

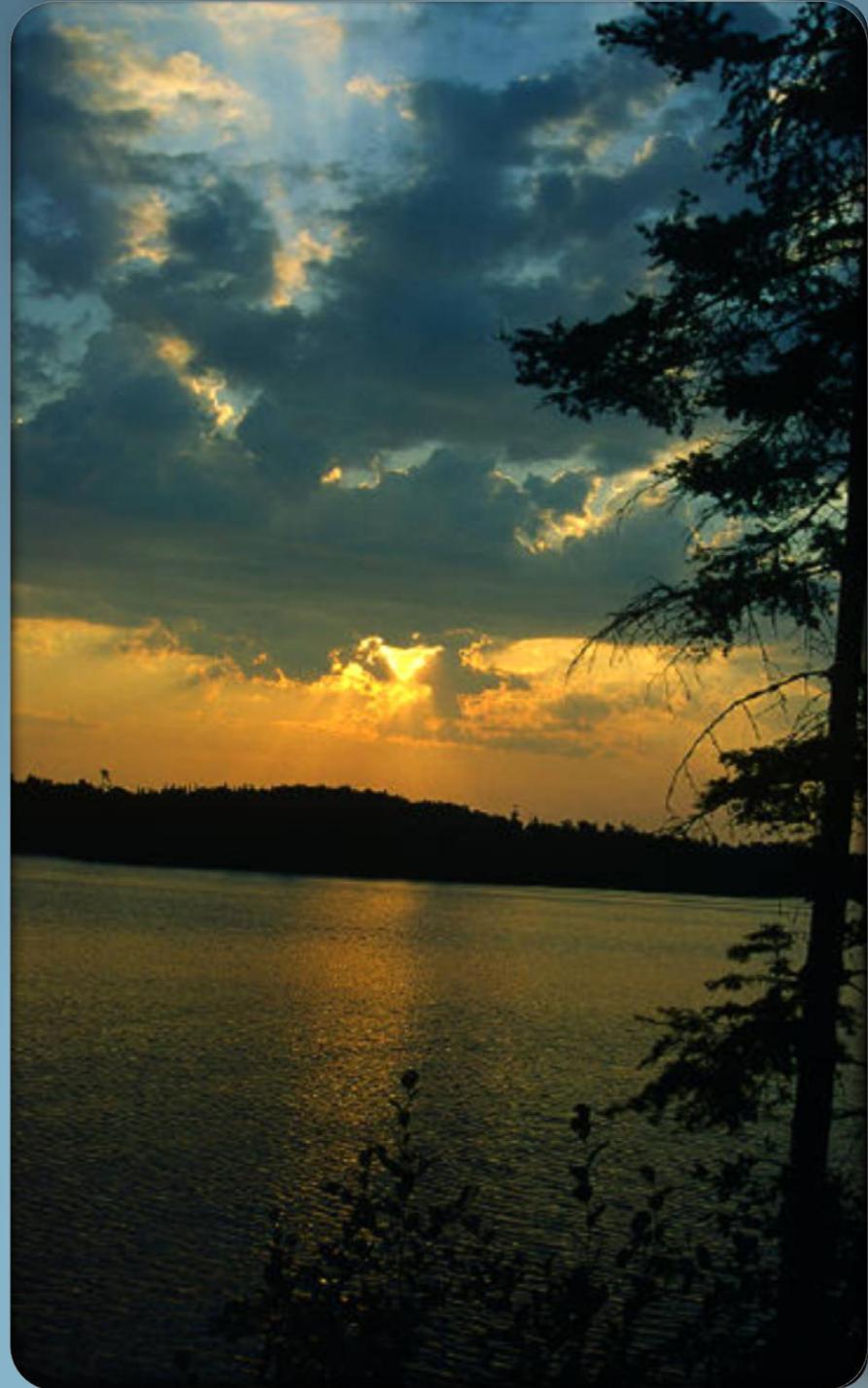
# Turbidity in the Minnesota River

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MPCA

Mississippi River Forum  
July 16, 2010



Minnesota Pollution  
Control Agency



# Minnesota River

What are the sediment sources?

Why do we care about it?

What are we doing now?

How is it related to Lake Pepin?



