

A watershed approach to protecting and restoring Clean Water



Clean Water Act

- Federal Clean Water Act '72
- Goal – Fishable/Swimmable by 1983
- Framework to protect and restore WQ
- Water quality standards are established to protect:
 - Aquatic life
 - Recreation and
 - Consumption



Clean Water benefits fish and wildlife

- Buffalo River
- Sediment - coarse gravel and pebbles have been silted over
- Goal is to reduce sedimentation to provide walleye spawning habitat.



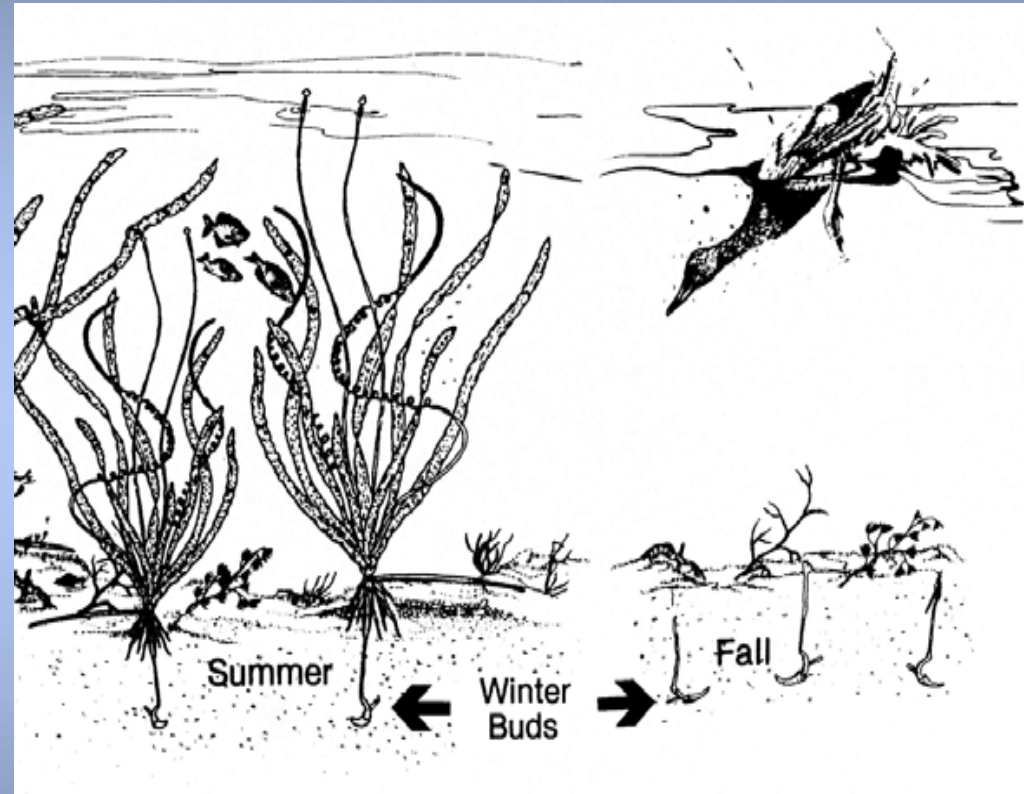
Clean Water benefits fish and wildlife

- Knife River
- Turbidity
- Goal is to improve stream flow and temperature conditions for brook trout and steelhead

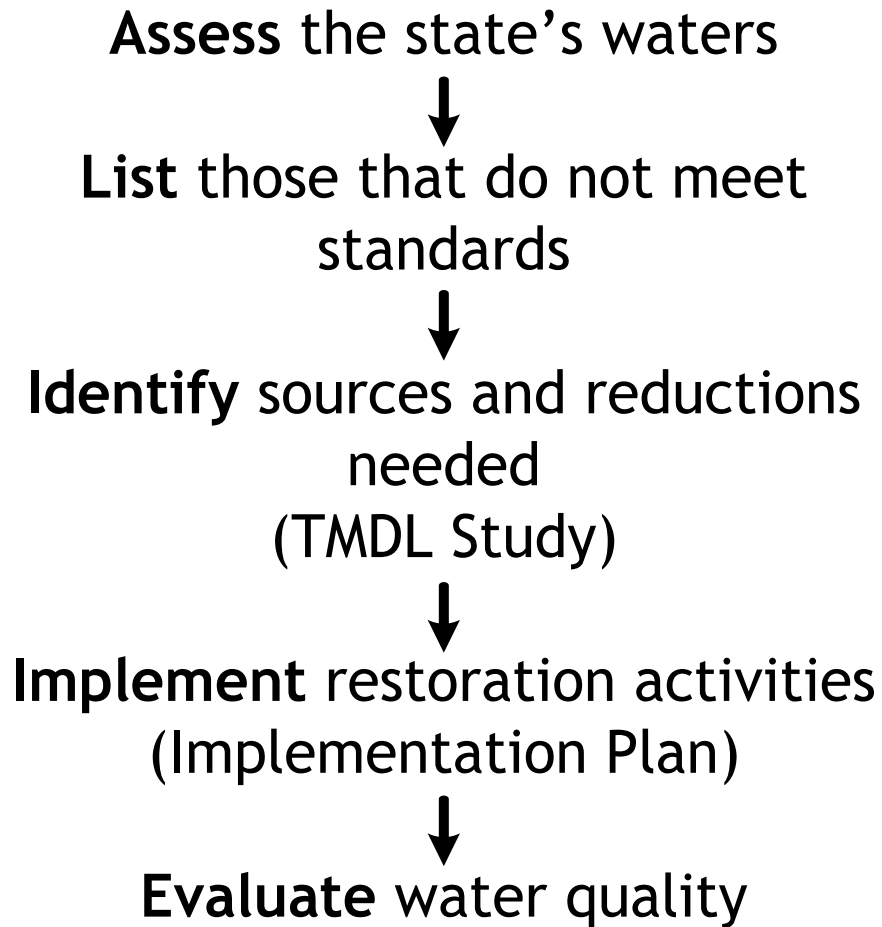


Clean Water benefits fish and wildlife

- Lake Pepin
- Turbidity/nutrients
- Goal is to improve water clarity, so sunlight will support growth of wild celery
- Support Canvas-back ducks



