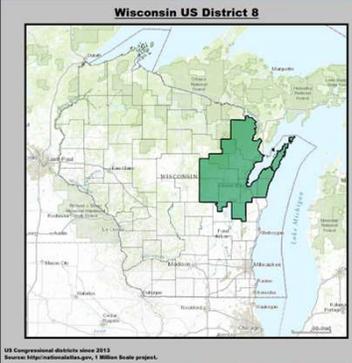


Save the Bay
Northeast Wisconsin
A Water Quality Initiative Led By
U.S. Congressman Mike Gallagher (WI-8)



U.S. HOUSE OF REPRESENTATIVES

Images: left photo credit: PM; right: <http://nationalatlas.gov>

Notes: Mike Gallagher is the U.S. Congressman for Wisconsin's 8th District, which includes counties of Door, Kewaunee, Brown, Calumet, Outagamie, Oconto, Marinette, Menominee, Shawano, Waupaca and a small portion of Winnebago.



Images: Left photo credit: The Nature Conservancy

<https://cigl.seas.umich.edu/opportunities/summits-working-groups/green-bay-summit/>

Right: http://mymonthwiththelake.blogspot.com/2015_05_03_archive.html

8th District includes the Bay of Green Bay, which drains into Lake Michigan.

The Lake Michigan Basin covers one-fourth of the Wisconsin's land area and all of its 8th Congressional District.

The Fox-Wolf is one of three main tributaries to Lake Michigan; the other two are the Grand and Kalamazoo in Michigan.

Northeast Wisconsin

“Our character is shaped not only by our traditions of kindness and decency, but also by our land.

From our rivers and streams, to our forests and rich farmland, the natural abundance of Northeast Wisconsin shapes and defines who we are as a people.”

- Congressman Mike Gallagher




Slide quote: Gallagher, 4 Dec 2017 ; photo credit: PM

*“Perhaps most significantly, we are home to the largest freshwater system in the world: the Great Lakes. These waters are tied directly to **1.4 million jobs**, including the tourism industry that sustains many of our coastal communities. The lakes give **drinking water to 40 million people each day** and provide water for our crops that feed people around the world.”*

(Gallagher, 4 Dec 2017)

Lake MI alone provides drinking water to 10 million people each day.

The 8th District is known for its

1. manufacturing – ships, paper products, metal fabrication, hi-tech, etc.
2. agriculture, dairy and food processing industries
3. tourism and recreation – fishing, camping, etc. and Green Bay Packers



Image: <https://www.wisconsinacademy.org/blog/waters-wisconsin/taking-water-challenges-proper-scale>

But even paradise has its problems.

This image taken in Oct. 1999 shows the immense scale of the algal bloom where the Fox River empties into the bay.

Pollution and water quality concerns in the bay have been documented and studied since the 1920s.

According to the Green Bay Metropolitan Sewerage District, the number of days of low oxygen levels (5 mg/ltr) have increased from 13.5/year between 1986 and 1995 to 32.4/year for 2007-2013. Dead zones (<2 mg/liter) increased from 3.5 days to 14.5 days.



Left photo credit: PM. Right photo credit: Steve Seilo (acquired from Val Klump)

The photos tell the story: over abundance of phosphorus and suspended solids in the waterways and bay.

The science behind it:

When sediment and nutrients wash into waterways, crops suffer and excess phosphorus feeds algal blooms, creating dead zones* that kill fish and destroy ecosystems. These ecosystems are vital to agriculture, manufacturing and tourism—critical economic drivers in our communities.

*Dead zone refers to a low oxygen (hypoxia) pool that stresses aquatic life. Dead zones occur when algae that grows near the surface dies and sinks to the bottom. As algae decomposes, oxygen is consumed. If algae consumption is excessive, a cold zone becomes a "dead zone" because cold zone organisms without air bladders have difficulty leaving the impacted areas and suffocate. The greater the expanse of algae, the greater the risk for hypoxic pools. Phosphorus, which is prevalent in manure, plants and other sources, feeds algal blooms.

