

Michigan's Water Heritage

A Strategy for the Next Generation

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Director, Office of the Great Lakes

7 November 2014



Midwest Born From Great Lakes



- The Great Lakes and their tributaries made the Midwest what it is today.
- Lakes provided transportation, drinking water and food – all critical to settlement.



- First millionaire in U.S. was American Fur Company owner John Jacob Astor
“An empire built on canoes.”





environmental sustainability, system
resilience and economic vitality



LEADERSHIP SUMMIT ON MACKINAC ISLAND



MAY 31 - JUNE 2, 2013



Mackinac Island, Michigan - June 1, 2013

RESOLUTION

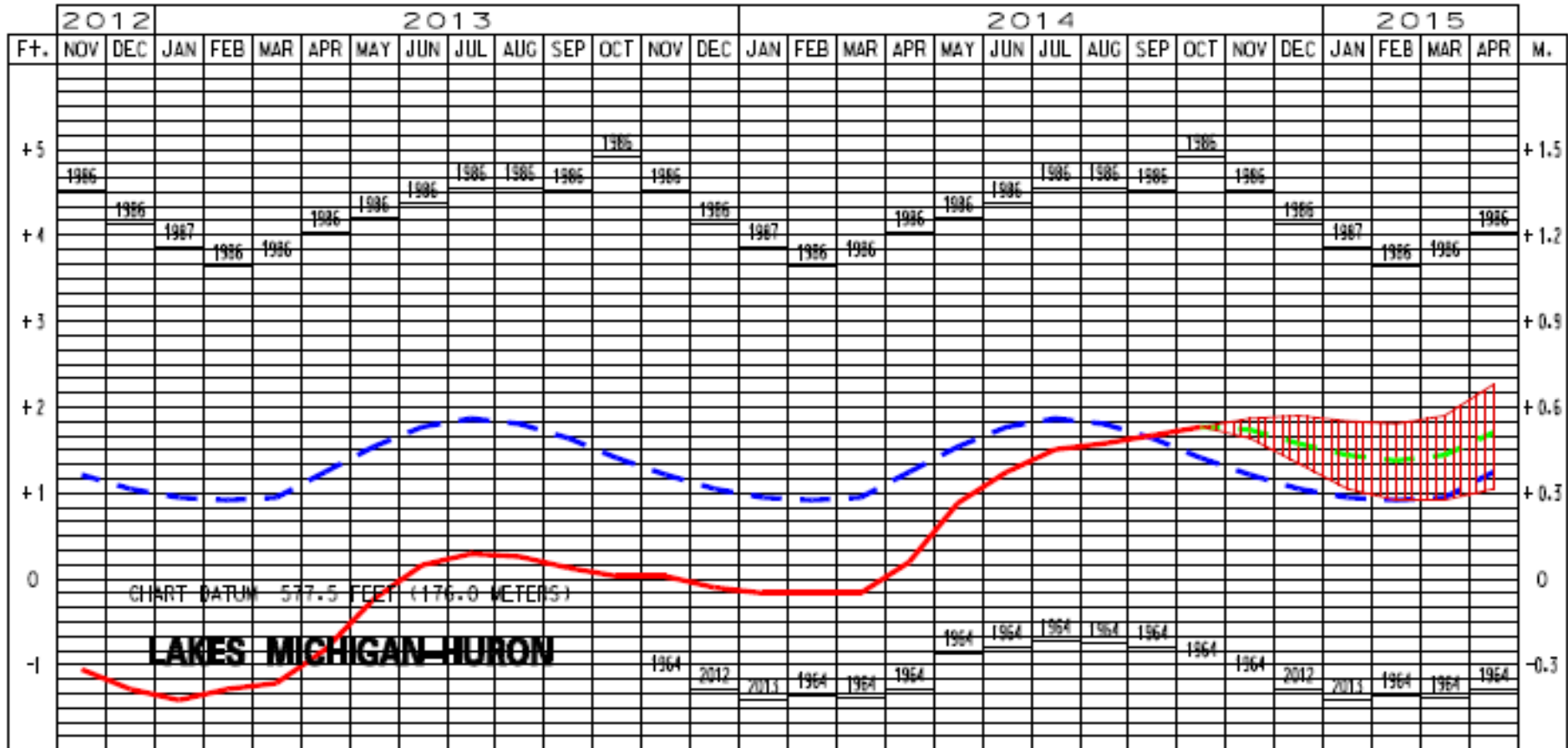
GREAT LAKES-ST. LAWRENCE RIVER MARITIME INITIATIVE

Governors' Great Lakes Agenda

- **Invasive Species** – Mutual aid, regional solutions
- **Maritime Initiative** – Improve maritime transportation and infrastructure for internal and external markets
- **System Monitoring** – Data, management and information systems for social, economic and environmental outcomes.
- **Regional Tourism** – Visibility and attractiveness of Great Lakes Region internationally for tourism
- **International Trade** – Investment models, to attract direct foreign investment; connect mid-market firms
- **Great Lakes-St. Lawrence River Water Partnership** – Coordinates international trade missions, creates a regional brand and region-wide collaboration

