

S. HRG. 119–413

HEARING EXAMINING RESTORATION EFFORTS IN THE GREAT LAKES REGION

HEARING BEFORE THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE ONE HUNDRED NINETEENTH CONGRESS SECOND SESSION APRIL 15, 2026

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED NINETEENTH CONGRESS

SECOND SESSION

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HEARING EXAMINING RESTORATION EFFORTS IN THE GREAT LAKES REGION

WEDNESDAY, APRIL 15, 2026

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m. in room 562, Dirksen Senate Office Building, Hon. Shelley Moore Capito (chairman of the committee) presiding.

Present: Senators Capito, Whitehouse, Husted.

OPENING STATEMENT OF HON. SHELLEY MOORE CAPITO, U.S. SENATOR FROM THE STATE OF WEST VIRGINIA

Senator CAPITO. Good morning, everybody. It is nice to be here. It is a busy day on Capitol Hill, so we will have members coming in and out. Thank you all for being here. We very much appreciate it.

We are going to discuss a priority of Senator Husted, who should be here in a few minutes, the value of Federal efforts to restore the Great Lakes. I mentioned, I do not have the Great Lakes in my State, but we have a lot of great lakes.

The health of the Great Lakes is important for achieving our Nation's environmental, public health and economic goals. Together, the five lakes make up the largest system of fresh surface water in the world and are a critical habitat for countless species. They also provide clean drinking water to millions of people in the United States and in Canada.

The region and the Country's economies significantly benefit from the use of the Great Lakes to transport goods, the reliable supply of water for industrial and agricultural purposes and opportunities for tourism and recreational activities. These broad benefits are directly enhanced from efforts to protect and restore the Great Lakes.

Great Lakes restoration efforts have been underway for decades. President Bush first established the Great Lakes Interagency Task Force by Executive Order in 2004.

Restoration efforts are implemented through various Federal, State, local and private organizations, as well as through cooperative efforts with Canada. One of those key programs is the Great Lakes Restoration Initiative, or GLRI.

Congress created the GLRI in 2015 as a non-regulatory program to carry out restoration projects that may include ecosystem and habitat restoration, water quality improvement, education and research and local capacity building.

The GLRI seeks to achieve these outcomes by minimizing and mitigating toxic substances, invasive species and non-point source pollution, as well as improving habitat and species management and laying the foundation for future restoration efforts.

The Environmental Protection Agency leads the implementation and administration of the GLRI program and chairs the Great Lakes Interagency Task Force, which is made up of 16 different Federal agencies. Importantly, the 16 Federal GLRI agencies work closely with the eight Great Lakes States, 35 Great Lakes tribes, local governments, universities and private partners to work to advance long-term restoration goals.

The current authorization for the GLRI is set to expire at the end of September. Senator Husted and Senator Peters introduced S. 528, the GLRI Act of 2025, to reauthorize the program.

As the EPW Committee considers this legislation, this hearing is an opportunity to hear from stakeholders about what has been working well, how the initiative has protected the environment, natural resources and public health, as well as enabled economic development in the region.

Today's witnesses can provide insights on opportunities to improve the initiative to ensure that Federal resources are utilized for the most meaningful purposes. I look forward to learning about how the Federal Government partners with State and local governments who best understand how to prioritize and address the needs in their own backyards.

With that, I will now recognize Senator Whitehouse for his opening statement.

**OPENING STATEMENT OF HON. SHELDON WHITEHOUSE,
U.S. SENATOR FROM THE STATE OF RHODE ISLAND**

Senator WHITEHOUSE. Thank you, Madam Chair. I appreciate your convening today's hearing on Great Lakes coastal restoration. I am sympathetic to Senator Husted's desire for funding to protect Great Lakes coastal ecosystems. All our coastal areas, some fresh, some salty, are in dire need of added resources and protection.

I highlight this issue time and again when agencies come before us, the U.S. Army Corps, Fish and Wildlife Service, EPA, and others. Every coastal member of the Senate knows all too well that the Federal Government severely underfunds our coasts.

Coastal counties contribute so much to our economy, \$10 trillion in goods and services annually, and have 40 percent of the U.S. population. Coasts face worsening challenges from storms, sea level rise, excess heat, and acidification. Yet, we under-invest in coastal resources. Upland and inland ecosystems get far more attention and money.

For example, the Land and Water Conservation Fund, which I call the Inland and Upland Water Conservation Fund, receives \$900 million annually, much funded, ironically, by offshore energy leases. When the Great American Outdoors Act was passed, making the \$900 million mandatory, I was promised that coastal funding would get its day. That day never comes.

The Land and Water Conservation Fund does great work, including in my home State of Rhode Island, but it shortchanges oceans and coasts.

Instead of trying to get coasts a larger slice of the Land and Water Conservation Fund pie, taking it from inland and upland work, I have tried to make the whole conservation pie bigger. I created the National Coastal Resilience Fund as a little sibling to the Land and Water Conservation Fund, specifically to focus on coasts.

The fund invests in coastal marshes and wetlands, dunes and beach systems, oyster and coral reefs, coastal forests, rivers and flood plains, and barrier islands, resources that protect property, infrastructure, and fisheries from storms, sea level rise, and other dangers. Several of its grants have gone to the Great Lakes region.

Dr. Holly Bamford of the National Fish and Wildlife Foundation, which administers that fund, can tell us more, including how many projects they have to turn away because it is so underfunded. One smart solution would be to fund the coastal fund through offshore wind leases, just like how the Land and Water Conservation fund is funded with offshore drilling leases. I would gladly welcome members to join me in that bipartisan effort.

I will also flag the bipartisan Oceans Caucus, which Senator Murkowski and I founded in 2011, to draw attention to our coastal resources, economies and the jobs they support. It includes the Great Lakes, with Wisconsin Senator Baldwin serving as my Democratic co-chair. Back in the day, even Jim Inhofe, of very non-coastal Oklahoma, helped on our coastal work.

The GLRI is a fine program. In improving our coastal performance, we should take inspiration from an old adage, and lift all boats. Thank you.

Senator CAPITO. Thank you. I appreciate that.

I will now turn it over to Senator Husted, who has joined us, for his opening remarks and to introduce our first two witnesses.

Senator Husted, you are recognized.

**OPENING STATEMENT OF HON. JON HUSTED,
U.S. SENATOR FROM THE STATE OF OHIO**

Senator HUSTED. Thank you, Chairman Capito. It is great to be here with several Ohioans today. I appreciate your holding the hearing on the Great Lakes. It means a lot to the residents of the Great Lakes States, and certainly to Ohio, and to me personally.

Thank you to the witnesses for being here. I look forward to the discussion of how Congress can continue to protect the Great Lakes and talk about how a successful public partnership with the Great Lakes Restoration Initiative can be undertaken.

As a member of the Great Lakes Task Force, as well as the only member of this committee that represents a Great Lakes State, I take representing the region very seriously. Promoting good policy and programs are an important part of that.

When I was Lieutenant Governor of the State of Ohio, I worked with our Governor, Governor DeWine, and Director Mary Mertz, who is here today, to protect Lake Erie. We even participated in the Fish Ohio Day together, which I think I won a couple of years, just saying.

I want to thank Director Mertz for being here, and for her leadership of the Ohio Department of Natural Resources. Director Mertz previously chaired the Great Lakes Commission, a bi-national body that coordinated restoration policy, making her an ex-

pert on the Great Lakes and what restoration implementation actually means.

I also would like to thank Dr. Winslow for testifying today. Dr. Winslow directs the Ohio Sea Grant and Stone Laboratory at the Ohio State University College, which has been studying the lake for over 150 years. I also know that the rocky areas around it are a good place to go smallmouth bass fishing.

[Laughter.]

Senator HUSTED. Those are some personal reflections.

His research on Lake Erie and Aquatic Research Network, LEARN, has a direct connection to GLRI, and I know Dr. Winslow will be able to speak about what is successful and effective about the Great Lakes Restoration Initiative and the work that we can continue to do to improve the Great Lakes.

The Great Lakes are an environmental and economic asset for the United States and Canada. The lakes fuel a \$6 trillion regional economy and hold 90 percent of the U.S. supply of surface fresh water, and provide drinking water to more than 40 million people. More than 1.5 million U.S. jobs are directly connected to the Great Lakes, and those jobs generate \$62 billion in wages annually.

I have said this before, it is no secret, that Lake Erie is one of my favorite places to fish and spend time. Ohio has some of the best walleye fishing in the world. I think we call ourselves the Walleye Capital of the World there in Port Clinton.

I also led the Great Lakes Fishery Reauthorization Act, which was signed into law by President Trump in December of last year. Thank you, Chairman, and all the members for supporting that. Healthy fisheries mean healthy ecosystems and healthy ecosystems mean healthy economies. I firmly believe that.

The Great Lakes fishing industry supports tens of thousands of jobs and contributes billions of dollars to our regional economy. We must stay vigilant against invasive species. I will reiterate that: we must stay vigilant against invasive species, which pose a constant and serious threat to the Great Lakes ecosystem. We have had those threats before. We have effectively responded to it, but we must remain ever-vigilant.

Harmful algae blooms are also a threat to drinking water and tourism and the local economies that rely on healthy Great Lakes. Many communities depend on it.

I mentioned the invasive species threat and the drinking water threat, two things that we collectively could do something about. It is why the Great Lakes Restoration Initiative is important. It is why it should be, I will continue to fight for its reauthorization and it remains an important Federal commitment to the Great Lakes, the water, the communities, the States, and our quality of life.

Thank you very much for being here today. I want to introduce two witnesses, if I could. First of all, Mary Mertz, Director of the Department of Natural Resources in the State of Ohio, ODNR. Mary was the first Assistant Attorney General under Attorney General Mike DeWine, where she oversaw both the legal and administrative operations of the office.

She has extensive legal experience in both private and public sectors. Prior to her appointment at the Attorney General's office, Director Mertz practiced law at a large multinational law firm. Direc-

tor Mertz also served as the chief of staff to Mike DeWine when he was Lieutenant Governor, and as the legislative director for Congressman Bob McEwen and the Office of Legislative Affairs in the White House as well, and worked with the Ohio Department of Natural Resources while working under then-Governor George Voinovich.

Director Mertz is an avid sailor, outdoorsperson, and has great knowledge of the topic that we are here to discuss today. Thank you, Director Mertz.

I will also, while I have a moment, I will introduce Christopher Winslow, Ph.D., Director of the Ohio Sea Grant Program, Ohio State University. He coordinates the Ohio Sea Grant Great Lakes Research Initiatives with agencies and universities as well as assists in research curriculum development and student recruitment at the Ohio State University Stone Laboratory here.

He earned his doctorate at Bowling Green State University with research focusing on interaction between native smallmouth bass and invasive round goby, both of which, one I enjoy catching, the other I enjoy getting rid of when they take my bait when they should not do that. One is invasive, one is a trophy, right?

Thank you both for being here today.

Senator CAPITO. Thank you, Senator Husted. Thank you for your passion on the Great Lakes.

We will start with Dr. Mertz. Thank you, and welcome.

**STATEMENT OF MARY MERTZ, DIRECTOR,
OHIO DEPARTMENT OF NATURAL RESOURCES**

Ms. MERTZ. Thank you so much.

Good morning, Chairman Capito, Ranking Member Whitehouse and Senator Husted. I am really pleased to join you today.

I serve currently as Director of the Ohio Department of Natural Resources and as a commissioner of and head of the Ohio delegation to the Great Lakes Commission, where I served as chairman from 2023 to 2025. I really appreciate the opportunity to be here to talk about the Great Lakes.

The Great Lakes are one of America's strategic assets. The lakes hold 20 percent of the earth's surface fresh water. That is an incredible asset. I repeat some of the statistics that Senator Husted just offered, because they are worth repeating.

Drinking water for 40 million people, a \$6 trillion regional economy, and in Ohio, Lake Erie is one of our most valuable natural resources. Tourism, recreation, shipping contribute tens of billions of dollars in economic value for our State.

We truly believe it is vital that we take care of Lake Erie and the rest of the Great Lakes so that generations beyond our own can continue to benefit as we have.

We are extraordinarily grateful that Congress created the Great Lakes Restoration Initiative to protect this really important resource. The program is a powerful tool to combat the threats that are laid out in law to fight toxic substances that foul the waters, invasive species that threaten our fisheries, non-point source pollution that introduces new pollutants to our waters and habitat degradation that damages our wildlife populations and recreation.

Today, I want to share just three quick examples of how we use Federal GLRI dollars in Ohio to address these challenges and how they are actually making a difference on the ground. First, one of the biggest challenges facing Lake Erie are harmful algal blooms, which are fed by phosphorus. This algae does not just make ugly green water; it is toxic and harmful to humans. Lake Erie is especially vulnerable to harmful algal blooms.

