

Water Management in the Great Lakes

SUSR Environmental Flow Policy Workshop

19 October 2007

Presented by:
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Program

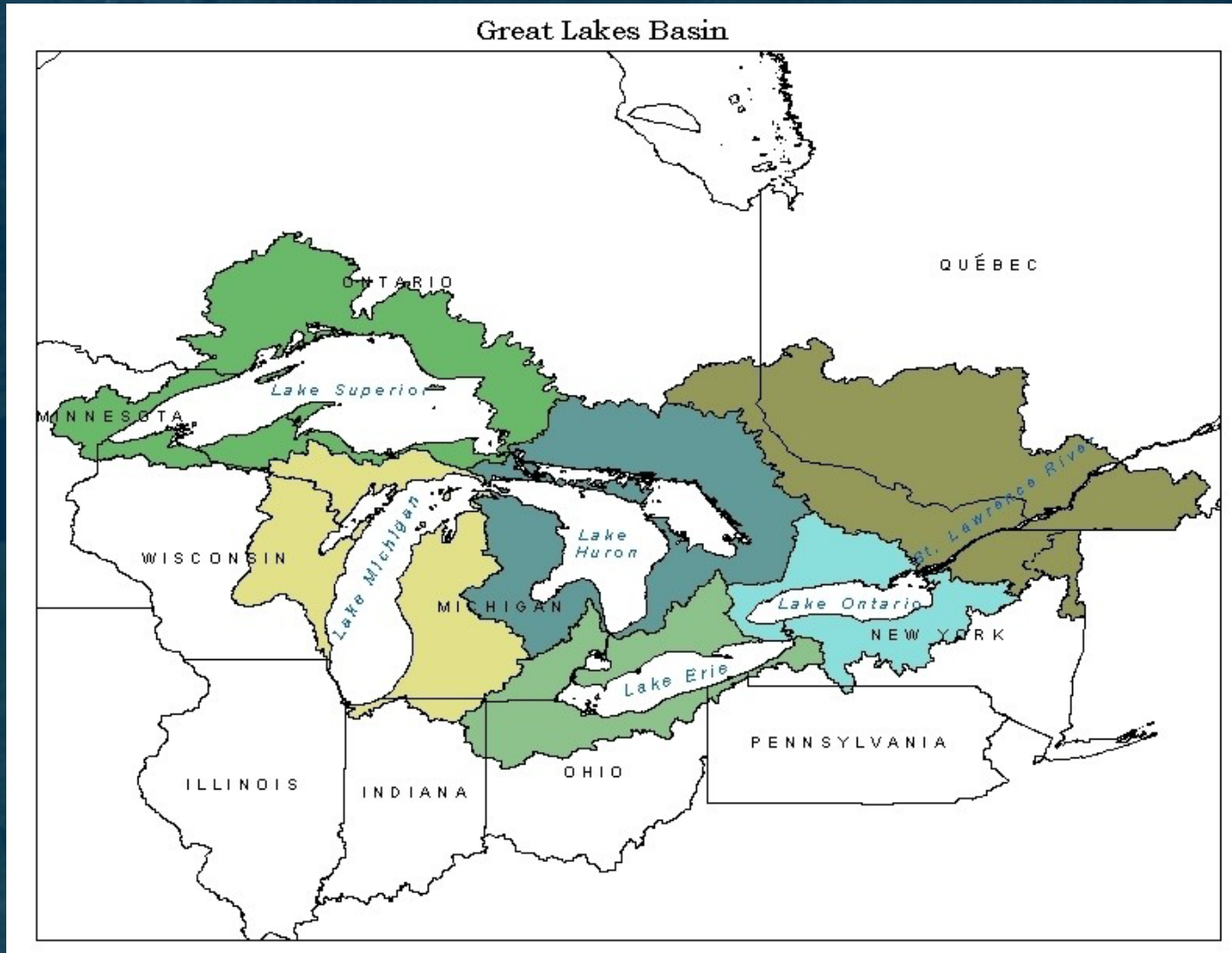
Great Lakes Water Management

- Introduction to the Great Lakes
- History of multi-jurisdictional water management
- Great Lakes Charter Annex (Annex 2001)
- Great Lakes Water Resources Compact / Agreement
- Conservancy roles

- World's largest freshwater ecosystem
- 20% of world's surface fresh water
- 95% of U.S. surface freshwater
- 42 million people live in basin
- Drinking water for 26 million people
- Regional GDP of \$2 trillion in 2000, exceeded only by U.S. & Japan



model of the Great Lakes as seen from space



History of Water Management

- 1909 – Boundary Waters Treaty (US & Canada)
- 1985 – Great Lakes Charter (States & Provinces)
- 1986 – Water Resources Development Act (US)
- 2001 – Great Lakes Charter Annex (States & Provinces)
- 2005 – Great Lakes Water Resources Compact and Agreement (States, States & Provinces)

