growing list of cities employing these non-partisan committees to guide climate action. Other cities employing sustainability commissions include De Pere, Menasha, Neenah, and Sheboygan.

The Green Bay Commission drafted a work plan to achieve 100% clean energy by 2050, which the city alder voted in support of in 2019. In April 2022, the city received \$80,000 through the PSC Energy Innovation Grant Program to use toward this goal. The Commission's actions include working to ban coal tar sealants, replacing the solar panels in Leicht Memorial Park, and installing solar panels on public buildings. The city of Green Bay hired a Resilience Coordinator in 2020 to help plan city infrastructure to combat the effects of climate change, particularly flood damage, using green and gray infrastructure.

The city of Appleton released a Climate Action Plan Proposal in November of 2020 which details the city's goals related to climate change mitigation, resiliency, and adaptation. The plan includes many goals, including sourcing 100% of the city's electricity from renewable sources by 2040, reducing the city's energy consumption by 50% by 2040, encouraging alternative methods of transportation, increasing urban forest, and increasing water conservation efforts.

The Center for Rural Communities of Northland College created a climate change adaptation guide in the spring of 2019 for the purpose of guiding local community leaders through policy creation in light of climate change. The guide is based on assessments of the changes in the Chequamegon Bay Area, mostly centered around flooding, water recreation, and drinking water quality. The guide has proven useful for many area governments as we move forward into an uncertain future where climate change mitigation and adaptation must be the norm.

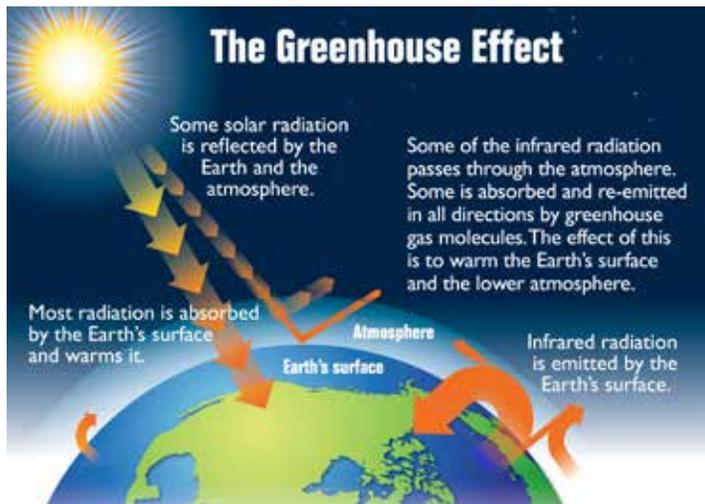
Sources:

- <https://upnorthnews.com/2020/02/17/how-green-bay-is-going-green/>
- <https://conservationvoters.org/priority-campaigns/local-clean-energy-policies>
- <https://dnr.wisconsin.gov/sites/default/files/topic/ClimateChange/ClimateLeadershipbyWisconsinLocalGovernments.pdf>
- <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-wi.pdf>
- <https://www.northland.edu/wp-content/uploads/2019/05/CRC-ClimateChange-AdaptationGuide.pdf>
- <https://www.appleton.org/home/showpublisheddocument/23656/637384572038100000#:~:text=A%20resolution%20with%20a%20commitment,our%20citizens%20and%20our%20economy.>

Agriculture and Its Effects on Our Climate

By Andy Wallander

Gases that trap heat in the atmosphere are called “greenhouse gases”. These gases are the major driver of climate change and variability.



Source: United States Environmental Protection Agency (USEPA)

“Climate change” is experienced as long-term changes in temperature, precipitation, humidity, and wind speed. Climate change is predicted to negatively affect the productivity of agricultural, forestry, and fisheries systems in the years ahead because of an increase in the frequency and magnitude of weather extremes such as storms, floods, and drought.

“Climate variability” is experienced as shorter-term seasonal shifts, which often have even more immediate and potentially deleterious effects on local environments.

Although climate change is likely to affect agriculture differently from region to region, the scientific consensus is that it will have major, generally negative impacts on food systems. As highlighted by the *Intergovernmental Panel on Climate Change (IPCC) Report on Climate Change and Land*, climate change has already impacted food production in many areas, and the impacts will become more severe as the world continues to warm. Water scarcity, heat waves, storms, and sea level rise are already compromising agricultural productivity and will continue to destabilize agricultural supply chains unless we take action.

Climate change harms agricultural production in the following ways:

- Warmer mean temperatures and hotter extremes result in reduced crop yields and increased animal loss from heat stress and disease.
- Increased probability of drought and precipitation deficits increases crop stress and reduces livestock yield.
- Increased frequency, intensity and/or amount of heavy precipitation degrades and inundates farms and livestock operations.

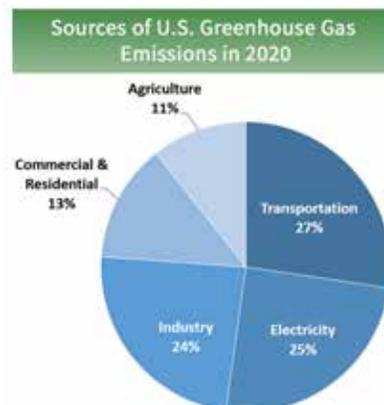
In addition to harming agricultural production in the short term, some climate impacts can have long lasting or irreversible effects:

- Salt water intrusion and the rise in sea levels in some coastal regions of the world result in a reduction in usable cropland.
- Disruption of the movement of water in the atmosphere as a result of the dieback of tropical forests could cause major shifts in precipitation in key agricultural areas.
- Climate change reduces biodiversity, such as by reducing the populations of pollinating insects, which can threaten agricultural resilience and crop productivity.

While climate change does affect agriculture, the conversion of natural habitats and the practices used in agricultural and livestock operations also contribute to climate change. Agriculture, forestry, and other land use changes are the largest greenhouse gas emitting sector after energy. Currently, the sector accounts for 23% of net anthropogenic (caused by human activity) greenhouse gas emissions. Eleven percent comes directly from agricultural production and an additional 12% from land use change.

Direct contributions to climate change from agricultural production include:

- Land use change from commodity crop and subsistence agriculture. Agriculture drove up to 88% of forest loss in Latin America and 81% in Southeast Asia between 2001 and 2015.
- Greenhouse gases generated during livestock production and manure management. Methane from the digestion of carbohydrates by cattle is the largest single source of agricultural greenhouse gases, and methane is 25 times more potent in the atmosphere than carbon dioxide over the same 100-year period.
- Production of nitrous oxide from synthetic fertilizers used to grow crops for both human consumption and, disproportionately, livestock feed.
- Methane produced during the cultivation of rice in flooded conditions.
- Fossil fuel emissions from powering agricultural machinery and irrigation pumps.



Source: United States Environmental Protection Agency (USEPA)
<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

Aside from the possibility of lowering air quality in the areas around them, CAFOs also emit greenhouse gases, and therefore contribute to climate change. Globally, livestock operations are responsible for approximately 18% of greenhouse gas production and over 7% of U.S. greenhouse gas emissions. While carbon dioxide is often considered the primary greenhouse gas of concern, manure also emits methane and nitrous oxide which are 23 and 300 times more potent as greenhouse gases than carbon dioxide, respectively. The United States Environmental Protection Agency attributes manure management as the fourth leading source of nitrous oxide emissions and the fifth leading source of methane emissions.