The problem is so important to us in Ohio that we are investing significant State dollars through our H2Ohio program, which was created by then-Lieutenant Governor Husted and Governor DeWine. We do not just expect the Federal Government to solve our problems.

Using both Federal GLRI dollars and State H2Ohio dollars, we worked with the Toledo-Lucas County Port Authority to essentially rebuild two islands in the Maumee River, one of the greatest contributors of phosphorus, just miles from the shores of Lake Erie.

I think there is a picture to show of the Clark and Delaware/Horseshoe Islands. We took these islands, the two small islands there, that is a before picture, invested \$13 million, \$5.5 million of GLRI, over \$8 million of State dollars, and we can go onto the after picture.

Why did we do this? This is an effort to reduce the flow of phosphorus into Lake Erie. These islands were rebuilt with diversion mechanisms and wetlands that will filter the phosphorus. It is a unique design to slow down the water. They are also designed to prevent further erosion along the river banks, another source of phosphorus. As a side benefit, offers incredible wildlife habitat.

This has been a win-win, all the way around, State-Federal partnership, working together to solve problems, invest money in something that is working.

Second example involves keeping invasive carp out of the Great Lakes. We know these carp threaten to decimate the abundant fisheries in Lake Erie. Together with the U.S. Army Corps of Engineers, we identified waterway connections in Ohio where we thought carp could possibly overflow the shores and advance to Lake Erie.

We identified four of these connection points. Two were of medium risk. We used GLRI dollars to sever those potential connections. We would buildup berms with dirt and sheet pile and rock-filled cages and installed screens, all in an effort to keep the dangerous carp out of Lake Erie and protect our fisheries.

For the grass carp that are already in the Great Lakes, which are also damaging, we have implemented targeted fish removals, using a combination of electro-fishing, gill nets, and these efforts so far have protected our valuable fisheries. We see this investment making a difference.

My third and final example involves the use of GLRI funds to help the next generation care about, frankly, fall in love with, our Great Lakes and our precious water resources. We have a program called Students Take Action. We focus on middle and high school kids. We try to get them on the water, teach them why it is important, what they can do to protect it. Fourteen thousand students have been involved in these events, paddling events, demonstrations, hands-on activity. We want them to care as well.

I see my red light is on, so in conclusion, again, thank you. I hope that the Senate will reauthorize the program. We see its value every single day. Thank you for the opportunity to testify.
[The prepared statement of Ms. Mertz follows:]



**Department of
Natural Resources**
ohiodnr.gov

Mike DeWine, Governor
Jim Tressel, Lt. Governor
Mary Mertz, Director

WRITTEN TESTIMONY OF

Mary Mertz
Director, Ohio Department of Natural Resources
State of Ohio, Columbus, Ohio

BEFORE THE U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
Hearing: Examining Restoration Efforts in the Great Lakes Region

April 15, 2026
Washington, D.C.

Good morning, Chairman Capito, Ranking Member Whitehouse, and members of the Senate Environment and Public Works Committee. My name is Mary Mertz, and I am the Director of the Ohio Department of Natural Resources (ODNR). In addition to my capacity as Director, I serve as a Commissioner and head of the Ohio delegation to the Great Lakes Commission, and served as Chair of the Commission from 2023-2025. I am pleased to be here with you to discuss the importance of the Great Lakes, Lake Erie, and the Great Lakes Restoration Initiative (GLRI) to the state of Ohio.

The Ohio Department of Natural Resources is a large and diverse state agency. Consisting of ten divisions that employ almost 2,600 men and women at the height of our busy season, our staff and properties can be found in all 88 counties of Ohio. Along the Lake Erie shoreline we have 11 state parks, seven nature preserves, and 240 employees. ODNR comprises a big part of the Lake Erie community. We are on the ground to see its joys and flaws, hear the complaints and praise, and it is a priority to address its biggest challenges and preserve it for the future.

The Great Lakes are one of America's greatest strategic assets. Holding 20 percent of the Earth's fresh surface water, the lakes provide drinking water to 40 million people and support a \$6 trillion regional economy. Between the Great Lakes support of a shipping economy, priceless recreational opportunities, habitat for important land and water species, and drinking water, the Great Lakes have proven they are invaluable and deserving of protection and improvement.

And Lake Erie is one of the most valuable natural resources in Ohio. According to the National Oceanic and Atmospheric Administration (NOAA), nearly 10.5 million Americans live along Lake Erie. Only Lake Michigan has a greater population of Americans living near its shores. It is also the warmest and shallowest of the Great Lakes, at an average depth of 62 feet, which is about 1/5 the

height of the U.S. Capitol building. It is also one of the most developed shorelines, and those features make Lake Erie particularly sensitive to any negative impacts within its watershed.

Eight Ohio commercial ports contribute to a robust shipping industry on Lake Erie, with ships transporting commodities like coal, sand, gravel, grain, iron, steel, and much more. Maritime shipping operations on the lake handle more than 35 million tons of cargo annually, generating more than 31,000 jobs and over \$6.5 billion in economic activity.¹ Capital investments for ports, terminals, and waterway infrastructure since 2018 total nearly \$1.4 billion.²

In addition to shipping, Lake Erie is an immensely popular recreational destination for tourists – boaters, hunters, and anglers from across the country come to Lake Erie each year. The recreational and tourism industry alone supports 127,000 Ohio jobs and generates over \$20 billion in economic activity.³ The recreational boating industry alone provides almost 20,000 jobs with an annual economic impact of \$5.4 billion statewide.⁴

Along with phenomenal boating opportunities, Lake Erie provides tremendous fishing for walleye, yellow perch, smallmouth bass and many other species of fish. It is known as the Walleye Capital of the World, boasting the best walleye fishing in North America, attracting anglers from all over. Hunting opportunities in the region are also very popular, especially duck hunting. These opportunities attract 2.2 million hunters and anglers annually, who spend \$7.4 billion and support over 45,000 jobs.⁵

Because of its impact on Ohio, it is vital we take care of Lake Erie so generations beyond our own can continue to benefit. Recognizing the importance of Lake Erie, and the entire Great Lakes system, we are extraordinarily grateful that Congress created the Great Lakes Restoration Initiative to protect this most important resource. Without clean, fresh water in our lakes, none of what I highlighted earlier is possible.

¹ American Great Lakes Ports Association - <https://www.greatlakesports.org/wp-content/uploads/2024/03/GreatLakesFS-Ohio-jan2024.pdf>

² Martin Associates, “Infrastructure Investment Survey of the Great lakes and St. Lawrence Seaway System,” December 2023: https://www.greatlakesports.org/wp-content/uploads/2024/03/AGLPA_InfrastructureInvestmentSurvey_EN_Dec4-A.pdf

³ Tourism Economics, “The Economic Impact of Tourism in the Lake Region of Ohio,” June 2018: https://ohiotravel.org/aws/OHTRV/asset_manager/get_file/266481?ver=0

⁴ National Marine Manufacturers Association 2023 Economic Impact Study: [file:///C:/Users/10200209/Downloads/Ohio%20Marine%20Economic%20Impact%20\(1\).pdf](file:///C:/Users/10200209/Downloads/Ohio%20Marine%20Economic%20Impact%20(1).pdf)

⁵ Ohio Division of Wildlife, “Participation Levels in and Economic Contributions from Outdoor Recreation in Ohio,” 2023: <https://dam.assets.ohio.gov/image/upload/ohiodnr.gov/documents/wildlife/general/OH%202023%20Participation%20and%20Expenditures%20Report%202023%2010%2006.pdf>

GLRI and the fight to protect Lake Erie

The Great Lakes Restoration Initiative is a powerful tool for federal agencies, Ohio and local entities to combat the biggest threats to Lake Erie, including those challenges outlined in statute:

- Toxic substances;
- Aquatic invasive species such as invasive carp, sea lamprey and zebra mussels;
- Habitat degradation;
- Nonpoint source pollution, that contributes to problems like Harmful Algal Blooms; and
- Educating the public on Great Lakes issues and solutions.

I'd like to share a few examples of how we have used GLRI in Ohio, and why it is important.

Harmful Algal Blooms

First, one of the biggest challenges facing Lake Erie are Harmful Algal Blooms (HABs) – this algae is not just ugly green water, it is toxic and harmful to humans. We have been very focused on solving this problem in Ohio, because Lake Erie is especially vulnerable compared to the other Great Lakes.

And this is an example where we do not expect only the federal government to solve the problem – Ohio is investing its own money on these efforts as well. GLRI is used as a force multiplier in Ohio via the state-funded H2Ohio program. This program is the signature water quality initiative of Governor Mike DeWine, instituted in 2019 to reduce phosphorous in the Lake Erie watershed and across the state.

The example I would like to share involves GLRI and H2Ohio working together toward the restoration of the Clark and Delaware/Horseshoe Islands in the Maumee River. The Maumee is the largest watershed of any river feeding the Great Lakes in the US or Canada. It is also one of the greatest contributors of phosphorous to Lake Erie, and phosphorus feeds harmful algal blooms. ODNR and the Toledo-Lucas County Port Authority worked together on this project, which essentially rebuilt two islands with a very unique design.

The restoration work uses the two islands to divert water through wetlands that act as a filter for the phosphorous and sediment heading toward Lake Erie. The GLRI contributed \$5.9 million in funding and H2Ohio contributed over \$8 million.

By installing rock and inner channel reef barriers around and within the islands' original footprint, the project created ideal conditions for sediment capture as water flows down the Maumee River into Lake Erie. Coves were also contoured with varying depths, providing areas with suitable habitat for fish and

freshwater mussels at different water levels. This project is the largest known habitat restoration investment in the Maumee River.

Along with water quality improvements, the restored islands reduce wave strength through that portion of the Maumee River, resulting in reduced erosion along the riverbank (also a source of phosphorous), a more resilient habitat for fish and wildlife, and enhanced recreational opportunities.

Today, the restored Clark Island is now 10.8 acres, only 40% of its 1940s footprint, and the Delaware/Horseshoe Islands are now 2.8 acres. This is a fantastic success story on how state and federal governments programs can cooperate to achieve improved water quality in the Lake Erie watershed. Figure 1 and 2 at the end of this testimony show the before and after version of the island restoration project.

This is just one of many natural infrastructure projects that we have undertaken with GLRI funding. And the data shows dissolved reactive phosphorous flowing into Lake Erie is decreasing. My colleague from The Ohio State University, Chris Winslow, can speak to his independent evaluation that shows the success we are seeing in Lake Erie with these projects.

Invasive Species

Second, I want to share with you how we have used federal funding to fight invasive species. One of the biggest threats to the Great Lakes are invasive bighead, silver, and grass carp. These species threaten to decimate our abundant fisheries by outcompeting native fish and reducing aquatic vegetation important for native fish and waterfowl.

The US Army Corps of Engineers identified waterway connections between the Mississippi River and Great Lakes Basins where invasive carp could advance to the Great Lakes. In Ohio, four connection points were identified – two as low risk and two as medium risk (Figure 3).

The medium risk points identified as needing action are at Little Killbuck Creek in Lodi, Ohio, and the Ohio Erie Canal in Akron, Ohio. ODNR has used funding from GLRI to sever access through these pathways by raising the elevation between the watersheds to the 100-year flood risk plus one-foot elevation using berms, sheet pile, and gabion baskets (rock filled cages). In the case of the Ohio Erie Canal, we also installed actual screens to prevent invasive carp movement into the Lake Erie watershed (Figure 4). Ohio has taken this proactive approach to close these connections prior to the carp's eventual presence at these locations.

ODNR is also using GLRI funds to eliminate grass carp that are currently reproducing in the western basin of Lake Erie in the Maumee and Sandusky rivers (Figure 5). We are working to eradicate this population through targeted fish removal using a combination of electrofishing and gill nets. This

work is in collaboration with the Michigan Department of Natural Resources, Great Lakes Fishery Commission (GLFC), University of Toledo, US Fish and Wildlife Service, and US Geological Service. Early indications are that the population is shrinking, and continued efforts could eliminate them from Lake Erie following the *Lake Erie Grass Carp Adaptive Response Strategy 2024-2028* (GLFC 2023).

We are also focused on controlling and removing invasive plant species, including hydrilla, which are highly invasive, vine-like weeds that grow in the water. These plants can overtake lakes, while negatively impacting native fish and recreation (Figure 6). Through GLRI funding, we are searching inland lakes in the Lake Erie watershed for invasive plants and eradicating known populations.

