



HEALING OUR WATERS

Meeting The Challenge of Great Lakes Restoration

Before the Senate Environment and Public Works Committee Hearing on the Great Lakes Regional Collaboration's Strategy to Restore and Protect the Great Lakes

Testimony of Andy Buchsbaum Director, National Wildlife Federation's Great Lakes Office And Co-Chair, Healing Our Waters® – Great Lakes Coalition

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Mr. Chairman, members of the Committee, thank you for this opportunity to testify before you today on this issue of critical national importance: Great Lakes protection and restoration. My name is Andy Buchsbaum, and I come here wearing two hats. First, I am the Director of the National Wildlife Federation's Great Lakes Office. NWF is the America's oldest and largest conservation organization, with one million members and affiliated organizations in 47 states. The second hat I wear is as the Co-Chair of a broad-based national coalition, the Healing Our Waters – Great Lakes Coalition, dedicated to the protection and restoration of the Great Lakes. The Healing Our Waters ("HOW") Coalition is truly national in scope with 85 national, regional, state and local organizations. These include Great Lakes state and regional conservation organizations such as the Alliance for the Great Lakes, Great Lakes United, and the Ohio Environmental Council; national conservation organizations like Ducks Unlimited, National Wildlife Federation, National Parks Conservation Association, Trout Unlimited, the Sierra Club, the Nature Conservancy and the Audubon Society; educational institutions such as Shedd Aquarium and Brookfield Zoo; and government representatives such as the County Executives of America. A full list of the Healing Our Waters Coalition accompanies this testimony as Appendix A.

My testimony today will focus on three areas: the importance of a healthy Great Lakes to the nation; the accelerating deterioration the Great Lakes are currently experiencing; and the critical role of the Great Lakes Regional Collaboration recommendations in stopping and reversing the lakes' precipitous decline. The bottom line is this: making a substantial investment in the Great Lakes now will earn a significant economic and ecological return for the region and the nation. Delaying that investment will make future actions far more costly, and likely will result in irreversible damage to this national and global treasure.

The Great Lakes: A National Priority

The Great Lakes certainly define the region for the 42 million people who live there. They mean more to us than places to swim or fish or hike; more than places to watch a beautiful sunset or hike through some of the world's most beautiful dunes and national lakeshores; more

than our source of drinking water; more than the lifeblood of commerce and industry. For those of us who live there, they are part of our way of life, the way we define ourselves and our future. When I was growing up on the outskirts of Chicago, the high points of each summer were my trips to Lake Michigan's North Avenue Beach in Chicago, the Indiana Dunes, and the Warren Dunes in Michigan. My friends and I would play in the water, race down the dunes, and watch the incredible sunsets over waters so vast you could not see the other side. And now my family is reprising those wonderful times. The best part of my sons' summers are when we go up north to roam the shoreline of Lake Superior, swim in the bone-biting cold of its waters, and watch those spectacular sunsets. The lakes create the memories that bind our family and millions of others, and link my generation with my parents' and my children's.' They are the defining features of our physical world, our continuing constant.

So it is no surprise that the Great Lakes are a top priority for those of us who live there. A 2003 Joyce Foundation poll asked Great Lakes residents if protecting and restoring the Great Lakes is important; 96 percent said yes. Ninety six percent. You can't get 96 percent to agree on what day it is – but they agree on the importance of the Great Lakes.

It is equally clear that the health of the Great Lakes is critically important to the nation as a whole. Even if you live in our region, it is hard to appreciate their vast size and scope and how they define our nation's geography. These lakes constitute 95 percent of the surface freshwater in the United States. They have a coastline of 10,000 miles – longer than the combined U.S. coastlines of the Atlantic and Pacific Oceans. They supply the drinking water, shipping, recreation, and economic lifeblood to millions of people in eight states. They constitute a 1,000-mile border between the U.S. and Canada. They are continental features that attract migratory birds from the Canadian Arctic to South America. Millions of migratory waterfowl breed in the Great Lakes and then fly to the eastern and southern U.S. to supply hunters and birdwatchers from New Jersey to Louisiana.