Factors leading to water policy changes

- Proposed bulk water transport to Asia
- Lower water levels and drought
- Legal analysis of Constitutional and trade issues
 - Free trade agreements
 - Increased political power in Southwest US



June 18, 2001 - Good-faith agreement between Great Lakes Governors and Premiers

- Include Ontario and Quebec
- New decision making standard
- New set of binding agreements
- Include groundwater and in-basin consumptive uses
- Retain authority in basin

Decision Making Standard Principles

- Preventing/minimize water loss through return flow and water conservation
- No significant adverse individual or cumulative impacts to the waters/water dependent natural resources
- An improvement to the waters/water dependent natural resources of the basin
- Compliance with applicable state, provincial, federal and international laws and treaties

The project will not be allowed unless it has

- No significant adverse impacts

and

- Results in an improvement

to the Waters and Water-Dependent Natural
Resources of the Great Lakes Basin

The Nature Conservancy roles

- Served as advisor to Great Lakes Water Management Working Group
- Hosted ESWM Workshop (2003)
- Introduced tools to support water management
- Submitted comments on draft agreements
- Activated Great Lakes GR network



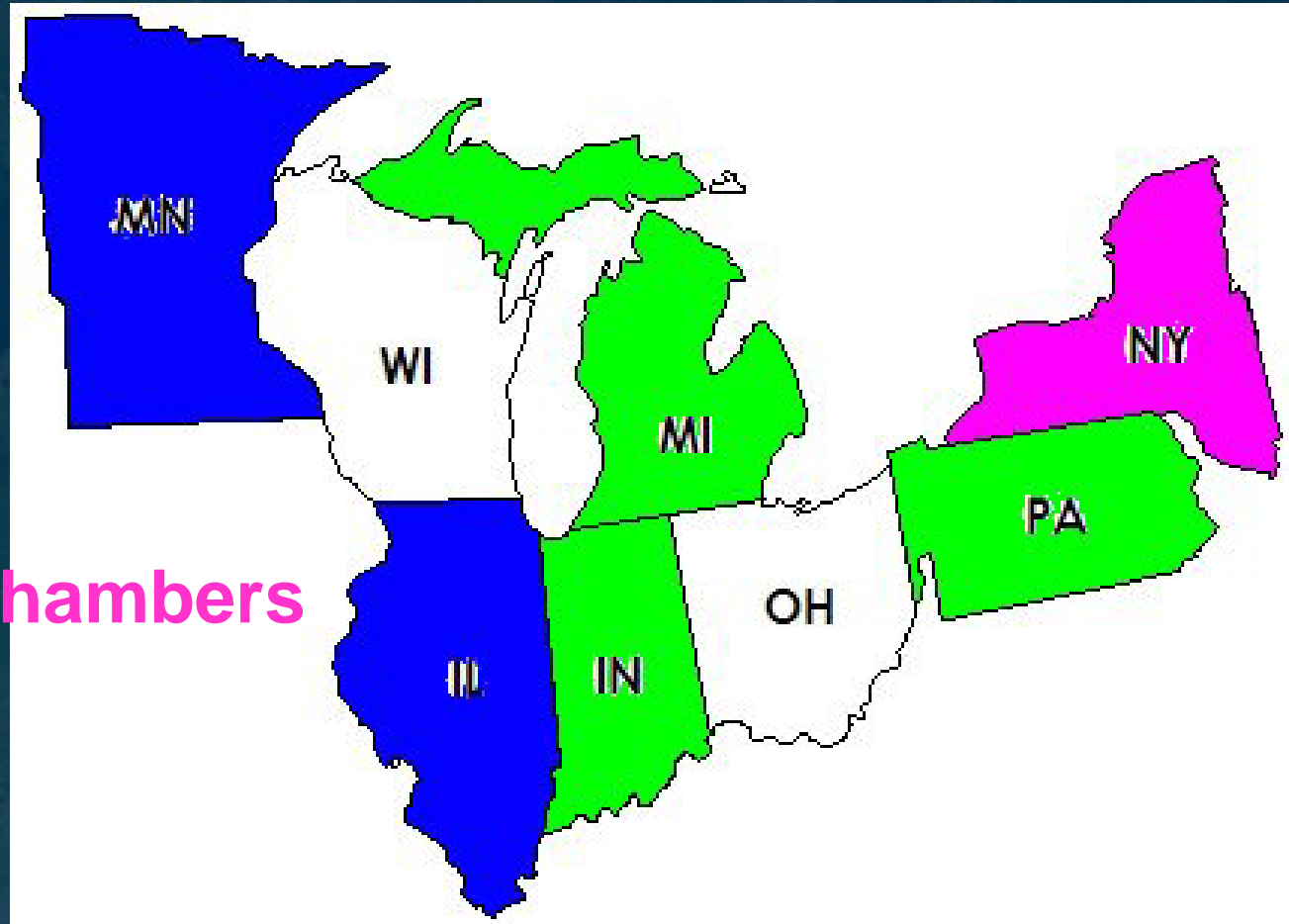
Great Lakes Water Resources Compact and Agreement – December 2005

