MARQUETTE UNIVERSITY LAW SCHOOL

Enabling and Incentivizing Effective Integrated Water Resources Management

Sustainability Conference of American Legal Educators

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Be The Difference.

Research

Policy-making

Rissman & Carpenter (2015): Overcoming institutional barriers to environmental improvements "may require policy-makers to gain a better understanding of existing scientific knowledge"

The United Watershed States of America

- Source: Gerald J. Kauffman, *What if the United States of America Were Based on Watersheds?*, 4 Water Policy 57 (2002)

Realities of water resources management

Ideally…

- Manage entire basin
- Manage surface and ground water together
- Protect water quantity and quality
- Single authority
- Dispute resolution mechanisms in place

In reality…

- Manage partial basins according to political boundaries
- Different legal regimes for surface and groundwater
- Multiple authorities
- Resort to courts

Project Overview

- Problem: "Integrated water resources management" or "one water" policy approach is often advocated but its precise scope and content remains unclear
- Goal: Provide unique exploration of how effective governance structures and cooperation can facilitate better legal and policy approaches to resource management challenges
- Better define and evaluate legal and policy aspects of integrated management approach in two distinct areas:
  - Controlling nonpoint pollution from agricultural sources
  - Overcoming legal and policy barriers to adoption of green infrastructure

Integrated Water Resources Management

- Most agree that the watershed or ecosystem level is the appropriate frame for water resources management (EPA et al., 2016)
- Various definitions at local, state, national, and international scales by a variety of government actors and NGOs
  - Typical: coordinate development and management of water and related resources to maximize economic and social welfare without compromising environmental sustainability
- EPA: ultimate responsibility rests with local and regional agencies, not federal or state governments