The type of manure storage system used contributes to the production of greenhouse gases. Many CAFOs store their excess manure in lagoons or pits, where they break down anaerobically (in the absence of oxygen), which exacerbates methane production. However, manure that is applied to land or soil has more exposure to oxygen and

therefore does not produce as much methane.

Ruminant livestock, such as cows, sheep, or goats, also contribute to methane production through their digestive processes. These livestock have a special stomach called a rumen that allows them to digest tough grains or plants that would otherwise be unusable. It is during this process, called enteric fermentation, that methane is produced.

The United States cattle industry is one of the primary methane producers. Livestock production and meat and dairy consumption has been increasing in the United States, so it can only be assumed that these greenhouse gas emissions will also rise and continue to contribute to climate change.

Additional References:

<https://www.epa.gov/agriculture/agriculture-and-climate>

<https://www.ers.usda.gov/topics/natural-resources-environment/climate-change/>

<https://www.cambridge.org/core/books/recipe-for-survival/agriculture-is-a-major-driver-of-climate-change-and-disease/A4AE13B8C134AE-C49F720550340A8949#>

2021 CONSERVATION PROGRESS REPORT
 Producer-Led Watershed Protection Program

Farmers helping farmers increase sustainability and profitability across the Sheboygan River Basin.

THE STATS

- Farmer membership has grown from 25 to 31 since 2018.
- 81% of SRPF members plant cover crops. About 6% of farmland in WI has cover crops.
- 70% of SRPF members have a Nutrient Management Plan. 35% of cropland in WI is under an NMP.

CONSERVATION PRACTICES IMPLEMENTED BY SRPF FARMERS HAVE INCREASED BY MORE THAN 4 TIMES SINCE 2018.

Year	Low Disturbance Manure App.	No-till and Strip till	Cover Crops	Nutrient Mgmt.	Soil Testing	Other Soil Health Practices
2018	~10,000	~5,000	~5,000	~5,000	~5,000	~5,000
2019	~15,000	~10,000	~10,000	~10,000	~10,000	~10,000
2020	~20,000	~15,000	~15,000	~15,000	~15,000	~15,000
2021	~25,000	~20,000	~20,000	~20,000	~20,000	~20,000

Note that some acres are reported more than once for multiple practices. 2021 data derived from 36 surveys completed by farmers in the watershed.

THE IMPACT In 2021, through planting cover crops and using no-till or strip till technology, SRPF farmers:

- Climate:** Reduced CO2 equivalents (greenhouse gas emissions) by 8,185 tons. This equals the greenhouse gas emissions from 1,764 cars driven for a year!
- Soil Health:** Reduced sediment from leaving farm fields by 8,900 tons. One dumptruck can carry about 10 tons of soil!
- Water Quality:** Reduced 25,415 pounds of phosphorus from leaving farm fields. One pound of P that reaches a waterbody can feed 500 pounds of algae!

Project Partners include Farmers for Sustainable Food and The Nature Conservancy. Reductions are estimated using models. Actual reductions may be higher or lower. For more information on these figures, contact Dana Christel, Conservation Specialist (608) 640-7270; dana.christel@wi.gov

Farming With Climate Impacts In Mind

Kari Fehling

While most people are quick to point out that agriculture is a contributor to greenhouse gas emissions, it does not always get brought up that it is also an industry that greatly feels the impact of climate change. Farmers rely on the weather to be consistent with what is typical for their region. Climate change is creating more frequent extreme weather which is causing lost crops and unfavorable growing conditions. Because of this, farmers are starting to take initiative and have been starting their own organizations to work together to find the best sustainable practices to improve the environment along with ensuring the profitability of their businesses.

In Northeastern Wisconsin alone there are many of these organizations popping up and adding more farms to their members each year. These groups include Peninsula Pride Farms, Calumet County Ag Stewardship Alliance, and Sheboygan River Progressive Farmers, just to name a few.

Some of their main focuses include increasing farm efficiency, improving water quality and reducing runoff by implementing practices such as planting cover crops and no-till/limited tilling their fields. As you can see in the graphic to the left from the Sheboygan River Progressive Farmer's website, in 2021 their group of farms reduced the amount of CO₂ equivalents

by 8,185 tons equaling 1,764 cars being driven for a year.

This is what one of these farmer-led groups achieved in one year, and more farmers are taking the initiative each year to help lower their emissions so that their farms can have a sustainable future.

While it is clear these organizations are getting results from their sustainability efforts, they also must rely on recommendations from others. The Natural Resource Conservation Service has many programs that farmers and ranchers can apply for to have assistance in order to achieve their sustainability goals. This support can come in the form of monetary aid and/or help finding the best management practices for their fields.

The NRCS emphasizes soil health, no-till, cover crops and nutrient management practices. The combination of many of these practices increase energy efficiency which in turn reduces the amount of greenhouse gas emissions. The farmers can also work with their agronomists, The Nature Conservancy, and local businesses in order to get the recommendations and funding that they would need to achieve their sustainability goals.

This work that is being done not only impacts the farms, but also the communities around the farms. These practices can help the farms better track the amount of nutrients that need to go on the field and when, potentially lowering the amount of times fertilizer would need to be spread and increasing energy efficiency. They also aim to improve water quality and biodiversity and are achieving this by doing things like restoring wetlands and creating buffers near waterways.

Farmers implementing sustainability practices are working not only for a better future for their own farms, but also to reduce climate change impacts for all of us.

Agricultural Carbon Sequestration Opportunities

By Andy Wallander

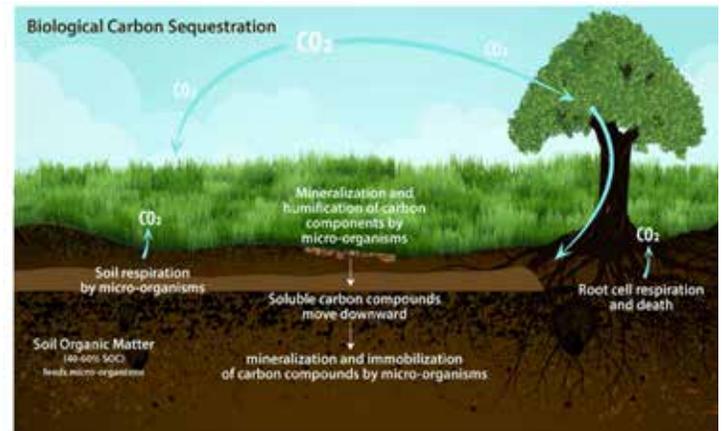
The primary sources of greenhouse gases in agriculture are the production of nitrogen-based fertilizers; the combustion of fossil fuels such as coal, gasoline, diesel fuel and natural gas; and poor livestock waste management practices. Livestock enteric fermentation, or the fermentation that takes place in the digestive systems of ruminant animals, results in methane emissions as well.

However, agricultural activities can serve as **both sources and sinks** for greenhouse gases. Sinks of greenhouse gases are reservoirs of carbon that have been removed from the atmosphere through the process of biological carbon sequestration. Conservation tillage, organic crop production, cover cropping and crop rotations can drastically increase the amount of carbon stored in soils.

Carbon sequestration/storage refers to the capacity of agricultural lands and agroforestry cropping systems to remove carbon dioxide from the atmosphere. Carbon

dioxide is absorbed by trees, plants and crops through photosynthesis and stored as carbon in biomass in tree trunks, branches, foliage and roots and soils. Forests and stable grasslands can also act as carbon sinks because they can store large amounts of carbon in their vegetation and root systems for long periods of time.