A Variable System

LAKES MICHIGAN-HURON WATER LEVELS - NOVEMBER 2014

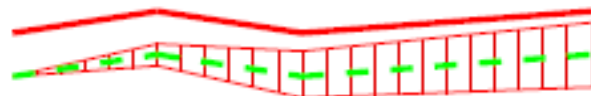


LEGEND

LAKE LEVELS

RECORDED

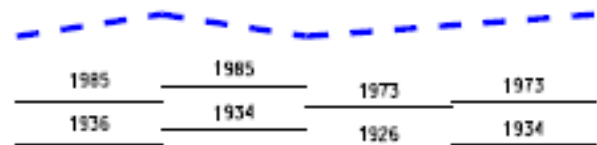
PROJECTED



AVERAGE **

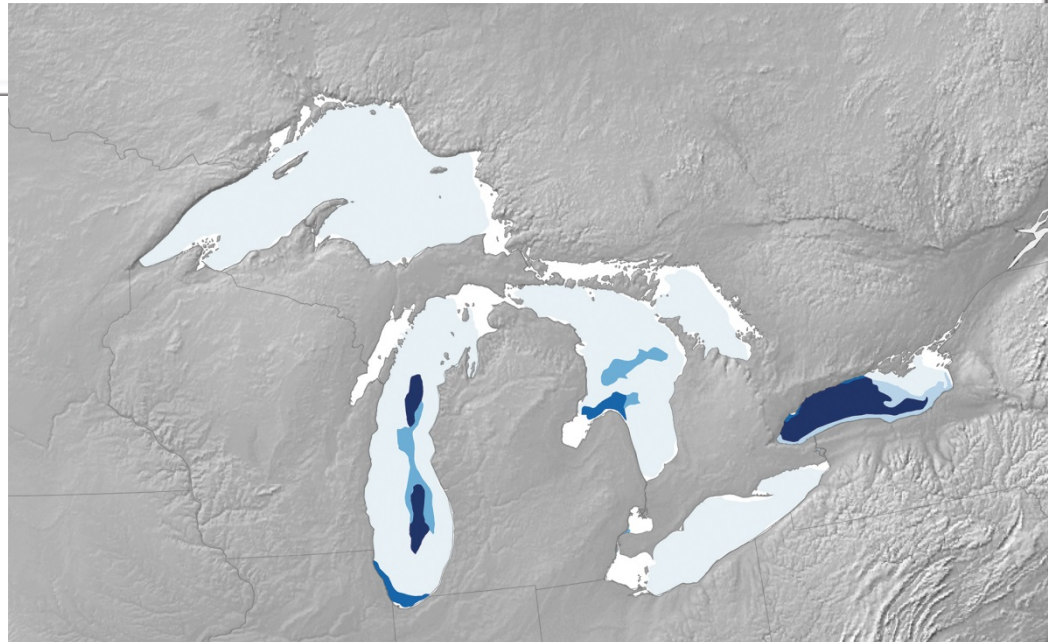
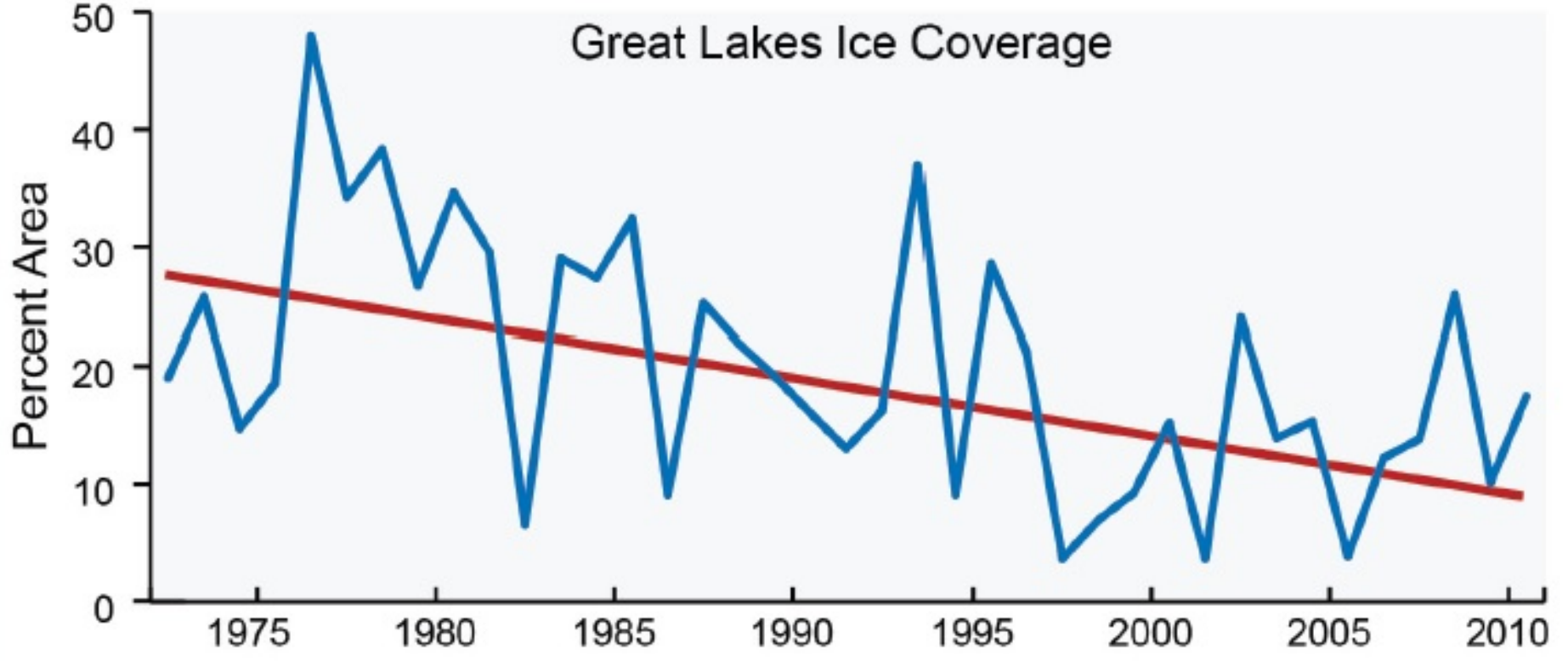
MAXIMUM **