The TMDL Process

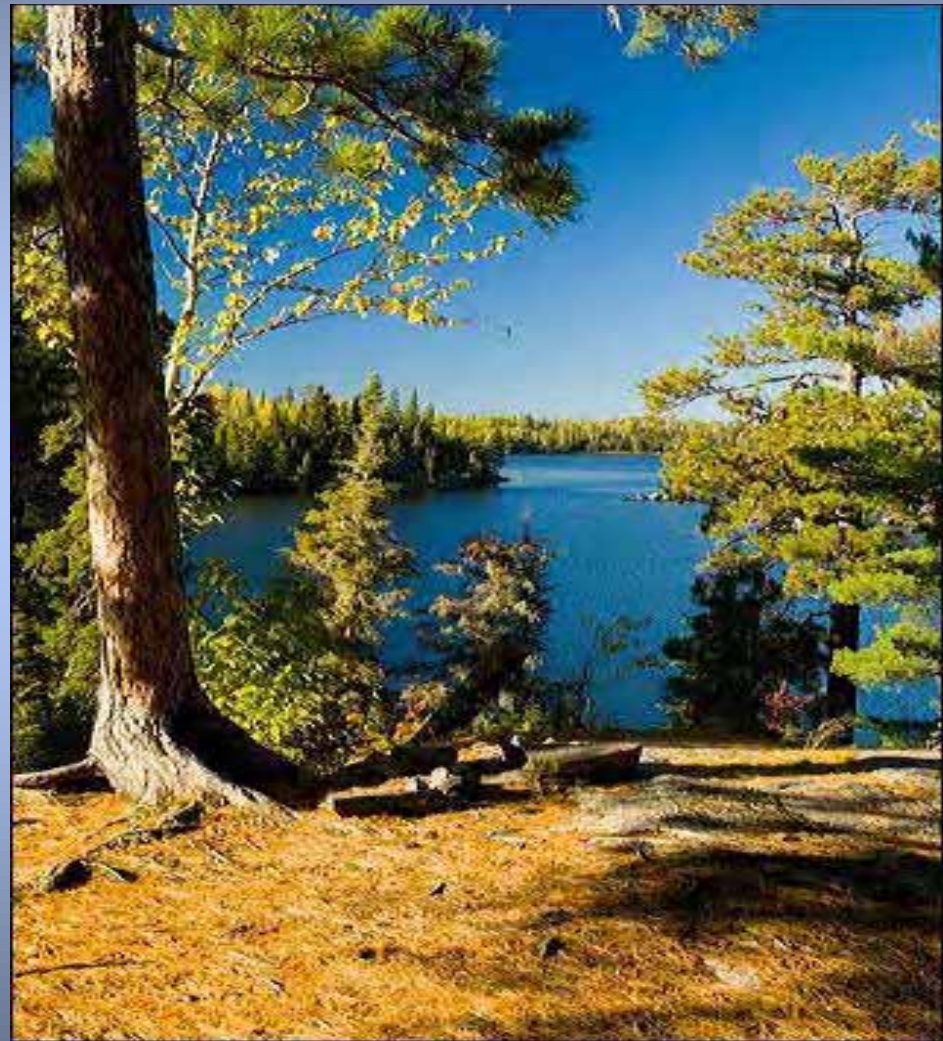


CWA - TMDLs

- A TMDL identifies the maximum amount of pollutants that can be discharged to a waterbody and still achieve its designated uses

Clean Water Legacy Act Goals

- Identify impaired waters in 10 years.
- Develop TMDLs in timely manner (10%/yr).
- Implement restoration in a reasonable time.
- Promptly delist.
- Comply with CWA requirements.