Why do we do this? Because, without action, these invasive species can become the dominant plant in a waterbody in as little as three years. Current control efforts are at Springfield Lake in Akron, Ohio (Lake Erie Watershed) and at Mosquito and Pymatuning lakes (just outside the Lake Erie Watershed) because they pose a threat to Lake Erie (Figure 7). We are also educating the public about how human activity can cause further spread, such as moving boats from one lake to another, and providing prevention techniques through signage at boat ramps and participation in the Great Lakes Landing Blitz which is a basin wide campaign to educate the public on invasive plants and how they can help.

Third and finally, we use GLRI funds to engage with middle and high school students in the Lake Erie watershed through the Students Take Action program. The goal of the program is to help the next generation care about, and fall in love with, our precious water resource in Lake Erie. We get kids out on the water, teach them why it is important and what they can do to protect it.

Since the inception of the program during the 2021-2022 school year, the program engaged nearly 14,000 students at more than 100 different Ohio schools or educational organizations from 31 counties. Dedicated staff have provided nearly 200 in-school presentations, 100 field trips, and 37 educational kayaking trips. Staff also engages with the general public, reaching nearly 49,000 people.

Students engage in real world learning opportunities, access wetland sites, learn about career opportunities, and more. They get hands-on experience of what our professionals do every day, including:

- Demonstrations with the University of Toledo to discuss invasive grass carp and their impact on our wetlands.
- Trash pickups at various wetland locations
- Partnering with the Toledo Zoo & Aquarium on their population monitoring program of the state-threatened Blanding's turtles.

These opportunities open doors for the next generation of conservationists to further our progress on water quality and habitat protection at Lake Erie. Figure 8 and 9 at the end of this testimony showcases students participating in some of the activities they participated in as part of this program.

The Future

We are thrilled with what has been accomplished with GLRI dollars, and I hope you can see how it has made a real difference. I hope the Senate will reauthorize the program, and I also hope you will consider some adjustments for the future Great Lakes Restoration Initiative, including:

- 1) More autonomy for states to decide which projects should be funded, for efficiency purposes. The states are closer to the issues, know their shorelines, and have a good perspective on the biggest challenges we need to solve. Block grants for competitive dollars should be considered, so states can apply their knowledge and deploy these dollars where they know they are needed the most.
- 2) Better transparency on the use of money awarded to federal agencies by US EPA. I am confident federal agencies are deploying these dollars in effective and productive ways. However, states do not typically know how they spend GLRI dollars. If states have greater insight into their decisions and know what projects they are funding, states could make complementary decisions on their own projects.
- 3) Start the process to change focus areas for funding. These priorities were set in 2011, and we have learned more about how to solve complex problems that transcend specific focus areas. And we have made progress in some areas, such as delisting some Areas of Concern. Now, new challenges are arising and GLRI priorities and funding must be flexible enough to respond to these evolving challenges.

Conclusion

GLRI is vital for the health of Lake Erie and the Great Lakes system as a whole. Ensuring high water quality is not only critical for public health, but also for our economy, and our very way of life. I am thankful for the leadership of Senator Husted, and this committee, in recognizing the importance of this program and I encourage the Senate to reauthorize the GLRI and pass S. 528, the Great Lakes Restoration Initiative Act.

Thank you for the opportunity to testify today to discuss this important resource for Ohio. I am happy to answer any questions you may have.

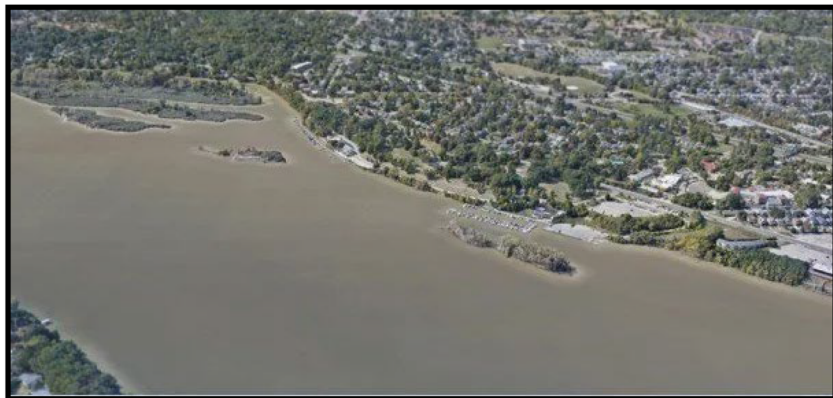


Figure 1: Clark and Delaware/Horseshoe Islands before restoration efforts.



Figure 2: Clark and Horseshoe/Delaware Islands after restoration efforts.

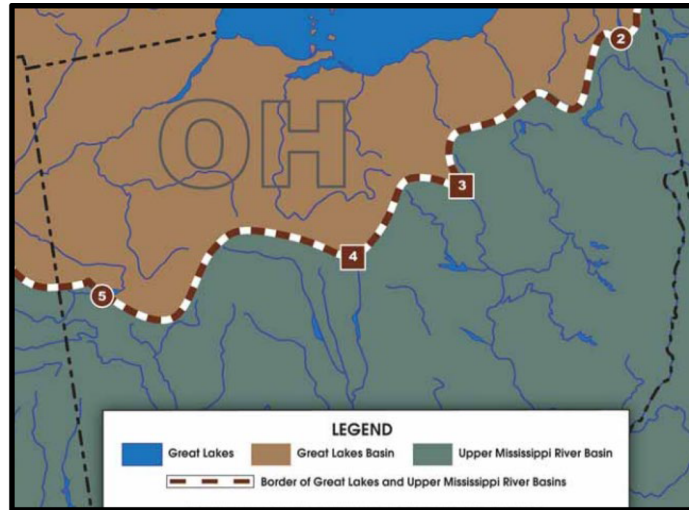


Figure 3: Map of Bighead and Silver Carp connection points

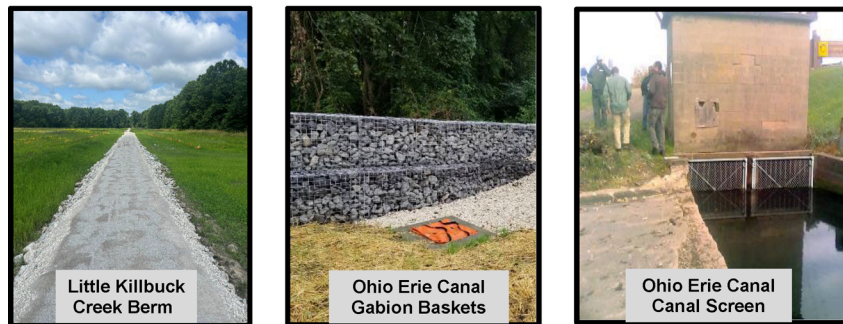


Figure 4: GLRI projects to sever access of Bighead and Silver Carp to connection points



Figure 5: Grass Carp Removal Effort on the Sandusky River.



Figure 6: Hydrilla infestation in the Lake Erie watershed



Figure 7: Hydrilla surveying in the Lake Erie watershed



Figure 8: Students from Clay High School participating in Blanding's Turtle Monitoring at Magee Marsh Wildlife Area as part of the Students Take Action Program



Figure 9: Sentinel Career Center students participating in invasive species removal at East Harbor State Park, in collaboration with US Fish and Wildlife Service, as part of the Students Take Action program.





Senator CAPITO. Thank you, Dr. Mertz.

Now, we will ask Dr. Winslow for his opening statement. You are recognized.

**STATEMENT OF CHRISTOPHER WINSLOW, PH.D., DIRECTOR,
OHIO SEA GRANT AND STONE LABORATORY AT THE OHIO
STATE UNIVERSITY COLLEGE OF FOOD, AGRICULTURE, AND
ENVIRONMENTAL SCIENCES' SCHOOL OF ENVIRONMENT
AND NATURAL RESOURCES**

Mr. WINSLOW. Thank you very much. Thank you, Chair Capito, Ranking Member Whitehouse, Senator Husted, and members of the committee.

Thank you for this opportunity for both written and oral testimony. I wear two hats, as was introduced. I am the Director of the Ohio Sea Grant Program, a National Oceanic Atmospheric Administration (NOAA), funded and supported program that is based at Ohio State University. I also direct the Ohio State University Stone Laboratory, which falls under the College of Food, Agriculture, and Environmental Sciences.

In these roles, I spend most of my time at the intersection between applied research, community needs on our coast, and the implementation both of remediation and restoration projects. I have seen first-hand what this Federal program of GLRI does and how it translates into real outcomes.

I want to begin my remarks with something we always see in restoration efforts, is that you cannot have long-term economic growth in the Great Lakes without a healthy ecosystem. The Great Lakes, as has been mentioned, provide drinking water for millions of individuals, it supports a trillion-dollar economy, but it also sustains industry, communities, and ecosystems that define the Great Lakes region.

GLRI is working. We are seeing it on the ground. It has been touched on; at its core, GLRI focuses on five things: areas of concern, addressing invasive species, tackling non-point pollution, also building habitat that supports fish, the \$5 billion fishing industry in the Great Lakes.

It also monitors the system, to track progress and identify future threats.

I want to come back to the AOCs, or areas of concern. This is one of the clear examples of GLRI working on the ground. It is an effort to revitalize 26 of the most degraded locations in the U.S. waters of the Great Lakes. Eight are actually de-listed now, but there are 16 more to go.

Each of these delistings and the management actions being deployed in those that are not de-listed represent years and years and years of coordination and collaboration. Federal agencies, State agencies, tribal governments, researchers, communities on the ground. When these AOCs are de-listed, there are real outcomes. Waters are now fishable. Shorelines see increased recreation, because the beaches are open longer and the waterfronts are accessible.

We see increased economic activity. The communities that live along these areas see vibrant growth. We see reduced costs of doing business. Our water treatment plants now have to do less treat-

ment, because the water is cleaner than it was historically. We see inland communities, communities that are not on the lake, moving to these areas to use them.

These are not symbolic wins. These are places that the people can use again. They are fishable, they are swimmable, and drinkable.

GLRI is working, but it is not finished. There is more work to be done.

I want to shift to talking about why GLRI works. GLRI is not just about funding projects. It is about supporting a systems approach. Community members engage in the activities that are going to be deployed. There is collaborative planning and implementation, and there is monitoring to adaptively manage these systems and also identify and evaluate.

I see this in Lake Erie, and it has been touched on by Director Mertz, related to harmful algal blooms. Federal agencies, farmers, crop advisors, Sea Grant and Land Grant extension educators are engaged in a systems approach.

We now, through GLRI, and numerous partners, were putting agricultural practitioners on the field that farmers are adopting. They did not know about these practices. They have been taught how these practices work. They are also being subsidized to do these, because these are expensive practices.

Wetlands are being created to stop nutrient runoff. We are seeing which agricultural practices are the biggest bang for the buck.

GLRI supported these efforts, and has helped to reduce nutrient loads to Lake Erie by 8 percent. GLRI works because it aligns people, resources, and expertise toward solutions.

It is a Federal program, but the success is fundamentally local. GLRI is truly a multi-agency coordination. It is not siloed funding. It is intentionally cross-agency, and that is deliberate.

I want to talk about GLRI protecting communities. With our harmful algal blooms, we have had drinking water advisories in Toledo, 500,000 people without access to drinking water for 72 hours. Of GLRI monitoring, forecasting and coordinating, our resource managers are now able to respond earlier to these threats.

This is what success looks like. It is not just restoring ecosystems, but protecting people.

As far as looking ahead, we have been incredibly efficient through GLRI to address the challenges of the past, things like legacy pollution, degraded habitats, and impaired waterways. This work needs to continue.

At the same time, we need to have the opportunity to build on what is working, continue to strengthen, coordination, monitoring, and the research, so that we can better anticipate and respond to future challenges. We all know that an ounce of prevention is worth a pound of cure.

In closing, GLRI works because it connects Federal funding to local action through strong partnerships and clear outcomes. GLRI demonstrates something very, very important, and it is that environmental sustainability and economic growth are not competing priorities. They are fundamentally connected.

This program works. It is worth continuing. I thank you both for your time and all of you for your time, your leadership. I am happy to answer questions when appropriate.

[The prepared statement of Mr. Winslow follows:]

WRITTEN TESTIMONY OF

Dr. Christopher Winslow
Director, Ohio Sea Grant Program
Director, The Ohio State University's Stone Laboratory
The Ohio State University's College of Food, Agriculture, and Environmental Sciences

BEFORE THE U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

Hearing: Examining Restoration Efforts in the Great Lakes Region

April 15, 2026
Washington, D.C.