# Minnesota River – Where is it located?

**18 reaches**

9 on major tributaries

9 on the mainstem



# What are the sediment sources?



Ravines



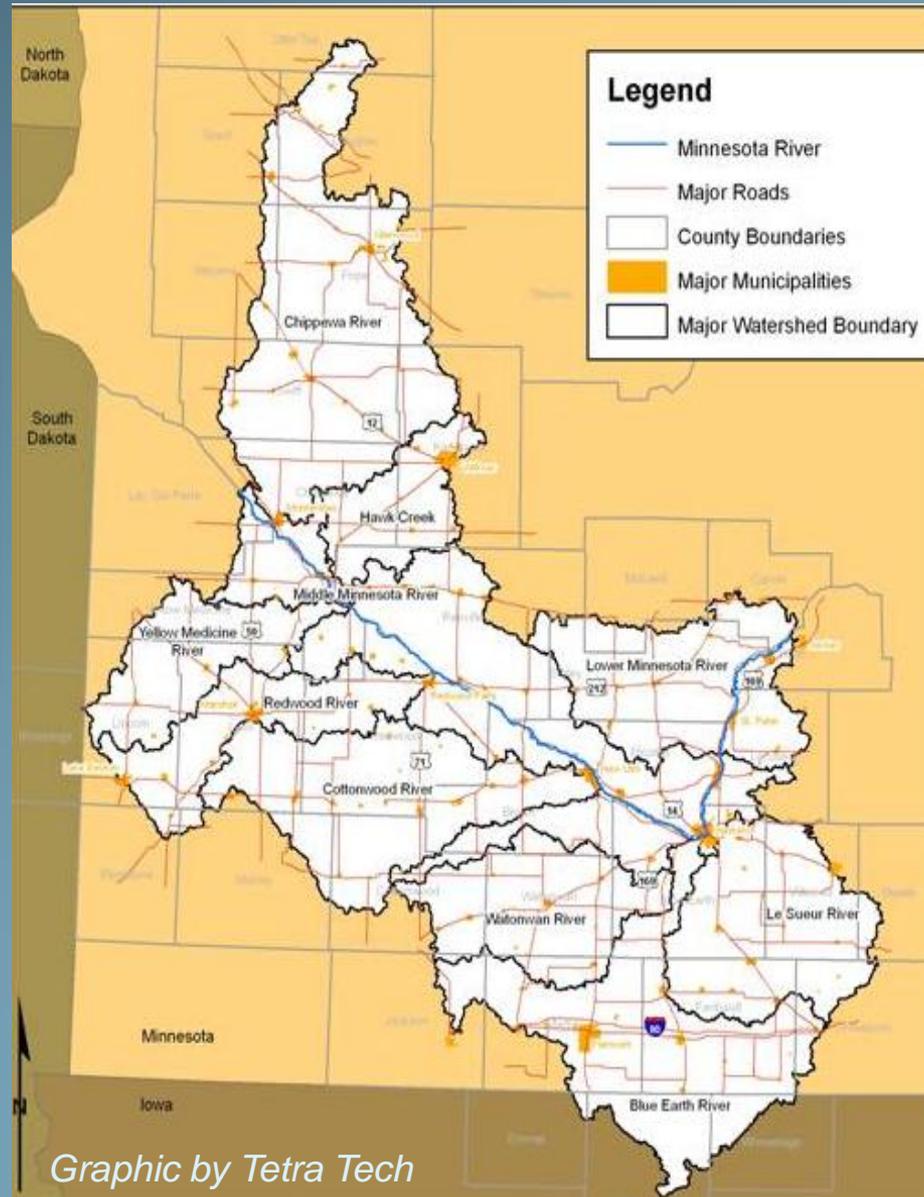
Banks/Bluffs



Upland

# Minnesota River – What are we doing now?

Spatial scope of HSPF model



# What is modeling and what does it tell us?

- Looks at **big picture**
- Way to **calculate potential results** of change without making the change
- Can **limit results** to technically-achievable practices
- Can help **determine high-leverage practices**



# Modeling & the Minnesota River

Based on modeling,  
some practices are more effective

There are choices/alternatives

The larger community must decide



# Modeling example 1

- **Perennial vegetation**
  - Increase in each watershed (20%)
  - Redistribution to lower reaches (except in Yellow Medicine and Hawk Creek)
- **Controlled drainage**: <1% slope
- **Water storage**
  - On-field storage of runoff
  - About the first inch