The Great Lakes are a national resource. Tom Kiernan, the President of the National Parks Conservation Association and co-chair of the Healing Our Waters coalition puts it this way: "The Great Lakes are national icons, a beautiful natural treasure you can see even from space. Like the majestic Grand Canyon and Everglades, these inland oceans help define the soul of a region and the landscape of a nation." Their national importance has prompted 11 national organizations to actively participate in the Healing Our Waters campaign to protect and restore them. Leaders from around the country – including those from the Chesapeake Bay, Restore America's Estuaries and Coastal Louisiana, each of which also have national iconic status and pressing needs for restoration – understand the national importance of the Great Lakes and their need for protection and restoration:

"Like the Chesapeake Bay, the Great Lakes are resources of national significance. They have helped shape our history as a nation and they have provided immeasurable recreational, economic, and cultural opportunities for our citizens. Unfortunately, they share a history of insufficient investment in their protection and restoration. National attention, national funding, and national commitment to the restoration of natural resources like the Chesapeake Bay and the Great Lakes is critical for us, as a nation, to ensure a legacy of clean water, abundant fisheries, and economic development for future

generations." Roy A. Hoagland, Esq., Vice President, Environmental Protection and Restoration, Chesapeake Bay Foundation

"The Great Lakes are extraordinary resources of national importance, and they require national attention and funding to get back to health. Like the Great Lakes, many of our nation's Great Waters - such as Puget Sound, the Louisiana Coast, the Everglades or Chesapeake Bay -- are in grave condition. Investments in the restoration of these critical ecosystems will repay us many fold, and will benefit the nation as a whole." Mark Wolf-Armstrong, CEO of Restore America's Estuaries.

"The Great Lakes are of national importance. If we can't save Coastal Louisiana, we can't save the Great Lakes, and vice versa. It can't be that we have to choose one place over another, or we'll be set up to fail everywhere. The consequences to the nation of inaction or delay are enormous. We cannot afford to wait, either here in Coastal Louisiana or in the Great Lakes." Mark Davis, Director, Coalition to Restore Coastal Louisiana

The Great Lakes' economic importance to the Midwest and the nation also is immense. The Great Lakes annually generate billions of dollars of economic revenue directly:

- Tourism in Ohio is a \$7 billion industry sustaining over a quarter of a million jobs.
- In Michigan, tourism generates \$16 billion annually, and in Wisconsin, \$11.8 billion.
- Hunting, fishing and wildlife watching account for more than \$18 billion annually in the Great Lakes states.

But the economic impact of the Great Lakes is far greater than this. Twenty-five million people rely on the Great Lakes for their drinking water. Industries such as auto, power, agriculture, and steel depend on them to supply and cool their industrial processes. Consumers and businesses throughout the region and the nation rely on them for the shipment of goods such as grain, steel, and manufactured goods. The Great Lakes define not just the recreational and ecological footprint of the region; they drive the economic opportunities in the Midwest.

The economy of this region is vitally important to the nation. As you will hear from George Kuper, the director of the Council of Great Lakes Industries, fully one-third of the nation's economic gross state product is produced by the Great Lakes region. And as Mr. Kuper will tell you, the Great Lakes are the natural infrastructure that supports that productivity; we believe their health is critical to our economy of the Midwest and the nation.

The Healing Our Waters Coalition is partnering with the Council of Great Lakes Industries and the Brookings Institution to organize an independent study of the ways in which investing in Great Lakes ecosystem restoration will support the economy of the region. When that study is completed, we will be happy to share it with the Committee.

A Resource In Peril: "Ecosystem Breakdown"

Despite their vast size, the Great Lakes are fragile. In recent years, the Great Lakes have been increasingly plagued by beach closings due to untreated sewage; invasions by harmful exotic species (on average, one new invasive species enters the Great Lakes every eight months); contamination of sportfish and commercial fish; and loss of habitat for wildlife. Each of these and other problems has been viewed as a separate challenge to be researched and addressed independently; few have tried to assess the condition of the Great Lakes as an ecosystem and design solutions on that basis. Until last year.

Last December, over sixty of the leading scientists in the Great Lakes region issued an alarming report. In a paper titled “Prescription for Great Lakes Ecosystem Protection and Restoration” (accompanying this testimony as Appendix B), the scientists concluded that the Great Lakes are experiencing an historic crisis. Deterioration of large sections of their ecosystem is accelerating dramatically, and if not addressed now, the damage is likely to be irreversible. In their own words:

“There is widespread agreement that the Great Lakes presently are exhibiting symptoms of extreme stress from a combination of sources that include toxic contaminants, invasive species, nutrient loading, shoreline and upland land use changes, and hydrologic modifications. . . . In large areas of the lakes, historical sources of stress have combined with new ones to reach a tipping point, the point at which ecosystem-level changes occur rapidly and unexpectedly, confounding the traditional relationships between sources of stress and the expected ecosystem response. *There is compelling evidence that in many parts of the Great Lakes we are beyond this tipping point. Certain areas of the Great Lakes are increasingly experiencing ecosystem breakdown*, where intensifying levels of stress from a combination of sources have overwhelmed the natural processes that normally stabilize and buffer the system from permanent change.” (emphasis added)

