



# ***Water is our Past – Water is Our Future***

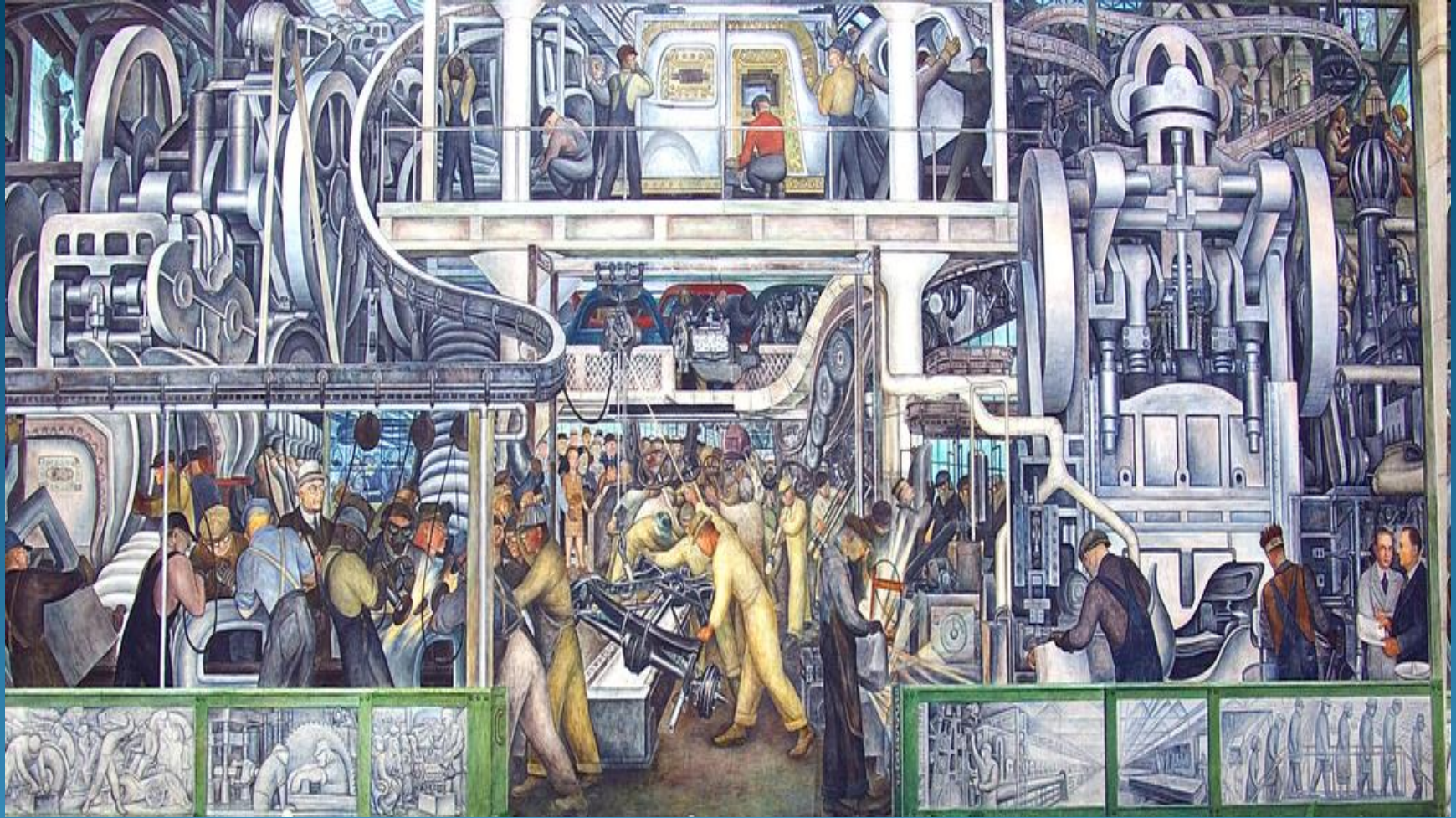
***How the Great Lakes Region's Water-rich Location and Water Innovation Can Drive a New Growing Blue Economy***

**Cleveland State University**

**April 21, 2016**

**John Austin, President, Michigan State Board of Education  
Director, Michigan Economic Center at Prima Civitas  
Non-Resident Senior Fellow Brookings Institution**





The Great Lakes led one economic transformation – as the inventors of the factory economy that gave us jobs, great wealth and great life here in the Midwest, the “Rust Belt” until the world and economy changed dramatically.....what’s our future?