Soils are the largest terrestrial sink for carbon on the planet. Carbon dioxide is removed from the atmosphere and converted to organic carbon through the process of photosynthesis. As organic carbon decomposes, it is converted back to carbon dioxide through the process of respiration.



Source: California's Department of Resources Recycling and Recovery (CalRecycle)
<http://schatzcenter.org/docs/Silver-2018-CACompostingPotential.pdf>

The ability of our agricultural lands to store or sequester carbon depends on several factors, including climate, soil type, type of crop or vegetative cover and farm management practices. By utilizing farming practices that involve a minimal disturbance of the soil and encouraging carbon sequestration, farmers may be able to slow or even reverse the loss of carbon from their fields.

In the United States, forest and croplands currently sequester the equivalent of 12 percent of the country's total carbon dioxide emissions from the energy, transportation, and industrial sectors.

Several farming practices and technologies can greatly reduce greenhouse gas emissions and prevent climate change by enhancing carbon storage in soils, preserving existing soil carbon, and reducing carbon dioxide, methane, and nitrous oxide emissions.

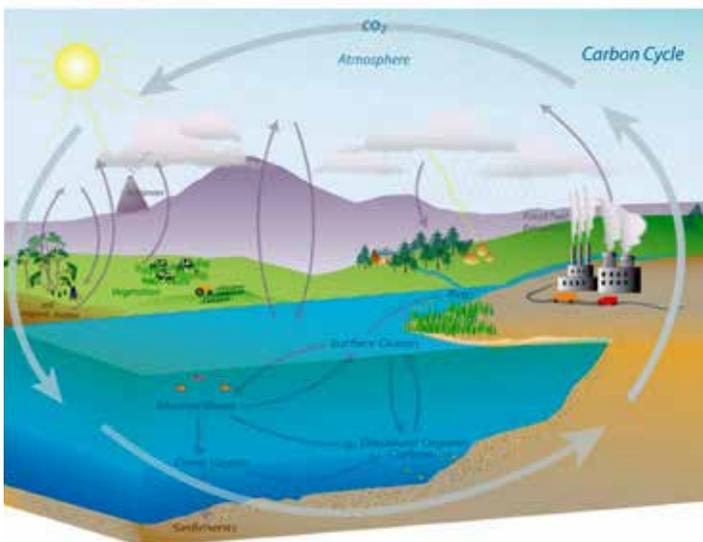
Conservation tillage refers to several strategies and techniques for establishing crops in the residue of previous crops, which are purposely left on the soil surface. Reducing tillage reduces soil disturbance and helps mitigate the release of soil carbon into the atmosphere. Conservation tillage also improves the carbon sequestration capacity of the soil. Additional benefits of conservation tillage include improved water conservation, reduced soil erosion, reduced fuel consumption, reduced soil compaction, increased planting and harvesting flexibility, reduced labor requirements and improved soil tilth.

Organic farming systems increase soil organic matter levels through the use of composted animal manures and cover crops. Organic cropping systems also eliminate the emissions from the production and transportation of synthetic fertilizers. Components of organic agriculture can be easily implemented with other farming systems, such as conservation tillage, to further increase climate change mitigation potential.

Planting perennial grain crops, such as Kernza[®] wheatgrass (*Thinopyrum intermedium*), a “cousin” of annual wheat, holds unique and robust potential to help mitigate climate change by capturing significant amounts of carbon dioxide from the air and putting it back into the soil, while also efficiently using nitrogen within the soil, and thus reducing nitrous oxide emissions. Perennial grains do this by growing in place, setting down deep roots that remain undisturbed by plowing, building up soil carbon, and taking up nitrogen and water from deep in the soil, year-round. Soil carbon scientists are actively researching how much carbon Kernza[®] perennial grain production can sequester.

Any conservation farming practices that conserve moisture, improve yield potential, and reduce erosion and fuel costs also increase soil carbon storage. Examples of other practices that reduce carbon dioxide emissions and increase soil carbon storage include **direct seeding, field windbreaks and agroforestry, rotational grazing, perennial forage crops, reduced summer fallow and proper straw management.**

Land restoration and land use changes that encourage the conservation and improvement of soil, water and air quality typically reduce greenhouse gas emissions as well. Modifications to grazing practices, such as implementing **sustainable stocking rates, rotational grazing, and seasonal use of rangeland,** can also lead to greenhouse gas reductions. Converting marginal cropland to trees or grass maximizes carbon storage on land that is less suitable for crops.



Source: National Oceanic and Atmospheric Administration (NOAA)
<https://www.noaa.gov/education/resource-collections/climate/carbon-cycle>

Adopting renewable energy opportunities, such as wind and solar, could also present significant opportunities for the agricultural sector to reduce greenhouse gas emissions.

The easily adopted on-the-ground agricultural conservation practices mentioned above will serve as important pieces of the puzzle for the foreseeable future, as there still is ongoing scientific research regarding whether biofuels, particularly those produced from oilseeds (biodiesel), feed corn (ethanol) or even from cellulosic sources, are actually carbon neutral.

Additional References:

<https://www.epa.gov/agriculture/agriculture-and-climate>

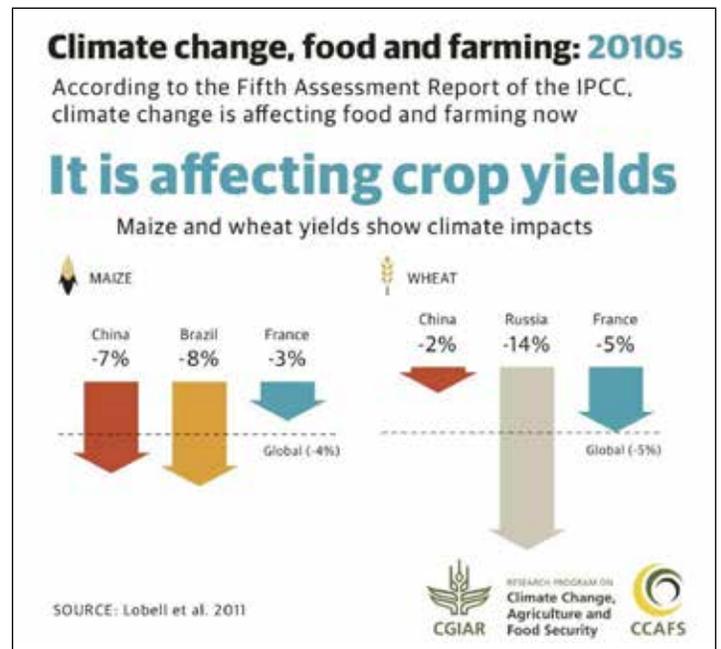
<https://www.ers.usda.gov/topics/natural-resources-environment/climate-change/>

<https://www.cambridge.org/core/books/recipe-for-survival/agriculture-is-a-major-driver-of-climate-change-and-disease/A4AE13B8C134AE-C49F720550340A8949#>

Climate Change is Leading to Food Insecurity

By Dave Verhagen

The United Nations Intergovernmental Panel on Climate Change (IPCC) issued a report this past spring on the changing climate. It is now a consensus view among scientists that human activity is driving change at a rate that must be curtailed quickly to avoid catastrophic impact upon human life in all parts of the planet.



The IPCC Fifth Assessment Report - Food Security and Food Production Systems, lays out the specific ways in which climate changes will impact our food supply, and in a summary intended for government policy makers, outlines some responses to those changes.

