



Watermarks

A photograph of a man in a blue jacket sitting on a rock by a rocky shore, fishing with a red rod. A white bucket is on the ground next to him. A tree with green and yellowing leaves is on the left, and a large body of water extends to the horizon under a clear blue sky.

Climate Change
and the Great Lakes

Growing to Meet the Challenges



Humans have an incredible capacity to evaluate big problems and create innovative and collaborative solutions when motivated by a common goal. That ingenuity, passion, and creativity are emerging today as people work to protect the Great Lakes from the impacts of climate change.

We live next to 20% of the world's fresh surface water, where millions of people like you and me rely on them for drinking water, employment, recreation, and our everyday way of life. Today, climate change threatens those shared experiences and values.

In the last decade, the lakes have experienced some of the warmest water temperatures ever recorded, multiple years of record rains from damaging storms, and an increase in runoff pollution and flooding. Global climate patterns are not only affecting the Great Lakes but threatening the health of wildlife and the economic strength of the region.

The Great Lakes region is known for its bountiful and diverse agricultural production, and ready access to fresh water is a huge part of what makes that possible. But runoff from farms has become the major water quality problem in the lakes, with nutrient pollution leading to massive harmful algal blooms that threaten drinking water, dead zones of no oxygen, loss of recreation dollars, and diminished property values. These problems hit hardest in communities that already bear a heavy burden from pollution.

To protect our communities from the impacts of a changing climate, we must build resilience into federal and state Great Lakes programs, which is why climate change is deeply embedded in our 2022 policy priorities. And we must ensure communities have the tools and information they need to make climate-smart choices for the lakes.

The Alliance has made considerable progress in protecting the lakes for all communities in the region. Through our work and with substantial public investment, we have kept pollution out of the lakes, kept drinking water safe, and continued to prevent invasive species from threatening our way of life.

Your support for the Alliance allows us to expand our staff to tackle this work. The Alliance recently hired our first-ever Agriculture & Restoration Policy Director and Senior Policy Manager for Agriculture and Restoration. This growing team will advance our agriculture and clean water goals across the lakes and implement regional initiatives in the algal bloom hotspots of Green Bay and Lake Erie.

We work daily to protect clean water and ensure that everyone who lives here can enjoy a safe, clean, and accessible Great Lakes. We can only do this because of your support and the thousands of others like you who have chosen to support our work. Thank you.

A handwritten signature in black ink that reads "Joel Brammeier". The signature is fluid and cursive, with a long horizontal line extending to the right.

Joel Brammeier, President & CEO



Three Big Policy Wins for Great Lakes Restoration

The first few months of 2022 brought a wave of good news for Great Lakes protection. The Biden administration made several announcements detailing how funding from the bipartisan infrastructure law - the Infrastructure Investment and Jobs Act - will be allocated. The bill was passed by Congress and signed into law in late 2021.

Three highlights include:

Historic Step Forward to Stop Invasive Carp

In early January, the U.S. Army Corps of Engineers allocated nearly \$226 million for the Brandon Road Lock and Dam project to stop invasive carp from reaching Lake Michigan. The Brandon Road facility is a critical chokepoint in waterways connecting the Mississippi River basin to the Great Lakes. The funding will ensure completion of project design for new invasive carp protection measures at Brandon Road and fund the start of construction for the project when plans are completed.

\$1 Billion Investment for Great Lakes Restoration

In February, President Biden visited northeastern Ohio to announce a \$1 billion investment in the Great Lakes. The funding will be used to clean up and restore Areas of Concern (AOCs) throughout the region by 2030. The AOCs are some of the most environmentally damaged sites in the region. They are polluted with dangerous and carcinogenic pollutants such as heavy metals, PAHs, and PCBs and cannot support recreation or habitat for wildlife.