MINIMUM **



** Average, Maximum and Minimum for period 1918-2013







A Water Strategy built on “Ecosystem Approach”

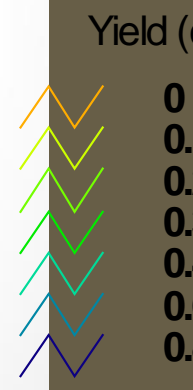
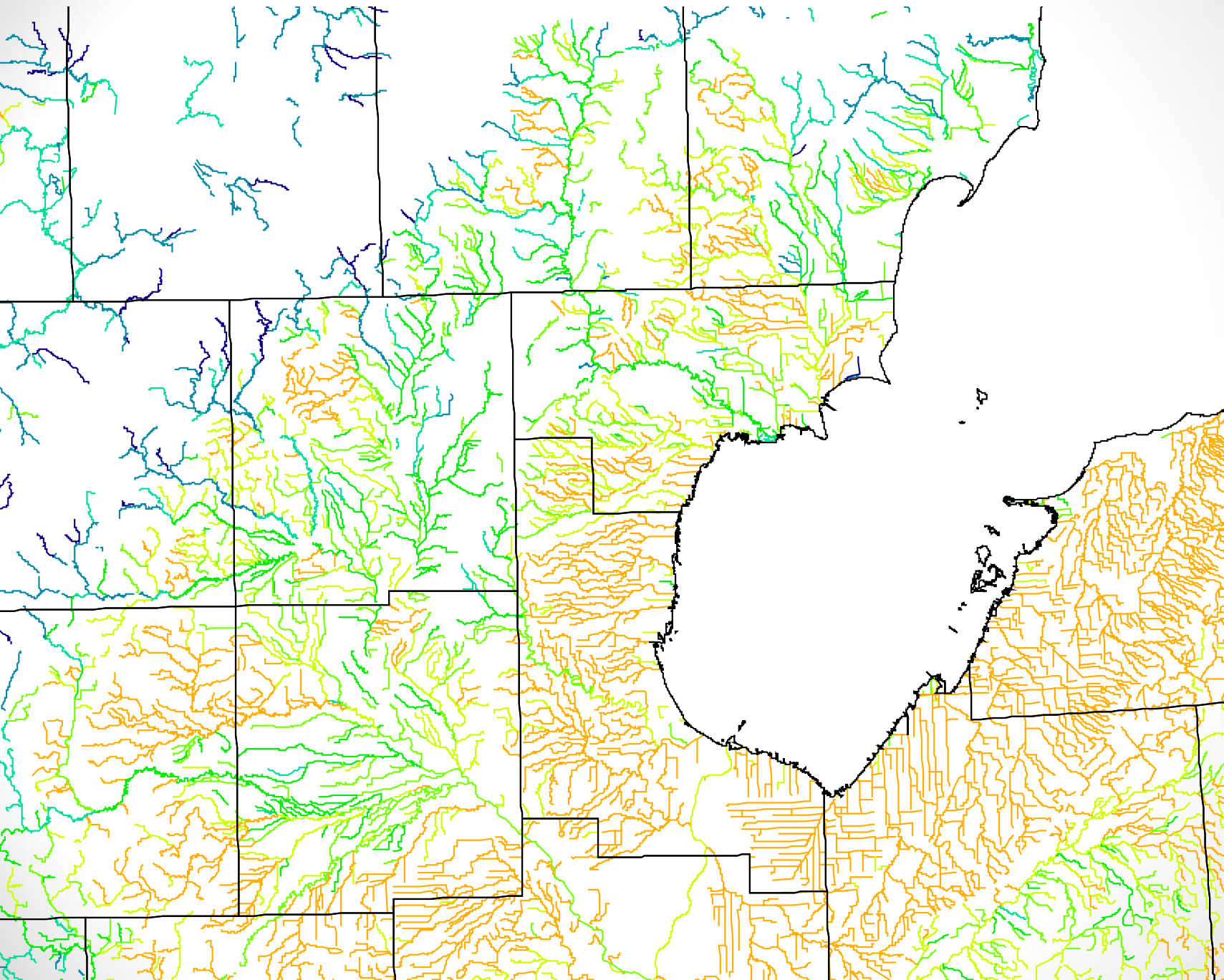
- Healthy Functional Systems and Environment
 - Physical Processes, Biological Health and Hydrological Connectivity
 - Resilience
- Human Use and Enjoyment
 - Use, Assimilation of Waste, Commercial Transportation, Recreation
- Quality of Life, Wellbeing and Social and Cultural Values
 - Placemaking and Community