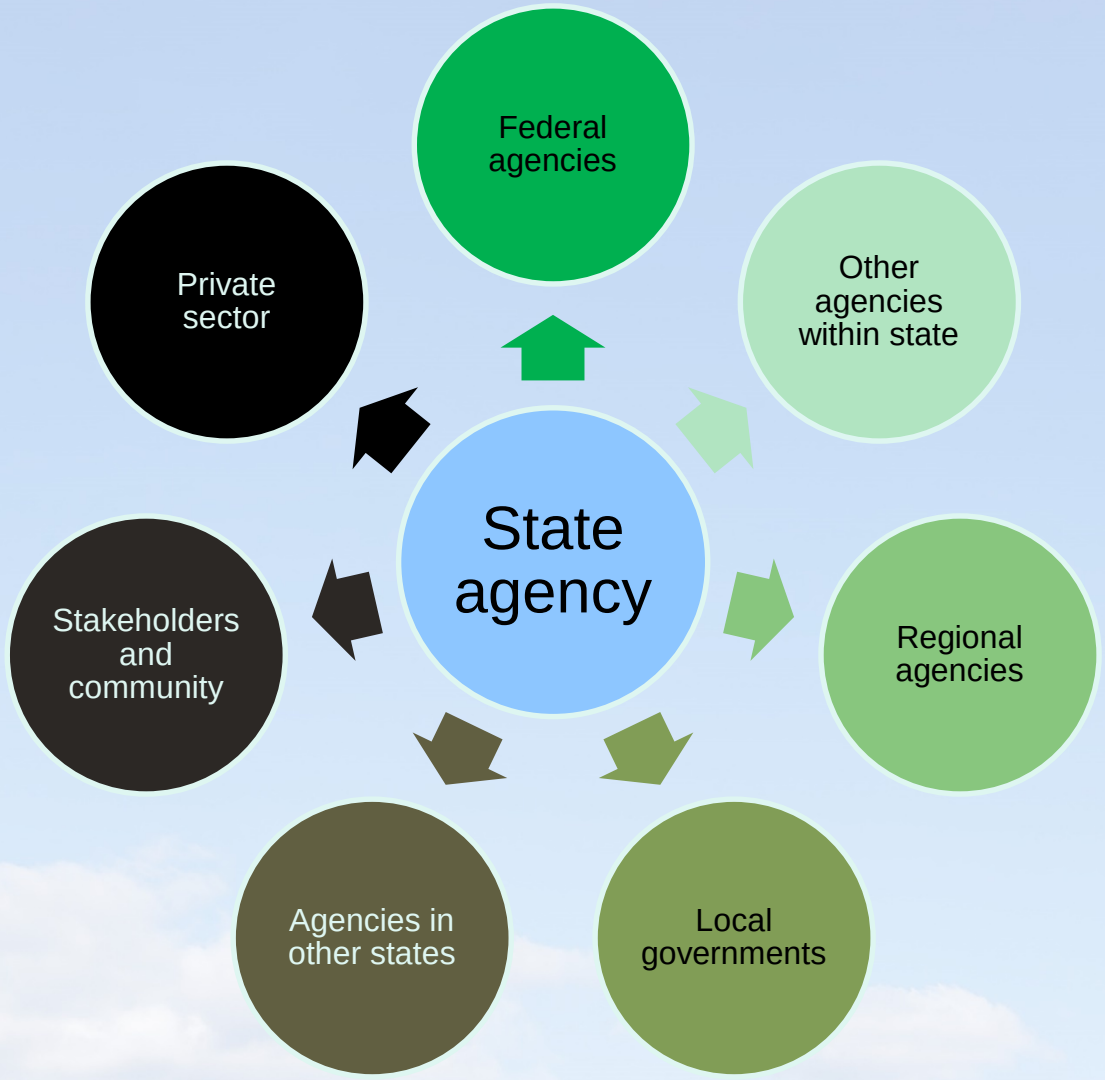
Spectrum of IWRM

– Various approaches:
  - Information sharing between and among stakeholders and management agencies
  - Inter-organizational planning
  - Collaboration on watershed plans
  - Informal planning
  - Agreement on performance management or monitoring systems
  - Shared policy or priority development
  - Shared management

IWRM Goals

- Make better management decisions about water quality and water supply in the face of various threats
  - Aging infrastructure
  - Climate change
  - Population growth
- Avoid fragmented decision making and planning

Significant coordination required



The uncertain foundation for IWRM

- Distrust or lack of information leads to a culture that is resistant to change
- Existing fragmented regulatory frameworks (both horizontal and vertical) make it difficult for municipalities to work together to implement IWRM at a watershed scale, or even bar them from doing so, and this wastes valuable societal resources
- Cybersecurity risks such as network hacking and ransomware are increased with more complex and integrated control technologies
- Water infrastructure is a low priority in budgets, and integration often comes at an increased capital cost

Key lessons from implementation attempts

- Many different strategies
- Distilled three key components of successful projects:
  - Creating an enabling regulatory environment (policies, legislation)
  - Ensuring resource availability
  - Building management capacity
- Agriculture is a big piece of the puzzle

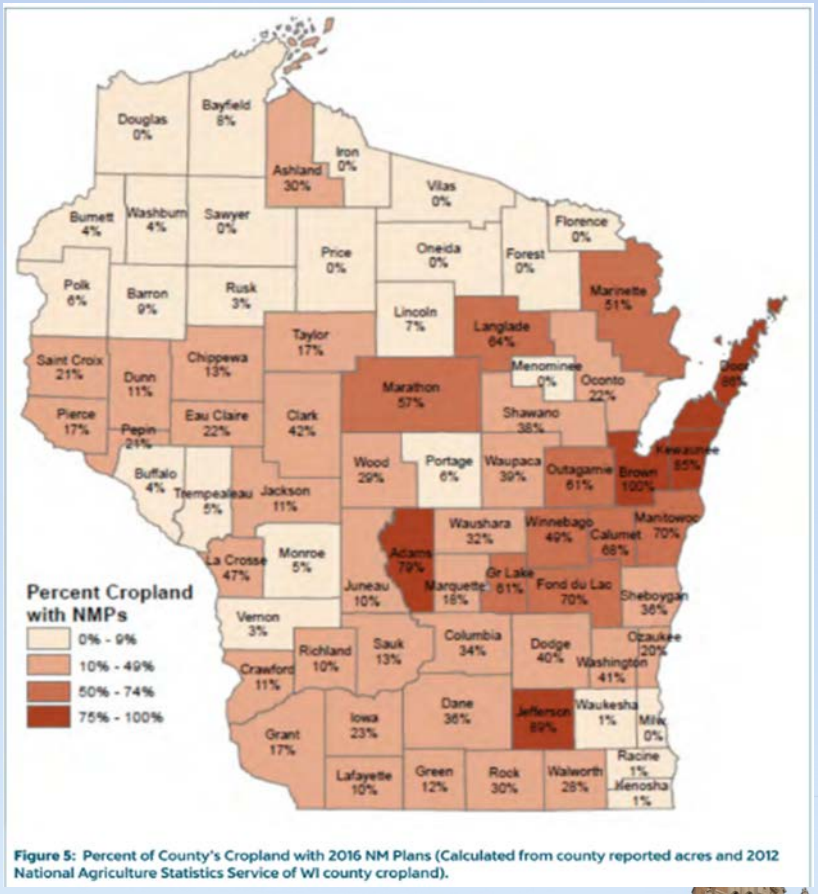


Figure 5: Percent of County's Cropland with 2016 NM Plans (Calculated from county reported acres and 2012 National Agriculture Statistics Service of WI county cropland).