These impacts will not only affect our farms locally but

will play out in our local grocery stores as well. A study in the journal *Nature Food* determined the minimum distance required to produce and deliver food to people today is over 1,350 miles. A fourth of the world lives in areas where food products must come from areas over 3,000 miles distant. So, even though we live in an area where the climate effects will be less than in more sensitive areas, we cannot escape its consequences.

Per the IPCC report, a short list of currently recognized effects that will impact Wisconsin include drought stress during hotter and drier summers, coupled with flooding from intense rain events as our weather makes greater swings between its extremes. There is already robust evidence that insect pests, plant diseases, and invasive weeds are responding to changing climates and expanding their range. Excess CO₂ in the atmosphere aids plant growth but degrades nutrition in food crops. Lastly, current farming practices are resulting in a loss of topsoil that cannot be sustained with further plowing and application of fertilizers, herbicides, and pesticides. Indeed, their heavy use is implicated as a primary cause of soil loss.

Climate's unfolding changes vary across different regions and play out in the different ways we must respond. Our adaptations will fall into three basic categories: Autonomous, Incremental, and Transformational.

Autonomous adaptation is not a conscious, planned reaction to changing climate conditions, but rather an accumulation of small changes made by farmers themselves. They include choice of crop varieties, planting and harvesting times, interplanting of crops and/or planting new crops altogether. These are not generally thought to be climate-specific choices but are seen as opportunistic decisions made in response to local markets. Nonetheless, they will be spurred on by climate change.

Incremental adaptation maintains the status quo at its current scale, incorporating improvements to existing methods and practices. It relies upon an assumption that land, water, and soil availability can be continuously expanded. Farming is already the greatest cause of wildlife habitat loss worldwide and is driving the extinction crisis. It is responsible for over 80% of deforestation. Continued incremental adaptation is problematic at best.

Transformational adaptation changes fundamentally how we produce and consume food. For example, when early Wisconsin farmers found that our soils could not sustain growing wheat annually, the University of Wisconsin Extension Service helped farmers transition to raising dairy cattle and dairy products via producer cooperatives. The resulting opportunities gave rise to Wisconsin's recognition as "America's Dairyland".

Wisconsin doesn't need to reinvent its agriculture as radically as it did back then, but to continue to prosper, farmers do need to make fundamental changes. The most significant include abandoning single-species monocultures of corn, soybeans, or oats. Green cover crops interplanted

with these grains improve the resilience of these crops to both drought and heavy rains, while improving soil quality.

A return to wide-spread adoption of crop rotation will aid in pest and weed control, while furthering soil health, and thus protecting farm productivity long term. Technology will replace many farm workers as tractors and other equipment employ artificial intelligence to perform more accurately and efficiently.

The most transformational changes will have to come from outside the industry. It is up to consumers to drive change with their buying choices. In theory, there is plenty of food to feed the whole world. In practice, however, the world has a growing appetite for meat products, which are the least efficient source of calories we can choose.

Almost half the calories farmers produce worldwide are already being fed to animals, and the demand for meats is growing fast. Meeting the appetite for that much meat would require farms to increase their production of animal feed by 50% by 2050 in addition to providing more food for human consumption.

So here is the silver bullet at home and around the world: We can become vegans or at least consume a lot less meat. We can eat smaller portions of flesh, we can use it as an ingredient in other dishes, and we can substitute non-meat products into our recipes. Any other solution will likely be based upon technology.

Food scientists are producing "cultured" meats, grown from stem cells in laboratory conditions. Companies are already supplying restaurants with shrimp and chicken in limited markets. Ground beef is their next product targeted for production.

Lab-grown meat is the real thing. It is grown from cells taken from an animal without doing that animal any harm. Real meat tissue is then grown with a fraction of the resources it takes to raise a steer. These products have the potential to satisfy much of the world's appetite for animal protein.

Learn more about this unfolding story from an article in *The Guardian*, May 25, 2022 edition, which highlights recent news about cultured meat production. It ends with the statement that most of the meat people will eat in 2040 will not come from slaughtered animals, according to a 2019 report from the consultancy Kearney <https://www.theguardian.com/environment/2019/jun/12/most-meat-in-2040-will-not-come-from-slaughtered-animals-report> that predicts 60% will be either grown in vast or replaced with plant-based alternatives.

Sources:

The IPCC Fifth Assessment Report - Food Security and Food Production Systems, <https://www.ipcc.ch/srccl/chapter/chapter-5/>

"The secret world beneath our feet is mind blowing - and the key to our planet's future," - George Monbiot, *The Guardian*, May 7, 2022.

"World's Largest Vats for Growing 'No-Kill' Meats to be Built in the US," Damian Carrington, Environmental Editor, *The Guardian*, May 25, 2022. <https://www.theguardian.com/environment/2019/jun/12/most-meat-in-2040-will-not-come-from-slaughtered-animals-report>

Climate Change and Outdoor Recreation in Wisconsin

By Charlie Frisk

How will the future be different for outdoor recreationists here in Wisconsin if as a society, we do not take on climate change in a much more aggressive manner? It will be a very different future and in almost all respects a much less attractive one.

My first teaching job, from 1976-1983, was in Southwest Iowa at a community called Underwood, about 600 miles south of Green Bay. I was there seven years and most of those years we had good cross-country skiing from December through February. So much so, there was a local YMCA camp that rented skis and had beautiful trails.

I have a brother who still lives in that area, and he can't remember the last time they've had a winter where it would be possible to ski more than a handful of days. They still get heavy snowfalls, but in 2-3 days the snow has all melted.

As a fairly hardcore cross-country skier, I am hoping that this last winter in the Green Bay area was an aberration and not a portend of the future. There was no point at which there was enough snow to groom the trails in the Baird Creek Greenway. Although there were ample periods with cold temperatures, there was little snow at those times.



Conditions like this are likely to become more limited in northeast Wisconsin.

Climatologists are predicting that areas like Green Bay will experience warmer winters with snowfalls being replaced by freezing rain and a wintry mix. I might have to move to Canada to continue enjoying my favorite winter sport.

I am not a snowmobiler or an ice angler but those are two other sports at risk if our present trends continue. For ice fishing it is not just a matter of a shortened season, as winter temperatures increase ice fishing becomes more dangerous. The bay of Green Bay made the national news twice this winter when chunks of ice carrying ice anglers broke loose and drifted into open water.

Although those stories made for humorous newscasts, those situations could have had deadly consequences had those anglers not been able to contact rescue personnel.

Because of limited space on the airboats used to perform the rescues, the anglers had to leave thousands of dollars' worth of gear on the ice.

It isn't just winter sports that are at risk from climate change. White-water rafting, canoeing and kayaking are already being impacted. One of the effects of climate change is to produce more extreme weather events. An area might receive the same amount of precipitation but get it in just a few extreme events rather than a larger number of smaller rainstorms.



The canoeing on the Peshtigo River is likely to be impacted by extreme rainfall events, as well as times of little precipitation.

Herb and Cap Buettner started the white water rafting industry on the Wolf River back in the 1970s. Herb told me that until the 21st century he never had a season where rafting had to be canceled because the water was too low, or because it was so high as to be unsafe. In recent years there have been many summers where they lose part of the season because of low water and part because of high water. Those extremes are directly related to climate change.

The DNR has predicted that without major changes many of the smaller, popular canoeing and kayaking rivers such as the Pine, Peshtigo and Popple will rarely carry enough water flow to allow paddling. Higher temperatures will increase evaporation thus reducing water available for the rivers.

Hunting is already being affected. The southern limit of snowshoe hare range is moving northward rapidly. Snowshoe hares molt to white fur in the winter. If they molt before the ground is covered with snow, they stand out like a neon sign and are easily picked off by predators, reducing numbers for hunters.