- Ban on Diversions with limited exceptions
- Exceptions for public water supply in straddling municipalities and counties
- Decision-making standard linking ecological impacts and water use
- “Improvement” standard not included

Next steps

- Compact Ratification
 - approval of Great Lakes Compact in all state legislatures
- Implementation of water management programs
 - legislative or other changes to comply with Compact

2007 State Legislative Activity



Active bill

Passed 2 chambers

Enacted



Recent Water Policy changes in Michigan

- New Legislation in February 2006
- Groundwater Conservation Advisory Council and technical advisory group
- Design water withdrawal assessment tool
- Council to present recommendations to legislature in 2007

Compact Implementation

Increasing ecological degradation

1. Initial condition

2. Some density changes

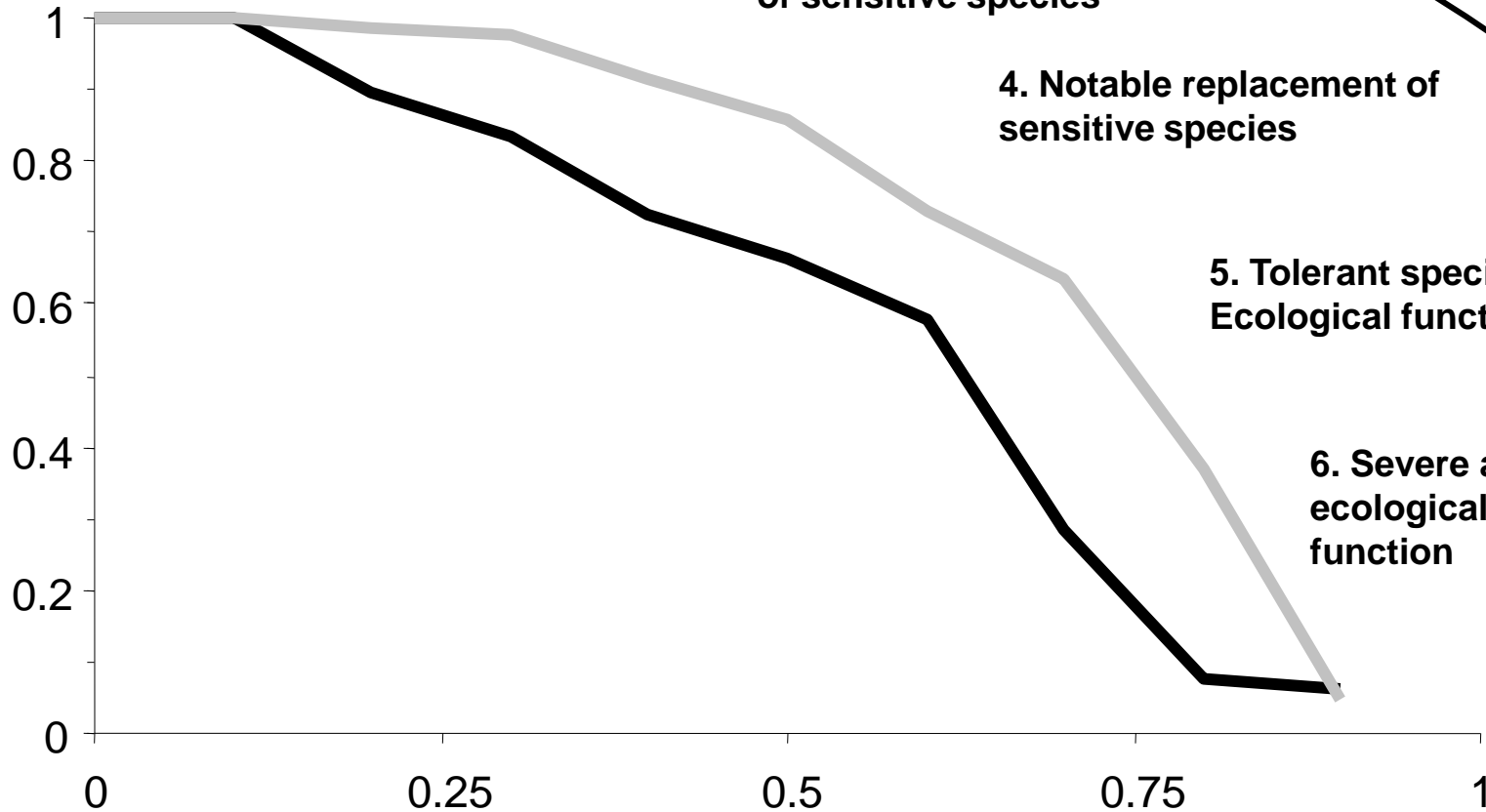
3. Some replacement of sensitive species