**Save the Bay
Its Beginnings**

In 2015 Congressman Gallagher's predecessor Reid Ribble brought stakeholders together to discuss water quality concerns in the bay and Lake Michigan. Rep. Mike Gallagher is continuing the initiative.



Former Rep. Reid Ribble hosts a field day on conservation farming strategies.



Photo credit: PM

A homeowner on Lake Winnebago, former congressman Reid Ribble witnessed the decline in water quality firsthand. He used his congressional “power to convene” to host a phosphorus summit early in 2015. The overwhelming response to the summit prompted him to initiate conversations on how to turn the tide and reduce runoff of sediment and excess nutrients. He set the tone early on to focus on solutions; finger pointing and assigning blame never entered into the discussion.

Congressman Gallagher is continuing the initiative and is confident those involved will work together toward solutions.

Quote from Congressman Gallagher:

“Lake Michigan does not just belong to us—it belongs to future generations as well. It’s our duty to ensure that those who live in our communities long after we are gone will continue to enjoy the lands and waters, which have given so much to our families and communities. This is why I was honored to inherit the Save the Bay initiative from my predecessor, Reid Ribble. I know that there is still plenty of work before us. But as long as we keep working together, I believe Save the Bay will be successful in building a viable community that achieves clean water and sustains a healthy Lake Michigan.”

Save the Bay
Why Agriculture?

- ▶ Rainstorms and weather events can wash topsoil from the agricultural landscape.
- ▶ Nutrients in topsoil, e.g., phosphorus, feed algal blooms, which if excessive, increases risks to humans and aquatic life.
- ▶ Healthy soils improve infiltration and reduce runoff, leaving the landscape less vulnerable to weather extremes, such as drought, windstorms and torrential rains.



Photo credit: PM

While phosphorus comes from many sources, Northeast Wisconsin's rural landscape is considered to be a major contributor to the phosphorus levels in river and lakes. Point sources are regulated; nonpoint sources, such as agriculture, are not. Initially the *Save the Bay* team looked for "low-hanging fruit" that most growers could adopt to reduce runoff. As conversations continued, it became evident this is a systemic problem that needs a systemic solution.

Science has revealed healthy soils and improved infiltration can reduce sediment and phosphorus loss from farm fields. Healthy soils absorb and hold nutrients more effectively than compacted soils. Liken soil to a sponge. A new sponge can absorb water, whereas an overused and worn-out sponge cannot.

Poorly managed, overworked soils are hard, compact and lacking the microbial activity that can draw up nutrients and retain water. Conversely, healthy soils retain water, allowing uptake of nutrients to plants and reducing runoff of phosphorus and contaminants.

There is no one quick fix or silver bullet to reduce runoff. Variability of weather patterns and soil composition have compounded the problem in that what works for one field may not work for the next.

Save the Bay
Its Vision

A viable community that works toward clean water and sustains a healthy Lake Michigan.



Photo credit: PM

As improving water quality in NE WI is a complex problem, the *Save the Bay* team agreed a stated mission and vision would provide clarity and continuity going forward.

Save the Bay Its Mission

A Northeast WI collaborative initiative in which agriculture, academia, industry, government and nonprofit leaders identify, share and promote conservation practices to reduce phosphorus, nitrogen and sediment flowing into the waters of Green Bay and Lake Michigan.



Greg Nettekoven, (*center*) a member of the Fox Demo Farm Network, shares cover crop strategies

Photo credit: PM

Our team — comprised of stakeholders from agriculture, businesses, academia, local government and nonprofits — meets regularly to find ways to reduce excess runoff of phosphorus, nitrogen and sediment.

The team include producers, agronomists, scientists, county conservationists, implement dealers, and representatives from DNR, DATCP, USGS, NRCS, Farm Service Agency, Farm Bureau, Alliance for the Great Lakes, Fox-Wolf Watershed Alliance, Dairy Business Association, Fox and Door/Kewaunee Demo Farms, NEW Water, Green Bay Water Utility, Oneida Nation, Organic Valley, The Nature Conservancy, US Fish & Wildlife, UW-Discovery Farms, UW-Sea Grant, UW-Extension, UW-Green Bay, NWTC, Clean Water Action Council, WI Biogas Council, Pork Producers, chambers of commerce and other stakeholders.

