



Integrated Watershed Management as applied in the Great Lakes

A question of scale...

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Great Lakes

- Cover 240,000 km
- 16,000 km shoreline
- 35 million residents
Canada/US
- Drinking water 75% of
Ontarions
- 45% Canadian manufacturing
- Receiving waters for 300
effluent discharges
- Of national importance
biodiversity
- Important recreational value
- Agricultural values
- Commercial Fisheries



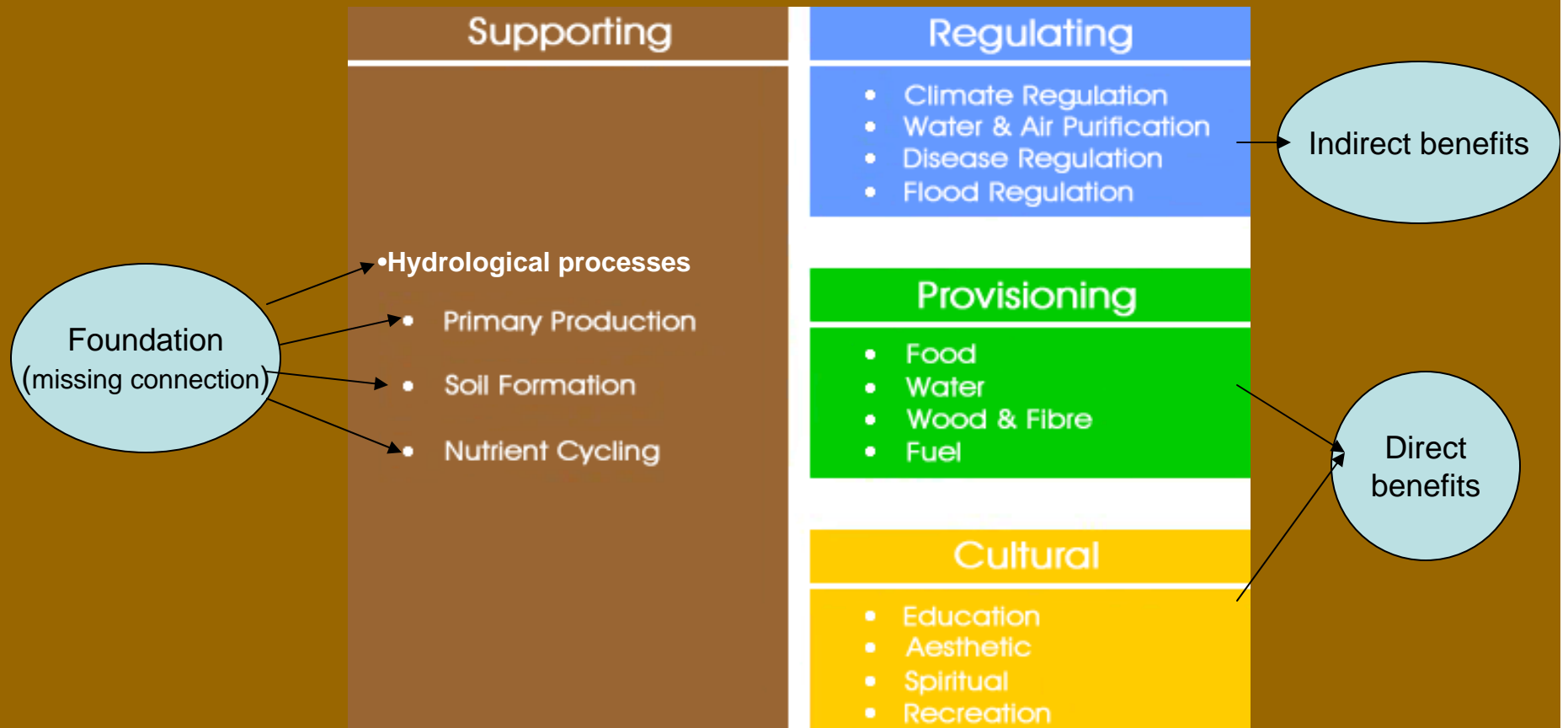
Great Lakes Management

- Binational Treaty and Agreements - GLWQA
- Annex 2 - Development of Lakewide Plans & Remedial Action plans
- EC lead in Canada with federal/provincial/state agencies
- Adopt ecosystem approach to managing concerns
- Science based
- Public involvement components
- Adaptive
- Reasonable governance model involving many jurisdictions, interdisciplinary
- Common objectives/goals



What are We Managing For?