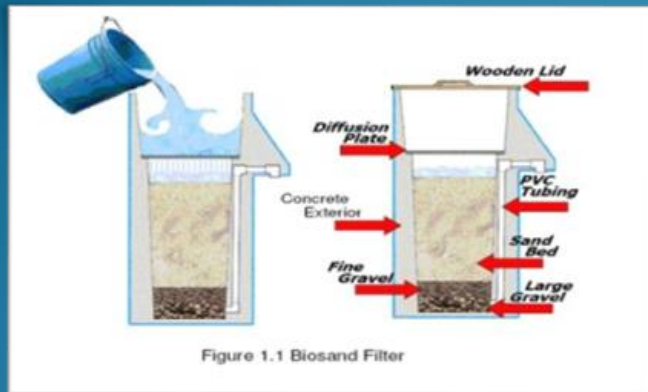


An aerial photograph of the Great Lakes basin, showing the five Great Lakes (Superior, Michigan, Huron, Erie, and Ontario) and the St. Lawrence River. The water is a deep blue, and the surrounding land is a mix of green and brown, indicating a mix of forest and agricultural land. The text is overlaid on the right side of the image.

The next economic transformation centers on how we grow a “Green and Blue” economy – helping a rapidly urbanizing world develop and deploy new more sustainable energy, water, mobility and food systems. And make water, food, green spaces and transportation accessible to all.



There are lots of “green” and ‘blue” solutions...

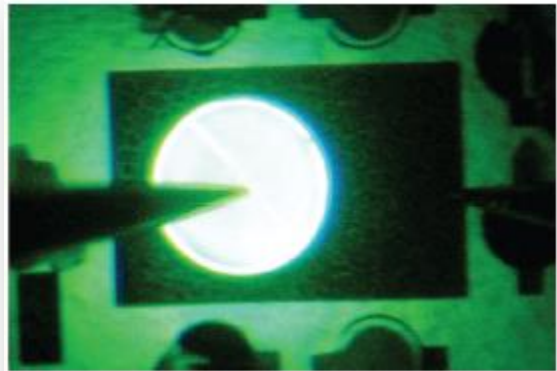


# Example: “The 10 watt solution for an energy cottage industry”

Flexible photovoltaic sheets or fabrics deployed on roofs of huts and yurts

What can we do with 10 Watt DC off grid?

- Water pumping (0.1 liter per second from 10 m depth)
- Water disinfection with UV diodes
- GaN light emitting diodes
- Charging a cell phone



Deep-UV AlN LED (Crystal-IS)  
-vs. Chlorine-resistant *Cryptosporidium*



70% of Africa is off-grid

That create new jobs *and* also create more vibrant, attractive and sustainable communities, that have attributes and communicate values that make them attractive places to live, work and play.







**Water is at the center of this new sustainable “Green – Blue” economy – essential for life, and everything else...**

Without it...





Water is also a magical backdrop to life...



BROOKINGS



**But how does water matter to the economy? What does this coming ‘Blue Economy’ look like?**





We always talk about the Great Lakes region, with 20% of world's surface freshwater, around which live **50,000,000 people**