Chair Capito, Ranking Member Whitehouse, and Members of the Committee on Environment and Public Works: Thank you for the opportunity to provide testimony on the importance of the Great Lakes Restoration Initiative (GLRI). I serve as Director of the Ohio Sea Grant Program based out of Ohio State University. Ohio Sea Grant is one of 34 NOAA funding Sea Grant Programs located in each coastal state. I am also Director of Ohio State University's Stone Laboratory, the College of Food Agricultural and Environmental Resources' island campus on Lake Erie. In short, my work focuses on connecting Great Lakes research with real-world needs across local communities in partnership with decision-makers and state and federal agencies. I spend a great deal of time at the intersection of research, community needs, and on-the-ground implementation of projects, documenting how these efforts translate into real outcomes. Therefore, I feel uniquely qualified to speak to the success of a program that brings federal resources to local communities, and why continued support is vital to maintain the trust and momentum built over the last decade+.

Further, the Great Lakes are one of our nation's most vital natural assets - providing drinking water for tens of millions of people and underpinning a critically important regional economy. The Great Lakes, and the watersheds that feed them, underpin a USD \$3.7 trillion regional economy and a USD \$5 billion sport and commercial fishing industry; provide drinking water, recreational opportunities, and cultural identity to residents of the region and beyond; and sustain a wide range of globally significant ecosystems including forests, marshes, wetlands, dune and aquatic systems. The Great Lakes Restoration Initiative has been instrumental in protecting and restoring this resource (which defines the identity and resilience of the Midwest) and also stands as one of the most effective examples of coordinated federal environmental investment.

With all this in mind, being asked to testify about this hallmark initiative is an honor. GLRI, at its core, supports the following:

- Remediation, restoration, and revitalization to bolster coastal communities' economies and resilience
- The establishment of a broad, interconnected network of experts (agencies, universities, decision makers, etc.) to ensure the growth we've seen thus far continues
- Objective flexibility in funding to adapt to community needs while maintaining core objectives, minimizing mission drift
- The protection and sustainability of one of the world's most precious resources as well as the communities, cultures, and economies that rely on them

It is with firm conviction that GLRI is not only a true success of our federal system, but its continuation is more important now than ever. In the face of water stress, environmental uncertainty, and shifting/movement of US populations, maintaining a flagship initiative like GLRI is an easy win.

GLRI: A Proven Model of Remediation, Restoration, and Revitalization

The Great Lakes Restoration Initiative (GLRI) acts in two interconnected ways: 1. Supporting the remediation, restoration, and revitalization of key urban and industrial centers (called Areas of Concern; AOCs), and 2. Protecting and bolstering the Great Lakes region as a whole against large-scale threats, like invasive species, nutrient pollution, and continued decline in critical habitat. While a majority of GLRI funds are put toward AOC efforts, both parts of the GLRI model rely heavily on partnerships between local communities and state/federal agencies, universities, and decision-makers.

To give a more complete picture of the GLRI model, I want to break down parts more fully.

GLRI – Areas of Concern

GLRI's **Areas of Concern (AOC)** efforts, one of its core missions, are a model for future restoration, access, and economic growth actions that are needed across the country. GLRI has aggressively and efficiently worked to identify and address some of the most environmentally degraded locations in the Great Lakes, which they call AOCs, and are working to improve these locations in partnership with local communities. Across the

basin, there are 43 AOCs, including 26 in the United States, 8 of which have been delisted. The AOC efforts, and largely its successes, are built on three essential pillars:

- **Remediation** – addressing legacy pollution and long-standing environmental damage associated with our industrial past and shoreline communities that have unintentionally impacted the ecosystem that they have lived, worked, and recreated in.
- **Restoration** – rebuilding habitats, ecosystems, and natural processes that have been removed from the system or have been altered and impacted by our human activity.
- **Revitalization** – strengthening coastal economies and bringing communities back to neighborhoods, shorelines and bays that were too blighted and polluted to visit and call home. Simultaneously, growing public trust in federally supported restoration programs.

This integrated three-tiered approach has enabled measurable progress across the basin. Further, each delisting represents years of coordinated effort - federal agencies, state partners, local communities, researchers, and practitioners working together to remove impairments to resource use (e.g., presence of toxic chemicals) and to restore ecosystem attributes that ultimately return these blighted and broken areas to their desired beneficial use (waters that are drinkable, swimmable and fishable).

These are not symbolic victories; they are real outcomes. The USEPA, with many partners, looked across numerous impaired waters to identify common barriers to recreation and economic growth, which are called Beneficial Use Impairments (BUIs). USEPA developed 14 specific, legally recognized BUIs, which are used as standardized markers of success in restoration projects. Funds are used to remediate these impairments to meet local criteria for an area to be considered restored. Instances of success are numerous:

- Rivers in delisted AOCs now sustain fish that are safe to eat. BUIs addressed:
 - Restrictions on fish and wildlife consumption lifted
 - Tainted of fish and wildlife flavor addressed
 - Degraded fish and wildlife populations restored
- Toxic substances removed in delisted AOCs. BUIs addressed:
 - Fish tumors or deformities eliminated
 - Bird and fish reproduction restored
 - Restrictions on dredging activities lifted or reduced
- Restrictions on water use and access are eliminated in delisted AOCs. BUIs addressed:

- Drinking water consumption advisory (based on taste and odor problems) reduced
- Number of beach closings reduced
- Improved aesthetics
- Waterfronts able to support recreational and economic activity. BUI addressed:
 - Communities and businesses are reconnected with their natural resources

Despite the above, hundreds of management actions within AOCs need to be deployed and priority watersheds are still actively trying to address impairments such as contaminated sediments, habitat loss, and degraded water quality. In 2026, six largescale remediation/construction projects are scheduled (the most ever in one calendar year). Further, the fact that many AOCs remain in need of assistance (not delisted) underscores the importance of sustained investment. **GLRI is working - but the work is not finished.**

Beyond AOCs: GLRI's Priorities and Funding are Flexible

In addition to AOC efforts, the GLRI also works to address the following four threats, which extend beyond any single community/area and must be managed at a larger scale to be effective:

- I. **Invasive species impacts and threats**, addressed via:
 - Increasing the number of acres controlled for invasive species to benefit natural habitats and native species.
 - Actions that have significantly protected and promoted recovery of native populations (includes novel propagation techniques, stocking, development of fishery management plans, monitoring, etc.).
 - Numerous efforts to halt the spread and impact of invasive carp (e.g., invasive species “strike teams”, identifying and closing invasives species routes of movement, etc.).
- II. **Non-point pollution impacts** (with emphasis on nutrient runoff), addressed via:
 - Utilization of green infrastructure to decrease the total volume of stormwater runoff entering the Great Lakes.
 - Deployment and monitoring of conservation practice implementation to reduce the pounds of phosphorus entering the Great Lakes.

- Restoring and reconnecting acres of stream buffers and floodplains to treat and hold runoff.
- Nutrient monitoring and assessment activities (again, can't manage, protect, and enhance ecosystems) to adjust practice deployment.
- Supporting farmers looking to adopt conservation practices that are often cost prohibitive: (1) slowing and/or trapping water movement and erosion across farmer acres; (2) applying fertilizers in a manner that reduces risk of nutrient loss; (3) building soil health to hold nutrients and increase yield potential; and (4) deploying nutrient trapping technology.
- Targeting construction and restoration of wetlands within the upper watershed to: (1) trap the nutrients that can drive the harmful algal blooms (HABs) seen in numerous Great Lakes; (2) provide spawning and nursery habitat for commercially, economically, and environmentally important fish species; and (3) recharge groundwater resources.

III. Habitat and species diversity, addressed via:

- Restoring and protecting miles of Great Lakes shoreline, using nature-based solutions not simply hardening shorelines.
- Increasing the miles of biological connectivity available for aquatic species (biological connectivity = intact and ubiquitous in-stream habitat for aquatic species, which improves population size and resilience).
- Protecting and enhancing acres of coastal wetlands and nearshore habitats that are needed to support natural reproduction and survival of larval and juvenile fish.
- Supporting actions that have significantly protected or promoted recovery of populations, including propagation techniques, stocking, development of species management plans, monitoring, etc.)

IV. Adaptive monitoring to predict and prepare for future largescale threats.

Building a foundation for future restoration actions and adaptive management plans. Adaptive management plans developed under the GLRI not only address mistakes/ills of the past (e.g., AOCs, building in floodplains, inefficient water infrastructure, etc.), but will enhance the Great Lakes and their watersheds into the future:

- GLRI monitoring systems are not only improving our understanding of what remediation and restoration activities have worked, but to how to tackle future projects and efforts in an efficient and cost-effective way.

- GLRI has co-deployed interdisciplinary science projects to support GLRI and other Great Lakes wide efforts (e.g., Cooperative Science and Monitoring Initiative, lake-specific priorities identified with Lakewide Action and Management Plans, and the Great Lakes Water Quality Agreement).

GLRI Impact

Much of what I have highlighted thus far are why the model works, but I'd be remiss if I didn't showcase even a few of the many successes this initiative is responsible for. There are numerous reports, factsheets, and community touted achievements to support GLRI that I can provide if needed. Below, I look to the impact at a larger scale.

Protecting Communities: From Response to Prevention

The GLRI model not only supports community and aquatic restoration for the future, GLRI investments are also helping protect communities now. In 2014, harmful algal blooms in Lake Erie left more than 400,000 people in the Toledo region without safe drinking water for approximately 72 hours. NOAA's National Centers for Coastal Ocean Science Annual HABs Forecast was developed and occurs at Ohio State University's Stone Laboratory every year. In addition to projecting the annual bloom size prediction for Lake Erie, Ohio Sea Grant and Stone Lab use this opportunity to highlight recent research findings. The event gathers government and academic researchers to engage face-to-face with elected officials and media outlets and virtually with individuals affected by blooms (e.g., watershed residents, charter captains, small businesses, tourism bureaus, farming community, etc.).

Today, monitoring, forecasting, and coordinated response systems allow water managers to detect and respond to threats earlier - reducing the likelihood of crises at that scale.

Agencies and academics live by the adage, "You cannot manage what you don't monitor and understand." Because of GLRI, and numerous leveraged assets and resources, we can monitor movement of nutrients in the spring to forecast summer harmful algal blooms. We can forecast where blooms are moving to prepare beachgoers and water treatment plant operators so that municipalities can quickly adjust how they treat lake water for human consumption.

This is what success looks like: not just restoring ecosystems, but protecting people.

Federal Investment, Local Impact, and the Power of Partnership

GLRI succeeds not just because of what it funds, but because of how it leverages those funds. GLRI supports a full continuum of action:

1. Developing management plans and implementing management actions tailored to local communities.
2. Community engagement to (1) inform restoration effort decisions (2) build partnerships that often include leveraged funds, and (3) bring people back to once blighted shorelines, rivers and bays.
3. Tracking and verification of progress, largely through monitoring.
4. Transparent measurable outcomes, including AOC delisting.

Further, **GLRI is a federal program - but its success is fundamentally local. These federal investments are translated into action through partnerships across:**

- **Federal agencies (e.g., USEPA, USACE, USFWS, APHIS, BIA, NOAA, USGS, USDA).**
- **State and tribal governments.**
- **University and extension resources.**
- **Local communities and organizations.**
- **Agricultural producers and landowners.**

In my work, I see this most clearly when those groups are aligned - when a farmer, a state agency, and a researcher are all working from the same plan, each bringing a different piece of the solution. This coordination doesn't happen automatically or quickly - it is built over time through trust, shared priorities, and sustained investment.

In Ohio and across the Great Lakes region, GLRI funding works alongside state and federal programs to amplify impact - creating a more efficient and effective use of public resources.

Beyond restoration, remediation, research, and monitoring, GLRI is educating local communities to ensure strong stewardship of this globally important resource and to continue building support and appreciation for future remediation and restoration efforts. GLRI's efforts are:

- Growing the number of Great Lakes literate youth through education and stewardship projects.
- Enrolling farms in demonstration programs so that GLRI-supported management approaches grow via peer-to-peer mentoring.

- Growing the number of people trained through workforce development programs providing the skills needed to enter the Great Lakes environmental restoration and protection workforce and earning vocational certificates in trades aligned with restoration.
- Ensuring that agencies and communities are conveying the risks and benefits of consuming Great Lakes fish, wildlife and harvested plant resources.

This is what makes GLRI unique. It is not just a funding stream; it is a partnership-driven system that delivers tangible and impactful local results at scale.

Looking Ahead: Building on What Works

GLRI was designed to address the environmental challenges of the past - legacy pollution, degraded habitats, and long-standing impairments – with an eye toward the future. This work must continue.