Ensuring Water Infrastructure Funding Reaches Communities Most in Need

In March, the US Environmental Protection Agency directed states to invest nearly half of new water infrastructure funding in historically disadvantaged communities, both urban and rural. The funding allocated in last year's bipartisan infrastructure law is an important step forward in fixing outdated and failing water infrastructure, including removing toxic lead pipes. The Great Lakes region is home to seven of the ten states with the greatest number of lead pipes carrying drinking water to homes, with Illinois, Ohio, and Michigan at the top of the list.

A group of people and a dog are on a sandy beach, looking out at a large body of water. Two kitesurfers are visible in the distance, their colorful kites flying in the clear blue sky. The water is a vibrant greenish-blue, and white waves are breaking near the shore. A man is sitting on a lounge chair on the right, while two women and a child stand in the middle. A large, shaggy dog is sitting on the left. The overall scene is bright and sunny, suggesting a warm day.

Climate Change and the Great Lakes

With our abundant fresh water and temperate climate, the Great Lakes region is often thought of as a climate haven that may be off the hook from the worst impacts of climate change. We may be spared from many threats facing other regions, but the climate change threats facing the lakes are no less concerning.

“Our region is often referred to as a ‘climate refuge,’ a place where people from rapidly warming parts of the U.S. will seek shelter. We should prepare for this by acknowledging the problems climate change has already caused and the unpredictable future the region faces,” said Joel Brammeier, Alliance for the Great Lakes President & CEO. “The Great Lakes region must plan now for climate change. The changes we make today can make the Great Lakes a healthy place for people who live here now and for future generations.”

Climate change can feel overwhelming. But we see hope for the future. We’ve identified the biggest climate change challenges facing the Great Lakes and actionable ideas that will ensure healthy lakes for future generations.



Volatile Water Levels

Climate Impact: The Great Lakes naturally swing between lows and highs over several decades. They have gone from record low water levels to record high levels within about a decade, a stunningly fast swing. These rapid transitions between extreme highs and lows represent a new cycle for the lakes. Scientists agree that the sharp shifts in water levels are related to climate change. Severe high water levels cause serious problems for waterfront properties and infrastructure like roads, marinas, and water systems. Extreme low levels cause problems for water intakes, shipping, and recreational infrastructure like marinas.

What we can do now: The main factors that affect water levels are rainfall and evaporation. We can't control precipitation or ice cover, but we can be prepared to deal with fluctuating water levels. Natural shorelines, including dunes and wetlands, can weather these extremes. State and federal governments should plan now for how to invest in restoring our shorelines on a large scale. Communities can focus on ensuring construction does not harm natural shorelines while also adapting water systems and roads to weather this volatility.

Extreme Weather

Climate Impact: A warming climate will increase extreme weather events, including intense rains and severe drought. The Great Lakes region is already experiencing this impact. For example, last June, up to 7 inches of rain fell in less than 24 hours in the Detroit metro area, flooding thousands of homes and businesses and costing tens of millions of dollars



in damage. Storm events like this are becoming more frequent. Often the impacts from these storms are not felt equitably. In Chicago, for instance, a study found that 87% of flood damage insurance claims were paid in communities of color.

What we can do now: Great Lakes communities can begin investing today to repair or replace failing wastewater systems. Federal and state agencies must ensure that these projects are climate-resilient, using green (natural) infrastructure that mimics nature's ability to absorb water. And communities most impacted must have a seat at the table when project decisions are made to ensure equitable climate-resilient development.

Native Species at Risk

Climate Impact: Warming air temperatures are warming the lakes, threatening cold water species, and creating new habitat for non-native species. Lake Superior, notorious for its cold water, is warming faster than many large lakes around the world. The lake's cold water has historically kept out many invasive species that thrive in other parts of the Great Lakes.



What we can do now: Numerous state and federal agencies manage fisheries and habitat restoration projects across the Great Lakes. The Great Lakes Restoration Initiative sets the agenda for federal spending and must be updated to ensure restoration efforts are climate-resilient.