- ▶ Facilitate discussions on best practices for nutrient management and conservation farming
- ▶ Share information on new and retrofitted equipment that builds healthy soil
- ▶ Connect people and resources
- ▶ Host and promote field days and educational opportunities

Save the Bay Its Activities



Ty Larson, USDA-NRCS, updates farmers and agency reps on Upper Fox and Wolf Watershed efforts.



Photo credit: PM

Typical *Save the Bay* meetings involve introductions, updates on conservation activities, sharing new information, identifying impediments and clarifying misinformation.

From the get-go, the **collaboration** among team members has been lauded as one of the strengths of the initiative, connecting people who would not normally have had that opportunity. Those connections have helped elevate conversations on soil health practices... what works, what doesn't, what equipment is available, what equipment is needed... Those connections and those conversations are changing the farming culture from overworking soils to bringing new life to soils!

Per Congressman Gallagher:

"....producers who have invested their time and resources in new soil health practices are encouraged with the results. Demonstration farms in the Lower Fox River basin and in Door and Kewaunee counties have hosted field days throughout the year to share new practices on cover crops, minimum tillage and low-disturbance manure application. Cooperatives, agronomists and other organizations have organized events where farmers can learn about new strategies and potential challenges when implementing conservation practices."

(Gallagher, 4 Dec 2017)

Great Lakes Restoration Initiative (GLRI)

- ▶ GLRI funds support more than 3,000 restoration projects to improve water quality, protect native habitat, clean up environmentally-impaired areas, prevent beach closings and combat invasive species
- ▶ The GLRI-funded Lower Fox Demo Farm Network is the first of its kind in the Great Lakes region! Demo Farms and other GLRI projects in NE WI help educate producers and implement practices to improve water quality.
- ▶ Congressman Mike Gallagher is fighting to ensure GLRI remains fully funded.



Photo credit: PM

The *Save the Bay* initiative provides a forum for an exchange of information on ag, water and environmental policies with Congressman Gallagher. Funding impacts and inefficiencies are also shared.

Early in 2017, when the new administration proposed cutting GLRI funds, Congressman Gallagher was quick to publicly oppose cuts and urged his colleagues to maintain full funding for GLRI.

The Great Lakes Restoration Initiative (GLRI)

- The GLRI is an inter-agency program designed to address the most significant problems in the Great Lakes, and works to protect, restore, and maintain the Great Lakes ecosystem
- In the 7 years that the GLRI has been in place, funds have been used to support more than 3,000 restoration projects

Rep. Gallagher: *“Lake Michigan is one of Northeast Wisconsin’s most treasured assets and we must protect it and all of the Great Lakes through maintaining adequate funding for the GLRI and continuing local partnerships, like Save the Bay. We have a moral obligation to pass on clean water to future generations, and protecting our Great Lakes must be at the forefront of this effort.”*

Rep. Gallagher urged the Office of Management and Budget to fund the GLRI with \$300 million in Fiscal Year 2019. Recognizing the vital role that the GLRI plays in preserving the health of the Great Lakes and economy of the region, Congress has continually provided robust funding for the program. Halting this commitment would reverse years of progress, dramatically reduce the GLRI’s impact, and jeopardize the environmental and economic health of the region.

Save the Bay Its Watersheds

Watersheds have different soils, slopes and inputs. The *Save the Bay* team designated three primary watersheds to analyze practices and allocate resources:

- Upper Fox and Wolf
- Lower Fox
- Door/Kewaunee



The map shows Lake Winnebago with several watersheds highlighted: Wolf (red), Upper Fox (yellow), Lower Fox (blue), Green Bay (white), Door (white), and Kewaunee (green). The text 'L. Winnebago' and 'Figure courtesy of WDNR's Lower Fox River TMDL' is visible at the bottom of the map. A logo for the Wisconsin Department of Natural Resources is in the bottom right corner.