At the same time, a strength of the GLRI is that it continues to build on what works - improving coordination, strengthening monitoring, supporting applied research that informs remediation and restoration best practices, and ensures that investments are targeted where they can have the greatest impact. Maintaining this progress requires a sustained and reliable investment.

The Great Lakes Restoration Initiative is one of the most effective coupled environmental and economic growth programs in the nation. This is not only because of what it has accomplished, but because of how it works. It brings together federal leadership and staff, state support and input, local implementation, scientific expertise, and community partnerships to deliver measurable results.

One recommendation for a GLRI of the future is to increase investments and programming that would help anticipate problems of the future. Much of the work of GLRI is geared toward addressing past Great Lake issues. GLRI, based on who is currently engaged, could also work to anticipate and prepare for issues of the future. This could be accomplished by increasing efforts in the forecasting, monitoring, and applied research spaces.

GLRI continues to demonstrate that environmental sustainability and economic growth are not competing priorities - these are deeply and fundamentally connected.

Continued support for GLRI is essential to:

- Complete the work already underway
- Protect the progress that has been made
- Undertake efforts that still need management activities and monitoring
- Grow science to inform effective remediation and restoration
- Ensure that these investments continue delivering both environmental and economic benefits for the Great Lakes region.

Thank you for the opportunity to testify today, Congresses' investment in a program of critical importance to the Great Lakes, and for your continued leadership. I am happy to answer any questions you may have.

Senator CAPITO. Thank you, Dr. Winslow.

Finally, we will hear from Dr. Holly Bamford, Chief Conservation Officer for the National Fish and Wildlife Foundation. Dr. Bamford has been with her organization for the last decade, and has prior experience working at the National Oceanic and Atmospheric Administration, a Federal agency that is a part of the regional working group that coordinates GLRI restoration activities.

Welcome, Dr. Bamford. Thank you for coming, and we look forward to your testimony.

STATEMENT OF HOLLY BAMFORD, PH.D., CHIEF CONSERVATION OFFICER, NATIONAL FISH AND WILDLIFE FOUNDATION

Ms. BAMFORD. Good morning, and thank you. Chair Capito, Ranking Member Whitehouse and Senator Husted, thank you so much for the opportunity to testify here today on behalf of the National Fish and Wildlife Foundation (NFWF).

Since our establishment by Congress in 1984, NFWF has generated a total conservation impact of more than \$12 billion, reconnecting thousands of miles of streams and restoring millions of acres of habitat. NFWF is proud to be a key implementing partner for three of EPA's geographic programs: the Great Lakes, Chesapeake Bay, and Long Island Sound. These partnerships turn Federal conservation objectives into tangible outcomes by combining Federal funds with State, philanthropic, and private sector resources to enhance their effectiveness.

Complementing our work under EPA's Chesapeake Bay Geographic Program is the Chesapeake WILD program NFWF implements and partners with the Fish and Wildlife Service. Chairman Capito, I want to thank you for your steadfast support of that program. It benefits hunters, anglers and communities throughout the watershed, so thank you.

Across all three geographic programs, NFWF administers a competitive process that is outcome-driven, leverages public investments with non-Federal funding, and directs resources to partners and projects best positioned to deliver durable results. In the Great Lakes region, NFWF has put this model to work, delivering cost-effective, voluntary conservation at a regional scale.

NFWF has been a core GLRI implementing partner since the initiative's inception. Over the past 20 years, NFWF has awarded \$140 million across 530 projects to national organizations like Trout Unlimited and to local champions like the Black Swan Conservancy in Ohio.

The results are significant. More than 2,600 miles of streams have been reconnected for fish passage. That is longer than the Mississippi River. Nearly 60,000 acres of wetlands and upland habitat has been restored for fish and wildlife.

I want to highlight two examples that I think demonstrate the effectiveness of this program. First, in Mentor, Ohio, NFWF awarded four grants over a decade to restore Mentor Marsh on the shores of Lake Erie. The marsh was polluted by salt mines back in the 1960's, turning a vibrant ecosystem into a wall of invasive weeds.

NFWF helped bring the marsh back from the brink. Now, migratory birds flock there by the thousands, frogs are singing, otters are swimming, and the marsh has become a hot spot for birders.

Second, NFWF awarded \$300,000 to Ducks Unlimited to restore 825 acres of coastal wetland in Michigan's St. Clair Flats Wildlife Area. The project increased the population of waterfowl and marsh nesting birds, which have supported hunting opportunities and benefits the local outdoor economy.

These projects are really great examples of how models such as GLRI can generate real-time conservation wins, while also providing long-term funding to keep the momentum going when it counts. Funding stability through GLRI allows partners to plan restoration efforts, coordinate across jurisdictions, tackle conservation challenges, at the watershed scale. It is one of the Nation's strongest examples of how sustained Federal leadership can deliver measurable results at a regional scale.

While progress is clear, the need remains urgent in the Great Lakes; nationwide as well. For example, the National Coastal Resilience Fund, created in 2018, had received more than \$3.8 billion, that is \$3.8 billion in funding requests from coastal communities across the Country. We fund less than 20 percent of that demand, due to funding availability.

The gap between what communities need and what is available is substantial and growing. It reflects a national demand for exactly the kind of nature-based solutions that programs like GLRI and the National Coastal Resilience Fund make possible.

NFWF works closely with partners like NOAA and other Federal agencies to administer the National Coastal Resilience Fund by providing funding for nature-based infrastructure to reduce flooding and protect communities. Senator Whitehouse, I want to thank you for creating the program and entrusting NFWF with its administration.

Restoration is fundamental for conserving fresh water, providing habitat for fish and wildlife, and protecting communities. Through GLRI and the National Coastal Resilience Fund, NFWF's partnership with EPA, the Fish and Wildlife Service, and NOAA, we have a proven model: invest in natural systems that work, leverage Federal dollars for greater impact, and hold ourselves accountable for measurable results.

The need is urgent, and the community that depends on the Great Lakes cannot afford this commitment to weaken. We urge this committee to sustain and strengthen the GLRI.

Chairman Capito, Ranking Member Whitehouse, thank you for your leadership in the programs and the opportunity to testify today. I look forward to your questions.

[The prepared statement of Ms. Bamford follows:]

Written Statement of Dr. Holly Bamford
Chief Conservation Officer, National Fish and Wildlife Foundation
United States Senate Committee on Environment and Public Works
Examining Restoration Efforts in the Great Lakes Region
April 15, 2026, 10:00 AM

Chair Capito, Ranking Member Whitehouse, and distinguished Members of the Committee:

Thank you for the opportunity to testify before this Committee on the Great Lakes Restoration Initiative (GLRI) and the National Fish and Wildlife Foundation's role in delivering conservation outcomes for the Great Lakes region. I am Dr. Holly Bamford, Chief Conservation Officer of the National Fish and Wildlife Foundation (NFWF). I am honored to speak to the vital work our partners are doing on the ground and to the enduring importance of the GLRI as one of the most successful federal conservation programs in our nation's history.

The National Fish and Wildlife Foundation is an independent, congressionally chartered 501(c)(3) nonprofit organization created by bipartisan legislation and signed into law by President Reagan in 1984. Congress established NFWF with a clear purpose: to work with public and private partners to advance practical, voluntary conservation solutions that allow people and nature to thrive together. NFWF is not a federal agency, but we are uniquely authorized by Congress to serve as a bridge between the public and private sectors in service of conservation.

To date, the Foundation has enabled a total conservation impact of more than \$12 billion across more than 23,900 projects nationwide. Last year alone, NFWF awarded more than \$590 million in grants to support more than 800 projects, leveraging more than \$325 million in matching contributions and generating a total conservation impact of more than \$925 million. By leveraging non-federal investment, encouraging voluntary participation, and supporting locally driven solutions, NFWF helps ensure that conservation on public and private lands remains durable, cost-effective, and broadly supported.

NFWF currently works with 13 federal government partners and more than 65 corporate and foundation partners, and funds work across all 50 states, the District of Columbia, Puerto Rico, and the U.S. territories. By blending public and private funding, NFWF makes strategic, landscape-scale investments that complement federal agency missions while respecting local priorities. Ninety-six cents of every federal dollar we receive is spent directly on conservation, and every dollar Congress directly appropriates to NFWF goes to on-the-ground conservation projects. Each of those appropriated federal dollars is matched with at least one non-federal dollar, ensuring a strong return on taxpayer investment.

NFWF also operates with the highest standards of accountability and transparency. We notify Congress in advance of every grant we intend to award that includes more than \$10,000 in federal funds, and all grants are publicly available through our online grants library. Each year, NFWF undergoes an independent audit and has received an unqualified opinion—with no

material weaknesses or deficiencies—for 17 consecutive years. We also consistently qualify as a low-risk auditee under Office of Management and Budget standards.

NFWF's unique statutory role enables us to pool public and private funds in a single grant portfolio, creating program-level leverage that no single federal agency can easily replicate. Through NFWF's competitive grant programs, federal agencies such as the Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), the U.S. Forest Service (USFS), the National Oceanic and Atmospheric Administration (NOAA), and the Natural Resources Conservation Service (NRCS) can combine public and private resources and work with NFWF to direct those pooled funds through a single, coordinated pipeline to the highest-priority conservation projects.

This pooling function is not merely administrative—it is strategic. When multiple funders align behind a shared set of priority outcomes—fish passage, wetland restoration, stormwater management, and coastal security—NFWF's competitive grant process helps ensure that projects are selected for scientific merit, clear and measurable outcomes, and the ability to leverage additional matching contributions from grantees. Every NFWF program encourages grantees to provide matching funds, ensuring that federal investment catalyzes, rather than replaces, non-federal commitment.

NFWF's grant programs are anchored in science-based business plans developed by technical experts and approved by our Board of Directors. Each business plan identifies measurable conservation targets—acres of wetland restored, miles of stream reconnected, gallons of stormwater storage added—against which program outcomes are rigorously tracked. Grantees are required to report on both financial expenditures and biological, ecological, and physical outcomes, and NFWF conducts active grant management throughout each project's lifespan. This commitment to monitoring and evaluation ensures that federal and private dollars are producing real, verifiable results—and that underperforming approaches are corrected or discontinued. In short, NFWF works hand in hand with its funding partners to ensure the American taxpayer sees a strong return on investment.

NFWF and the Great Lakes Restoration Initiative

NFWF has worked with EPA for more than two decades to deploy funding for conservation and water quality improvements. As structured under the Clean Water Act, EPA's Geographic Programs implement large-scale restoration efforts in priority watersheds. NFWF partners with EPA to administer programs within these watersheds—namely the Chesapeake Bay, Long Island Sound, and the Great Lakes. These programs advance water quality through voluntary, on-the-ground restoration activities and support coordinated conservation efforts across federal and state entities. In the last year alone, NFWF provided awards to 122 grantees across these three geographies totaling \$54.6 million in EPA funding for on-the-ground conservation projects. Those funds were supplemented with \$18.1 million in non-federal funds and matched with \$48.9 million, providing a total conservation impact of \$121.6 million across these landscapes.

The Great Lakes are one of the world's most extraordinary natural resources and are the largest of EPA's Geographic Programs. Holding more than 20 percent of the Earth's surface freshwater,

spanning more than 10,000 miles of shoreline, and providing drinking water to tens of millions of Americans, the Great Lakes basin is an ecological and economic treasure of national significance. The basin's vast network of coastal marshes, inland wetlands, and northern forests provide critical services—water filtration, flood storage, nutrient cycling, and habitat for more than 200 globally rare species.

The Great Lakes Restoration Initiative represents the most significant federal investment ever made to protect and restore this ecosystem. NFWF is proud to be a longstanding partner in the GLRI's implementation, administering competitive grant programs that translate federal appropriations into durable, measurable outcomes on the ground across all eight Great Lakes states.

NFWF administers several voluntary grant programs that use GLRI funding as a cornerstone investment, including:

Sustain Our Great Lakes (SOGL): NFWF's flagship habitat restoration grant program for the basin, funded in significant part by GLRI through EPA and USFWS, as well as private partners;

Chi-Cal Rivers Fund: A place-based program focused on improving water quality, restoring habitat, and advancing nature-based solutions in the Chicago-Calumet River system;

Southeast Michigan Program: A place-based program supporting habitat restoration, green infrastructure, and runoff reduction projects in the seven-county region surrounding Detroit;

Conservation Partners Program: A working lands program providing technical assistance to agricultural producers in the Great Lakes Basin to support implementation of voluntary conservation practices; and

Collectively, these programs advance the goals of the GLRI Action Plan IV Focus Areas 2, 3, and 4, including habitat and wildlife protection and restoration, invasive species management, nonpoint source nutrient and sediment reduction, and community resilience.