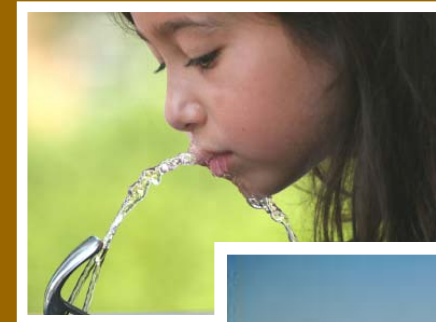
Ecological Good and Services for Great Lakes Citizens
(beneficial uses)



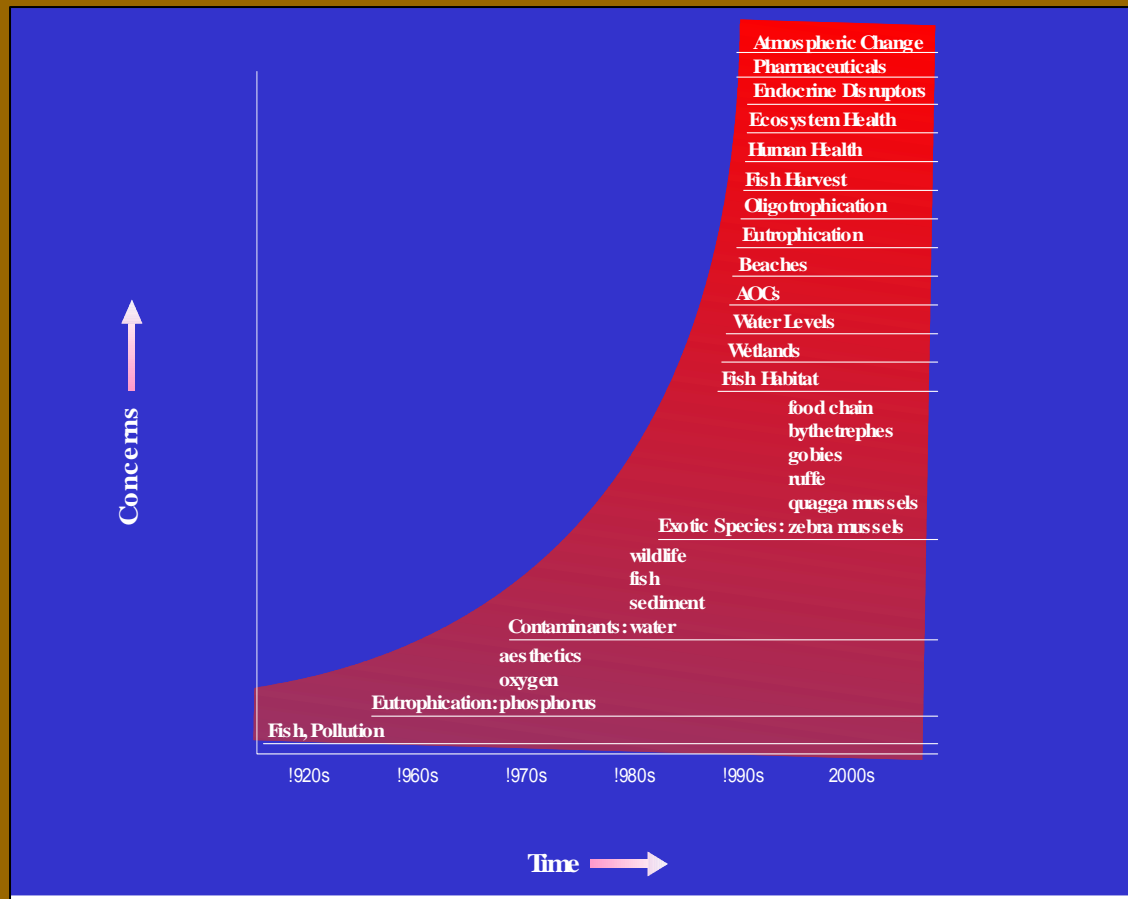
GLWQA - Beneficial Uses

Issues

- Invasive species
 - Excessive Nutrients
 - Toxic contaminants
 - Habitat loss/alteration
 - Hydrological changes
 - Climate change
 - Governance
 - Water levels
 - Landuses and intensification
 - Attitudes
 - Political support over time
 - Proactive Management - resistance
 - Diffuse Source/Cumulative impacts
-
- Relative importance and detail may differ with scale and geographic location
 - Need coordination at multiple scales & geographic locations



Influences Through Time



Effective Management of Great Lakes occurs at multiple scales

Great Lakes Basin



GLWQA, COA,
interlake issues (P
mgmt. invasives)