To better focus discussions at meetings, the Save the Bay team split into workgroups based on watersheds. Note: Door/Kewaunee is noted but not shaded on the above map.

Watershed Science: "A watershed is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel...The watershed consists of surface water--lakes, streams, reservoirs, and wetlands--and all the underlying ground water. Larger watersheds contain many smaller watersheds...Watersheds are important because the streamflow and the water quality of a river are affected by things, human-induced or not, happening in the land area "above" the river-outflow point." (Source:

<https://water.usgs.gov/edu/watershed.html>)

Image - 3 Major Basins. Source: <https://fyi.uwex.edu/foxdemofarms/files/2017/01/Watershed-Pictures.jpg>

Actions: Door-Kewaunee Watershed



Jamie Patton talks about soil health with producers at a Door-Kewaunee Demo Farm field day.

- ▶ Encourage cover crop and nutrient management practices
- ▶ Host and promote field days, tours and events
- ▶ Ascertain interest in shared equipment
- ▶ Connect producers with resources



Photo credit: Pauline Meyer

Peninsula Pride Farms, which launched in 2016, and the four Door-Kewaunee Demo Farms, which organized last year, offer a number of opportunities for producers to learn about cover crops and nutrient management practices effective in areas with thin soils and karst topography. With both programs well underway in the watershed, *Save the Bay* helps promote those events via social media and other venues.

Actions: Lower Fox Watershed

- ▶ Share conservation farming practices and innovations quality
- ▶ Expand use of county-shared equipment and identify needs or gaps
- ▶ Analyze fiscal impacts of conservation practices
- ▶ Identify obstacles to implementing new conservation practices



Photo credit: Pauline Meyer

Fox Demo Farms began its GLRI-funded projects and practices on four farms in 2015. Thanks to the hard work of Brent Petersen, Barry Bubolz, the producers and members of the Brown County LCD, more farms have officially signed on, and others have adopted conservation practices. Brown County has plans to fund another demo farm, bringing the total number in the Lower Fox to 8. Demo farms have proven to be invaluable in sharing interest and promoting interest in conservation practices.

At *Save the Bay* meetings, Demo Farm successes, setbacks and wishlists are shared.

Actions: Upper Fox / Wolf Watershed

- ▶ Promote cover crops, manure management and minimum tillage
- ▶ Share equipment and identify needs and gaps
- ▶ Develop a soil-health baseline to compare future monitoring results
- ▶ Share info on legacy phosphorus in the Winnebago Pools system



Photo credit: PM

Upper Fox and Wolf areas are hoping to see demo farms organized in the next year or two. The Bear Lake Watershed plan in Waupaca has been drafted. Producers are considering implementing conservation farming practices.

Save the Bay
Potential Impact

- ▶ Improved soil health results in reduced sediment loss.
- ▶ Improved soil biology could result in lower costs in field management.
- ▶ Water monitoring results are pending, but visuals comparing runoff from fields with and without cover crops show stark contrasts.



Run-off from a cover crop field on the left compared to run-off from a conventionally tilled field on the right.
(Photo credit Brent Petersen)



Photo credit: Brent Petersen, Fox Demo Farms Network

Variable weather patterns, soil composition and other factors affect results. Water quality monitoring takes time, but there is evidence that certain practices are reducing runoff.

As many factors are beyond our control, we must recognize this isn't a straightforward progression. [Ex. Sometimes rain is good, but it can also exacerbate problems. So a grade might be a C one year, a B the next, and back to a C again.]