Water Strategy Themes

- **Reestablish and Maintain Clean and Healthy Functions and Flows**
 - Manage infiltration, storage and hydrology
 - Threats from biological, chemical and physical
- **Support [conditional] access for appropriate uses**
- **Manage Infrastructure**
- **Grow Prosperity**
 - Remove legacy drag
 - Nurture technology innovation
 - Leverage strategic value of water
- **Build out Knowledge Systems**
 - Accounting for economic, social and ecological outcomes
- **Treat Water as a Focal Point (Strategic Asset) for People and Place**
 - Placemaking
 - Manage Conflict
 - Build water literacy, stewardship and care







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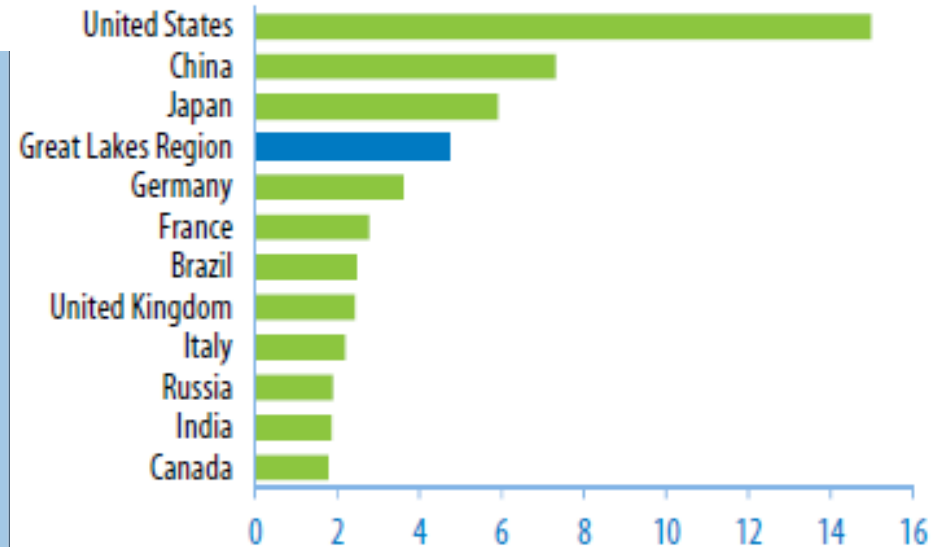


Economic Value

- The Great Lakes region is a huge financial power
- Gross production is **fourth** between Japan and Germany.



CHART 2
GROSS DOMESTIC PRODUCT
2011 (US\$ trillions)



Historical Economic Perspective

- Timber was king from the Civil War until the late 1890s, leading to large-scale deforestation in Michigan, Wisconsin and Minnesota.
 - After the great Chicago Fire of 1871, the city was rebuilt in record time from Michigan white pine.





Growing Pressures on Water

- **World-wide**
 - Urgent needs for supply and sanitation.
 - 3 billion people entering middle class by 2045
 - 2.5 billion people currently lack access to safe sanitation
 - ½ of world population will live in high water stress by 2030
 - Global demand for projects in the trillions of dollars over next decades.
 - Agriculture accounts for **70% of global freshwater withdrawals**
 - Significant pressure on water resources as populations grow.
- **Pacific Institute and Vox Global survey (2013)**
 - 80% of U.S. companies say water availability is a key issue
 - 63% say water issues affect their location decisions
 - 50% say scarcity may impact growth and profitability
- **Managing Political, Economic and Corporate Water Risk**
 - *Global Risks* report from the World Economic Forum, ranked water as third greatest risk to the global economy
 - Corporate sustainability, management and performance