The scientists’ report was a surprise because to many, the Great Lakes and their tributaries seem to be improving. Due to fundamental policy shifts like the Clean Water Act, massive government investment in better sewers, and responsible private initiatives, rivers no longer catch fire; Lake Erie has come back from the dead; the water often looks clearer; and many pollutant indicators have improved. But such observations only scratch the surface, and the scientists looked much deeper to find an ecosystem in crisis. They have documented:

- The destruction of the foundation of the Great Lakes food web in many of the Great Lakes. Populations of the basic food group for most fish, a freshwater shrimp called *Diporeia*, have declined from over 10,000 per square meter of lake bottom to virtually zero over vast stretches of Lake Michigan and the other Great Lakes. The scientists cannot be sure, but they believe the decline is linked to the infestation of the Great Lakes by an invasive species, the zebra mussel, which colonizes the lakebeds in thick mats of shells that extend for acres and acres and leaves the surrounding lakebeds barren of life. A chart illustrating this decline is attached to this testimony as Appendix C. NWF has produced a report describing the devastating impact that invasive species have had on the Great Lakes in a report titled *Ecosystem Shock* that can be found on the Healing Our Waters Coalition website at www.restorethelakes.org/reports.html.

- Lake Erie’s so-called “dead zone,” an area deprived of oxygen, has reappeared in central Lake Erie. Accompanying this anoxic zone is the return elsewhere in the lake of blue-green (toxic) algae blooms, and episodic die-offs of fish and fish-eating birds from avian botulism. Scientists are seeing similar eutrophication problems in Lake Huron’s Saginaw Bay and Lake Michigan’s Green Bay.
- Many fish populations are showing signs of stress and decline in the Great Lakes. Scientists have found “widespread decline in growth, condition and numbers of yellow perch, lake whitefish, and other valuable fish species in Lake Michigan and portions of Lake Huron.”

The scientists concluded that these and other large-scale ecosystem changes result from the loss of the Great Lakes’ capacity to buffer themselves against sources of stress – essentially, damage to the Great Lakes immune system. Much of the buffering capacity for the Great Lakes comes from healthy near-shore communities and tributaries. As these areas are damaged by pollution, hydrologic modifications, invasive species, and shoreline development, they lose their capacity to buffer the Great Lakes. Without that buffering capacity, each new stress – whether it be an invasive species or additional pollution – can set off a cascade of damage to the ecosystem that occurs rapidly and unexpectedly. In the scientists’ words,

“In the Great Lakes, nonlinear changes are no longer a future threat – these types of changes are taking place now. While in some areas some indicators of ecosystem health have continued to improve over the past decade, other large areas of the lakes are undergoing rapid changes where combinations of effects of old and new stresses are interacting synergistically to trigger *a chain reaction process of ecosystem degradation. The rapidness of this chain-reaction process, seen over the past five to fifteen years and involving sudden and unpredictable changes, is unique in Great Lakes recorded history.*” (emphasis added)

As alarming as the scientists’ diagnosis is, they have also identified concrete and achievable remedies:

- *restore* Great Lakes buffering capacity (their immune system) by restoring the ecological functions of their near-shore communities and tributaries. On the ground, this means restoring coastal and riverine wetlands, making shorelines and watercourses more natural, and improving tributary health;
- *remediate* the practices that cause the sources of stress. This means reducing pollution and new damaging habitat alterations and stopping the entry of new invasive species;
- *protect* the functioning parts of the ecosystem from new impairments, particularly through sustainable development practices; and

- *measure* the health and health trends of the Great Lakes to evaluate the effectiveness of the measures taken above.

As discussed below, these remedies are reflected in the Great Lakes Regional Collaboration's Strategy to Restore and Protect the Great Lakes.

Saving the Great Lakes: The Great Lakes Regional Collaboration

Given the national significance of the Great Lakes and their rapidly accelerating deterioration, the Great Lakes Regional Collaboration ("GLRC") recommendations come just in time. The Collaboration is truly an historic event in two important respects. First, it is the first time that all levels of government and virtually all private stakeholders have come together to draft and support a single Great Lakes restoration plan, the "Great Lakes Regional Collaboration Strategy." Over 1,500 people participated in the drafting of the final plan, including cities, counties, state agencies, tribal representatives, federal agencies, Congressional staff, businesses, conservation organizations, university scientists, and concerned citizens. Many of the scientists who drafted the "Prescription" report actively participated in the Collaboration, helping to shape it to reflect the diagnosis and solutions in the report. Healing Our Waters Coalition members also were highly engaged, as were members of industry and local government.