Lakes**



Lakewide plans linked
to multiple watershed
plans

Airsheds

Watersheds



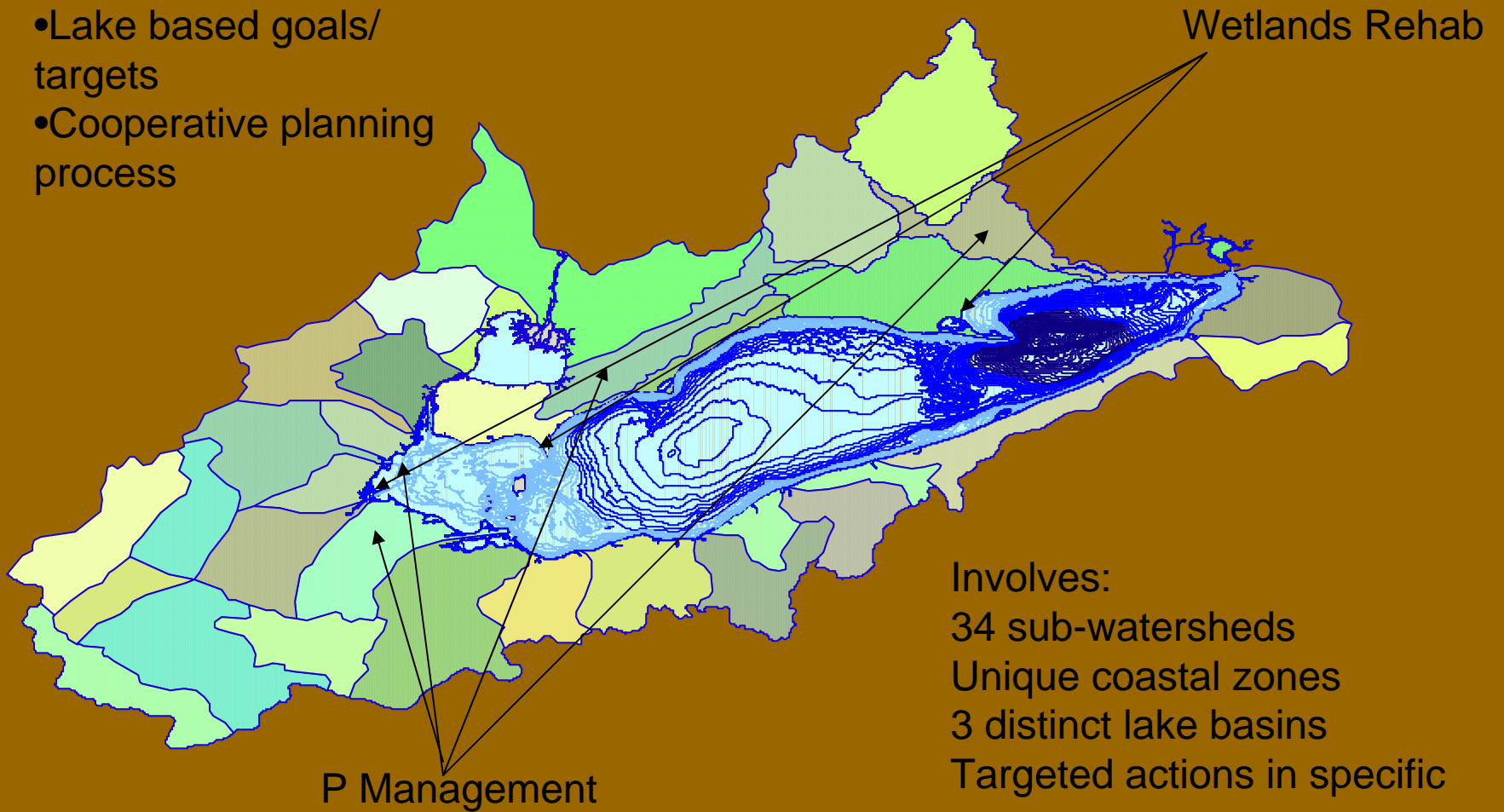
Watershed plans links to
lakes

Integrated Plans to Manage Human Influences

- Complex jurisdictionally many collaborators
- Common vision/goals/objectives/priorities
- Long planning horizon - many scales, ongoing
- Identification of actions , *responsible parties, timelines**
- *Social marketing approaches community change**
- Coordination of Science and Monitoring to inform decision making process
- Reporting of progress
- Collaborative - little authority collectively