4. Notable replacement of sensitive species

5. Tolerant species dominant; Ecological functions altered

6. Severe alteration of ecological structure and function

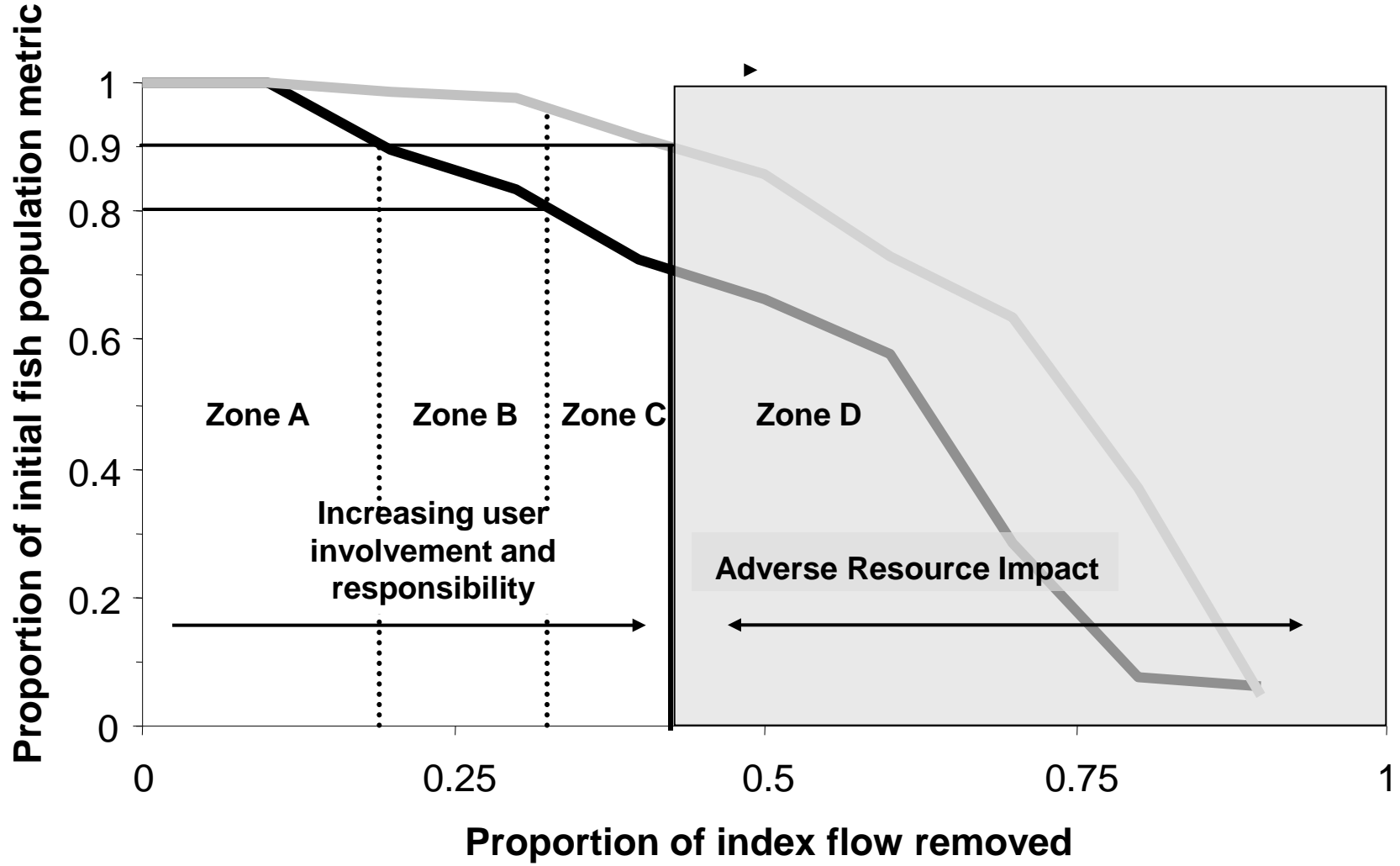
Proportion of initial fish population metric