The resulting Strategy sets a second precedent: it is the most comprehensive Great Lakes restoration and protection plan in history. It documents virtually all of the problems besetting the Great Lakes; it recommends concrete solutions; it identifies programs to implement those solutions; and it recommends the funding needed for those programs to succeed.

The Healing Our Waters Coalition is fully supportive of the Strategy's recommendations. Because it is the product of a large and arduous negotiation process, it certainly is not perfect; but it is by far the best blueprint the Great Lakes have ever had for protection and restoration. And if it is implemented quickly, it will give the lakes a fighting chance to reverse the "chain reaction of degradation" the scientists have identified and return to health.

The Strategy's recommendations are a mix of improvements to existing programs, sweeping new program recommendations, and substantial new investments of federal, state, tribal and private resources. This mix is appropriate. Some efficiencies and progress can be gained by improving existing programs and improving coordination among them. So, for example, modifying the Great Lakes Legacy Act will improve delivery of funds to clean up Areas of Concern. But simply improving existing programs is not nearly enough; even if the Legacy Act cleanups are made more efficient, they are woefully underfunded – only \$29 million this year, when the AOC cleanup costs will exceed \$2.5 billion. For that reason, the GLRC Strategy did not only recommend modifying the Legacy Act program; it also recommended substantial funding of \$150 million annually.

Likewise, improvements to existing programs are not enough when there is no effective program to begin with. The most glaring example is invasive species. Scientists generally agree that invasive species are the worst problem facing the Great Lakes. Over 185 invasive species have been discovered to date, and they have wreaked havoc on the Great Lakes, its fisheries, and

its businesses. The GLRC estimates that the economic costs of invasive species to the Great Lakes are \$5 billion per year. The most common pathway of invasive species into the lakes is via the discharge of ballast water from ocean-going ships. Yet there is no effective program for stopping those discharges; the Coast Guard has acknowledged in the federal register that its current programs to control those discharges are ineffective. To address invasive species, then, the GLRC recommends a bold new program: new legislation and regulations to set and implement ballast water discharge standards that reflect the best technology available and protect the Great Lakes.

For the purposes of today's testimony, I will focus on the larger programmatic and funding recommendations of the GLRC Strategy; but I want to emphasize that there are also important recommendations to improve existing programs that I will not discuss today. The major changes recommended by the Strategy and fully endorsed by the Healing Our Waters Coalition include:

- Create a net increase of 550,000 acres of wetlands and 335,000 acres of buffer strips by 2010. This recommendation, made by both the habitat and nonpoint source strategy teams, is critically important to restoring the buffering capacity of the Great Lakes; it aligns perfectly with the scientists' "Prescription" report. Losses of wetlands and riparian buffers have impaired coastal and tributary health; they have magnified pollution pathways; and they have disturbed native species, facilitating the establishment of invasives. In addition to their well-known filtering capacity for chemical pollutants, wetlands can actually repel invasive species and reduce an outbreak after they have become established. More fundamentally, they stabilize aquatic systems, making them more resilient to stress. Implementing this recommendation will not only require new federal and state funding; it will also require changes to the way that agencies make decisions in selecting the wetlands to be restored.
- Eliminate the discharge of untreated or inadequately treated sewage into the Great Lakes system through new funding and better enforcement. This recommendation would provide \$13.75 billion of federal, state and local dollars over five years to upgrade sewage treatment facilities to stop untreated sewage from damaging the Great Lakes and their tributaries. These funds are critical both to protect the health of summer beach-goers and to reduce one of the largest sources of stress to the near-shore coastal communities so important to the Great Lakes immune system. The federal share (in a 55/45 match) would be \$7.355 billion.
- Stop the introduction of new invasive species through new laws and regulations (described above) and by erecting barriers in canals and waterways to repel invaders. Also, determine the feasibility of separating the Great Lakes and Mississippi River systems. As invasive species are the worst source of stress to the Great Lakes ecosystem, implementing these recommendations are essential; the Great Lakes cannot recover without them.
- Provide adequate funding – \$150 million per year – for cleaning up Areas of Concern under the Legacy Act (see above). These sources of toxic pollution permeate the sediments in regions that historically were some of the most biologically productive. These toxic sediments not only add new sources of stress to the system; they also prevent the lake bottom from performing its natural buffering functions. They are a major factor

in the accelerating pattern of Great Lakes ecosystem breakdown, and their remediation is essential to restoring the Great Lakes immune system.