The falls of 1918-20 were supposed to be the peak for the ruffed grouse cycle. Instead, because of West Nile virus the grouse population was at an historic low during those years. West Nile virus is spread by mosquitos. Warmer, wetter summers due to climate change have increased mosquito populations.

I have written in previous newsletters about the world class walleye fishing on the lower Fox River. Climate change has the potential to reverse the dramatic improvements that have occurred on the Fox since passage of the Federal Clean Water Act in 1972. Increasing water temperatures are

predicted to impact numbers of walleye and other fish species.

The WDNR has already found that many lakes throughout northern Wisconsin that had been known as outstanding walleye lakes are experiencing a decline in walleye populations and an increase in smallmouth and largemouth bass. Both bass species are more tolerant of higher water temperatures than walleye.

Although bass are esteemed for putting up a good fight they are not considered to be as good of eating fish as walleye. When anglers think of catching fish for a fish fry walleye are always at the top of the list.

Dr. Bart De Stasio, professor of biology and environmental studies at Lawrence University, has predicted that the more intense rainfall, more and larger algae blooms, an expanded "dead zone" (an area without enough oxygen to support aerobic life) in Green Bay will have dire consequences for fish and other aquatic life.

It is highly possible that we will see the walleye on the Fox decline or disappear and be replaced by carp and bullheads, two species that are extremely tolerant of high-water temps and low oxygen levels.

If society continues to do almost nothing to slow climate change, our outdoor recreation will be severely impacted. The City of Green Bay is considering installing snow making equipment at Triangle Hill, for the tubing, skiing, and snowboarding hill at Baird Creek.

There are no snowshoe hare and ruffed grouse making machines, so hunting for those two species will continue to decline. Anglers may just have to get used to catching different species, but carp and bullheads will never engender the same excitement as walleye.

Seems to me that it is high time to get serious about climate change!



The Action in Clean Water Action Council

By Dean Hoegger, CWAC President



Will Kress, left, receives award from CWAC President Dean Hoegger.

Thank you to the 150 members and guests who attended our banquet and annual meeting. Author John Bates gave a presentation about Wisconsin's undeveloped wild lakes. Green Bay Packaging President Will Kress was awarded our Environmental Citizen Award. The award is in recognition for his leadership of GBP's achievements in sustainability.

The event raised about \$7000. Next up for fundraising is running our Green Bay Packers' concession stands. Please volunteer with us and enjoy the game day excitement while making the public aware of CWAC's work. Call or email to learn more about volunteering.

Thank you to the many members who have renewed for 2022! If you have not already done so, it is time to renew for 2022.

Even if you did not renew in 2021, we kept your membership active. If renewal slipped your mind, you could make a more generous donation at this time. A monthly payment plan can also be set up using the link below. To check your membership status, look at your address label which shows your last renewal year. Emailed newsletters include the last renewal year in the body of the email. Membership donations are needed as they provide funding for nearly half of our operations. We also offer the opportunity to sponsor a newsletter (\$800) or an intern (\$500), beginning at the \$250 level.

You can mail your membership donation with the enclosed form, or go online to <http://www.cleanwateractioncouncil.org/membership/>

Read below about the 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. Here is an update on ongoing actions.

The Judge in WMC vs DNR in Waukesha Circuit Court Case Rules Against DNR and the Public.

The April ruling by Judge Bohren in favor of the Wisconsin Manufacturers and Commerce seriously jeopardizes actions already ordered by the Department of Natural Resources (DNR), such as providing emergency bottled water, PFAS investigation, and cleanup. Fortunately, he temporarily stayed his decision, which is about to expire. Midwest Environmental Advocates (MEA) filed an amicus, or friend of the court brief arguing the stay should be extended pending appeal by the DNR. The brief describes the consequences to Wisconsin families if the decision takes effect, including the possibility that the state will lose its ability under the Spills Law to provide bottled water to families whose drinking water has been contaminated by PFAS.

On June 7, Judge Bohren ruled to extend the temporary stay which will allow the Department of Natural Resources (DNR) to continue cleaning up PFAS contamination and providing bottled water to families whose

drinking water has been contaminated. The stay is likely to last until the outcome of the appeal is determined.

CWAC's participation in the case began on June 14, 2021, when together with our partners, we filed for intervenor status. We believed the Wisconsin Manufacturers and Commerce brought the suit to limit the DNR's ability to investigate and remediate environmental contamination under the Spills Law. The court denied intervenor status but did invite us to file friend of the court briefs.

Judge Bohren's ruling puts at risk in the DNR's broad authority under the Spills Law which gives the department the flexibility to address the spill of any substance that poses a hazard to public health or the environment as the need arises, such as the case with extensive PFAS contamination in Wisconsin.

The DNR has indicated it plans to appeal the ruling, which is why it asked for a stay of the ruling until the outcome of an appeal which will go before the Wisconsin Court of Appeals in the coming months. CWAC and our partners will also be submitting a friend of the court brief in support of the DNR's case.

If WMC prevails in this lawsuit, it will be exceedingly difficult to repair the damage the Spills Law was designed to prevent. Wisconsin will be forced back into the dark ages of environmental protection, where we could remain for a very long time.

MEA is representing our group in the case. CWAC was able to raise \$1000 for some of the legal costs thus far, and we are accepting additional donations to cover the ongoing expenses this continued legal action will incur.

CWAC Alerts Readers about Pollution Permits and Other Permits

We monitor notices for new water pollution permits and renewals, and alert readers by way of our Weekly Update emailed to over 1,200 people. We commented on the Kinnard Farms CAFO expansion and the provided comment information to the public for that permit. After extensive public testimony, the DNR exercised its authority affirmed in the Wisconsin Supreme Court ruling in Kinnard vs DNR last summer. The DNR limited the CAFO's expansion and required ground water monitoring. Now the Kinnard Farms is suing the DNR over the permit requirements.

Many Kewaunee County residents and CWAC members were appalled by the Door County Climate Change Coalition's decision to invite Lee Kinnard of Kinnard farms to speak at a conference about regenerative agriculture. His talk confirmed that he did not belong in the conference which included several organic farmers, Rodale Institute experts, as well as a conventional farm doing innovative practices.

CWAC Alerts Readers about Proposed Legislation

With the coming elections, there have been few recent bills proposed. However, we are following proposed Michigan legislation that could have an impact on construction of the Back 40 Mine on Wisconsin-Michigan border along the Menominee River. Much like Wisconsin Republicans' efforts to reduce local control, even when the environment or human health is threatened, so too is the

case in Michigan:

Senate Bill 431 would amend the Michigan Zoning Enabling Act to do the following: — Prohibit a local unit of government from preventing, prohibiting, or denying a permit, approval, or other authorization for the mining of natural resources if the natural resources were valuable and very serious consequences would not result from the extraction of the natural resources.

This will definitely be a bill to watch.

Other Comments

CWAC routinely comments on other issues of concern to our members that may not necessarily be a legal action, but nonetheless are important to our mission, such as commenting on the proposed Back 40 Mine to prospective investors and signing on to letters of opposition to waste-to-energy incinerator projects. In this last quarter, we commented on the Line 5 Environmental Impact Statement and its lack of consideration of the long-lasting threat to the Bad River Band's wild rice beds.

