

Chicago Fed Letter

Fresh Water and the Great Lakes Economic Future— A conference summary

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On November 10, 2008, the Federal Reserve Bank of Chicago's Detroit Branch hosted a conference to examine fresh water's role in the economic future of the Great Lakes region. Participants discussed policy, development, and restoration issues involving the region's abundant freshwater resources.

Materials presented at the conference are available at www.chicagofed.org/news_and_conferences/conferences_and_events/2008_fresh_water.cfm.

The conference had three main objectives. One was to look at the key drivers of growth in the Great Lakes region,¹ particularly the attractiveness of its natural amenities such as fresh water and forests. The second was to debate the costs and benefits associated with cleaning up the region's abundant open waters and with building residences and businesses near them. The third goal was to discuss how industries, especially those based on water treatment technologies, might be able to further transform the region.

To start the conference, William Testa, Federal Reserve Bank of Chicago, discussed different opinions about fresh water's role in the future of the Great Lakes economy. Many believe there will be an economic resurgence in the Great Lakes region because of water's scarcity in other parts of the country. However, others fear that such water demand will lead to the diversion and depletion of the region's freshwater resources.

The recently finalized Great Lakes–St. Lawrence River Basin Water Resources Compact, signed by President George W. Bush in October 2008, imposes rules on further water withdrawals while requiring states to take up new management and conservation programs. Testa said the compact “gives the region some assurance that it can plan to preserve and

develop its natural advantages of abundant water in ways that secure a brighter future.” Testa went on to explain that the Great Lakes region has multiple (though sometimes competing) sets of policy options. One set focuses on the preservation and cleanup of the Great Lakes; this set includes all related regulations and land use and water consumption policies. Another set involves infrastructure and economic development programs originated by communities to promote the recreational and residential uses of Great Lakes waters. An additional set includes the region's strength in freshwater treatment technology, generated in many instances by strict regulations intended to improve the water's quality. These regulations, Testa noted, have spawned an increase of water treatment firms, as well as university-level research in related fields, throughout the region; such businesses and intellectual capital could put the Great Lakes region at the forefront of freshwater technology.

Growth driven by natural amenities

Mark Partridge, Ohio State University, kicked off the first session by focusing on the effects of natural amenities (e.g., climate, water, and landscape) on U.S. migration patterns. Partridge noted that, although about 50% of those who migrate do so because of good job opportunities,

the other 50% move because they are drawn to certain natural amenities. In his research, Partridge found that weather is a key factor in “amenity-led migration.” (Water played a significant role only in migration to rural areas, he stated.) Between 1950 and 2000, the fastest population growth occurred in warm weather locations, i.e., the Sun Belt. However, between 2000 and 2007, amenity-led growth in the U.S. also occurred in colder areas, which seems to show that some people prefer colder climates and the associated winter recreation. This trend was evident

techniques and sustainable methods using water as an energy source.

Austin alluded to the “magic” appeal of water, by which he meant that water has some undefinable quality that attracts people. Because of this factor, Austin contended that water can be an economic good for the region through such various avenues as recreation and tourism, waterfront development, and freshwater technology research. To support this idea, Austin referenced a Brookings Institution report² that found a \$25 billion dollar cleanup of the Great Lakes region would

policies to reverse the negative effects of contamination are administered poorly. Braden stated that the value-added features to an AOC turnaround might include the development of recreation, tourism, and commercial properties, as well as ecosystems.

David Albouy, University of Michigan, reminded conference participants in a follow-up discussion segment that, while clean natural amenities remain an important part of economic growth, other aspects of an area need to be enhanced as well. Albouy emphasized the importance of making cities’ downtowns vibrant. To create urban vitality in the Great Lakes region, an injection of investment into cities’ infrastructure may be needed. According to Albouy, individuals want a combination of a robust economy, natural amenities, and a strong local community—key components that make up an “attractive” place.

Transforming the Great Lakes region into the “Freshwater Coast” requires a cleanup of its environment and natural resources and significant improvements in infrastructure.

in the upper Great Lakes region. As places with warmer climates started to get crowded and their housing prices increased, some people looked to other areas with alternative types of natural amenities and lower housing costs. For the Great Lakes region, fresh water and the surrounding natural environment may support population growth and attract businesses that require significant amounts of water as an input (e.g., those in the food industry). Therefore, Partridge recommended that the Great Lakes region focus on maintaining and improving the natural amenities, as well as creating job opportunities, to best leverage the recent migration trends toward colder and less crowded areas with less expensive housing.

Cost-benefit analysis of Great Lakes restoration

John C. Austin, New Economy Initiative for Southeast Michigan, argued that fresh water could play a critical role in the Midwest’s emerging knowledge-based economy. Austin pointed out that the Midwest has contributed much talent and many new ideas (observed in the number of patents awarded to the region), but it has the resources to do even more. With its network of research universities and associated firms, he argued, the Great Lakes region could become the education center for water conservation

yield an \$80 billion–\$100 billion payoff. The Great Lakes restoration can have a real economic impact by helping the region become a “special” place where individuals want to live and compete globally, but transforming this region into the “Freshwater Coast” requires a cleanup of its environment and natural resources and significant improvements in infrastructure.