NFWF's SOGL program is a voluntary public-private partnership designed to sustain, restore, and protect fish, wildlife, and habitat in the basin by leveraging funding, building conservation capacity, and focusing partners and resources on key ecological issues. The program is administered by NFWF in partnership with Cleveland-Cliffs, the Caerus Foundation, the Ralph C. Wilson Jr. Foundation, EPA, USFWS, and USFS.

SOGL awards competitive grants for on-the-ground habitat restoration and enhancement, with priorities aligned directly to the GLRI Action Plan's focus areas: 2) Invasive Species, 3) Nonpoint Source Pollution, and 4) Habitats and Species. Funded activities include stream and riparian habitat restoration, aquatic barrier removal and fish passage improvement, wetland restoration and enhancement, invasive species control, nature-based solutions to reduce flooding and increase stormwater storage, and activation of restored habitats and greenspace.

From 2006 through 2024, SOGL has awarded more than \$142 million across 529 projects. Grantees have matched SOGL's investment with an additional \$180 million in non-federal contributions, bringing the total on-the-ground conservation impact to more than \$323.3

million—a leverage ratio of more than 2:1 on the program's total investment, and substantially higher on the federal GLRI component alone.

Some of the program's most significant cumulative outcomes include:

- More than 2,630 miles of stream reconnected for fish access;
- 58,888 acres of wetland and associated upland habitat restored; and
- 389.7 million gallons of stormwater storage added to protect water quality in Great Lakes communities.

More importantly, these outcomes translate into tangible benefits: brook trout returning to cold-water streams; coastal marshes filtering runoff before it reaches Lake Erie; nature-based infrastructure reducing flood risk for communities across the region; and expanded hunting, fishing, and outdoor recreation opportunities for residents throughout the region.

Over the past few years, NFWF and its partners have awarded significant funding that has contributed greatly toward GLRI's goals. In October 2023, SOGL announced \$17.6 million in competitive grants for 43 projects—the largest single grant slate ever awarded in the program's history. These grants leveraged approximately \$25 million in additional non-federal grantee support, for a total conservation impact of \$42.6 million. The 2023 round funded projects across Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin, with a continued emphasis on stream connectivity, wetland restoration, nature-based solutions to reduce flooding, and invasive species management.

In September 2024, SOGL announced \$13.8 million in competitive grants for 33 projects across seven states—Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. These awards leveraged approximately \$12.1 million in non-federal matching contributions from grantees, generating a total conservation impact of \$25.9 million. Collectively, the 2024 SOGL projects are projected to:

Restore more than 268 miles of stream and riparian habitat.

- Add 43 million gallons of stormwater storage;
- Restore 5,728 acres of wetland and upland habitat;
- Plant 133 acres of trees for stormwater storage and habitat;
- Install more than 1.8 million square feet of green infrastructure; and
- Benefit priority species, including brook trout, lake sturgeon, piping plover, and least bittern.

In 2025, SOGL awarded nearly \$8.7 million in grants to continue support for the program's core priority areas: stream and riparian habitat restoration for species and water quality; nature-based solutions; invasive species control; and activation of previously restored habitats. The 2025 program continues to be administered with EPA, USFWS, and the U.S. Forest Service as key federal partners, ensuring alignment with GLRI Action Plan IV priorities. To demonstrate the

power of the public-private partnership model NFWF implements—and the importance of GLRI’s continued investment in conservation and nature-based solutions—here are a few examples of NFWF projects transforming habitats and communities throughout the basin.

Coastal wetland restoration in Michigan: In 2022, NFWF awarded a \$310,000 grant to Ducks Unlimited (DU) to help restore the St. Clair Flats Wildlife Area—one of the largest, most productive, and biologically diverse freshwater deltas in the United States. The Great Lakes basin has lost more than 50% of its historic wetlands. DU and its partners are restoring 825 acres of coastal wetland within Harsens Island’s East Marsh to help reverse this loss. Once completed, the project will enable Michigan DNR to actively manage water levels across the marsh unit—restoring habitat, controlling invasive species, and protecting the area from increasingly unpredictable Great Lakes water levels and flooding. This investment safeguards a premier state wildlife area, reduces coastal flood risk, strengthens populations of waterfowl and priority marsh-nesting birds such as black tern, supports hunting opportunities, and benefits the local outdoor economy.

Stream restoration in Wisconsin: Northeast Wisconsin contains some of the most intact and thriving cold-water stream systems left in the Great Lakes region, but many are fragmented by aging road crossings, culverts, and other infrastructure that prevents priority fish species, such as brook trout, from moving up and down these streams to spawn. In 2022, NFWF awarded a \$409,000 grant to Trout Unlimited, which was matched with more than \$1,000,000, to remove 11 barriers and reconnect 47 miles of streams that native brook trout depend on to survive. By replacing outdated and undersized culverts on and near the Chequamegon-Nicolet National Forest, this effort restores the natural flow of water, fish, and sediment through critical trout streams. The result is stronger, self-sustaining fisheries, healthier watersheds, and infrastructure that is better prepared for flooding and extreme weather—all on public lands that Americans hunt, fish, and recreate on every year. This grant also delivers long-term benefits for local economies, anglers, and rural communities.

Marsh restoration in Ohio: Ohio, home to the southern shore of Lake Erie—one of the most biologically productive of the five Great Lakes—supports vital coastal wetlands, critical fish habitat, and recreational and commercial fisheries that generate billions of dollars in economic activity. NFWF’s programs have consistently recognized this importance by directing competitive grants to Ohio-based organizations and projects.

A unique example of NFWF’s role in accelerating GLRI goals by providing catalytic, long-term funding to support high-priority restoration actions appears in Ohio on the southern shore of Lake Erie. SOGL has funded a decade-long restoration effort (2015–2026) by the Cleveland Museum of Natural History to revitalize Mentor Marsh—a 765-acre National Natural Landmark. With \$761,000 in total NFWF grant awards and more than \$1.3 million in matching funds, this comprehensive project combats invasive species (primarily *Phragmites*), restores native wetland and swamp forest habitats, and improves marsh hydrology and connectivity to benefit hundreds of wildlife species. The restoration has been a remarkable success, restoring 600 acres of wetland habitat and transforming an ecologically barren, *Phragmites*-choked landscape into a vibrant coastal marsh that is now a regionally renowned destination for birders and a natural jewel on the shore of Lake Erie. Recovery highlights include native plants sprouting from

the seed bank, rare marsh birds returning to nest, and fish, turtles, frogs, otters, beavers, and many other species returning to the marsh.

NFWF, the Great Lakes Restoration Initiative and Coastal Security and Resilience

The Great Lakes coastline presents a distinct but increasingly urgent coastal resilience challenge. Unlike ocean coasts, Great Lakes communities face extreme lake-level volatility combined with shoreline erosion, intense storm events, loss of coastal wetlands, and the degradation of natural buffers that once protected communities from flooding. NFWF's National Coastal Resilience Fund (NCRF) explicitly includes Great Lakes states as eligible coastal states, recognizing these shared vulnerabilities.

The NCRF represents one of the most significant public-private investments in nature-based coastal infrastructure in our nation's history. Established in 2018 at Congress's direction, in partnership with NOAA and private partners including Shell USA, Occidental, Entergy, and Salesforce, the NCRF has grown into a national program of extraordinary reach and impact.

Since its founding, NCRF has awarded more than \$671 million across 554 projects, leveraging an additional \$523 million in matching contributions from grantees, for a total conservation impact exceeding \$1.2 billion across 31 states and U.S. territories. Despite these levels of investment, demand for NCRF funding has always exceeded available resources. In 2025 alone, 600 communities requested more than \$1 billion in funding, but NFWF was only able to accept 68 applications, leaving more than 500 community applications unfunded. That year, NFWF and its partners awarded 68 coastal resilience grants totaling \$78 million, leveraging \$38 million in grantee matching contributions for a total conservation impact of \$116 million—but it is clear that the number of communities seeking funding is growing.

The NCRF funds a broad portfolio of nature-based and hybrid infrastructure approaches that are tailored to the various coastal areas throughout the United States. NFWF's staff works closely with grantee staff across the country to ensure funding addresses the unique needs of different communities' geographic characteristics. As such, NFWF funds a range of approaches including:

- Coastal marsh and wetland restoration — restoring the natural buffering capacity of wetlands against storm surge and flooding;
- Living shorelines — using oyster reefs, native vegetation, and low-profile sills to stabilize eroding shorelines while maintaining habitat function;
- Dune and beach system restoration — rebuilding natural coastal barriers that protect inland communities;
- Floodplain reconnection — restoring natural flood storage in rivers and streams;
- Oyster and coral reef restoration — rebuilding marine infrastructure that reduces wave energy and supports fisheries; and
- Hybrid "green-gray" solutions — combining natural features with appropriately designed hard infrastructure where community risk reduction needs require it.

The NCRF explicitly includes Great Lakes coastal states, recognizing that lake-level volatility, coastal erosion, and storm impacts pose risks comparable to those facing ocean coastal communities. Since 2018, NFWF has invested \$38 million, coupled with \$36.5 million in grantee match, across 47 grants for a total conservation impact of \$74.5 million in the Great Lakes region. These grants have built capacity in 15 communities, restored 108 acres of floodplain and marsh, and restored 6 miles of coastline.

I have included a few examples that demonstrate the power of the public-private partnership model NFWF implements through the NCRF.

Creating Coastal Wetlands and Enhancing Nearshore Habitat in Ohio: NFWF awarded \$3,000,000 to the City of Willoughby, Ohio to create a hybrid living shoreline, build coastal and upland wetlands, and restore a bluff using native landscaping that will benefit pollinators in Osborne Park. The project will reduce community exposure to coastal storms, flooding, and erosion while enhancing habitat for fish and wildlife. This is one of the highest-leverage NCRF grants in the Great Lakes region in terms of match ratio — NFWF's \$3 million grant unlocked nearly \$9 million in additional funding for a total conservation impact of nearly \$12 million. The project addresses a pattern common along the southern Lake Erie shore: hardened bluffs and armored shorelines that accelerate wave energy and erosion rather than absorbing it. Creating layered coastal and upland wetlands at Osborne Park serves as a model for how lakefront communities can transition away from erosive gray infrastructure toward self-sustaining coastal buffers using nature-based infrastructure.

Improving Fish Passage and Reducing Flood Risk in Ypsilanti: In 2024, NFWF awarded \$7.5 million that generated an additional \$5.9 million for a total project investment of \$13.4 million. The project is restoring the Huron River to a free-flowing waterway to enhance habitat for walleye, smallmouth bass, white bass, and sensitive native mussel species while providing flood risk reduction benefits to the city. It is designed to contribute to Ypsilanti's goals of sustainable infrastructure, improved water quality, and enhanced community resilience to a changing climate.

This is among the largest NCRF implementation grants in the Great Lakes region and reflects several of the key aspects of the program. Removing barriers to river flow reduces upstream flood risk while restoring the kind of connected riparian corridor that buffers downstream communities from precipitation-driven flooding. The inclusion of native mussels — powerful water-quality indicators and filtration species — makes this project significant beyond mere flood reduction and provides improved habitat for multiple species.

Advancing Priority Coastal Resilience Projects in Great Lakes Shoreline Communities: In 2022, NFWF awarded the Great Lakes and St. Lawrence Cities Initiative \$1,000,000 to advance five projects that will use nature-based solutions to restore habitat and strengthen coastal resilience in shoreline communities. The Great Lakes and St. Lawrence Cities Initiative is a binational organization representing mayors and local governments from across the basin. This multi-city grant model allows NFWF to efficiently support several municipal projects through

multiple phases of the projects, from design to implementation, and build institutional capacity in cities that often lack internal expertise in nature-based coastal design. A 2024 follow-on grant expanded this to six projects across Illinois, Michigan, Minnesota, New York, Ohio, and Wisconsin.

CONCLUSION

Much of NFWF's funding in the Great Lakes region relies on the GLRI. Without continued GLRI funding, the private and other federal contributions that NFWF attracts would have no federal anchor around which to organize. NFWF's decades of work in the region, and the successes we and our partners have achieved, demonstrate the catalytic investment federal funds provide and underscore why Congress's reauthorization of this program is so vitally important.

NFWF stands ready to continue serving as a trusted, efficient, and effective partner to Congress, federal agencies, and the American people in the restoration of the Great Lakes and the protection of America's coasts. Our 40-year track record of more than \$12 billion in total conservation impact, our ability to multiply federal investment through private leverage, our commitment to science-based grantmaking and rigorous outcome monitoring, and our deep relationships with the conservation community across the Great Lakes basin position us to deliver lasting results for the fish, wildlife, and communities of this region.