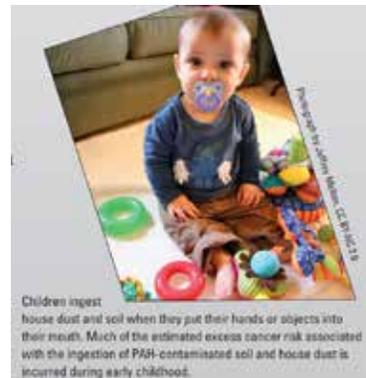
PAH and Coal Tar Sealant Ban

Letters offering a presentation along with supporting literature was sent to 48 municipalities about the hazards of coal tar-based pavement sealants and the need to ban this product at the local level. A presentation was given to the Village of Luxemburg on March 8. Subsequently the village passed a ban on the use of the sealant.

We have now sent a letter to members living in or near those municipalities to offer our support to get the sealant banned in their community. If you did not receive a letter and would like to work with us to protect the public from this hazard, please contact us ASAP.

The sealant is known to be a serious health threat because it contains polycyclic aromatic hydrocarbons or PAHs. **According to the Army Corps of Engineers, children living near surfaces treated with this sealant have a 13-fold increased risk of developing certain cancers, and a lifetime exposure can result in a 38-fold higher risk of cancer.**

Working with local governments to ban the use of the sealant is a top priority for CWAC this summer. It is imperative that we act to protect our children in schools, daycare centers, churches, and apartment complexes where there is asphalt pavement. Green Bay, De Pere, Sturgeon Bay, and other communities along the lakeshore have already done so.



Contact us to help get a ban passed in your community. Click this link for a slide presentation on the topic: <https://www.youtube.com/watch?v=0xjvileDHg&feature=youtu.be>

Photo courtesy of U.S. Geological Survey

The Petitions to the EPA for The Safe Drinking Water Act.

On June 6, CWAC and our partners, represented by Midwest Environmental Advocates met with Region 5 EPA officials to discuss what we still expect the EPA to do to protect drinking water in Kewaunee County. Member Lynn Utesch, a county resident, told the EPA that they need to conduct an investigation, which they have never done. Robert Kaplan, EPA Region 5 council stated the EPA reviewed all relevant records from 2014-2016. We pointed out that leaves the last six years not investigated as it should be.

An additional ask was for people with contaminated wells. We requested that the EPA work with the DNR to provide multiple water kiosks, and for water to be delivered to people unable to haul water due to their physical limitations. Another meeting will be held soon to follow up with our requests.

CWAC Monitors for Plowing Violations.

We will resume monitoring this summer with the use of a drone to find violations where cultivation occurred within five feet of a stream bank. Close cultivation creates a greater risk of soil and nutrients entering the watershed and finding their way to Green Bay and Lake Michigan.

By reporting previous violations, we helped bring about several 35' conservation easements, which provide significant protection to those waterways.

Educational Efforts in the Community

Warmer, Wetter, and Wilder. Anticipated Effects of Climate Change on Door County, Green Bay, and Lake Michigan with Bart De Stasio

CWAC is pleased to be co-sponsor of this event to be held at Crossroads at Big Creek, Sturgeon Bay, June 24 at 7 PM.

Presentations Regarding Using Local, State, and Federal Laws to Protect the Waters of NE WI.

A presentation was given on April 5 to UW-Green Bay Lifelong Learning Institute members on April 24 and to members of the Lakeshore Unitarian Church. A presentation is scheduled for the UW-Manitowoc LLI members on September 8.

Food Waste Composting Education to Reduce Organics in Our Landfills.



We ordered 36 composters for this year and received donations to place seven at schools, daycare centers, or community gardens. So far, composters have been set up at Fort Howard, Elmore, Chappell, Southwest, and Lombardi schools in Green Bay. Contact us if you would like one for your school.

Fort Howard Elementary School gardeners pose with new composter.

Food waste composters, as pictured below, are available for purchase at the office for \$60. We still have a few remaining. Keep your food waste out of our landfills and make a useful soil amendment. We also offer composting workshops for groups. In April board member John Hermanson gave presentations to a group at UWGB and at the Leadership Green Bay Environment event. Executive Director Dean Hoegger taught high students at the Teen Leadership Day event about the need to keep organics out of our landfills. Contact us to schedule a food waste composting workshop. They usually are less than one hour long.

These Presentations Are Available from CWAC

Here is a list of current presentations that can be given in-person or via Zoom. Call or email us for scheduling. The presentations can be tailored to your group's geographic location, age, and available time. Also, contact us if you would like us to promote or co-sponsor your event or presentation.

- Citizen Action to Protect the Waters of Northeast Wisconsin
- Using Local, State, and Federal Laws to Protect the Waters of Northeast Wisconsin
- Communities on the Road to Zero Waste
- The Health Hazards of Burn Barrels
- The Health and Quality of Life Hazards from Manure Spraying
- The Health Threat from Coal Tar Pavement Sealants
- Micro-plastic Pollution from Clothing
- Food Waste Composting Made Easy

Newsletter Outreach

The Spring newsletter, Using Local, State, and Federal Laws to Protect the Waters of Northeast Wisconsin was sent to 550 members in March. There are a limited number of printed fall, winter and spring newsletters remaining if you would like to distribute them to a friend, group, or organization. Newsletters are also available on our website at: <https://www.cleanwateractioncouncil.org/newsletter/>

Get Our Weekly Update by Email

Each Tuesday we email the CWAC Weekly Update with Actions, Permits, Jobs, Events, In the News Updates, and Resources. Send us your information by Monday evening for posting the following day. 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 a member and getting more than one Update, let us know and we will fix that.

If you are reading this newsletter as a non-member, email us at contact@cleanwateractioncouncil.org to be placed on the free *Weekly Update* mailing list. Emails are sent via BCC to protect your privacy.

Fall Health Forum to Focus on Breast Cancer.

We are moving forward with planning for our fall conference, *Breast Cancer: Prevention, Early Detection, and Advances in Treatment*. We have one or two confirmed speakers from the Silent Spring Institute who will share the latest research on the environmental links to breast cancer. We expect to hold the conference on a Saturday in October. We are seeking business or member sponsors at the \$500 level and higher for this conference.

Also, contact us if you have suggestions for topics or speakers for other health forums.

Outreach through Newspaper and Radio

CWAC sends press releases to local media, and we are often contacted to comment on developing environmental issues.

Website Updates

Past newsletter issues can be found on the website as well as updated articles and additional resources at <https://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 are pleased to have Zea Miller and Gracyn Holcomb as our summer semester interns.

We are thankful for the 2022 intern scholarships provided by Marge and Ken Bukowski and Carl Hardtke of Windows of Wisconsin. Contact us if you would like to learn more about sponsoring a student intern.

Attendance at Conferences and Meetings with Other Environmental Groups

We attended many of the biweekly meetings with the No Back 40 Mine group and monthly meetings with directors of other state environmental groups.

Board member Dave Verhagen represented CWAC at the first meeting of the Federal Implementation Coalition, which is a loose affiliation of groups working to ensure that Wisconsin makes the best investments in clean water, clean energy, and transportation infrastructure with the federal funding coming to our state. He will continue to represent us at future meetings.

CWAC's Non-Profit Status

To learn more about our non-profit status and financials, go to the Wisconsin Department of Financial Institutions, Credential Lookup, and then go to Credential Search for Clean Water Action Council (<https://www.wdfi.org/ice/berg/Registration/Financials.aspx?chid=933009&h=1122515367>)

Citizen Complaints

Many of our more extensive actions, some requiring legal work, resulted from a follow-up of citizen complaints. Keep us in mind if you have an environmental concern, and our support is needed.