Proportion of index flow removed



Compact Implementation

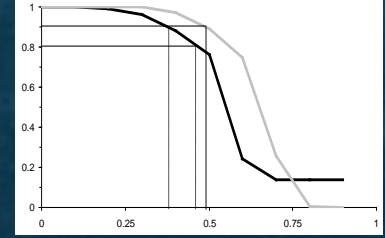
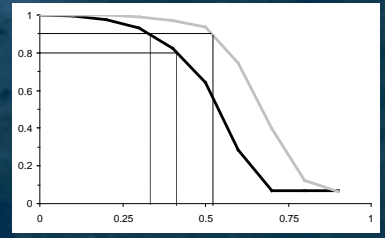




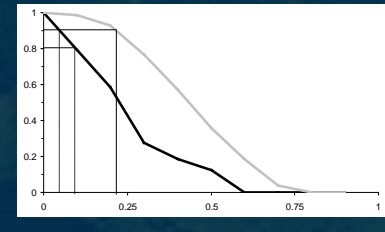
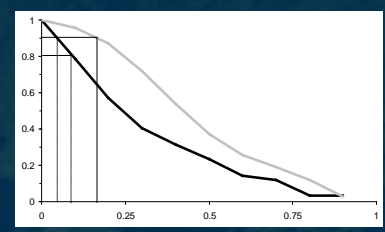
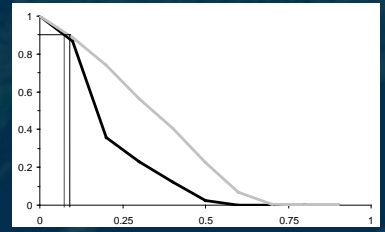
Compact Implementation

Proportion of initial fish population metric

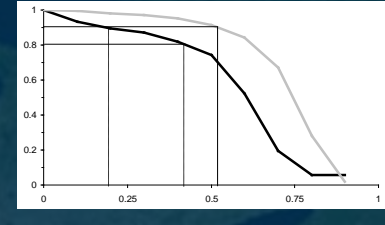
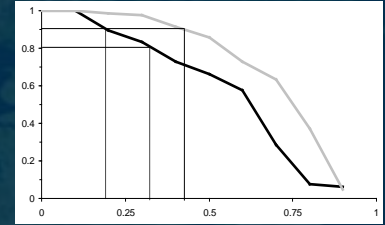
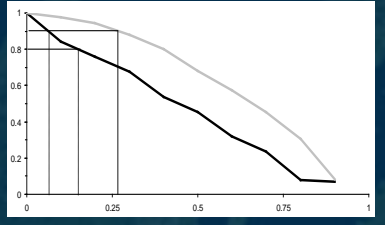
Cold



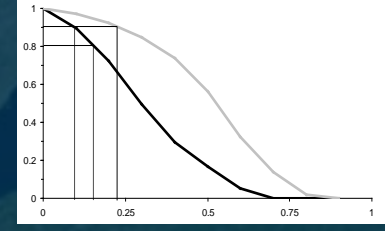
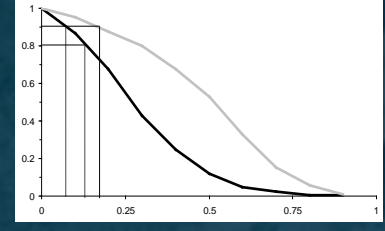
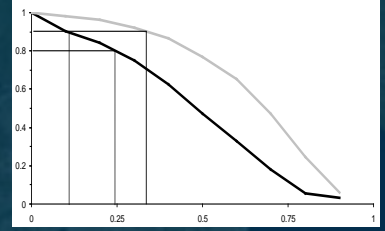
Cold Trans.



Cool



Warm



Streams

Sm. Rivers

Lg. Rivers

Proportion of index flow removed

Elements of ELOHA in Michigan

- Hydrologic foundation
- Models to predict flow statistics
- Development of flow-ecology relationships
- Use of curves to set standards
- Participatory process

Outcomes of Conservancy participation

- Increased appreciation for flow and natural variability
- Elevated profile of TNC within NGO community
- Established process for within-TNC coordination among states and Great Lakes Program
- Established credibility on issue

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