John Braden, University of Illinois at Urbana-Champaign, also talked about the costs and benefits of a Great Lakes restoration. In the Great Lakes–St. Lawrence River Basin, which lies in both the U.S. and Canada, 40 areas of concern (AOCs) require significant investment to be restored. Of the \$250 million authorized in the Great Lakes Legacy Act, 50% has been appropriated for cleanup purposes. Yet, some question whether the attendant restoration efforts will fully offset the losses in economic value from the accumulated contamination to the Great Lakes region. Braden studied the costs of contamination by measuring the losses in the value of homes in and around the contaminated areas as an indicator. For 23 U.S. AOCs,³ Braden estimated that the homes’ cumulative loss in value was \$1.7 billion.⁴ Although the costs of cleanup range from \$1.5 billion to \$4.5 billion, remediation alone may not fully recover all the value lost. The restoration effort will ultimately be of little consequence if the additional

Recreation and retirement

In the second session, Steven Deller, University of Wisconsin–Madison, discussed recreation and retirement counties in the Midwest. These days, more people are choosing to relocate at retirement, often so that they can enjoy a more active and healthier lifestyle. Retirees look for three different things: cultural amenities, warm weather, and natural amenities such as lakes, forests, and mountains. Therefore, the northern third of Michigan and parts of Wisconsin and Minnesota have become popular retirement destinations for those desiring natural amenities. Older individuals’ summer homes in these areas become their full-time homes during retirement. Some retirees choose to purchase lakefront property, while others have turned to buying small farms that no longer produce agriculture. Deller argued against the commonly held view that retirement and recreational areas are associated with poverty, even though they do tend to provide lower wages. Countering the notion of a “gray peril,” he noted that retirees support the local economy through their willingness to pay higher taxes and invest in local schools. Also, retirees do not drain the area’s health care, he explained, because many of them relocate closer to their families as their health deteriorates.

Michigan's recreation and tourism

Don Holecek, Michigan State University, stated that Michigan has more miles of coastal water than any other state except Alaska, but Michigan ranked only 44th in state per capita direct travel spending in 1999. As Michigan's economy continues to weaken, Holecek argued, the state needs to look to its other resources such as its extensive coastline and natural amenities to create a tourism industry like those of Nevada and Hawaii. Currently, the vast majority of Michigan tourism comes from midwestern residents. So, Michigan needs to expand its market to new domestic and international tourists. To successfully expand tourism, Holecek said, Michigan needs to overcome a few issues: Michigan needs to develop and modernize the infrastructure surrounding its natural amenities; allow more access for the public to its waterfront; and enhance water resource protection. Lastly, Michigan still needs to develop an organizational and product delivery system—with strong political and economic backing—that will enhance and promote Michigan's natural resources for both recreational and environmental ends.

Urban waterfront revitalization

Ann Breen, The Waterfront Center, displayed numerous examples of cities worldwide reclaiming their waterfronts through redevelopment. Breen emphasized it takes a significant amount of time and investment to complete a waterfront project. Hartford, Connecticut, and Providence, Rhode Island, are examples of cities that overcame major obstacles to revitalize their waterfronts after their textile firms, which formed their main industry, moved manufacturing overseas. In general, Breen noted, each redevelopment project must begin by building an extensive awareness among the public to generate energy, interest, and support for the project. For example, one important step for Detroit's waterfront redevelopment was to post signs informing residents that they were, in fact, on the "Detroit Waterfront." In some cities around the world, developers have incorporated into their green spaces several sculptures and other structures that actually monitor the quality of the adjacent body of water. Breen also

mentioned the increasing frequency of mixed-use projects, which combine housing and businesses along a waterfront, allowing each to support the other.

David Ullrich, Great Lakes and St. Lawrence Cities Initiative, brought to light the goals and key concepts of the initiative, which is a group of U.S. and Canadian mayors and other local officials who actively work to protect and restore the Great Lakes and St. Lawrence River. The initiative focused first on addressing the region's water quality and quantity, as well as the waterfront's vitality. Currently, over \$15 billion is being invested annually in the Great Lakes basin ecosystem—the majority of which is used to improve the region's water quality. Doing this requires the removal of invasive species from the water. To improve water quantity, 33 cities have agreed to reduce water usage by 15% over the period 2000–15. Waterfront development that preserves natural habitats, Ullrich said, reacquaints citizens with local natural amenities that in some cases have gone unnoticed because of industrialization.