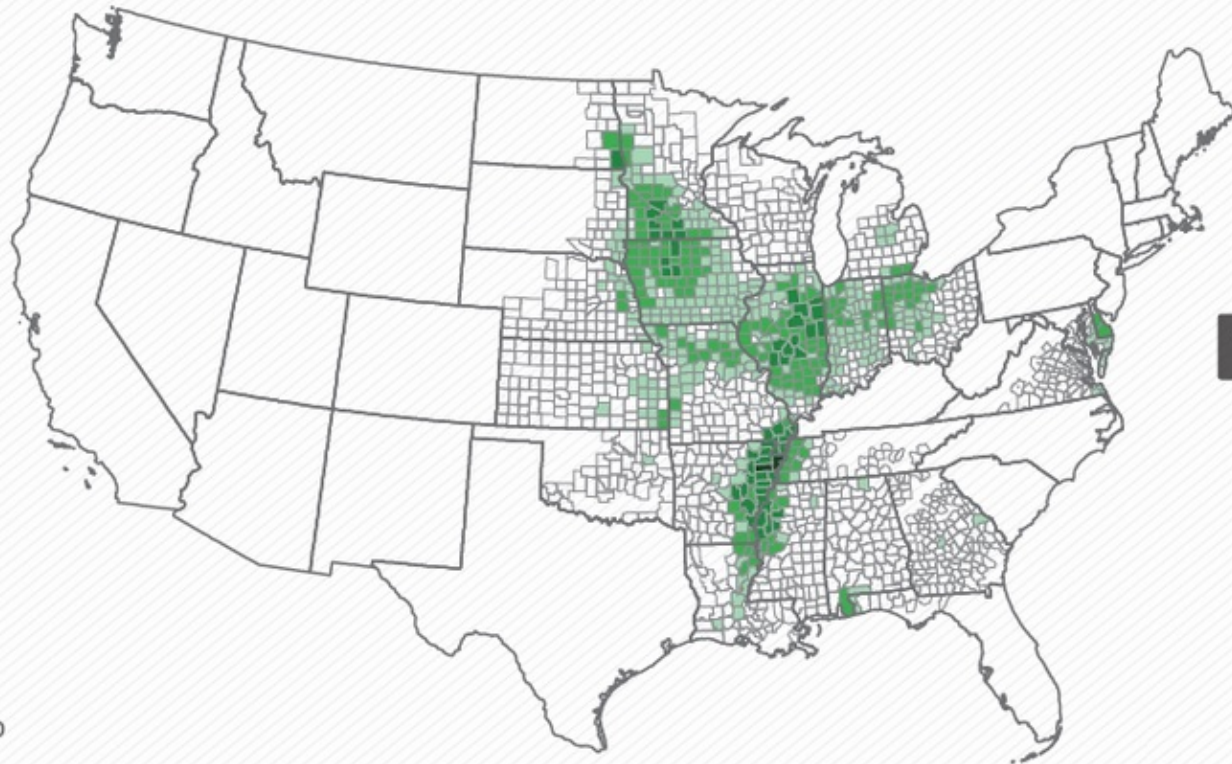
Agricultural Expansion

- Agriculture in Michigan and the Great Lakes region
 - Second in overall crop diversity in US
 - Seed Corn – biggest in North America
 - \$95+ Billion Dollars in Agriculture through entire value chain
 - Expanding northwards



Midwest Agriculture Migrates Northward

SOYBEAN
ACREAGE
HARVESTED
PER
COUNTY



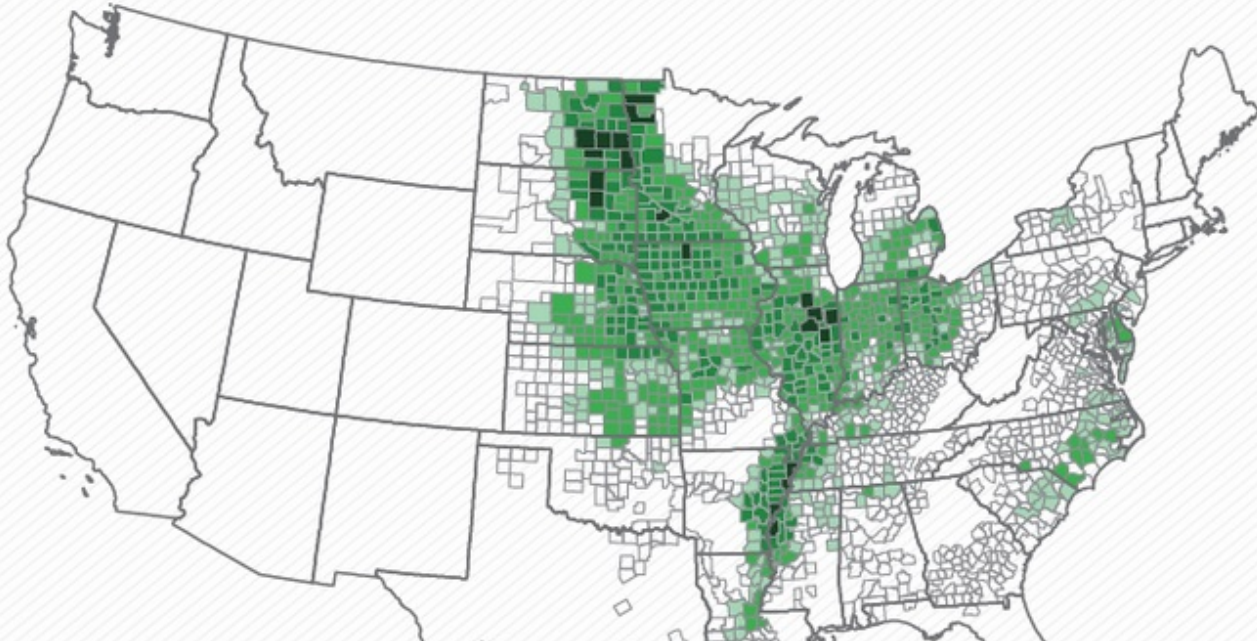
- UP TO 25,000
- 25,000-50,000
- 50,001-99,999
- 100,000-200,000
- MORE THAN 200,000

Source: U.S. Department of Agriculture data
Janet Loehrke and Julie Snider, USA TODAY