Meet Our Interns

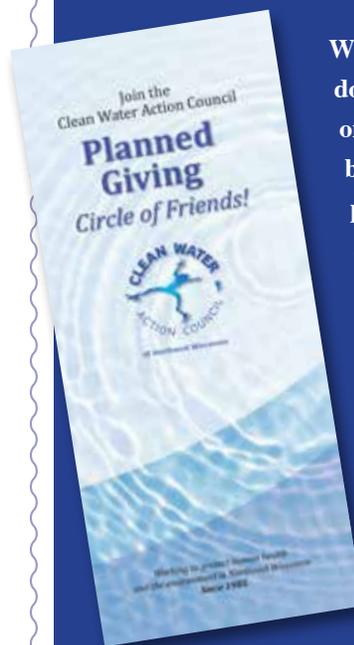


Zea Miller is a third-year student at the University of Wisconsin-Green Bay, double-majoring in Environmental Policy and Planning (emphasis in Policy) and Political Science, and minoring in Global Studies. Her hobbies include reading, taking walks on the Cofrin Arboretum trails on-campus, and keeping up-to-date on political news. Her internship with Clean Water Action Council has opened doors for her to explore her interests in water resource management and policy.



Gracyn Holcomb is an undergraduate student entering her junior year of college at the University of Wisconsin - Green Bay. She graduated from Preble High School and is interested in continuing her education by going to law school. She is obtaining a double major in Democracy and Justice Studies with an emphasis in Criminal Justice, and Political Science. Her passion surrounding environmental sustainability, climate change, and other environmental issues sparks interest in possibly pursuing a career in environmental law.

Join Our Planned Giving Circle of Friends



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*



Please follow us on Facebook.
Click here for our page: [Facebook](#)

EVENTS**June 24, 7 PM – 8:30 PM****Warmer, Wetter, Wilder: Climate Change Effects in Door County**

Crossroads at Big Creek, 2041 Michigan St., Sturgeon Bay

Bart De Stasio, Ph.D., professor of biology and environmental studies at Lawrence University, will explain projections for climate change in Door County and discuss the effects on the county's ecology and surrounding waters in Green Bay and Lake Michigan. These will include more intense rainfall, more and larger algae blooms, an expanded "dead zone" in Green Bay and consequences for fish and other aquatic life. He'll also explain how resilience and adaptability strategies can make a difference for our future. The program is free and open to the public. For more information visit: <https://www.climatechangedoorcounty.com/upcoming-events/bart-de-stasio>

June 25, 12:00 PM – 4:00 PM**Elements: WATER Exhibition Last Day**

The Art Garage, 1400 Cedar St., Green Bay

WATER is the element of constant movement. It takes on several forms: it can flow like a river, be rigid like ice, hot and bubbling, swirling and dangerous, or stagnant and sludgy. Water is fluid, having no shape of its own, but rather takes on the shape of what contains it or of the earth below it. Our bodies contain around 60% of water. In many ancient cultures, water was considered the center of life and held a divine energy. Water covers around 70% of the planet. Whatever it is, water retains its mystery and fascination. For more information visit: https://www.facebook.com/events/319336540308091/319336546974757/?active_tab=about

June 26, 8:00 AM – 12:00 PM**Fond Du Lac County Breakfast on the Farm**

Dodger Acres, W10734 Schmoltd Rd., Rosendale

This annual event hosted by Envision Greater Fond du Lac Agri-Business Council and Envision Greater Fond du Lac is open to the public. Guests can expect to engage in family-friendly farm activities, a home cooked breakfast, and potential barn and farm tours.

July 16 or July 17, 9:00 AM – 5:00 PM**A one-day, in-person session at the Field Station**

Fishes of Wisconsin

Wisconsin is home to 147 native species of fishes, ranging from parasitic lampreys to colorful darters to majestic pikes and prehistoric sturgeons. This workshop will present the breadth of fish diversity in southeast Wisconsin, with an emphasis on the taxonomy and ecology of our native fishes, as well as how to identify them. The class will cover the basics of fish taxonomy and anatomy, as well as some basic fish biology. The field session will offer opportunities to learn how to capture fishes safely and effectively in the wild; to learn "on-site" identification of fishes in the field; and opportunities for further discussions about the ecology and evolution of fishes. Students should come prepared to get wet and/or muddy! Register: <https://uwm.edu/field-station/fishes-of-wisconsin/>

July 23, 12:00 PM – 6:00 PM**Opposition to the Back Forty Mine: A Water Celebration**

499 Bridge St., Marinette

Sponsored by: The Coalition to SAVE the Menominee River, Inc., <https://jointherivercoalition.org/>

Join the Coalition to Save the Menominee River to show your support against the Back Forty Mine. Featuring a special Menominee Indigenous blessing of the Menominee River, special guest speaker Dr. Al Gedicks on pollution threats the water, music, a "foxy" raffle, and the Interstate Bridge Walk from Stephenson Island to Menominee, Michigan, and back.

August 1, 5:00 PM – 8:00 PM**Feast with the Beast**

NEW Zoo, 4378 Reforestation Rd, Green Bay

Enjoy food and drinks from Northeastern Wisconsin's best food & beverage vendors! For more information visit: <https://newzoo.org/event/feast-with-the-beasts>

August 4, 9:30-11:30 AM**Land & Water Conservation Committee Meeting**

Green Bay County Courthouse board room, 1016 16th Ave.

Meetings are held monthly on the first Thursday of the month, after the first Wednesday. They are open to the public. Discuss current issues with the Green County LWCD. For more information visit: https://greencountywcd.com/event/land-water-conservation-committee-meeting/?instance_id=266

August 5 or 6, 9:00 AM – 5:00 PM**A one-day, in-person session at the Field Station**

Plant-Insect Interactions

Plants have both beneficial and antagonistic relationships with insects: they rely on insects for pollination but also must contend with the numerous insects trying to eat them. This course will examine the interactions between plants and their insect pollinators and herbivores. We will survey the major groups of pollinators and herbivores and discuss plant strategies for attracting pollinators and coping with herbivory. We will also cover carnivorous plants – a case where the tables are turned on herbivorous insects! The in-person field session will include time in the field observing plants and insects. Register here: <https://uwm.edu/field-station/plant-insect-interactions/>

September 23, 7:30 PM – 9:30 PM**Nature at Night**

Lower Parking Lot, 324 Baird Creek Rd, Green Bay

Join the Baird Creek Preservation Foundation to celebrate Land Trust Days with an event in the Baird Creek Greenway that highlights nature at night! Hike leaders will talk about and share any sightings of bats, owls, constellations and more! Come enjoy nature under the stars!

Register here: <https://www.eventbrite.com/e/nature-at-night-tickets-345091607287?aff=ebdsoporgprofile>

Thank you! ...to the many donors who made the spring banquet and fundraiser a success!