Lake perspective

- Lake based goals/
targets
- Cooperative planning
process

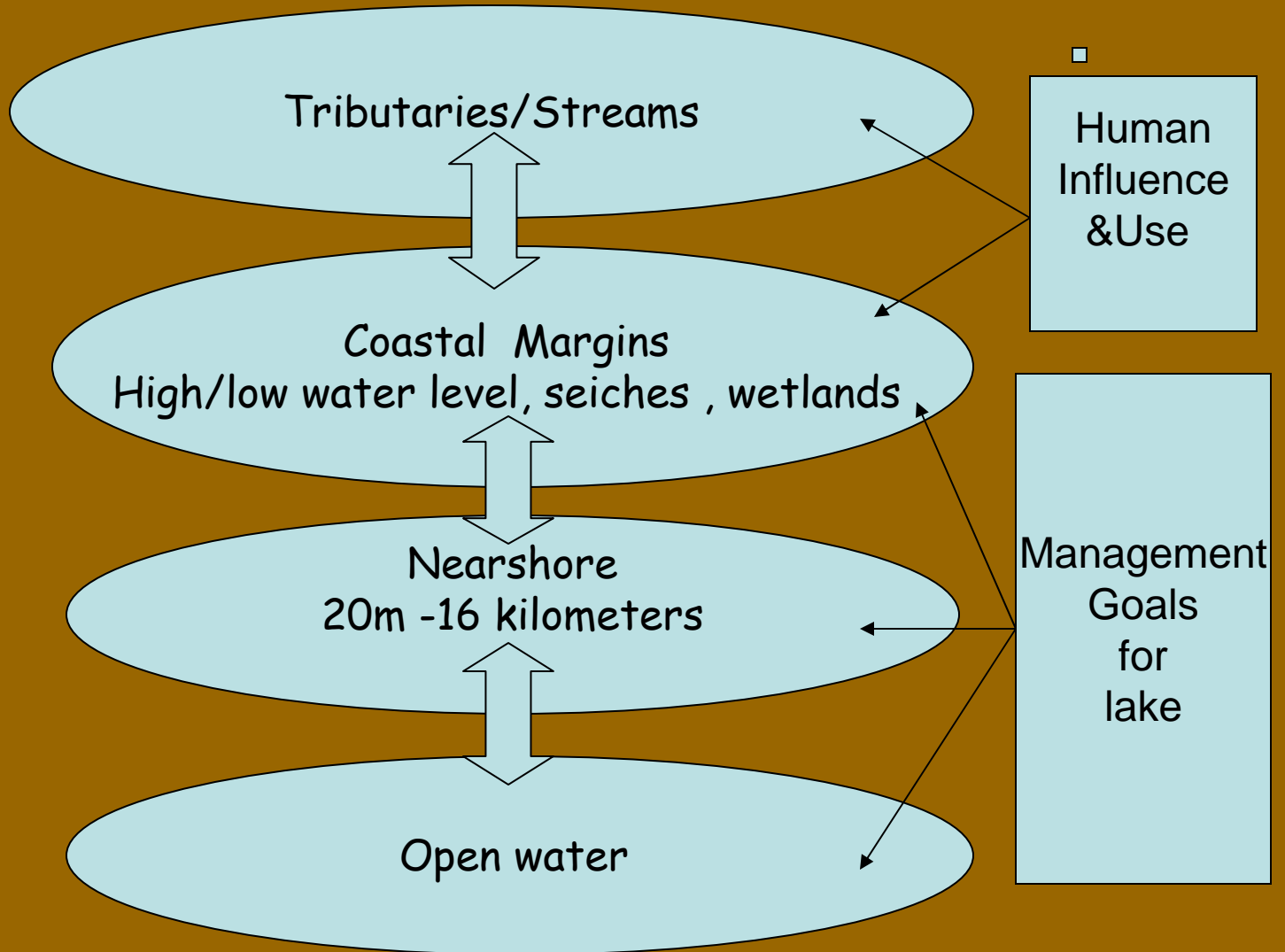


- Involves:
- 34 sub-watersheds
 - Unique coastal zones
 - 3 distinct lake basins
 - Targeted actions in specific
areas
 - Coordination across
watersheds

The problem is not the planning it's the implementation!