"While it won't happen overnight, widespread use of these practices, coordinated with the many efforts by other industries and concerned citizens, can help turn the tide for the impaired waters in our area." (Gallagher, 4 Dec 2017)

Progress thus far:

Three field days with 50-80 people attending each event

Media attention to promote public awareness – elevating the importance of the issue and informing the public about the efforts underway by farmers and ag affiliates

Social media shout-outs to promote awareness and event, and to keep up the momentum

Save the Bay inspired the creation of a charitable fund for the community and industry to support conservation farming practices

Save the Bay Next Steps

Focus on Priorities:

- ▶ Innovative Equipment
- ▶ Research and Monitoring
- ▶ Best Management Practices
- ▶ Programs and Policies that Support Solutions

Promote Other Efforts:

- ▶ Demo Farms
- ▶ Farmer-led groups such as Peninsula Pride Farms
- ▶ Farmer Roundtables




Photo credit: PM

Continue to focus on watershed priorities

Support efforts in neighboring communities and watersheds

Agricultural Research and Monitoring

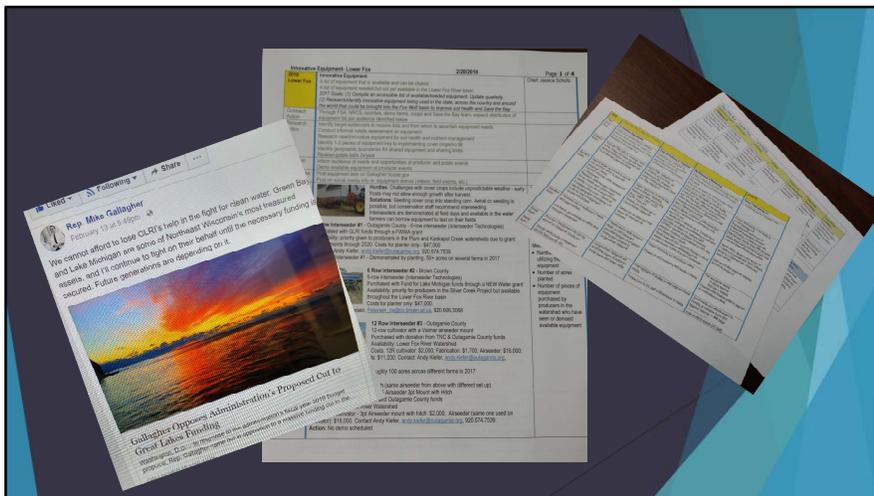
- Analyze fiscal and water quality impact of conservation practices
- Share water monitoring results from paired fields

Education

- Convey info on grants and programs to implement experimental practices
- Discuss impediments and misinformation with soil health, tillage and nutrient management
- Share updates on conversation activities in counties and watersheds

Community Outreach

- Enlist communities to support producers, conservationists, agronomists and vested partners in adopting new practices on tillage, cover crops, nutrient management
- Share equipment needs



“We have a moral obligation to pass on clean water to future generations, and protecting our Great Lakes must be at the forefront of this effort.”

Congressman Mike Gallagher



Rep. Gallagher invites the full *Save the Bay* team of 125+ people to meet with him two to three times during the year.



Photo credit: PM

Why is *Save the Bay* unique?

1. Regional Collaboration – Most efforts focus on one watershed. This initiative promotes conversations about shared concerns on different watersheds.
2. The Team – Education and support for farmers to adopt conservation practices are key to achieving the *Save the Bay* mission. That said, at *Save the Bay* meetings, farmers who participate have opportunity to ask questions of agency representatives and vice versa. By providing a forum in which people who don't normally have opportunity to connect and build positive relationships, *Save the Bay* can help bridge problems and find solutions to obstacles growers face when implementing conservation practices.
3. The commitment of a policy maker and respected Member of Congress to stand up for Northeast Wisconsin and preserve its waters.

Rep. Gallagher: *“Lake Michigan is one of Northeast Wisconsin’s most treasured assets and we must protect it and all of the Great Lakes through maintaining adequate funding for the GLRI and continuing local partnerships, like Save the Bay. We work hard every day to, in our own small way, hold the line and leave our little part of the world better than we found it.”*
(Gallagher, 4 Dec 2017)



U.S. Congressman Mike Gallagher (WI-8)

For more information call 920.903.9806
or visit www.Gallagher.house.gov



Photo credit: PM