- | | | | |
|--|-----------------------------|-------------------------------|----------------------------|
| 5th and Jefferson | Curt Anderson | Koko's Sushi | Plae Bistro |
| Algoma Florist | Danielle Brosig | Lake Michigan Wind & Sun | Poh's Corner Pub |
| Ahnapee Brewery | Dave Verhagen & Sher Brandl | Ledgestone Vineyards | Riesa Liebergen |
| AMO Gallery & Framery | DC Candle Company | Linda Swanson | Robert Schmidt |
| Andy & Kim Wallander | DC Kayak | Lion's Mouth Bookstore | Seroogy's Chocolates |
| Andy Waterman | Denny's Supervalu | Longhorn Steakhouse | Sister Claudette Jeanquart |
| Angela Lensen Gallery | Door County Eye Associates | Luna Café | Stadium View |
| Antonio Natural Healing | Dorothy Summers | Luxembourg-Casco Students | Starboard Brewery |
| Associated Bank | Dos Cominos | Luxemburg Pharmacy | Starbucks |
| Automobile Gallery | Ellen Levenhagen | Madison Avenue Market | Sumedha Ghate |
| Badger State Brewery | Festival Foods | Margaret Lockwood Gallery | Susie Vania |
| Badger Sports Park | Firehouse Subs | Margarita's of Green Bay | Tattoo Shop |
| Bay Area Yoga | Florence & Don Banaszak | Marge & Ken Bukowski | Ted Treska |
| Ben Larsen | Foxy Pedaler | Mark Kolinski | Terry Auger |
| Beach Harbor Resort | Fresh Thyme Grocery | Maritime Museum | The Art Garage |
| Beerntsen's Candies | Green Bay 7Up | Mick & Marilyn Sagarillo | The Turn |
| Believe It Ltd | Green Bay Botanical Gardens | Milwaukee Admirals | Tom Guerts |
| Bella Luna | Green Bay Olive Oil Co. | Milwaukee Brewers | True Value Hardware |
| Bike Hub | Green Bay Packers | Milwaukee World Festival | Village Grill |
| Birch Creek Music Performing Arts Center | Greg & Therese Campbell | Moe's | Village Roasters Coffee |
| Bev Watkins | Happy Joe's Pizza | Monticello on Jefferson | Von Stiehl Winery |
| Board & Brush | Happy Way | Nature's Edge Photography | Wander Springs Golf |
| Bob Platten & Gina Martin | Hoegger Pottery | Neville Public Museum | Waterfront Mary's |
| Booyah Baseball (Green Bay Rockers) | Holy Smokes | North Shore Bank | White Lace Inn |
| Brown County Conservation Alliance | Jeanne Marie Khuns | Oilerie | Wilson's Restaurant |
| Buffalo Wild Wings | Jersey Mike's | Olive Garden | Wisconsin Timber Rattlers |
| Caffe Tlazo | Jim Olson Motors | Olson Dental | Woodman's |
| Captain's Walk Winery | Judith Rybicki | Packerland Chiropractic | Yardstick |
| Carol Pearson | Kavarna Coffee House | Passion About Hair | Yipes-Joyce Fritz |
| Casco 1 Stop | Kick Coffee | Parallel 44 Vineyard & Winery | Young Automotive |
| Charlie & Katherine Frisk | Kim's Krafts | PCM Credit Union | |
| Cultivate Taste Tea Co. | Kochen Chiropractic | Peninsula Players | |

PUBLIC EVENT

Warmer, Wetter, and Wilder

Anticipated Effects of Climate Change on Door County and Green Bay, Lake Michigan

with Bart De Stasio



Bart De Stasio, Ph.D., professor of biology & environmental studies at Lawrence University will discuss the climate impacts on Lake Michigan and the consequences for fish and other aquatic life. Resilience and adaptability will be key to making a difference.

For more information please visit: climatechangedoorcounty.com/upcoming-events

Friday, June 24

7 pm

Crossroads at Big Creek
2041 Michigan St
Sturgeon Bay

hosted by



in partnership with



BE PART OF THE PACKERS GAME DAY EXCITEMENT!

We are seeking volunteers for our Packers' game day concession stands. We end sales when the fourth quarter starts and are out by the end of the game. And now they have added a European Soccer Match to the Lambeau events on July 23.

Other games include:

TBD Family Night

August 19, 7 PM Saints pre-season

Sept. 18, 7:30 PM Chicago Bears

October 2, 3:25 PM Patriots

October 16, 12 PM Jets

Last season we had a fun time, connected with fans about our work, and earned \$9000!

[Email us with Packers' Concessions in the subject line for more information.](#)

* JOB POSTING *

CWAC Seeks New Executive Director

Applications Being Accepted

The Clean Water Action Council of NE Wisconsin is seeking a new Executive Director. The current director will be stepping down to accept the position of Director of Community Education and will provide guidance to the new hire. This half-time position with flexible hours offers the opportunity to guide the organization, founded in 1985, into the next decade. Work at the UW-Green Bay office with college interns, board members, and volunteer members to carry out the mission of protecting human health and the environment in NE Wisconsin. Help determine priority issues and actions with this well-established organization.

For a complete job description, salary, and application instructions, send an email to contact@cleanwateractioncouncil.org with Director's Job Description in the subject line.

All positions will remain open until filled.

 Thank you!

Thank you 2022 Intern Sponsors
Marge & Ken Bukowski
Windows of Wisconsin
Thomas and Elaine Delsart

Contact us if you would like to be an intern sponsor.

Thank you to **Jessica Bradley**
for rent support.

Have you renewed your membership?

*See your newsletter label or email
notice which indicates the last year
that you donated.*

* JOB POSTING *

CWAC is offering an office manager position of 8 hours per week at the UWGB office.

Applications Being Accepted

Work with the Executive Director to handle the business side of operating our nonprofit. Pay bills, complete reports to the board, and maintain records. Assist with conferences, presentations, and scheduling events. Maintain contacts with members, the CWAC Board of Directors, and help supervise interns.

For a complete job description, salary, and application instructions, send an email to contact@cleanwateractioncouncil.org with Director's Job Description in the subject line.

All positions will remain open until filled.

Food and Yard Waste Composters Available

The composter features a locking lid, two doors for removing compost, and comes in two sections plus the lid for easy transport, set up, and take down. It can easily be moved to a new garden location. Made from a sturdy sun absorbing plastic, they have been in operation in Northeast Wisconsin for over a decade.

A limited number of composters will be available from CWAC this summer. Help the environment and produce your own soil amendment by composting your food and yard waste.



ORDER NOW to reserve your composter and pick it up at New Leaf's Garden Blitz on Saturday, May 14th.

The units are \$60 and can be purchased with a credit card at: [Donate \(paypal.com\)](https://www.paypal.com) You will receive a receipt and confirmation by email.

Any composter questions?

Email: contact@cleanwateractioncouncil.org
Or call 920-421-8885.

Join or Renew Your Membership to Clean Water Action Council for 2022!

Renewal New Member Date _____

() \$25 Individual () \$35 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) _____

Address _____

City _____ State _____ Zip _____

Phone _____

E-mail _____

Receive FREE newsletters with each membership.

Please choose one...

Printed version E-mailed version

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!***

Office location:
A307 MAC Hall, UW-Green Bay
2420 Nicolet Drive
Green Bay, WI 54311

www.cleanwateractioncouncil.org



Find us on [Facebook](#) or updates on hearings
and current or upcoming events.

The newsletter, "Clean Water Action Council of N.E. WI" is published quarterly by
the Clean Water Action Council of Northeast Wisconsin, Inc., P.O. Box 9144, Green Bay, WI
54308, a registered non-profit charitable, educational organization.
Contributions may be tax-deductible.

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*If you leave us a message, we will try
to get back to you within 24 hours.*

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By e-mail:

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of Northeast Wisconsin

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Don't miss it!

**Warmer, Wetter and Wilder:
Climate Change Effects
in NE Wisconsin**

June 24 in Sturgeon Bay

(see pages 16 & 17 for more information)

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- **Think Global, Act Local — How Local Governments are Responding to Climate Change**

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- **Agriculture and Its Effects on Our Climate**

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