Intensifying Harmful Algal Blooms

Climate Impact: The massive harmful algal bloom that covers western Lake Erie each summer threatens drinking water supplies

and puts the region's economy at risk, hampering tourism and recreational use. Warmer water fuels algal growth and extreme rains flush more nutrient pollution, the primary fuel for algae, off farm fields into waterways. Algal blooms are showing up in parts of the lakes, like Lake Superior, that have never experienced this problem.

What we can do now: The cause of the worst algal blooms is nutrient pollution flowing off agricultural lands. Farming practices and regulations must change to reduce nutrient pollution and prevent harmful algal blooms. Downstream communities that bear the brunt of water contamination and increased water treatment costs must be at the table when decisions are being made about solving this problem.



Celebrating Our Volunteers

Our volunteers do amazing things for the Great Lakes. Whether they're an Adopt-a-Beach volunteer who helps remove thousands of pounds of trash from Great Lakes shorelines or an Ambassador who connects with community members across the region, they make a big difference.

Recently, we asked some of our community members and partners to share the impact our volunteers make.

"Volunteers with the Alliance's Adopt-a-Beach program are crucial partners of the Chicago Park District in our combined efforts to combat the effects of human-caused pollution in the Great Lakes. In 2021 alone, there were 100 cleanup events at Chicago's public beaches that contributed to approximately 8,000 pounds of litter being diverted from entering Lake Michigan. As we look to the future and explore new ways to keep garbage out of our Great Lake, Adopt-a-Beach and its volunteers will continue to play an essential role in improving water quality. Thank you for being part of the solution – your efforts are greatly appreciated." **K. Anderson**, *Project Manager at Chicago Park District - Chicago, IL*

"I would like to tell you what a privilege it is to work with the Alliance for the Great Lakes Ambassador volunteers. I have had the honor of working with them for several years as they present to my Great Lakes Ecosystems class. For each presentation, they are poised, prepared, very knowledgeable, and very enthused about their work with the Alliance. They bring new information to my graduate students in an engaging manner. They are a highlight of the class. Thank you for sharing your talent and love of the Lakes with us." **A. Kovacs**, *Senior Manager of Graduate Programs and Partnerships at Chicago Zoological Society*

"The partnership we have with Alliance for the Great Lakes allows us to engage even more community members in our Lake Erie conservation efforts. Thank you, Adopt-a-Beach volunteers, for taking action and protecting our shoreline!" **L. Lisner**, *Director of Volunteer Services, Cleveland Metro Parks, Cleveland, OH*

Our volunteers' commitment and belief in our work keep us fired up and focused on stopping plastic pollution, protecting nature, and ensuring everyone has access to Great Lakes water for generations to come.

IN BRIEF

Great Blue Benefit a Success



After a two-year hiatus, our annual Great Blue Benefit was held at the Theater on the Lake in Chicago. We celebrated communities who depend on the lakes and highlighted partnerships that strengthen our advocacy across the region. Thanks to the many generous donors who attended and supported the event. Event

proceeds support our work to ensure the Great Lakes are clean, safe, and accessible for all generations. For more info, visit www.greatlakes.org/benefit2022

Have you tuned into our podcast?

Our Lakes Chat podcast features guest appearances and deep dives into Great Lakes issues.

Over 14 episodes, we have covered everything from plastic pollution to invasive carp and water affordability. Our guests include staff experts from our team at the Alliance for the Great Lakes, community members, and researchers studying the lakes. It is a great listen during your commute, gym session, dog walk, or while working at your desk.

Learn more at www.greatlakes.org/lakeschat

SAVE THE DATE



September Adopt-A-Beach: **Saturday, September 17**

Don't miss the biggest annual day of action for the lakes. Visit www.greatlakesadopt.org to create or find a beach cleanup near you.



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TELL US WHAT YOU THINK

We would love to hear your feedback about our Watermarks newsletter. We are also happy to answer your questions about pressing Great Lakes issues.

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Photos in this issue by Lloyd Degrane



The Alliance for the Great Lakes works across the region to protect our most precious resource: the fresh, clean, and natural waters of the Great Lakes.