# And the scale of our waterfront real estate...

**THE GREAT LAKES & ST. LAWRENCE RIVER REGION  
HAVE OVER 11,000 MILES OF LAKE FRONTAGE**

**THIS EQUATES TO THE DISTANCE BETWEEN CHICAGO,  
ILLINOIS, & PERTH, AUSTRALIA.**

CHICAGO

PERTH





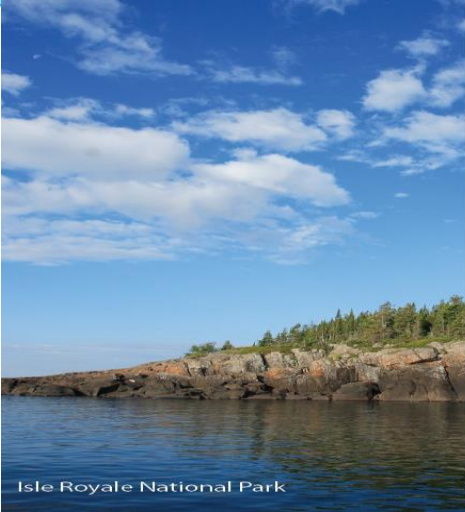


# And our world leading centers of research and learning...

- TOP INSTITUTIONS OF HIGHER LEARNING
- 20 OF WORLD'S BEST RESEARCH UNIVERSITIES ARE HERE – MORE THAN ANY OTHER REGION
- JOINING RICH NETWORK OF COLLEES & COMMUNITY COLLEGES TO PRODUCE THE TALENT - ENGAGED IN THE FUTURE OF WATER, TECHNOLOGY AND THE PLANET
- PUBLIC-PRIVATE SECTOR INNOVATION
- GLOBAL CLASSROOM
- LED GREEN REVOLUTION – CAN LEAD BLUE REVOLUTION



# And how water makes magical places to live, work & play



Isle Royale National Park



Ottawa Canyon, Ontario



Pt Pelee, Lake Erie



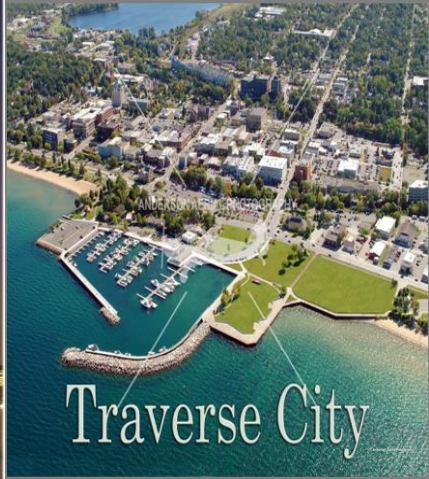
Algonquin Provincial Park



ROCHESTER



TORONTO



Traverse City



BROOKINGS



But not if all this water is toxic,  
noxious, or on fire, or you can't  
use or get to it...



Cleveland



**And with *Healthy Waters, Strong Economy: Economic Impact of Great Lakes Restoration* report, came the reality that clean water and restoration make you rich! Lakes and their waterways are a major economic and environmental asset**

Metro benefits of restoration, in millions of 2006 dollars:

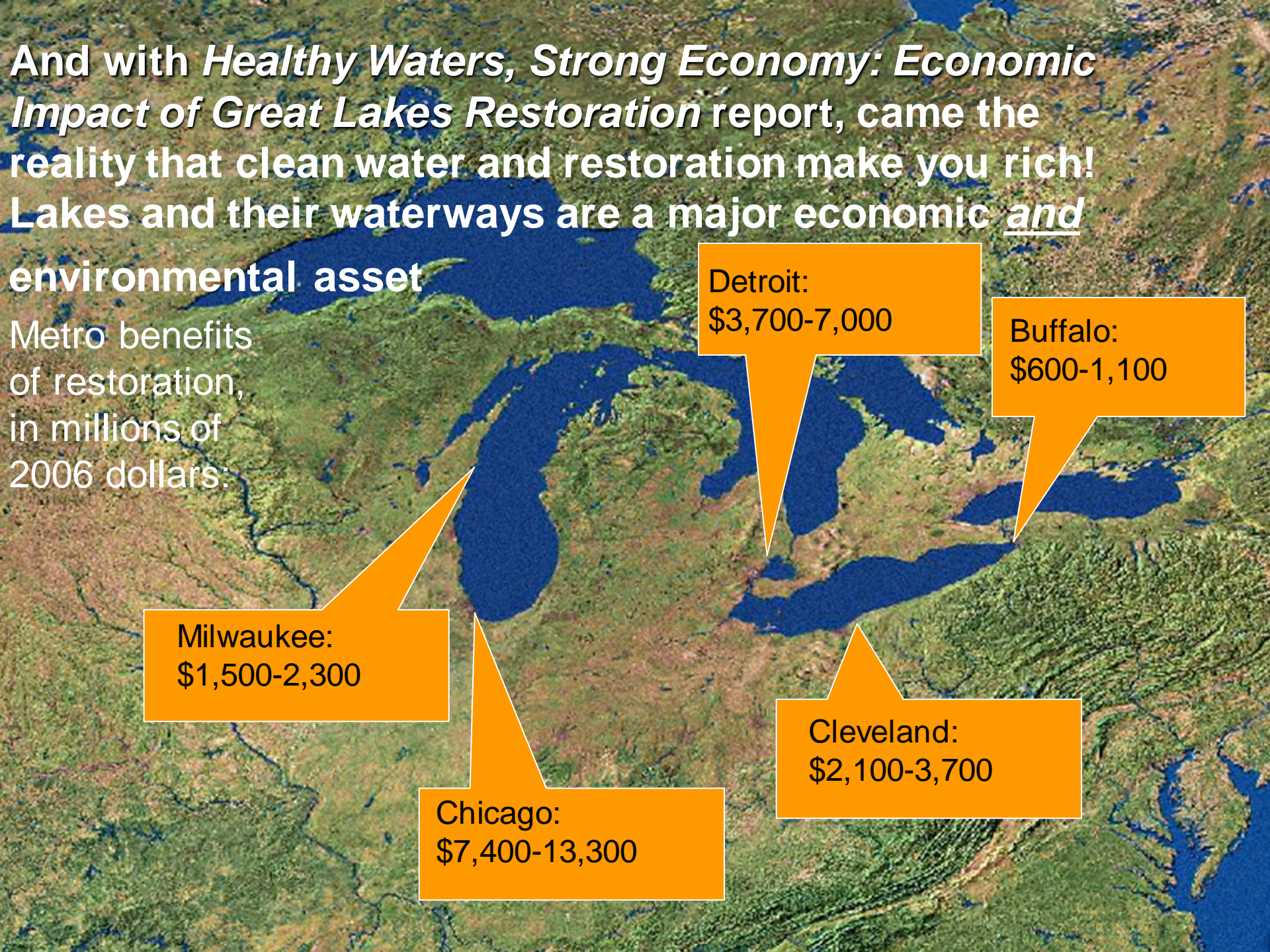
Milwaukee:  
\$1,500-2,300

Chicago:  
\$7,400-13,300

Detroit:  
\$3,700-7,000

Buffalo:  
\$600-1,100

Cleveland:  
\$2,100-3,700





# But what does this really add up to?... How big is this Blue Economy opportunity?







**The Blue Economy: the five ways water and water innovation creates jobs and drives economies.**

**The Legacy Ways:**

- **Blue Highways**
- **Blue Resources**

**The Emerging Ways**

- **Blue Business**
- **Blue Research and Innovation**
- **Blue Places**



# Legacy Ways: Blue Highways – Blue Resources

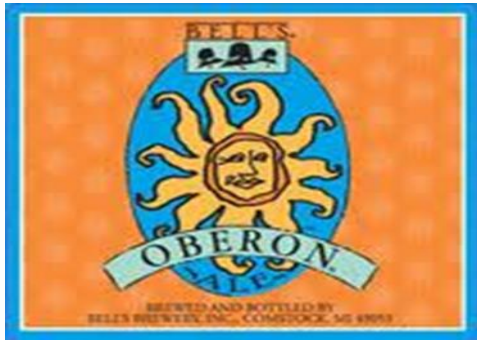
## Shipping, Ports, Fishing



Great Lakes States and Provinces: Over 200,000 jobs



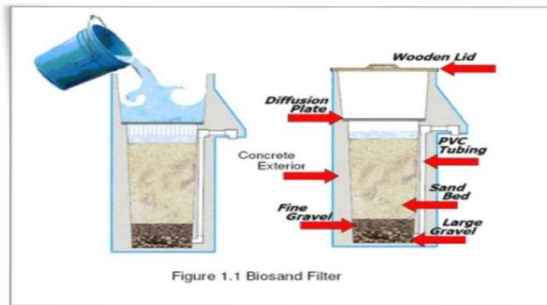
# Big Water Using Businesses: Agriculture, Energy, Manufacturing, Beverages



Great Lakes States and Provinces: 5.3 million jobs  
Almost 1/3 as many as total US



# Emerging Water Products and Services For Trillion \$ Global Water Technology Market



Great Lakes States and Provinces: 1.2 million jobs  
(Almost 1/3 as many as total US)

Fast-growing VC \$ to water tech: over \$370 million  
in US; \$50 billion water asset funds globally