Midwest Agriculture Migrates Northward

SOYBEAN
ACREAGE
HARVESTED
PER
COUNTY

2008-12



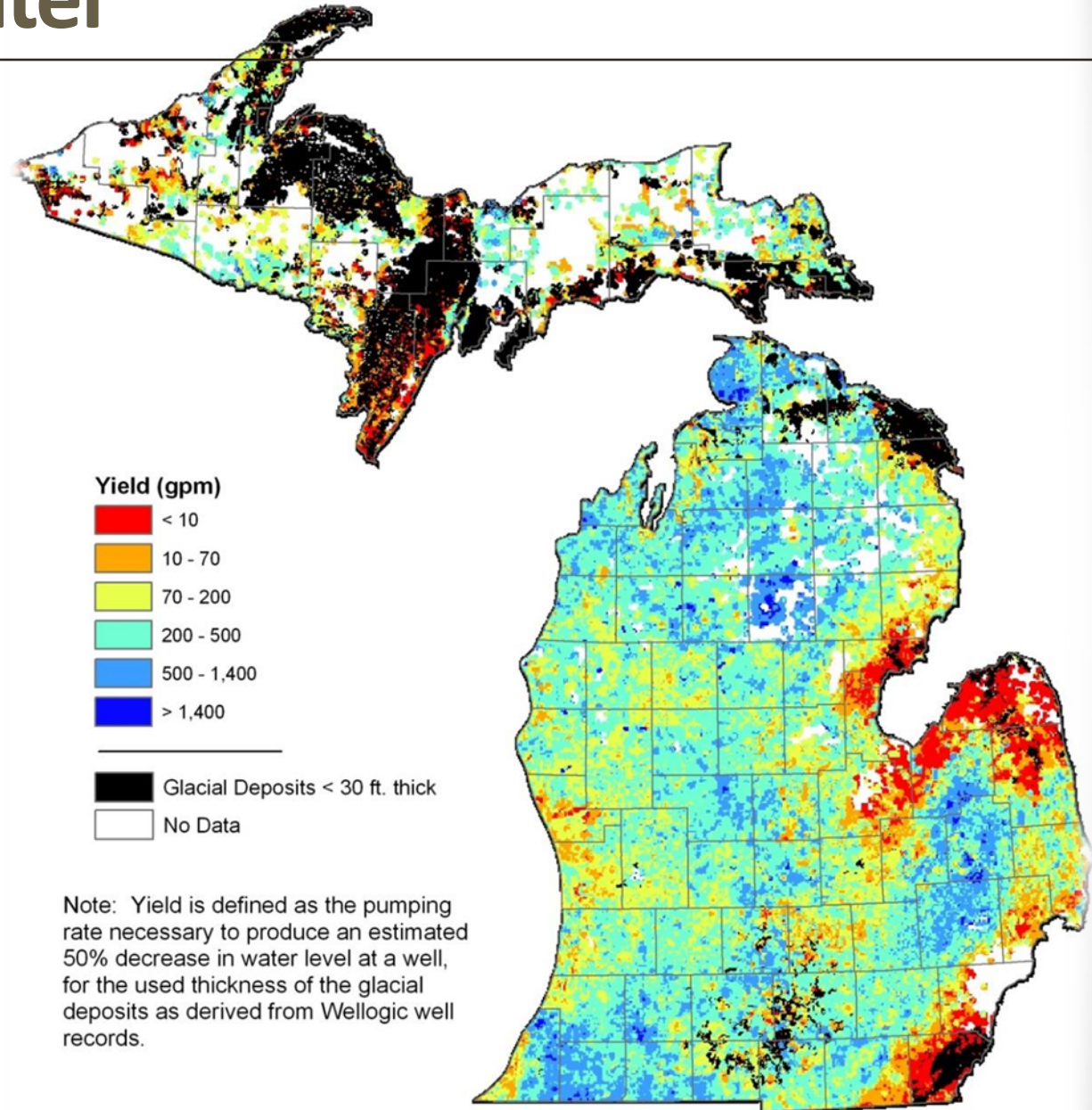
“The time has now come to put more land into use – and move production agriculture acreage northward. Because of improved genetics and weather changes, Michigan farmers are growing crops further north in our state. That means more crops can be successfully planted and harvested, even in parts of the Upper Peninsula.”

Jim Byrum
Michigan Agri-business

Source: U.S. Department of Agriculture data
Janet Loehrke and Julie Snider, USA TODAY