Surface Water Monitoring



Major Watersheds

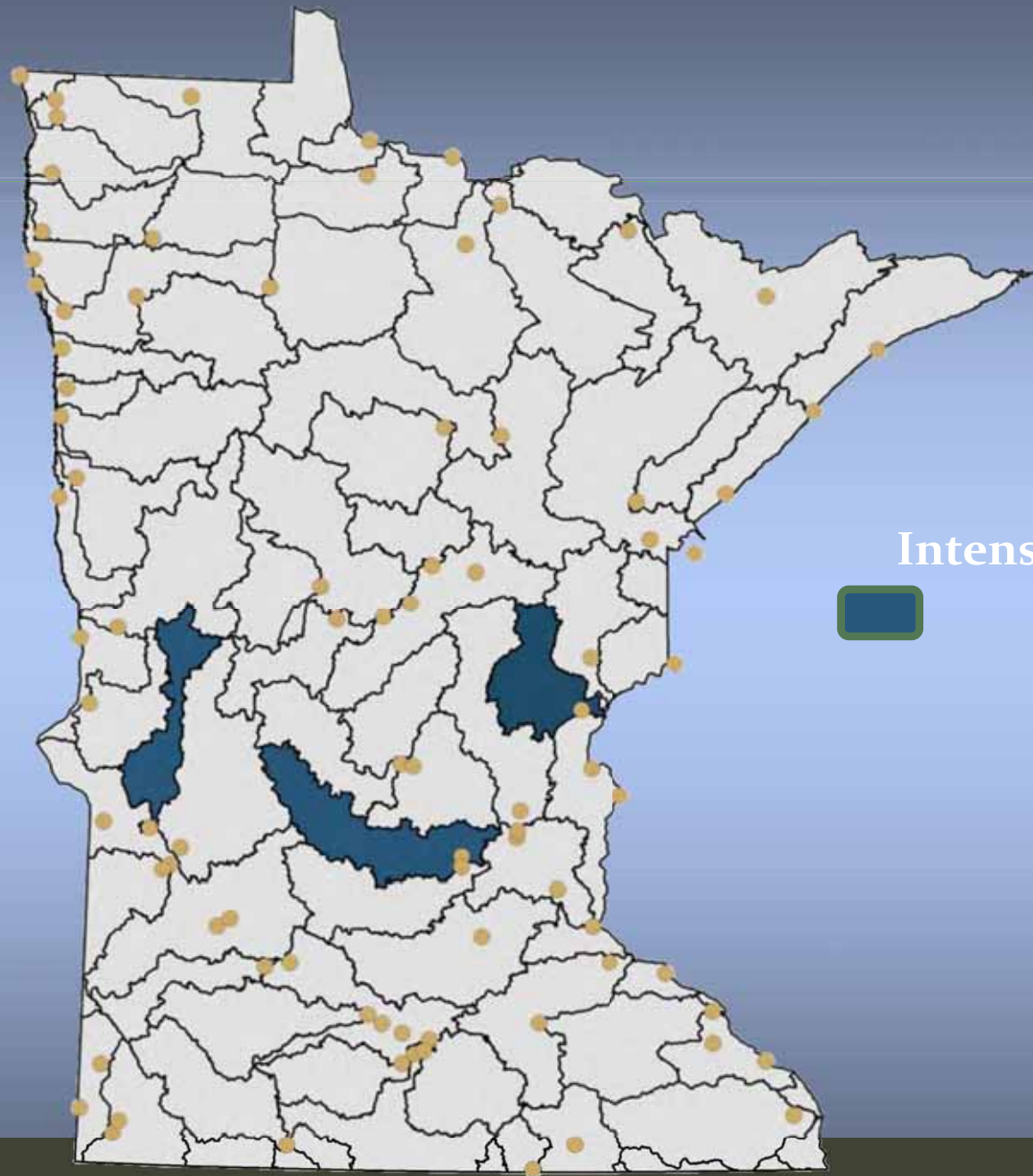


● Load Monitoring



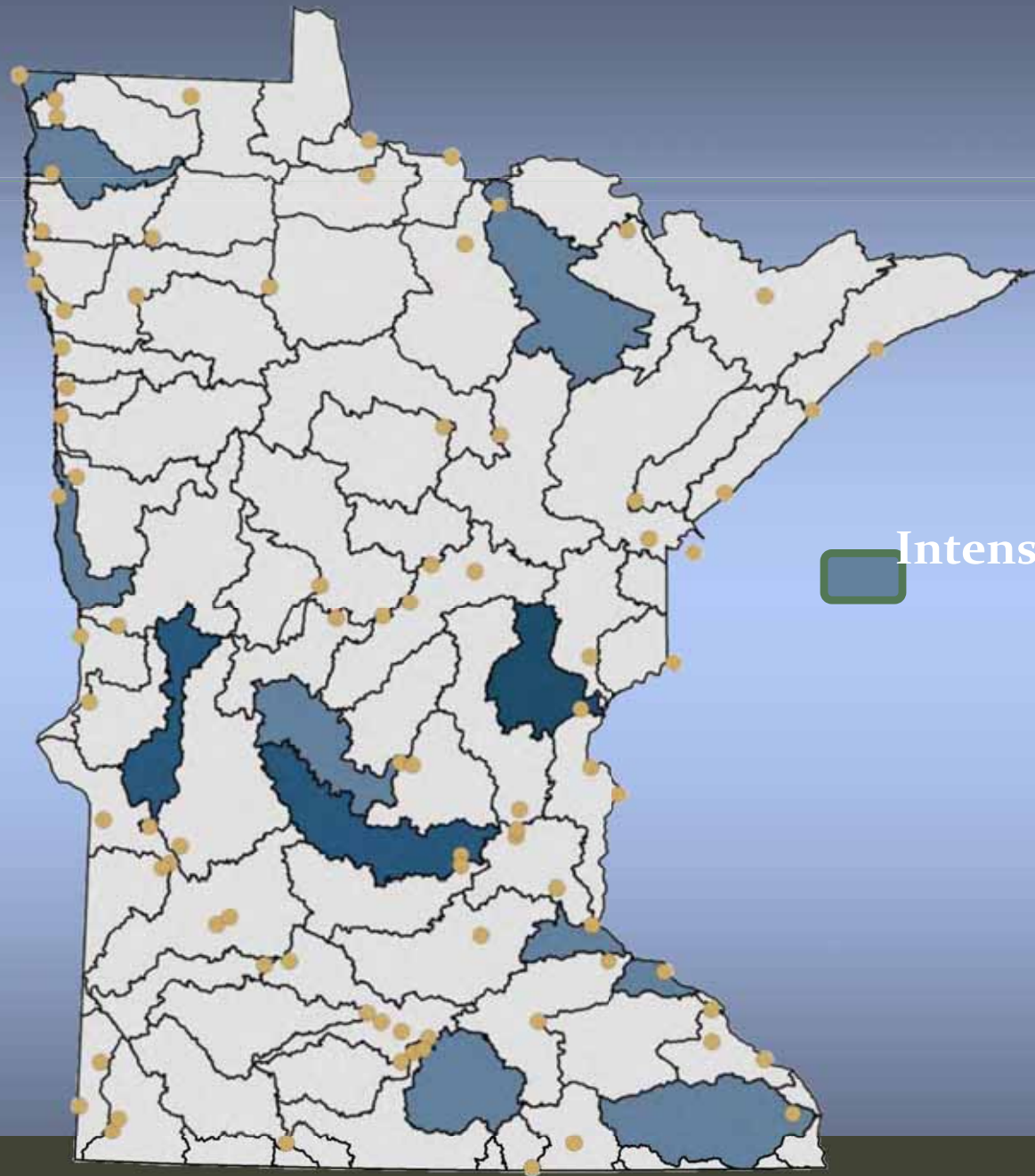
Intensive Watershed Monitoring
2006



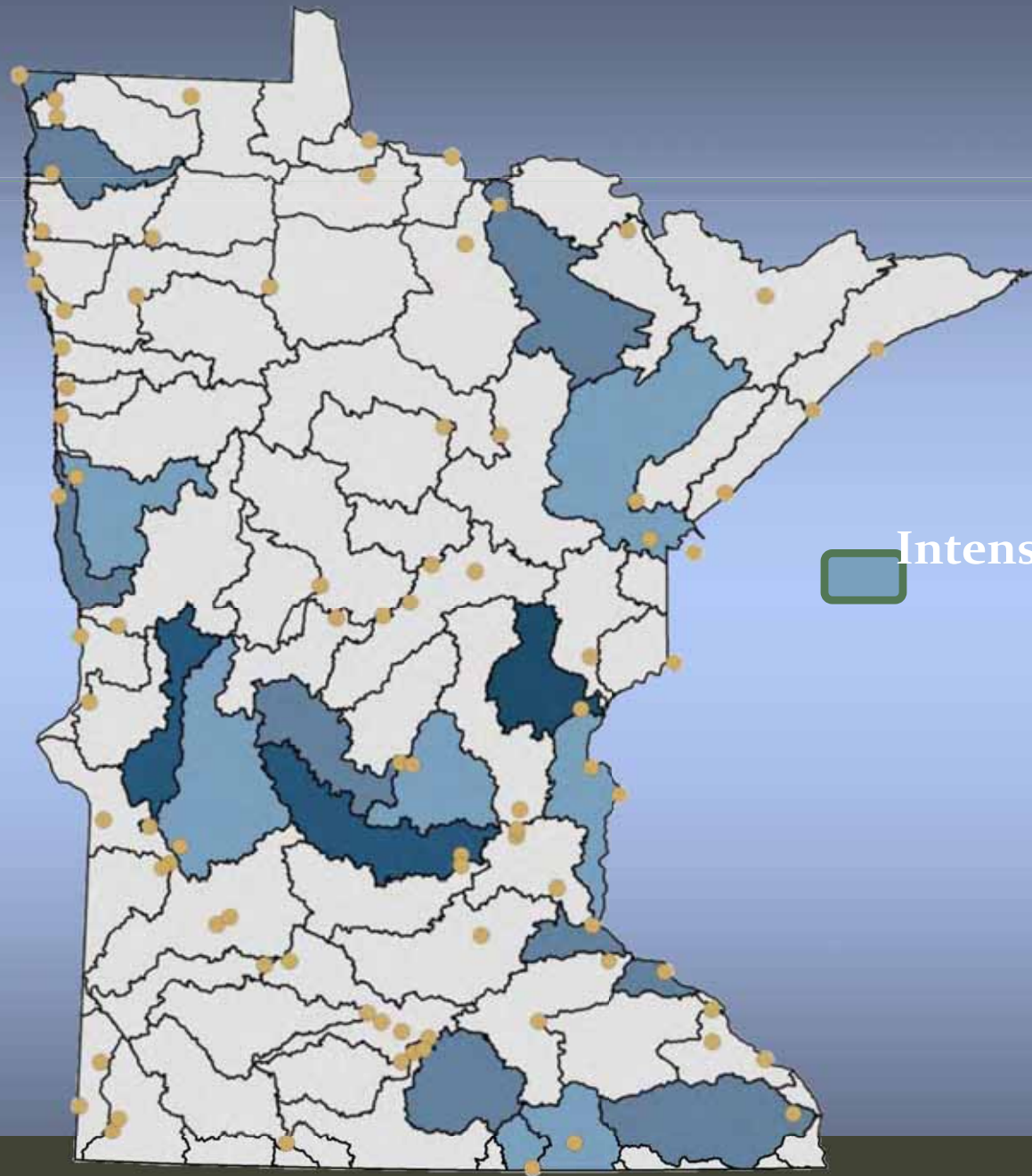


Intensive Watershed Monitoring
2007

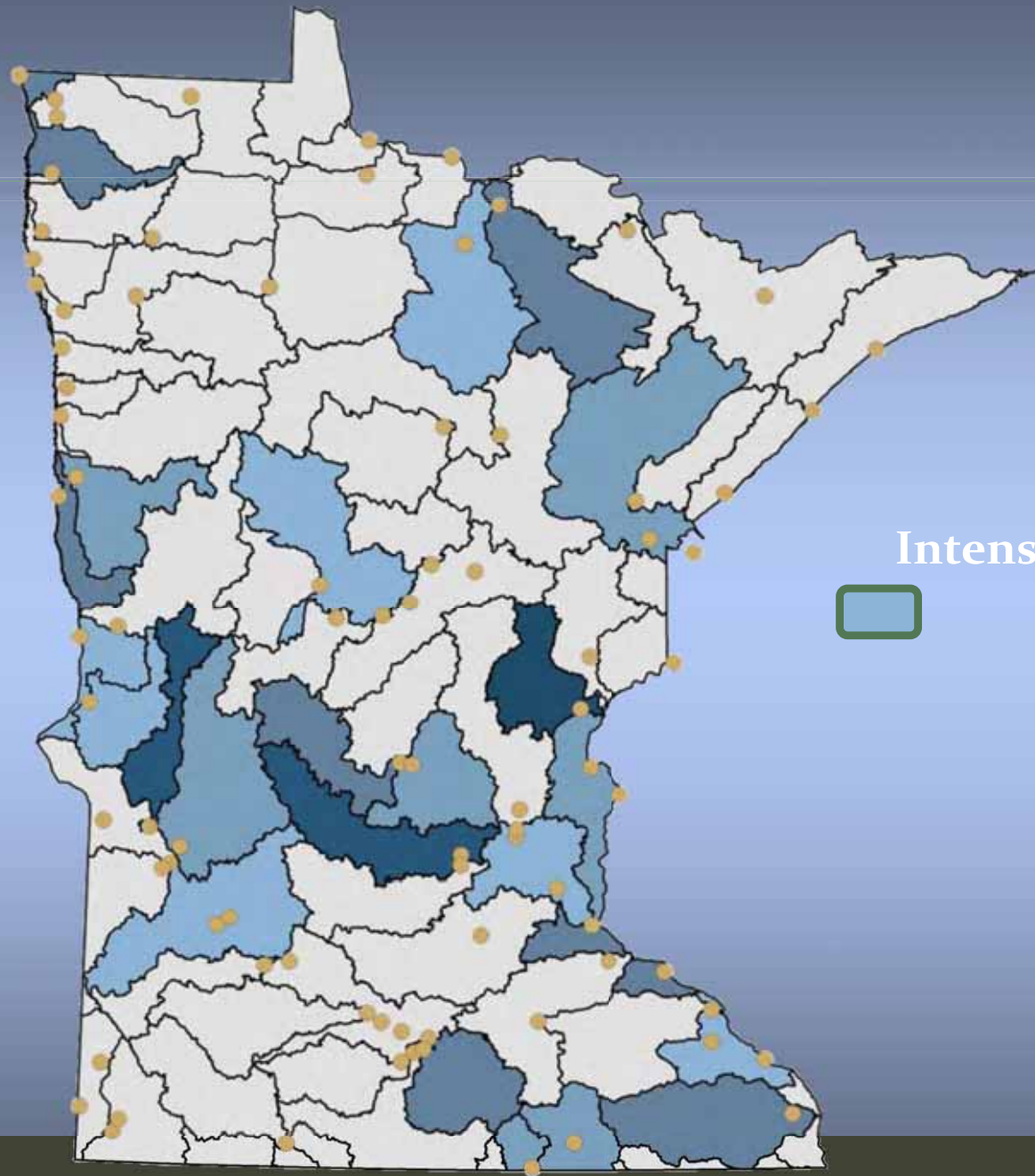




Intensive Watershed Monitoring