# Modeling example 2

## Example 1 practices *plus*

- **Reduce bed, bank, bluff contributions**
  - Earthen benches – against steep walls
  - Grade control measures
  - Vegetative management

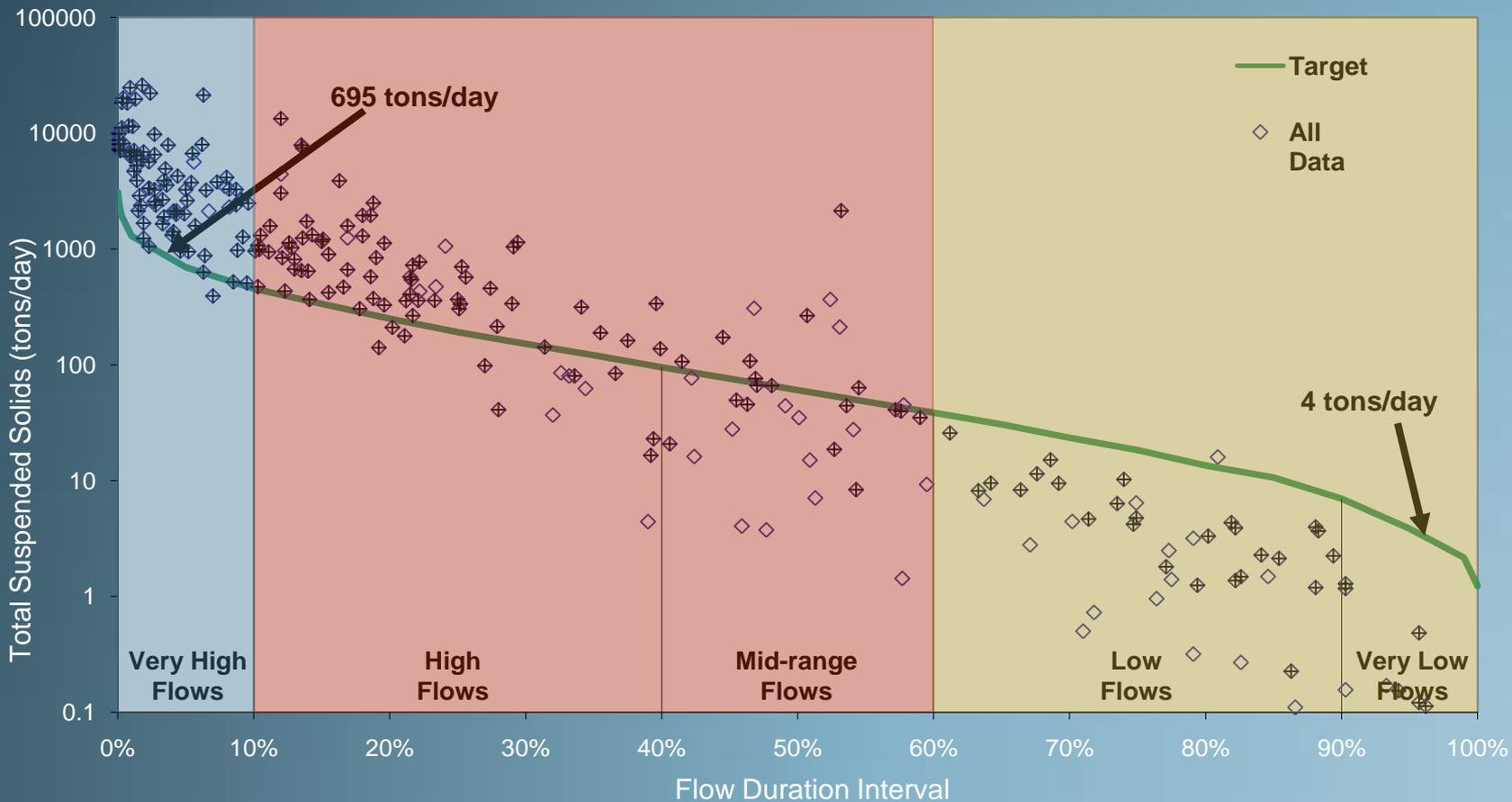
## Using

- Proven & tested ecological engineering concepts
- Existing materials and resources