Thank you, Chair Capito, Ranking Member Whitehouse, and the distinguished Members of this Committee. I am honored to have had the opportunity to testify today, and I look forward to your questions.

Senator CAPITO. Thank you all, great. I will kick us off for questions with a question for Director Mertz.

All three of you have talked about the coordinating and collaborative efforts here. This is not just a Federal effort. It coordinates with local, State, and then you all mentioned non-profits, too. I appreciate that.

Based on your role at the Ohio Department of Natural Resources, how has partnering with these various Federal agencies that are a part of the GLRI Interagency Task Force contributed to tangible restoration?

I guess my question is more, are there competing interests within that? Or does the State take the lead and the Federal comes in as a funder but also an overseer? Dr. Bamford mentioned a myriad of Federal agencies that obviously weigh in here. How do you see that?

Ms. MERTZ. I would say foundationally, it is a great relationship. We have a lot of trust in our Federal partners. We bring them ideas and they work with us on how to fund them.

We especially work well, there is a very talented leader at Region 5 of United States Environmental Protection Agency (USEPA), which oversees the Great Lakes and has the Great Lakes National Program Office. She is very attuned to what is happening in the region and does a fantastic job of working with all of us as best she can.

There are a lot of Federal agencies involved.

Senator CAPITO. Right.

Ms. MERTZ. That is the truth. Sometimes, we think it would be helpful to have more transparency in how the funds are allocated amongst the Federal agencies and to understand their planning processes. We want to be complementary. I highlighted for you a project where the Federal money and the State money came together. That is how they should all work.

Senator CAPITO. Right.

Ms. MERTZ. There are a lot of Federal agencies involved. Any time you have more than a dozen people, you are going to have a lot of communication, that is a priority.

Senator CAPITO. Yes. Let's go through what those Federal agencies could be. I am going to start. Corps of Engineers, EPA, Fish and Wildlife.

Ms. MERTZ. USDA, several different divisions in USDA.

Senator CAPITO. NOAA, you mentioned NOAA.

Ms. MERTZ. Yes. I am trying to think. That might cover it, but some different divisions within the Department of Interior.

Senator CAPITO. Right.

Ms. MERTZ. There is originally the basket of money.

Senator CAPITO. Right.

Ms. MERTZ. It is distributed to Federal agencies.

Senator CAPITO. Right.

Ms. MERTZ. Half of that money is spent by the Federal agencies, right?

Senator CAPITO. Yes.

Ms. MERTZ. It is always interesting to us how they are choosing to do that additive spending. I mean, we are confident they spend

it in the region. They show lots of good results. Sometimes knowing more about it would help our planning.

Senator CAPITO. Yes. I think what you are saying is that if you are spreading it across different Federal agencies, are you diffusing the effectiveness and are they coordinating? I know that they are, yes, they are doing good work. If one is working here and one is working there, would it be most effective to work here together to make a bigger impact? I think that is a good suggestion.

Dr. Winslow, obviously you have a role in The Ohio State, I guess is what I am supposed to call it, and I think that the role that universities and research institutions play all across the board, but certainly in this case, are extremely important.

What other things could you tell me about unique roles that a university or research, does the Ohio State invest in, become a partner in some of the restoration efforts, or serve as technical advisors? Do you have students that are doing internships and cooperative arrangements? How does that work with the coordinated fashion?

Mr. WINSLOW. Absolutely, thank you for the question, Chair Capito.

All of the above. What I will stress is that the work that happens in the Great Lakes with the help of GLRI is very much applied research. I am an academic, so I do like science for science's sake. The work that we are doing at these agencies allows us to do research that informs action on the ground, boots on the ground.

Senator CAPITO. Right, Okay.

Mr. WINSLOW. Also to come back to the students, you do not have projects that are funded by GLRI and matched by State and other sources that do not have undergrads involved, that do not have master's and Ph.D. students doing the work. That is professional development. Those ecosystems will need to be managed into the future.

Also, those are not the only ecosystems that need to be restored. Those students, those individuals walking through the process, are learning from lessons in the previous section.

I will say, the Great Lakes Restoration Initiative and things like HABs that have occurred in the Great Lakes, it has actually created a synergy and a relationship between agencies and academics that has never happened before. We are in a new space where those two individuals or groups of individuals are working more collaboratively now than ever before.

Senator CAPITO. Good.

Last question, very quickly, to Dr. Mertz. There are eight States and Canada that are involved here with all of the Great Lakes. I guess this is kind of an obnoxious question for somebody who represents one of those States. Is there ever an uncomfortable competition between States, or are you able to overcome that? Obviously some States border some lakes, some do not. Is that ever an issue?

Ms. MERTZ. Not really.

Senator CAPITO. Good.

Ms. MERTZ. I mean, because we get it. It is the same water everywhere. What happens there is going to affect us. We joke some-

times about, is it a Canadian fish or is it an Ohio fish? Well, it is the same fish. They are just swimming around in the same lake.

Senator CAPITO. Right.

Ms. MERTZ. I think it is far more collaborative than it is every competitive.

Senator CAPITO. Okay, great.

Senator Whitehouse?

Senator WHITEHOUSE. Thanks very much. Thanks to the witnesses for being here.

There has been some discussion about the algal blooms in Lake Erie. I went to Ohio in the wake of the 2014 algal bloom that shut down the water system for Toledo for several days. It was clearly caused or provoked by climate change conditions. In fact, it was even called, I think, a bacterial bloom. Algal was kind of a nicer way of saying what was going on in the waters.

I remember going out on the lake with a fishing captain, a guy who hired himself out to take people fishing on Lake Erie. I will never forget the conversation we had. He was kind of a grizzled old guy.

He clearly loved and knew the lake. He said, when I take people out now, I feel like I am cheating them. All the knowledge that I have gleaned in years of fishing on this lake is lost, because of what climate change is doing to the lake, the warming and the changing of where fish go.

I basically just take people out for a boat rides now. I used to be able to put them on fish and feel that I was an expert in where fish could be found in different places at different times of years. That has all just been scrambled.

As we were talking about Lake Erie, I wanted to call attention to those climate-driven difficulties that the lake has faced. Ohio State has quite a good climate change curriculum that teaches climate change across multiple disciplines. It has a specific aquatic ecology lab that focuses on Lake Erie's fisheries and what climate change is doing to disrupt them.

Obviously, fisheries do not do well in the middle of an algal or bacterial bloom. When they die in it, they then rot and they contribute to the anoxic and challenging atmosphere.

I will mention one other thing. When I went to visit Lake Erie, then I also stopped by Ohio State. The Ohio State.

[Laughter.]

Senator WHITEHOUSE. The Byrd Research Laboratory, named after the polar explorer. There is a couple there, Lonnie and Ellen Thompson, who have for decades been traveling the world and drilling core samples out of glaciers. You can go into their enormous freezer and see these enormous tubes of glacial ice that they have saved.

I remember Lonnie pulled one out, and he showed me kind of a dark line in the middle of it. He could correlate that to a dust storm that was recorded in Biblical times. You can find the description of the dust storm in the Bible, and here is the dust from that dust storm now captured in that long column of ice.

Of what climate change is doing, many of those glaciers have disappeared. Much of the ice that is stored at the Byrd Research Center at The Ohio State is actually, it is a leftover, you can not find

that anymore. If you go back to those same glaciers in South America, in Europe, wherever, it is gone.

What Ohio State has preserved in those core samples is really, really important. Of course, Professor Thompson, I guess they are both Professors Thompson, were pretty remarkable people to talk to. Thinking about Ohio makes me think about all of that.

Ms. Bamford, on the Coastal Resilience Fund, how has the interest been? How have applications been compared to the resources you have to give out?

Ms. BAMFORD. Thank you for that question. It has been significant. The National Coastal Resilience Fund is one of our most over-prescribed programs we have at the Foundation. We have over 40 programs.

Senator WHITEHOUSE. Provides funding not just to saltwater coastal projects, but also freshwater ones.

Ms. BAMFORD. Yes, exactly.

Senator WHITEHOUSE. People who have a freshwater coast have an interest in trying to make sure that the Coastal Resilience Fund has adequate funds?

Ms. BAMFORD. Correct. It actually augments a lot of the GLRI work that we do there, to protect these coastal communities and the economy itself.

Senator WHITEHOUSE. Just because I can not help myself, and I say this like all the time, if you look at the Army Corps of Engineers, it has a massive bias for upland and inland freshwater projects. What it does in coastal and saltwater is negligible compared to its main work.

In my snarkier moments, I refer to it as the Bureaucratic Tributary of the Mississippi River. You look at the Land and Water Conservation Fund, almost everything goes to upland and inland projects. It has essentially, it probably averages near zero the extent of the funding that goes to saltwater coastal ecosystems.

If you look at the Department of Interior, well, they are true to their name. There remains this enormous gap between what inland and upland resources get by way of resources and attention and what coastal resources get. As a coastal State, as the Ocean State, I am just going to continue to be a bore on that subject until we get some better results from those agencies in terms of equivalency.

Thank you, Chairman. You have heard that before, I know.

Senator CAPITO. That is good.

Senator HUSTED, I am going to turn the clock off here, since this is your area and your bill. I will let you go ahead and do your questioning.

Senator HUSTED. Great, thank you, Chairman Capito.

It is, when you think about the Great Lakes and the Great Lakes Restoration Initiative and all of the efforts that have been undertaken over the years with invasive species, with water quality, with the fishery, with habitat, I mean, it has been, you alluded to it, but the migration of migratory birds and the number of wetlands and all of the things that have also come as a result of this is really rather astonishing.

For me, I mean, I was born in 1967. I think if you are an Ohioan, you think of the burning river, when we had, the river caught on fire in Cleveland. That was probably the low point of, or the

wakeup call, as we might also call it, of recognizing that we had really messed up as a society and we needed to fix it as it related to our Great Lakes, our environment and so forth.

The progress that has been made since, because I know we can get down about problems that we have, but we can also understand that we have the capacity to fix these things. We have done it in many ways.

I want to give you a little bit of opportunity here, I am going to ask each of you to just talk about the Great Lakes Restoration Initiative, the partnerships that you have had, and the progress that you have seen, and the hope of what you see for the future.

Director Mertz, let me just give you the opportunity to talk about successes, where the money has been applied, where the collaboration has been applied, what has been achieved, and what you would hope to achieve going forward.

Ms. MERTZ. Thank you, Senator Husted. That is a great question, because we have so many victories to celebrate up on Lake Erie. Wildlife alone, we have seen the comeback of the bald eagle in amazing numbers. We feel like we are at a place where we have achieved success in Ohio with nearly 1,000 nesting pair, and much of that is along Lake Erie.

We have seen the comeback of the trumpeter swan. We have seen the comeback of so many waterfowl species. That is what we have seen, and we are in a good place, and we are taking care of it.

There are a number of other birds of concern. What we see is intentional focus on these areas can achieve success. That gives me hope for the future. You know if you focus on it, if you put your money, your time, and your science there, you are going to see success. We have this whole list of successes on the return of wildlife and very important species to us.

Those are great success stories that we are very proud of, and we need to see more of that. The return of a lot of the waterfowl is because of the attention we have paid to wetlands, which has both a water quality benefit and the wildlife benefit.

Senator HUSTED. Can I interrupt you for just a second? Let's talk about wetlands. With the H2Ohio program, we invested in the wetlands for the purpose of absorbing phosphorus and other nutrients that contributed to the algae blooms.

Ms. MERTZ. Yes.

Senator HUSTED. How many acres of wetlands have been created over, in coordination with all of this?

Ms. MERTZ. Through the H2Ohio program, we have created, restored, or significantly enhanced over 20,000 acres of wetlands.

Senator HUSTED. Do we know how much phosphorus that absorbs?

Ms. MERTZ. Just in the Maumee, we believe it is somewhere in the 60,000 pounds per year. The beauty of a wetland is, that is not a fee that you have to pay every year for it to be successful. You make the investment, and that phosphorus reduction will continue for a long time.

I think that wetland investment for water quality purposes, but then the collateral wildlife and recreation benefits are priceless. We know we are making progress. We know we are reducing phos-

phorus, because I have my friend, Dr. Winslow here, to keep me honest.

He leads a consortium of experts in water quality and higher education around the State. They come in and they evaluate almost everything I do. That is Okay. If I discover we have constructed something in a way that is not getting the benefits that we expect, his folks and all these other universities working together, and incredible experts in the area, I mean, talk about applied science, they will come in and say, well, you did this, but our modeling showed you should have reduced phosphorus by this, but you only have this. Let's talk about what to do.