2008

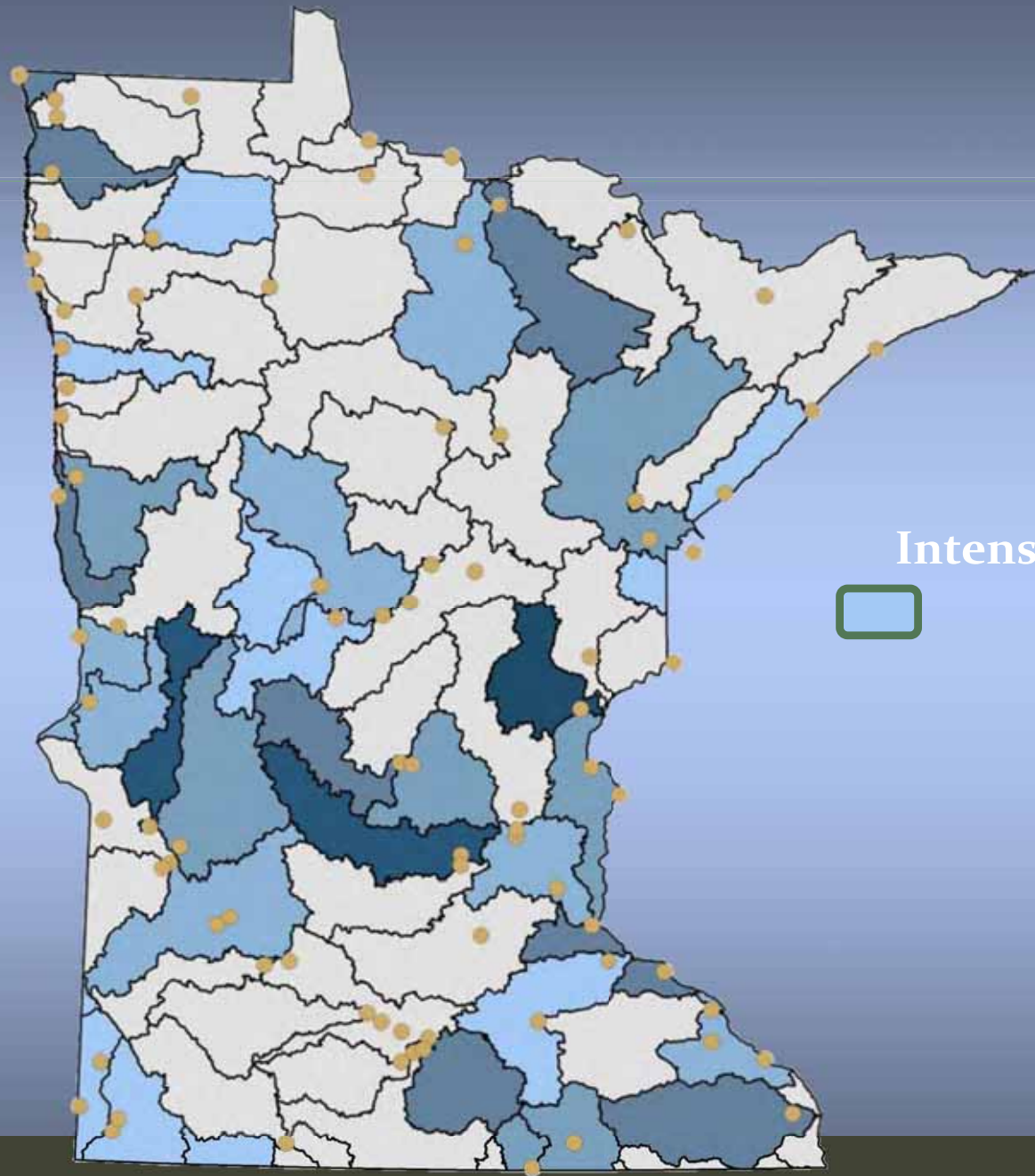


Intensive Watershed Monitoring
2009



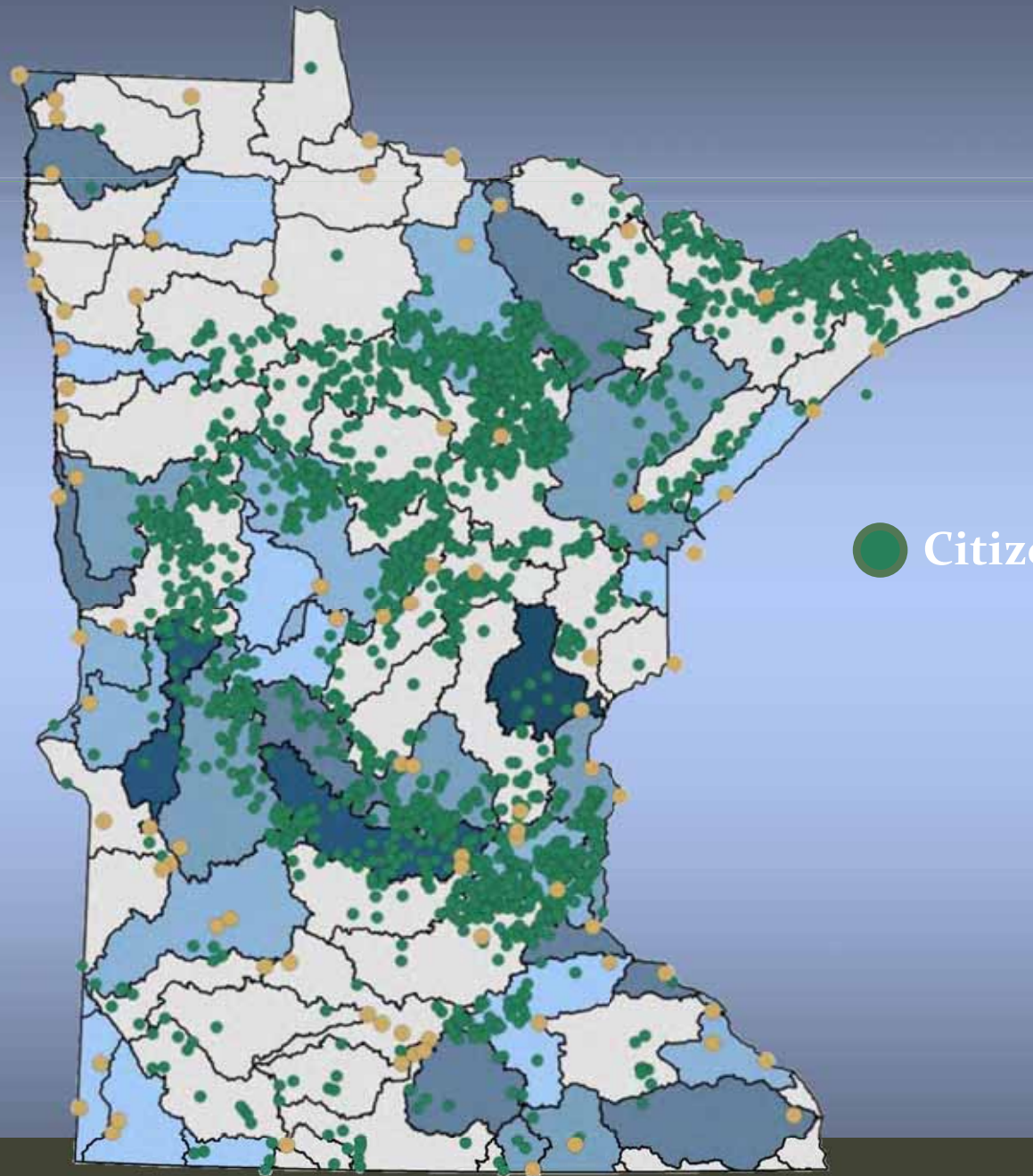
Intensive Watershed Monitoring
2010



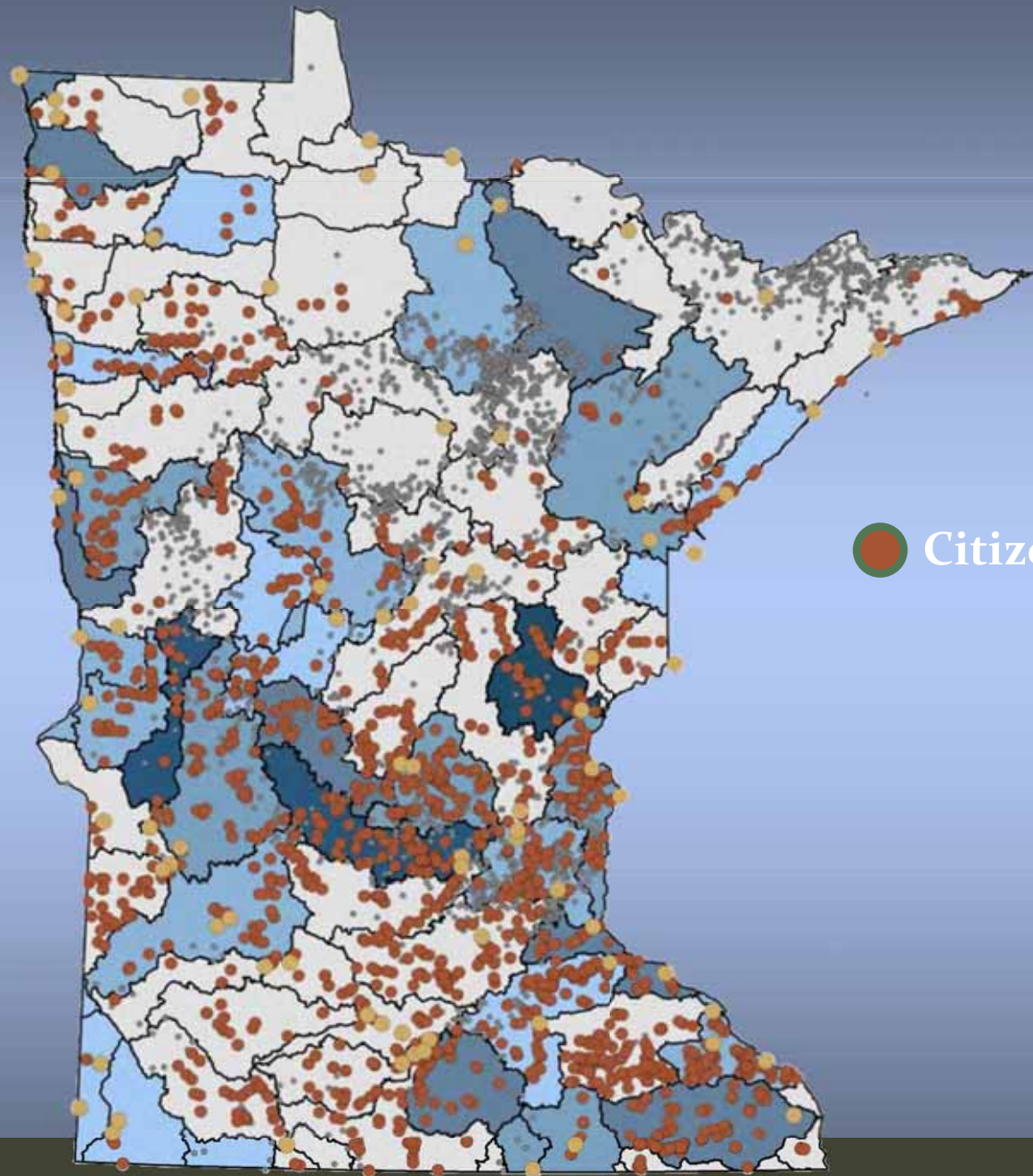


Intensive Watershed Monitoring
2011

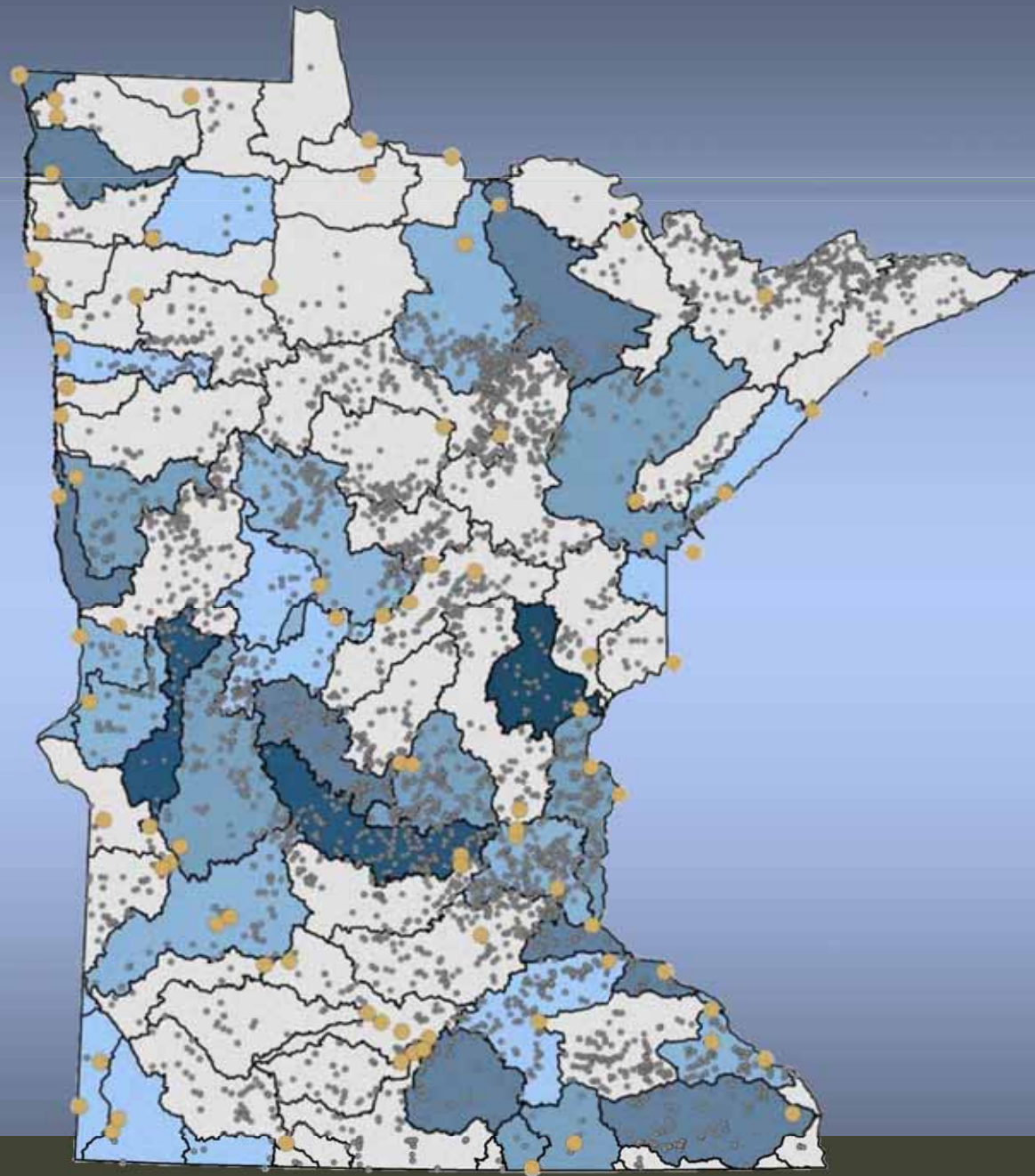




● Citizen Lake Monitoring