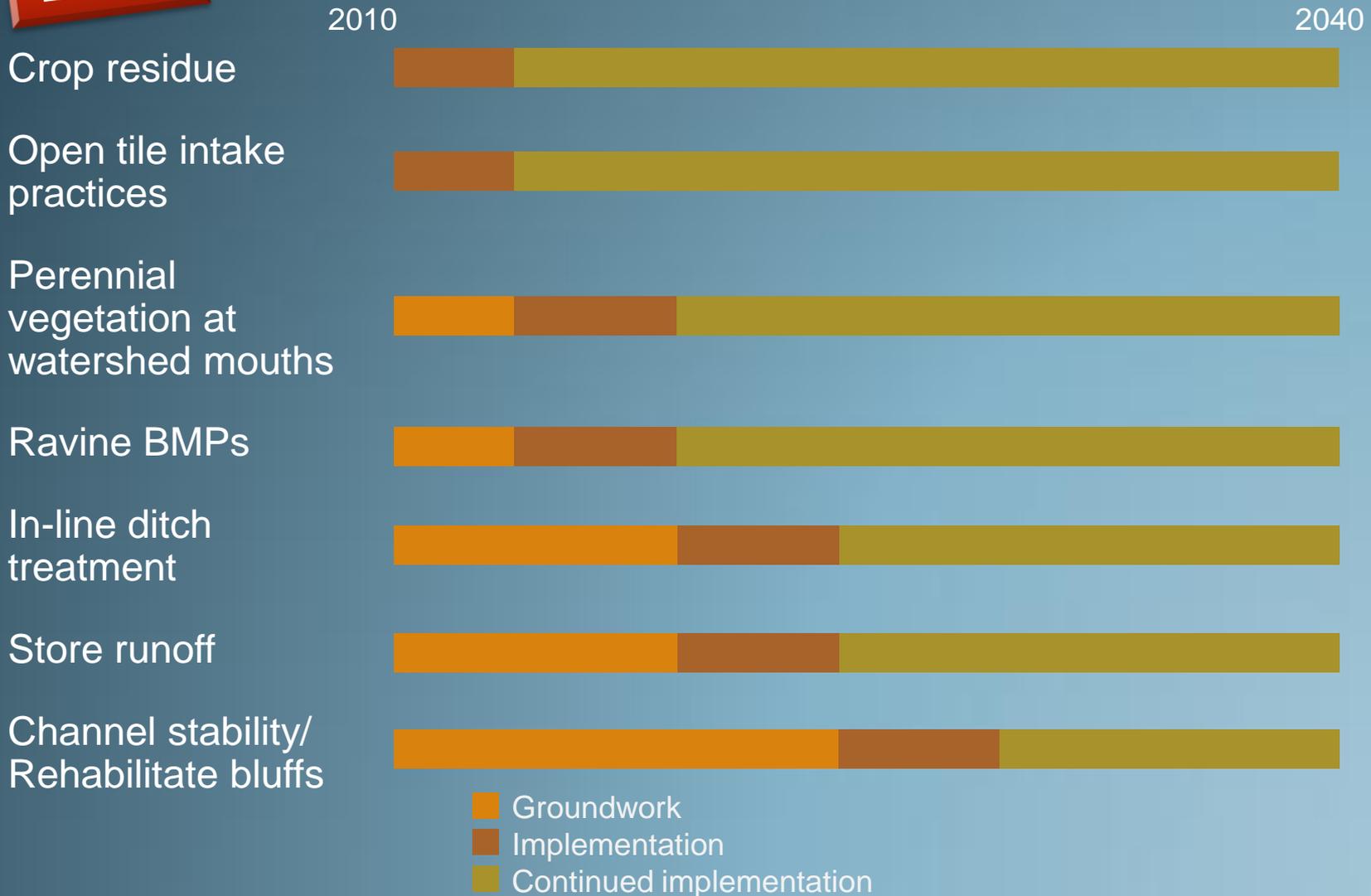
# Some practices are more effective than others

(Example: Le Sueur River Load Duration Curve)