Image credit: Wisconsin DNR

Application #1 – Agricultural Nonpoint Sources

- *Creating an enabling regulatory environment*
  - Wisconsin regulators report strong satisfaction with their regulatory authority, ranking it among the best in the nation
  - Other incentivized approaches are possible
    - Minn. Ag. WQ Certification
    - Market-based conservation drivers (adaptive management or WQ trading)
  - Command and control regulation seems unlikely

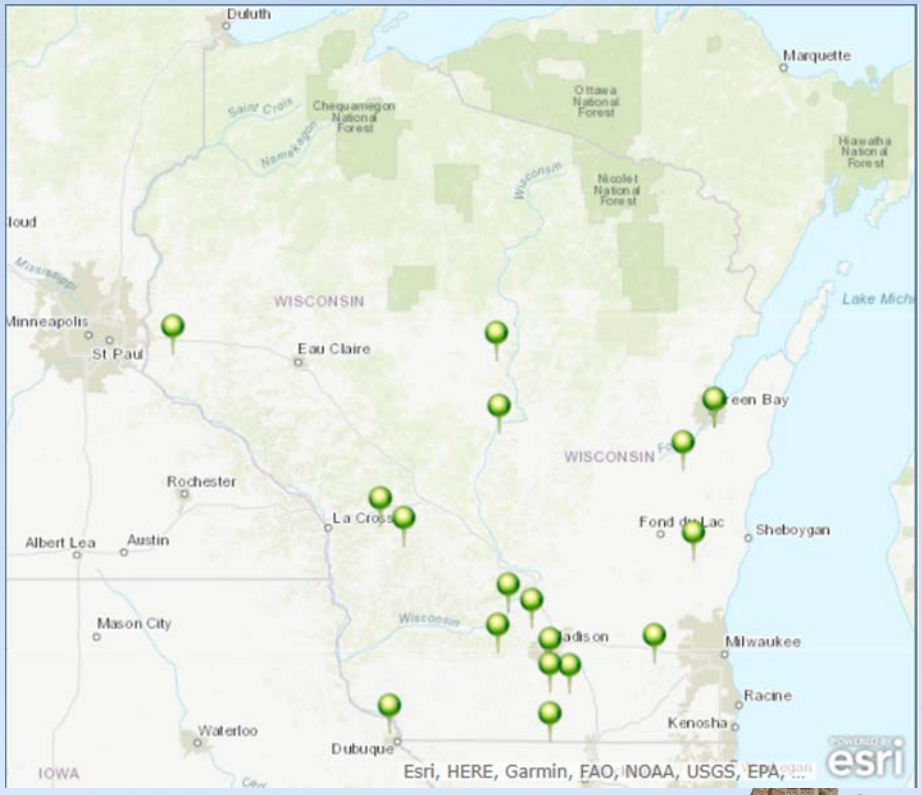


Image credit: Wisconsin DNR

Application #1 – Agricultural Nonpoint Sources

- *Ensuring resource availability*
  - Even in Wisconsin, implementation remains a major challenge due to lack of funding
  - This has resulted in uneven program implementation
  - Limited human resources and political impediments also play a role

