Barriers and opportunities for using science in water quality management

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Water Sustainability and Climate

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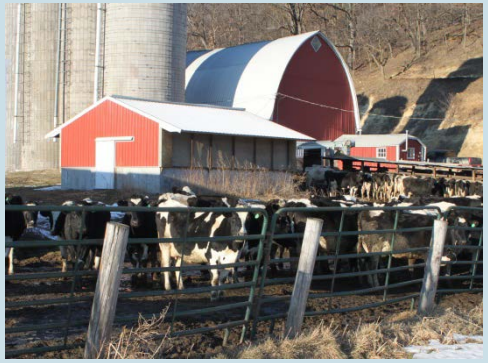


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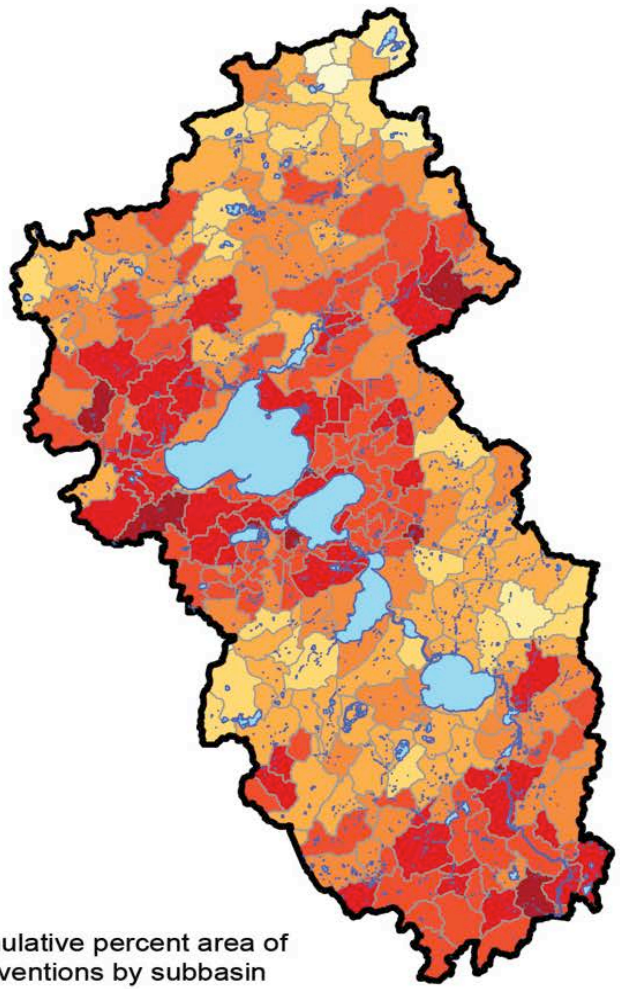
Human Dimensions of Ecosystem Management

Using science in water quality management

- Identifying and describing problems
  - Policy actors respond to problems, not conditions
- Predicting the likely effects of choices
  - Intended and unintended
- Evaluating the effects of prior actions
  - Drawing causal linkages

Rissman & Carpenter. 2015. *Daedalus (journal of the American Academy of Arts and Sciences).*

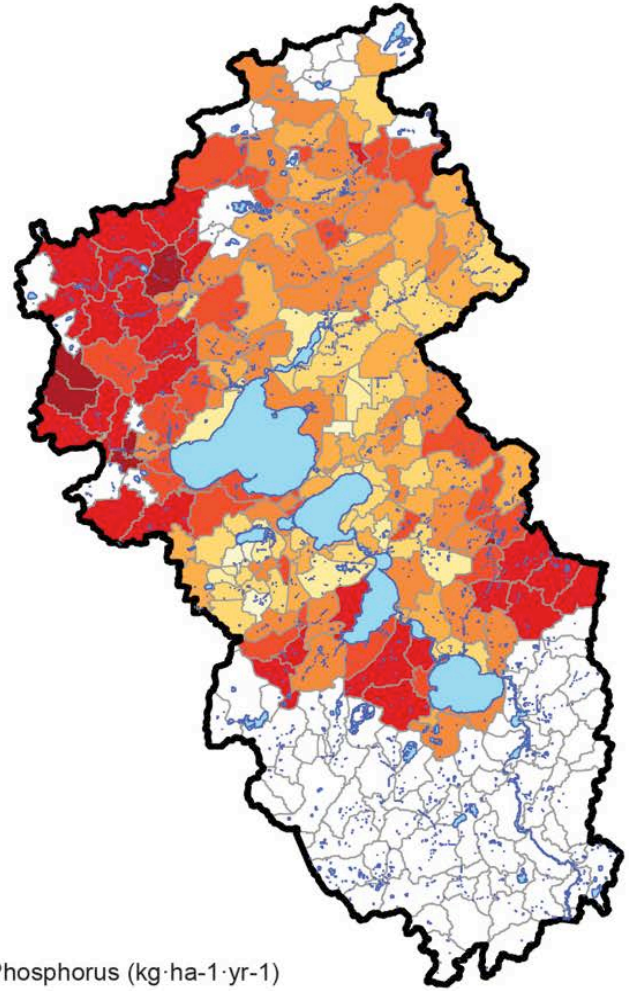
Total Interventions



Cumulative percent area of interventions by subbasin

Low High

Phosphorus Yield



Phosphorus (kg·ha-1·yr-1)