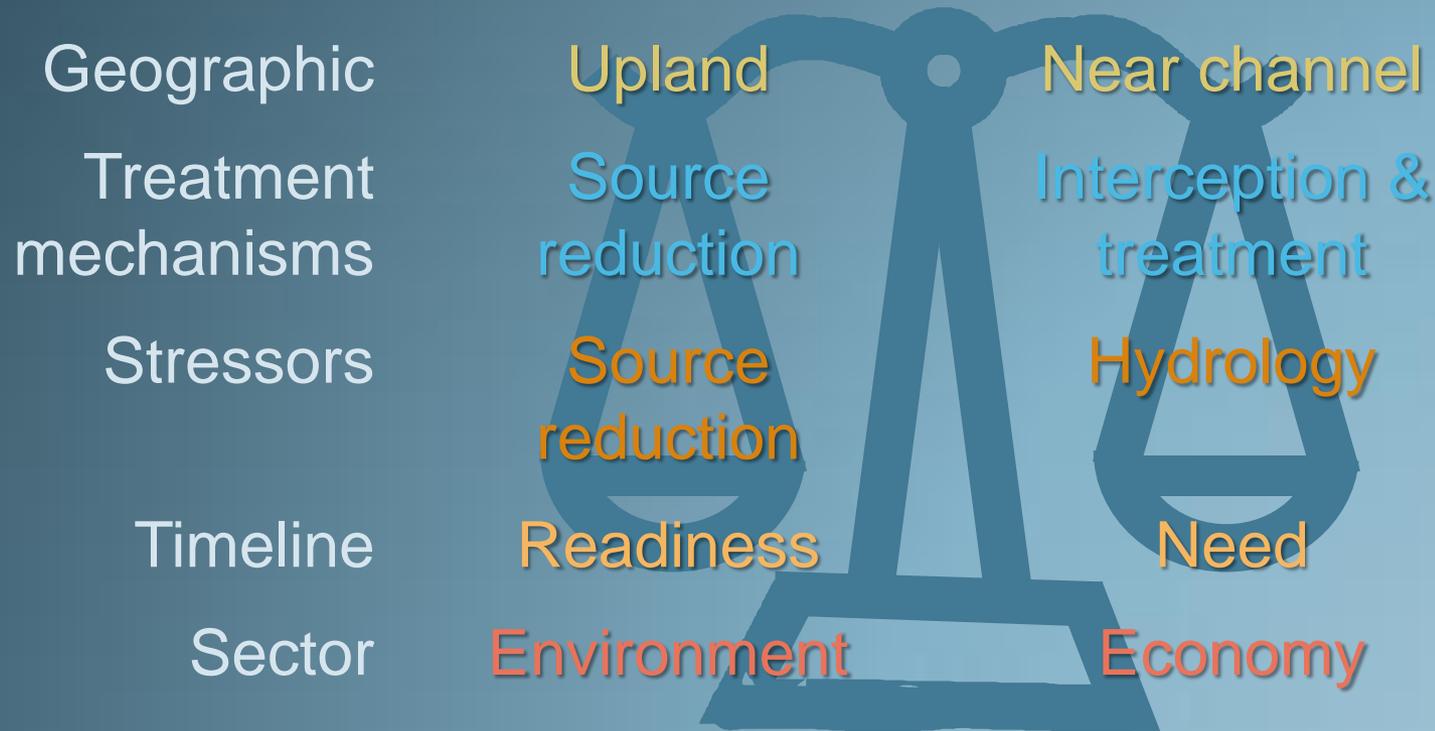


# Implementation choices/alternatives

Examples



# The larger community must settle on some critical balances



# Changes on the horizon

- Turbidity standard
- Try to avoid the zero sum game of feed the world vs. save the planet
- Watershed approach – protection and restoration