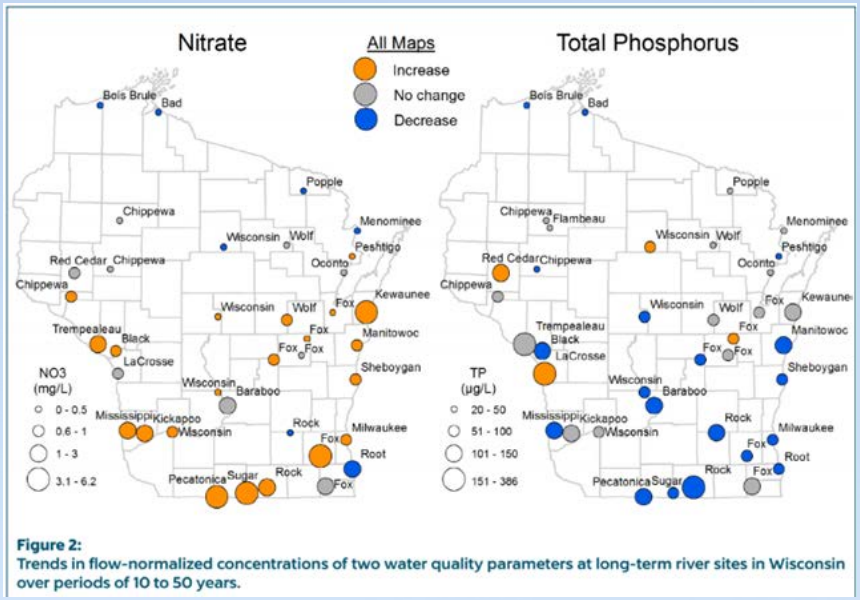


Figure 2:
Trends in flow-normalized concentrations of two water quality parameters at long-term river sites in Wisconsin over periods of 10 to 50 years.

Image credit: Wisconsin DNR

Application #1 – Agricultural Nonpoint Sources

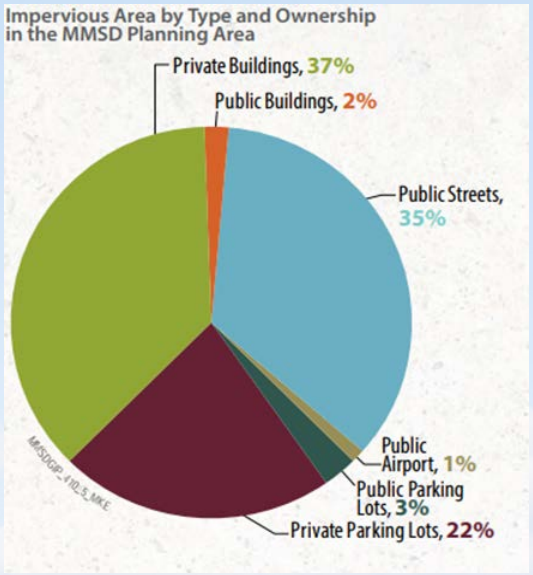
- *Building management capacity*
  - Agency-agency and agency-county coordination difficulties remain prevalent
  - Streamlining governance functions could address obstacles
  - Outreach programs to farmers
  - Voluntary programs

Application #2 – Green infrastructure

- *Creating an enabling regulatory environment*
  - Eliminate obstacles in local zoning and building codes that are often at odds with "green" policies and programs
  - Interweaving nature of land use laws with planning process is a problem and an opportunity
  - Public perceptions are critical
- City of Milwaukee is working on code revision project with MULS assistance

Application #2 – Green infrastructure

- *Ensuring resource availability*
  - Financing issues often derail GI projects; need to make the business case, show ROI
  - "Unfunded mandate" perception
  - Potential innovative solutions under study: stormwater fees, market-based approaches, conservation easements, Clean Water State Revolving Fund Green Project Reserve, others



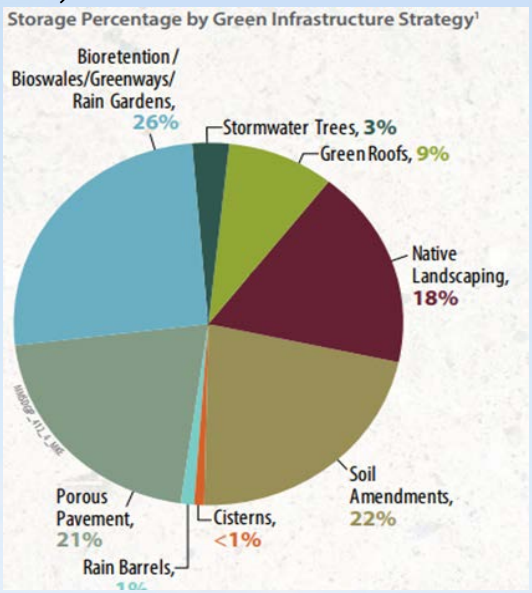


Image credits: MMSD

Application #2 – Green infrastructure

- *Building Management Capacity*
  - Piecemeal implementation results from unfamiliarity and distrust
  - No single person or entity responsible for implementation
  - Managing stormwater viewed as low priority task

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