- Accountable agencies/stakeholders are often not part of planning at this scale eg. municipalities/industries
- Legislation/policies in place but
 - inconsistent across jurisdictions
 - applicable to political jurisdictions
- Actions often required by multiple sectors often distant from environmental problems and may have different priorities
- Actions may not directly benefit local citizens
- Lake goals may not be consistent with local goals
- Nearshore environment is jurisdictionally complex, lacks coordination - Coastal Management Plans?
- Funding/capacity an issue
- Improved collaboration , enable partners not control
- Activities we are managing diffuse with cumulative results - we have dealt with the easy part
- How to engage public effectively at each scale

Is Watershed Management a solution?



Yes! in part where it exists

- Requires that -
 - work with existing watershed planning programs to add lake perspective to existing plans
 - Breakdown into components that watersheds community can identify with and relate to
 - Be specific as possible by setting targets identifying areas of interest, geographic focus
 - Extend planning to include lake concerns
 - Develop funding and capacity
 - Enable partners



For Example.....

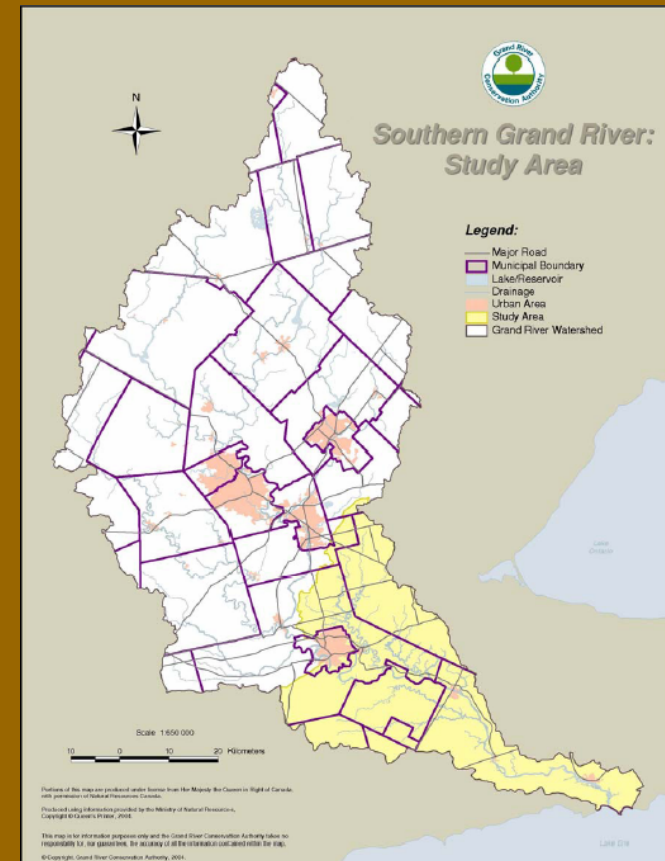
Lake Erie LaMP Eastern Basin Findings

- Unstable fish communities
- Changing nutrient status
- Changes in foodweb and energy flow
- Degraded habitats especially nearshore, wetlands and tributaries
- Water transparency increases
- Cladophora increases
- Botulism Outbreaks
- New species - Dressenids mussels, Bythotrephes, Cercophagus, Gobies
- Native species - Diporeia, sculpins, mussels declines/extirpations
- Benthification - dressenids/gobies



Southern Grand River Rehabilitation

- Focus on Tributary-Lake interactions
 - Hydrological processes (bedload, water quantity movement , seasonality , channel structure
 - Habitat - fragmentation, dams physical habitat degradation esp. wetlands, temperature ,oxygen
 - Species Rehabilitation - Grand rivers stock of Walleye, Yellow Perch, Lake Sturgeon, SAR
 - Water Quality - Phosphorus Nitrates, Suspended Solids



Southern Grand Rehabilitation

Planning/Assessment Process

- Identify problems
- Identify future goals and rehabilitation targets
- Develop and implement recommended actions
- Monitor
- Reassess - adaptive management
- Coordinated across many agencies
- Stakeholders involved
- **Implementation remains a concern**
- **Who's accountable/responsible for ensuring plan implementation - Grand Strategy?**
- **Funding/capacity**

The Future

- Planning at this scale necessary - improve coordination
- Mechanisms in place for effective implementation including funding is key
- Coastal Zones and Management - Connects watershed to open water
- Improve capacity of partners funding and expertise
- Communication/education especially stewardship
- Watershed plans to consider lake interest- plumes

Questions

- Where are IWP principles most effective and at what scale?
- How are the implementation concerns resolved?
- IWRM and IWP - incorporates sustainability concepts in decision making - requires a shift in perspective
- Can we make better use of policy/legislative tools?
- Governance - transition of leadership & responsibilities changes as move landward
- Do we need a new institutional model?
- 2010

The End