- Double the federal research budget for the Great Lakes. Research funds at the state and federal level have declined in recent years, just as the ecosystem is exhibiting new and complex responses to accumulating sources of stress. To ensure that we are taking the right steps and spending our federal and state investments wisely, we need to be able to measure impacts on the ground and in the water. Significant increases in research dollars are vital to making sure our investments are being used efficiently. A substantial portion of those increases need to be directed at academic research institutions; it is essential to bring together all of the brightest minds and innovations that academia brings to bear to complement the efforts in Federal laboratories.

Next Steps

The Great Lakes Regional Collaboration Strategy expresses the consensus that these and other significant new actions, policy and funding, are urgent and essential for the Great Lakes. Delay may lead to massive and rapid deterioration of the lakes and cost far more than the actions recommended in the Strategy. If we wait, the costs will skyrocket. However, if we make the necessary investments now, we will see excellent returns, both ecological and economic.

To implement the Strategy's recommendations in a timely way, several steps need to be taken, preferably concurrently. They are:

1. A Great Lakes restoration bill needs to be drafted and enacted to implement major portions of the Strategy. The bill will need to incorporate modifications to existing laws, such as the Great Lakes Legacy Act (toxic cleanup) and the Lacey Act (importation of invasive species). It may need to reauthorize existing programs targeted at restoring wildlife habitat and wetlands, such as the Great Lakes Fish and Wildlife Restoration Act. It will also have new programs, such as a \$40 million annual program to support physical restoration of Great Lakes tributaries. Finally, it will need to have much higher authorization levels for existing programs, such as \$150 million annually for the Legacy Act, \$1.35 billion annually to enable cities to upgrade their water infrastructure to stop raw sewage from contaminating our beaches, and additional funds for wetlands restoration programs. The Great Lakes restoration bill introduced by Senators DeWine, Levine and Voinovich last year is a good starting point, but needs to be revised to take into account the GLRC recommendations.
2. Key policy measures can and should move independently. For example, rapid enactment of the National Aquatic Invasive Species Act or equivalent legislation is absolutely critical in addressing invasive species, which scientists agree is the worst problem plaguing the Great Lakes. Attached to this testimony as Appendix D is a letter the Healing Our Waters Coalition has sent to Senator Voinovich on this matter.
3. In the short term, next year's appropriations should implement the GLRC Strategy's recommendations. The Healing Our Waters Coalition has culled the top budget

recommendations from the Strategy, consulted with the Great Lakes Mayors and the Great Lakes Governors, and identified FY 07 budget priorities. Those are attached as Appendix E.

4. One of the FY 07 priorities deserves special mention: funding to make permanent and operate the electric barrier in the Chicago Sanitary Ship Canal. This barrier, now temporary and lacking funds for operations, is the only obstacle between a voracious invasive species, the Big-Headed Asian Carp, and the Great Lakes. These carp eat every aquatic organism in their path. Once into Lake Michigan, they will out-compete all native fish and turn the Great Lakes into a giant carp farm. Funding for the barrier is absolutely critical to saving the Great Lakes, their fisheries, and their economy.

Conclusion

The Great Lakes Regional Collaboration's Strategy to Restore and Protect the Great Lakes provides a first-ever comprehensive blueprint to return the Great Lakes to health, and just in time. According to leading scientists, the lakes are suffering ecosystem breakdown, a chain reaction of degradation that could become irreversible if action is not taken quickly. This deterioration, if unchecked, will have massive ecological and economic consequences for the Midwest and the nation.

As essential and useful as the Collaboration's Strategy is, it is only a first step. Without implementation, it will simply become yet another Great Lakes plan, sitting on a shelf and gathering dust.

We commend you, Mr. Chairman, and the members of this Committee for your leadership in scheduling this hearing and maintain the momentum for Great Lakes restoration. We particularly would like to thank Senator Voinovich for his longstanding efforts as a champion of the Great Lakes.

This Committee is uniquely situated to transform the Collaboration's Strategy into concrete action. We encourage you to exercise your outstanding leadership to ensure that the Strategy's recommendations are implemented.

The Great Lakes are the natural infrastructure of the Midwest, the industrial center of the nation. Just as bridges and roads crumble without adequate investment, so are the Great Lakes deteriorating. The longer the wait, the more expensive the investment will be and the more we will lose because of the delay. On the other hand, if we act now, the Great Lakes will return to health, bringing with them jobs, recreation, tax revenues, wildlife, and the future on an entire region.