Responsibilities of the Great Lakes region

John Cherry, Jr., the lieutenant governor of Michigan, delivered the conference keynote speech, noting the special obligations the region has to its economic asset the Great Lakes. The responsibilities are to clean, protect, and enjoy the Great Lakes waters and teach the world how to "smartly manage a finite and increasingly valuable global resource." Cherry listed four goals the region must achieve in order to capitalize on the "magic" appeal of water. First, there can be no toxic or quarantined areas of water due to pollution or contamination. Second, beaches should remain open and allow public access and enjoyment. Third, the area's native fish should be abundant, safe, and edible. Finally, wetlands, dunes, and beaches should afford public access and enjoyment while filtering damaging sediments. Cherry cited a recent study that found that for every dollar invested in the Great Lakes' restoration, there would be three dollars in return (in terms of jobs and other economic gains) to the region. Research institutions throughout the region should be at the forefront

of developing the water conservation, management, cleaning, and treatment technologies needed not only in the U.S. but across the world. Michigan and the rest of the Great Lakes region should lead the development of new freshwater technologies; by doing this, not only will they create new jobs, they will also generate more knowledge on water and sustainability issues that can be shared nationally and globally.

Clean water's industrial legacy

Like Cherry, Sammis B. White, University of Wisconsin–Milwaukee, argued that restoring and improving the Great Lakes will create new jobs. The Milwaukee region formed a regional water cluster called the Milwaukee 7, which helps address water quality and quantity problems. Effective water clusters utilize the experienced talent who work among the regional firms and collaborate with other water researchers to obtain financing for their projects. Milwaukee has firms of all sizes, including five of the world's 11 largest water companies, along with engineering schools and independent freshwater researchers. The Milwaukee 7 has identified some 50 regional water problems, generating momentum to find solutions; however, more public and governmental pressure must be applied.

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The Milwaukee 7 faces numerous political, municipal, and technological challenges, White said. One important challenge is to speed the openness to innovation through competitive bidding and have more firms engage in the bidding process. The region can take more steps to build significant water clusters by pushing the U.S. Environmental Protection Agency to toughen water standards, promoting new biofuel initiatives, pressuring a federal decision on ballast water, and selling the solutions to its water problems to other regions and countries. Lastly, White observed that only \$15 million per year is devoted nationally to water research and development; this amount needs to be increased.

Gil Pezza, Michigan Department of Economic Development, spoke about the mission and strategy of the Michigan Economic Development Corporation's Water Technologies Cluster Initiative. The water cluster's mission is to position Michigan as a center of excellence for the development and commercialization of water technologies and management systems by leveraging Michigan's abundance of fresh water. In addition, the cluster will use Michigan's university-based research and development facilities and expertise, advanced manufacturing capabilities, and environmental leadership and stewardship. The first step of the water cluster's main strategy is to uncover new technology needs. Once needs are established, the cluster identifies technology that is two to four years away

from rollout and the associated companies that can fill the technological need. Then, the cluster helps bring together these companies and finds funding to facilitate full-scale project testing and, if this testing is successful, the eventual rollout of the new technology.

Austin, White, and Pezza went on to discuss the future relationship between industry and fresh water. They concurred on several goals that must be attained. First, existing water technologies must be studied and a working supply chain must be employed to complement these technologies. Next, permitting policies that contribute to water technology development should be fashioned. Then, the region must encourage research, development, and learning centers for new and sustainable technologies, which can transform the region's economy by attracting more people and funds. Also, water conservation practices must be built into the regional framework of the manufacturing, construction, and engineering economy. Austin, White, and Pezza concurred that, if competitive firms use their collective interest in freshwater technology and work together, such collaboration would benefit all participants. Lastly, state and local governments need to be on the leading, not lagging, edge of adopting green technologies and new regulatory frameworks for the environment.

Conclusion

This conference explored the policy, development, and restoration issues

involving the Great Lakes region's abundant freshwater resources. Conference participants agreed that we must become better stewards of our natural amenities so that we can draw more residents, tourists, and businesses to the Midwest. Many agreed that improvements in infrastructure near our natural amenities would be required to bring more people and firms here. Finally, there was great urgency and optimism surrounding the prospects for industries based on freshwater technologies, in coordination with universities and public entities, to contribute significantly to the region's economic development.

¹ Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, and New York border the five Great Lakes (Superior, Michigan, Huron, Erie, and Ontario), forming the U.S. portion of this region. Only the first six states are considered wholly within the Midwest. The Canadian province of Ontario also borders the lakes.

² John C. Austin, Soren Anderson, Paul N. Courant, and Robert E. Litan, 2007, "Healthy water, strong economy: The benefits of restoring the Great Lakes ecosystem," Great Lakes Economic Initiative, Brookings Institution, Metropolitan Policy Program, September.

³ There are technically 26 AOCs in the U.S., but Braden only studied 23 of them.

⁴ This loss in value was calculated by Braden for the residential properties in the 23 AOCs (with the exception of very large and overlapping cases), using 2000 median home prices and quantities within a two-mile radius.