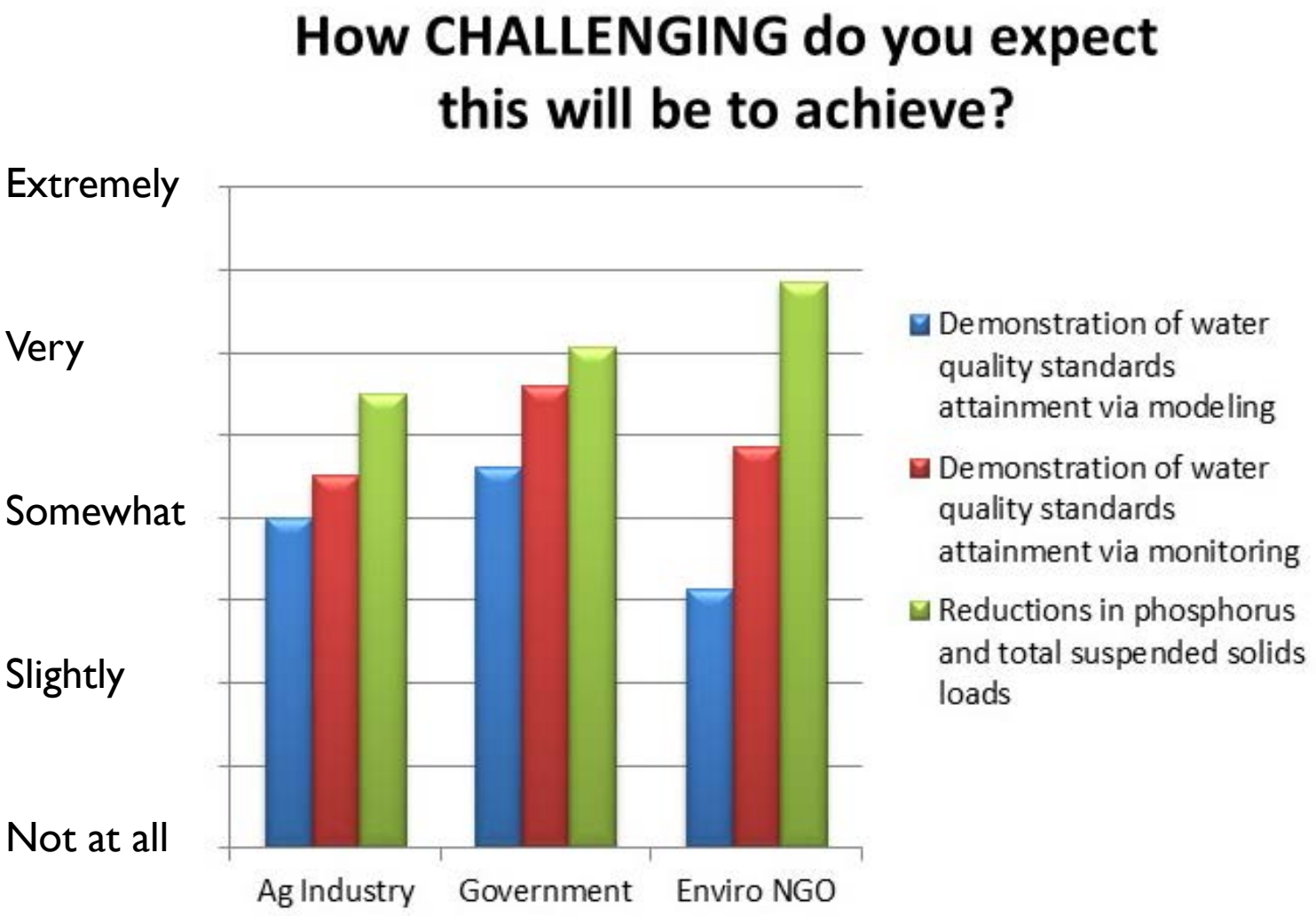
0 0.04 0.10 0.14 0.18 0.23 0.29 0.40 0.52

Intervention area on left (cumulative percent area covered by 35 possible interventions). Total phosphorus yield (kilograms lost per hectare per year) for 200 subwatersheds, modeled by Montgomery Associates (2011) on right. White indicates no data available at the time of analysis.

Wardropper, Chang & Rissman 2015. *Landscape and Urban Planning.*

Differing perceptions of models and measures

Survey of Yahara WINs participants, n=44



Wardropper et al. in prep

"The abandonment of a political quest for definitive, predictive knowledge ought to encourage, or at least be compatible with, more modest, iterative, incremental approaches to decision making." (Sarewitz)