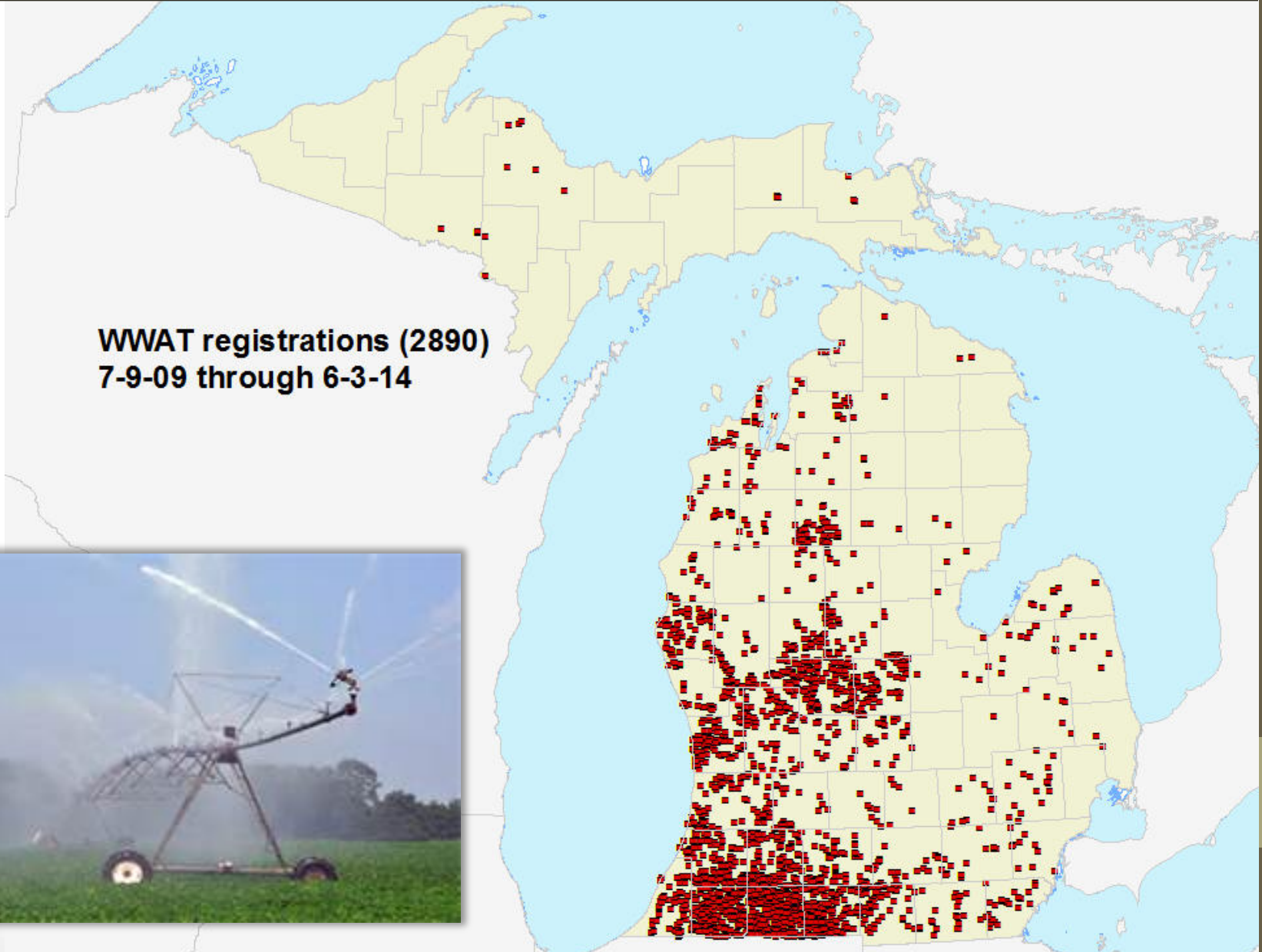
Ground Water

Figure 1
Glacial Deposits - Estimated Yield



Michigan's Use of Groundwater

**WWAT registrations (2890)
7-9-09 through 6-3-14**

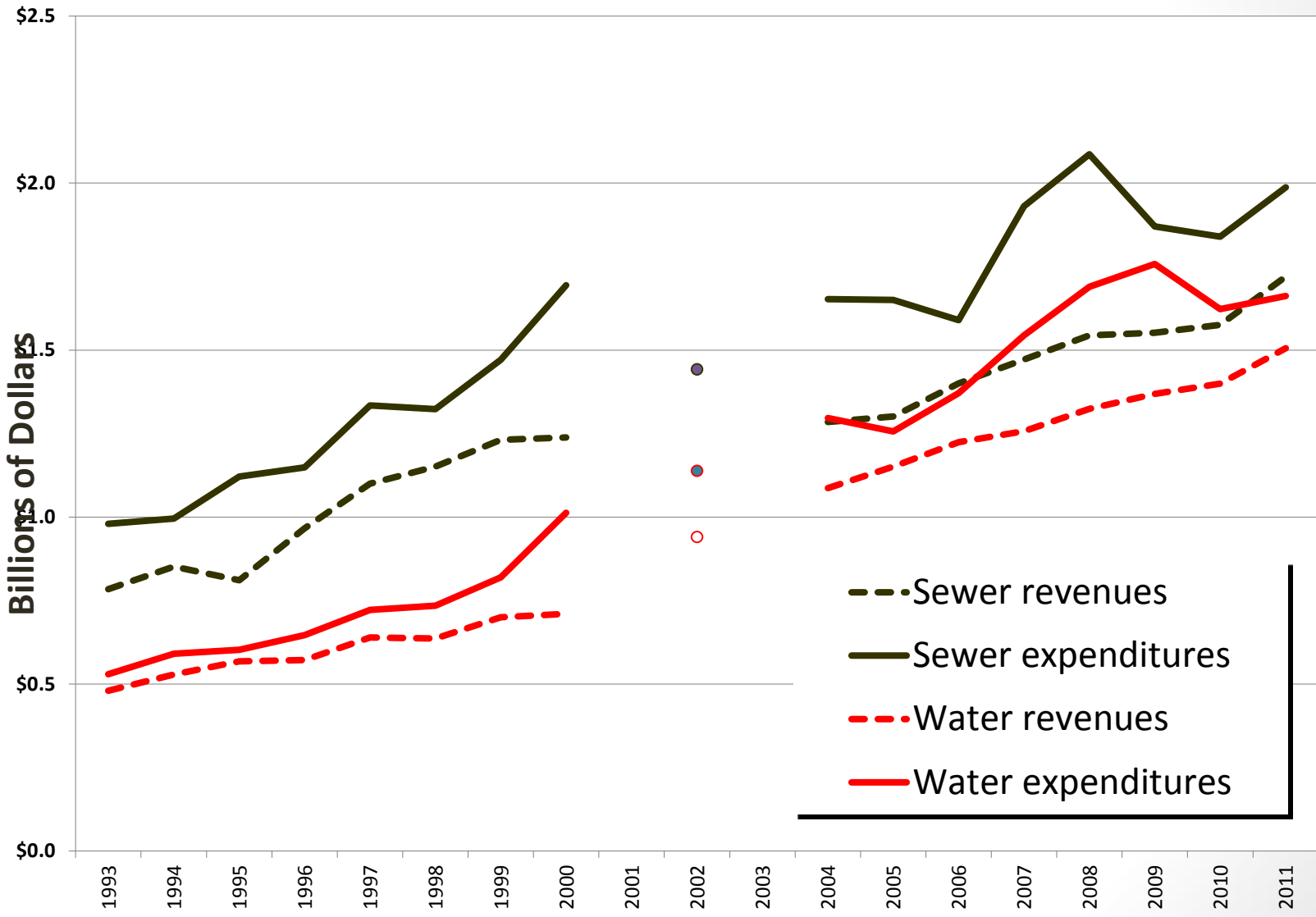


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Investing in Water Infrastructure



America's GPA: D⁺

Estimated Investment Needed by 2020:

\$3.6 Trillion

2013 REPORT CARD for AMERICA'S INFRASTRUCTURE