● Citizen Stream Monitoring

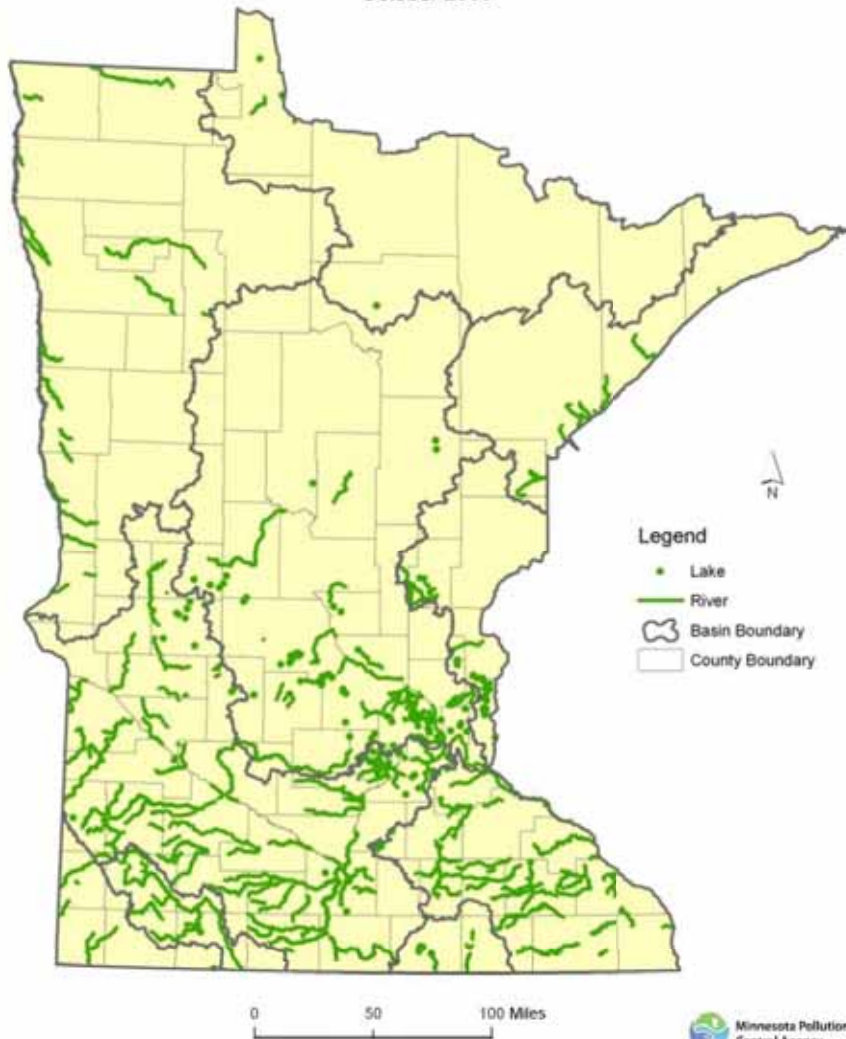


TMDL Development

Where we have been

Where we are at

TMDL Projects Underway in Minnesota
Conventional Parameters
October 2009



Areas with Watershed Approach Projects
Underway or Planned: FY10-11 Biennium



Watershed Restoration and Protection Strategy

Set targets and goals for watershed restoration and protection

- Stressor identification
 - Modeling
- Priority management zones

Develop Implementation Plan

- Identify and document critical areas for BMPs

Engage citizens of the watershed

Implement priority actions in targeted locations



- Riparian buffers
- Stormwater practices
- Upland water retention
- Wastewater requirements
- Upland conservation

Rotating Through the Major Watersheds on a Ten Year Cycle

Monitoring and Assessment

- Condition monitoring
- Effectiveness monitoring

Watershed Restoration and Protection Strategy

- TMDL
- Protection Strategy
- Implementation Plans

Every
10 Years

Implementation Activities

- BMPs
- Permits
- etc

Conclusion

- Major watershed approach to Clean Water
 - ▣ Monitoring and Assessment
 - ▣ Develop Watershed Protection and Restoration Strategy(TMDLs)
 - ▣ Implement Practices
- Results in benefits to aquatic life, recreation and consumptive uses





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