# Centers of Education, Research and Innovation



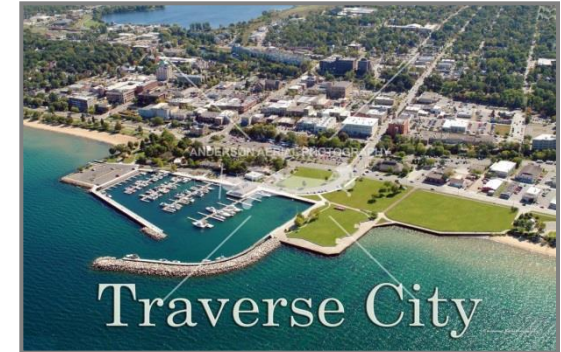
Michigan Tech

If Michigan's 3 top Research Universities do \$300 million in R&D  
Great Lakes 20 Top Tier: \$2 billion in water R&D

If Michigan's 9 Univ. Water Centers, 18 Community Colleges train thousands in water work; Great Lakes Universities-Colleges educate tens of thousands



# Water Place-making and Lifestyle



If Michigan's Restoration, Place-Making, Boating, Fishing, Recreation and Tourism adds up to 210,000 jobs and \$7.5 billion annually

Great Lakes States and Provinces well over 1 million jobs - \$50 billion



# ‘Blue really is the New Green’

## Green Economy

Wind, solar, battery, bio-mass, next energy technology creation

Building retrofits, turbine machining, solar panel production, transit-building: “green collar jobs”

“Greenways”, parks, open-space: “green” places

Green lifestyles and values: Green roofs, recycling, local food, energy conservation, sustainable living

## Blue Economy

Water cleaning, monitoring, conservation products and services

Building retrofits, water infrastructure repair, Filter making, “blue-collar” jobs

“Blueways”, wetland preservation, waterfront renewal, water trails

‘Blue’ lifestyles and values: Rain-gardens, grey water systems, green infrastructure water-saving lifestyles



# And when you put the Blue Economy building blocks together

Look at Milwaukee....

River makeover.... Open up Lake Michigan... Celebrate Lake  
Univ. of Wisconsin-Milwaukee Water Institute.... Marquette Water Law  
and Business... Water Cluster - The Water Council.... BadgerMeter,  
A.O. Smith, Veolia, Koehler.... One of UN global cities leading in water  
innovation





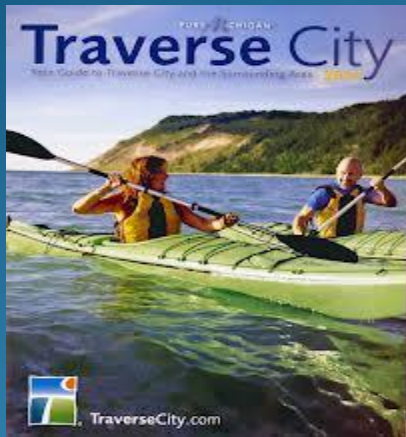
Grand Rapids....“Greenest” US mid-size city, led by smart water use...putting “rapids” back in the Grand...core city re-development facing the river for talent retention...repurpose manufacturing like Cascade Engineering water purifying products.... GVSU- Annis Water Resources Institute.




BROOKINGS



# Marquette, Duluth, Hamilton, Cincinnati, Pittsburgh, Cleveland, Traverse City, now Buffalo are “doing it” ...







# *With World Water Crisis and Scarcity Starting to See Headlines:*

**As drought parches Southwest, water could transform Rust Belt into Blue Belt**

[THE REPUBLIC | AZCENTRAL.COM 3:44 P.M. MST OCTOBER 29, 2015](#)

“After exporting residents to the sunny Southwest for decades, the Great Lakes states see water as their new calling card.....”



The  
Economist

**The Great Lakes**

**From rustbelt to bluebelt**

**Could water be the Midwest's ticket to economic rebirth?**

Aug 1st 2015 | CHICAGO | [From the print edition](#)



Every farm, office, factory, home, building and community needs to use water much more efficiently.





# Make Blue Places that allow you to enjoy the water, *and* where you treat it well





# Lessons in Blue Economy-Building

Restore, Clean, Re-Connect to, and Celebrate Water

Leverage and Grow the Water Education, Research and Innovation Centers of Excellence and Activity

Support Businesses Growing Sustainable “Smart Water” Solutions – new products and services solving emerging global freshwater challenges

Embrace Values of Sustainable Water Use, Water Stewardship, Water Innovation- Sends message Great Lakes is the place where we care for our water, and are solving world’s water challenges.

**SEE: [MICHIGANBLUEECONOMY.ORG](http://MICHIGANBLUEECONOMY.ORG) for more**





Then Rust *will* become Blue





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