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STATE FACTS

Choose a State

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Take Action

MICHIGAN

Michigan Key Facts:

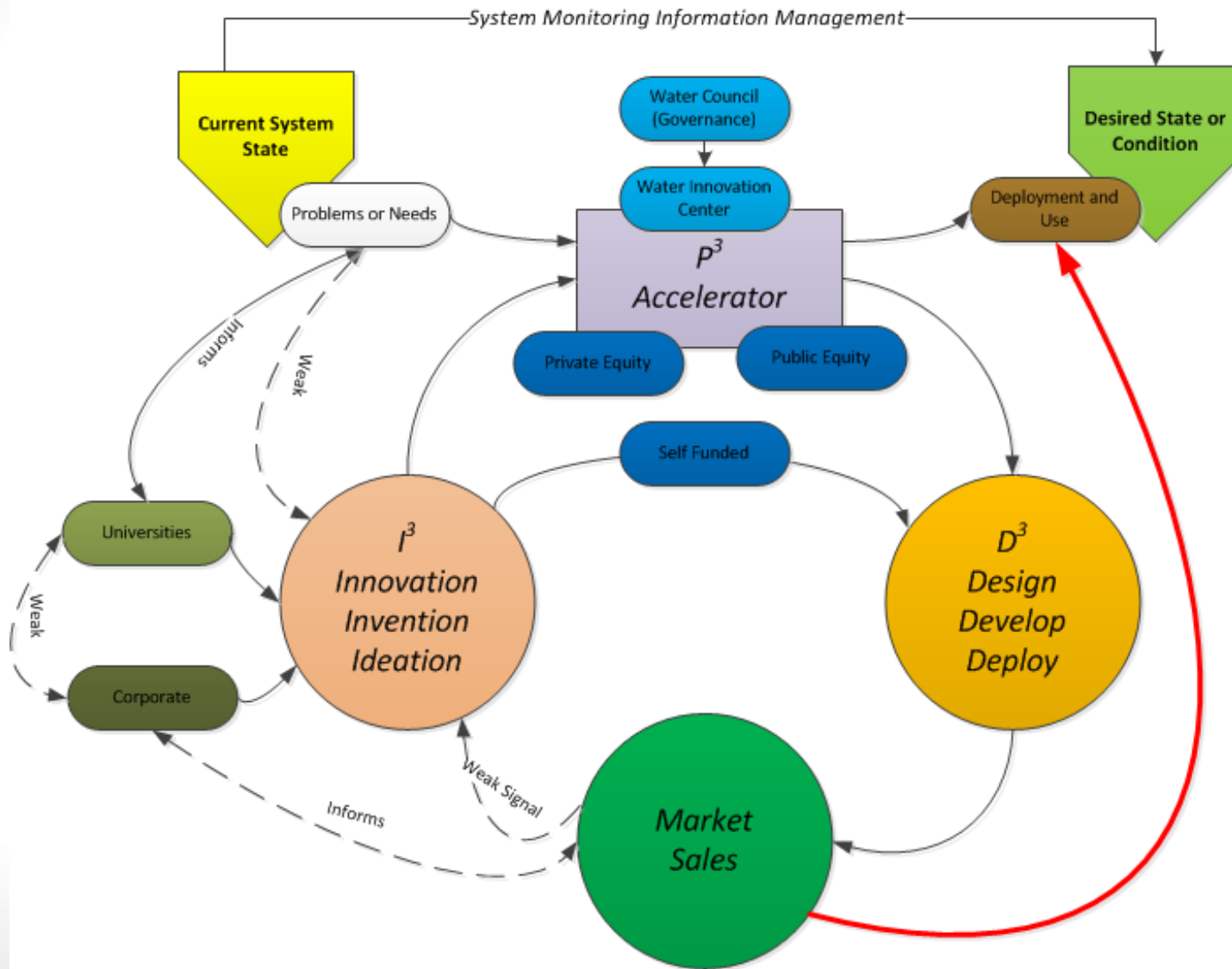
Water and Environment

2009 State Report Card

D

Aviation	C
Dams	D
Drinking Water	D
Energy	C-
Inland Waterways	C-
Roads	D
Transit	D+
Urban Runoff	D+
Wastewater	C

Technology and Innovation Cycle for Water



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Thank you