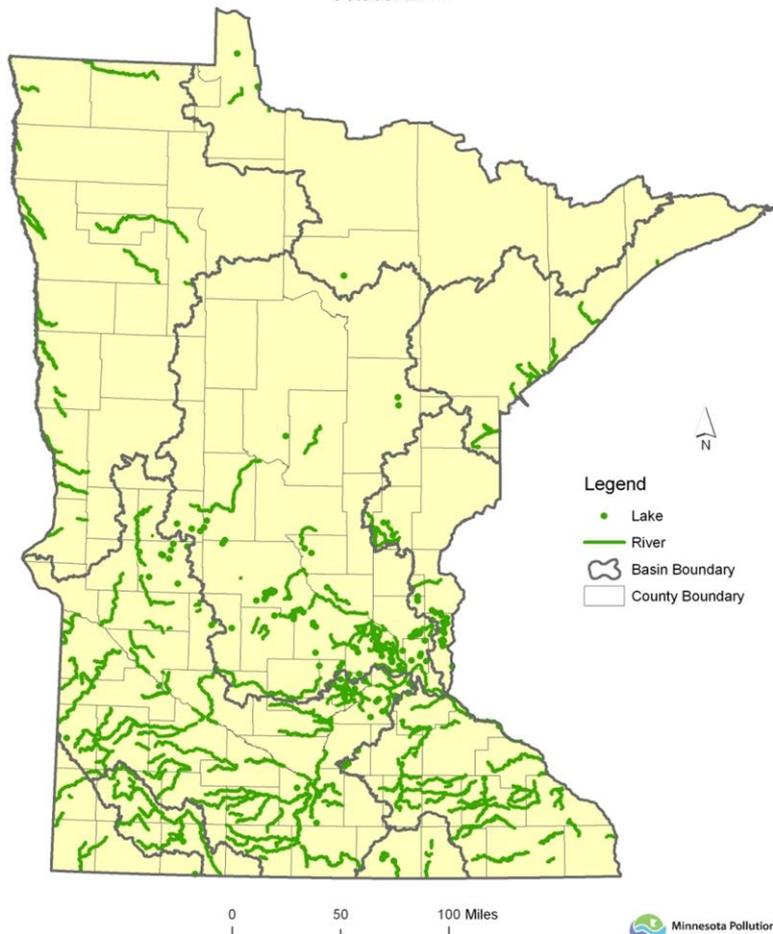


# TMDL Development

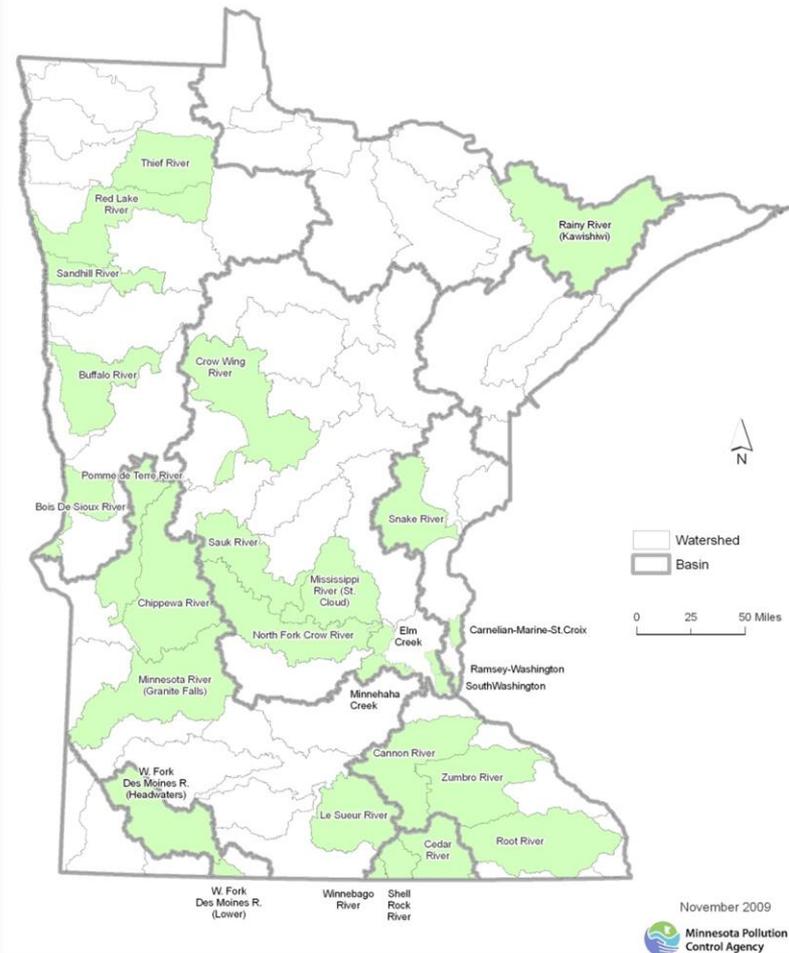
## Where we have been

## 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

# What's next. . .

Preliminary EPA review

Public notice

EPA approval

Communication

Systems

People



# What's next. . .

## Implementation strategy

- Adjust focus from TMDL study to implementation planning
- Identify and engage stakeholders
- Determine high leverage actions
- Identify action steps over 30 years
- Identify performance measures



# Summary

Based on modeling,  
some practices are more effective

There are choices/alternatives

The larger community must decide