What we are seeing in that dissolved reactive phosphorus is, you know, we wish we were seeing this. We are not. We are seeing this. That is a step in the right direction.

What we have is the science and the data to show that this investment in natural infrastructure, plus the other things we are doing in Ohio, working with farmers and—

Senator HUSTED. Precision agriculture practices that both save them money and reduce the phosphorus runoff.

Ms. MERTZ. Exactly. GLRI assists Ohio's Department of Agriculture as well. They also receive grants in the non-point source pollution category to do that work.

GLRI is supporting what the Department of Agriculture is doing in this area, in some cases. They support what ODNR does in some cases. They support the research to show it is working.

On the subject of applied research, it goes beyond them just evaluating everything we do. It is a relationship where I might call Dr. Winslow and say, well, I saw you did this, this, and this. Explain to me, Chris, how does that help me change our behavior? Or, this is exactly what I need to know to change—we have these conversations all the time. I am a believer in the applied part of the research.

There are reasons for all kinds of research. It is a very close relationship, because we all want to see success.

Senator HUSTED. To inform your actions, to inform your investments.

Ms. MERTZ. Yes.

Senator HUSTED. To inform how you are going to do

Ms. MERTZ. I have to have that Return on Investment (ROI).

Senator HUSTED. Yes.

Ms. MERTZ. I have to prove it to our State legislature, need to prove it to you all that we have our ROI on the Great Lakes Restoration Initiative.

Senator HUSTED. As you look forward, this is what you have been able to accomplish, we have witnessed the progress. If we can continue to support the program, what do you see is next? What are the benefits to people, the environment, and so forth?

Ms. MERTZ. Right. I think we will continue, with invasive species, I think there is some sense that we have appropriate management of the problem. We just need to continue to monitor and stay on top of it, and not let something bad happen that we did not expect.

I foresee progress on the harmful algal bloom piece. I think continuing research, continuing technology, continuing investment,

and that is what I said, the State had to step up, too. We can not sit back and say, oh, you know, Federal Government, come solve our problem. We need both working together.

I think we will see more progress there. I think the threats to the Great Lakes evolve some. Some things that have been put away, but new understanding of what microplastics might mean, and other emerging toxics that might enter the water.

I think GLRI will continue to play a role as we continue to successfully manage this lake system.

Senator HUSTED. I know that you have the responsibility, largely, of working with Canada on Lake Erie, that is an Ohio responsibility. Invasive species have been huge threats to other Great Lakes, the lamprey, and then the combination between the alewife and the salmon, and all. We have literally had to, over time, introduce new species because invasive species have decimated other species. It is a constant learning process.

Ms. MERTZ. It is. It is continual. You mentioned the sea lamprey, I think most of the scientists in the field would say, we have it managed now. It is not great, it is not gone. It is not eradicated. We have it managed. That is what we are going to have to do with these invasive species going forward, figure out how to manage them appropriately so we can still enjoy the Great Lakes.

Senator HUSTED. Let me give Dr. Winslow a chance now to talk about successes that you have seen, as evidence that this works. Then, what do you aspire to see going forward? What do you think is next?

Mr. WINSLOW. Thank you, Senator Husted. For me, one of the biggest successes here is again, that systems approach under GLRI. We are not just having agencies to, let's build this here. We are engaging the communities first. We are trying to find out what their needs are. We need that local voice.

We have also, through GLRI and the partnerships, shown that what you see in the lake did not start in the lake. It manifested from things that are going into the watershed. For the GLRI and the other agencies, Federal and State, knowing that these wetlands and these solutions for Lake Erie happen up in the watershed.

That engagement with the community, using Sea Grant and Land Grant extension educators, and actually trained academics, our academics are learning how to talk to their end users. They are not using their acronyms that they used to use; they are talking about their science at a level that people can understand.

One of the successes, as Director Mertz has highlighted, you see it on the ground. You see a different connection between the people and that resource. People that live on the land see the importance of that lake.

The other thing we are seeing, and I mentioned it in my earlier remarks, I have never seen the collaboration that we see now between State and Federal agencies and our academics. I do not run a proposal for research projects unless it is driven by what the agency wants.

Those proposals, what they have resulted in is relationships between our universities and land users, and relationships between our universities and the agencies. It is an amazing collaborative process. That is what I love about GLRI. We can talk about new

birds, and we can talk about walleye populations and things like that, but we now have a system to deploy projects that work.

I always say that they target the biggest threats, GLRI does. It is not just, is this project eligible for funding, we are not funding good projects, we are strategically targeting things.

Then we are also at a space, because of applied research and our relationships with other agencies, is we are actually monitoring and tracking progress.

Director Mertz, I applaud her efforts in H2Ohio to deploy these wetlands, but then to monitor them. To know that this wetland only reduced phosphorus by this amount, but if we would have added this plant and changed the direction and flow of water through the wetlands, we could have increased that number. Every wetland we build in the future will be better. Every nature-based shoreline we do in the future will be better.

That is what I am excited about, is GLRI, with continued funding, can continue to make progress. We are getting bigger bang for our buck now than we had at the start of this process.

Senator HUSTED. Let me just, when we have conversations like this, we think about things in isolation of, this is the lake and this is what happens in the lake. You are right, all the tributaries contribute to this.

The interaction with agriculture, particularly in the Great Lakes Basin, is a huge, huge issue. Look, we want food, we want the agriculture industry, we want affordable food. We can not, in the name of protecting the environment, drive up the cost of doing this so high that you put an industry out of business and you drive up the cost of food. It is figuring out how it all works together.

It seemingly is not perfect. Always can get better. It seems to be working. That is why the agency coordination between agriculture and, in Ohio it would be the Department of Agriculture, the Department of Natural Resources. It is also at the Federal level as well.

Mr. WINSLOW. That is one of those big ones, right.

We know that it is GLRI money, goes through USEPA and then trickles down. You need USDA to get that funding, because they have the relationships with the farmers. You need multiple agencies, both State and Federal. You can not just go there and do work if you don't have a relationship with the folks in that watershed.

I get to give talks to people that live on the lake and tell them the struggles that agriculture is going through. I am connecting a water-based community with an agriculture community.

We are also seeing that farmers want to do different things on their landscape to slow nutrient runoff. The problem is, these things we are giving them, the research we are providing them, is not easy to deploy. It is hard to understand, it is hard to do it right. It is also expensive. Many of these farmers are not causing runoff by malicious intent, it is the end result of doing agriculture on the landscape. They want to be there for solutions, but some of those solutions cost them money without increasing revenue.

That is why things like GLRI and the money that goes through USDA is critical.

Senator HUSTED. Well, also in this committee's jurisdiction, we have not even mentioned the fact that you have municipal waste-

water and stormwater issues that also contribute to water quality issues and nutrient contribution to the watershed. Do you want to remark on that?

Mr. WINSLOW. Yes. I am using it through the lens of harmful algal blooms and nutrient loss. Most of that is coming through the agricultural landscape. Again, not through malicious intent. It is the artifact of doing business.

Most of those investments for HABs and non-point goes to agriculture. We do know that in the Maumee River, 8 to 9 percent of the phosphorus comes from wastewater treatment plants. How do we work with that constituency and that group to help them better treat the water before it leaves?

There are ways that we work with municipalities. The drinking water treatment facilities, we have done research that helps them remove toxins from the water, if they are drawing it in from a lake that has harmful algal blooms. We are working with those municipalities. We used most of our examples in the agriculture space.

This helps out departments of health, helps out EPA, helps out municipalities. We now can tell private beaches how to test their water for the presence of toxins. We have data bases and websites that show which beaches have toxins now and which ones are safe for recreation.

We are in all aspects of this, in the agriculture space, and the municipality space.

Senator HUSTED. Looking ahead, looking forward, what recommendations do you have for us on how we can continue to improve?

Mr. WINSLOW. I would say stay the course. I think the way the investments have gone into the five focus areas has been great. I would just say to continue increasing transparency across the agencies, so projects are not duplicative, and keep leaning on the relationships that exist with the landowners through your Sea Grant and Land Grant extension.

Academics are starting to understand the importance of applied research, not just science for science's sake. Tap into that resource of applied research at your academic institutions.

Senator HUSTED. As I often say, problem identification is easy. Solution identification is so much more difficult. That is why the applied research aspect of this is so important, because you tell me there is a problem, that is great. What is a viable, what is a viable, applicable solution to it?

I have seen that from my own first-hand witness of how the program works.

Dr. Bamford, you have listened to the conversation. I want to give you a chance to weigh in on successes and recommendations and what you look forward to.

Ms. BAMFORD. Thank you. I think we heard such great things from Chris and Mary. Just to add to that, and I think you said it, the ecosystem is extremely dynamic. We are managing invasives, we are doing really good right now.

Things are always changing. Even you said, we are learning, we are always learning, and we have to apply that learning. There is going to be challenges that we do not even know exist that we are going to be facing.

I think GLRI provides the resources to tackle those issues, look forward, look toward new technology, but also provide the resources to the different buckets, both the Federal, the State and non-profits.

I think the National Fish and Wildlife Foundation, we are excited about continuing to implement this place-based funding. We want to focus on the working lands, right? As you said, this is an area, this is a landscape of working lands.

We have to work with the community. We have to do voluntary conservation to implement the right technical assistance, to provide the resources for those farmers to be able to implement those and to sustain it while still being able to pencil out in the black.

I think that is extremely, extremely important, to make sure that the working lands continue to work, but they understand how to implement those conservation practices.

Senator HUSTED. Thank you. I do want to say that as I look forward, the threat that I am concerned about is the Asian carp, big-head carp, silver carp, whatever we are calling it these days, the threat that that poses to the entire Great Lakes system. I think the question was earlier, do all the Great Lakes systems get along? Yes, because we are all connected. The water that comes out of Lake Michigan, Lake Superior, Lake Huron, flows down through Lake Erie to Lake Ontario. We are all connected.

If we do not manage it correctly, it is a threat to everyone.

Do any of you have any comments on looking ahead with that threat and what should be done?

Ms. MERTZ. Specifically on the carp issue?

Senator HUSTED. Yes.

Ms. MERTZ. I think from the State side, and something we focus on very much at the Great Lakes Commission, on the State side, there is very little dispute amongst the States on where that is headed.

Of course, there is the very significant, high profile connection, you know, Brandon Road. We all hope that moves forward and is successful. We have all waited a long, long time for that. I think States are hopeful that will happen.

I will say, I think in the carp invasive species area is one where at the technical level, there is probably the most coordination than on any other project. Senator, you will appreciate, we have a lot of fish guys. What they will tell me is, hey, we have been meeting with all the fish people in all the States, we have our plan, we have our plan, do not let anybody mess with it.

We all agreed, we looked at all the connections we are worried about. We, the States, put them in priority order and we are hitting them off, just like this. We are all agreed. Like in this case, hey, we here in Ohio, we agree, this thing in Minnesota needs to happen first. Or this thing in Ohio needs to happen first.

They have sort of this huge group of technical people, and they agree on how to split up the money each year. That is one where I see the States are all in agreement. It gets in one lake, it gets in all, right?

Senator HUSTED. Right. Thank you.

Anything that any of you want to add that you did not get a chance to?

Mr. WINSLOW. Just on the invasive species. We have academics along with these teams that are sampling. We are now knowing where the eggs might go, where the adults are going. That is research, studying fish behavior, that can inform trapping and removal of these invasive species.

Director Mertz hit the nail on the head. We are all in lockstep on the invasive species issues.

Senator HUSTED. Great.

Ms. BAMFORD. I just want to say thank you so much for this hearing, and this opportunity to testify. This is an extremely important issue, conservation, and the Great Lakes affect all of us. Thank you.

Senator HUSTED. Yes.

Chairman Capito, thank you for holding the hearing today. Very important issue for all of the Great Lakes States. As you know, I am the only member of the committee that represents a Great Lake State. It is very important.

Thank you for indulging us.

Senator CAPITO. Yes, thank you for your leadership, and I want to thank everybody for being here.

I explained earlier, there is a lot going on in terms of committee hearings. I would not take this as a lack of interest in the issue. I think it is more a prioritization of where, maybe that is why the only one that is here, because you are the only Great Lakes.

Anyway, with no further questions, I would like to thank you all very much, the witnesses, and all of my colleagues for participation in today's hearing.

Senators who wish to submit questions, written questions for the record, have until 5 p.m. on Wednesday, April 29th, to do so. Then I would ask the witnesses' responses to those questions would be due back no later than 5 p.m., Wednesday, May 13th. They will be submitted for the record.

With that, this hearing is adjourned, and thank you very much. [Whereupon, at 11:11 a.m., the hearing was adjourned.]