LOSLR Study Guidelines

• Contribute to **Ecological Integrity**
• Maximize economic and ecological net benefits
• No disproportionate loss (Equity)
• Flexible in recognition of unusual or unexpected conditions
• Adaptable to **climate change and climate variability**.
• Decision-making will be **transparent and representative**
• **Adapt** to future advances in knowledge, science and technology.
The Shared Vision Model

Abbreviations

STELLA – Model programming software
FEPS – Flood and Erosion Prediction System
SRM – St. Lawrence River Model
IERM – Integrated Ecological Response Model
H&H – Hydrology and Hydraulics
Env – Environment
Hydro – Hydropower
Nav – Commercial Navigation
Rec – Recreational Boating
M&I – Municipal, Industrial and Domestic Water Uses
Environment

Protected Species

Habitat

Enhancements

Exotic Species

Wetlands
Performance Indicators (PI’s)

• Over 500 *initial* PI’s & hydrologic & hydraulic criteria covering ecosystem, navigation, erosion, flooding, M&I water, hydropower, recreational boating

• Winnowed to 81 PI’s, incl 32 Ecol PI’s for evaluation/decisionmaking
32 Wetland sites studied by the LOSLR Study
Fish habitat IS Curve results (Lake sturgeon *Acipenser fulvescens*)
1998, quarter-monthly IS Curve results
temporal evolution

Adapted from: Mingelbier, Brodeur et Morin (2003)
Progression of Plan Evaluation/Selection
(with 500 active participants/NGOs)

October 2004 Workshop: A B C D E F G H I J K.....

March 2005 Workshop: A B C D E OntRip RecBtg

April 2005 Workshop: A B C D E + Ref. Plans

Final Plans: A, B, D + Reference Plans
Candidate Plans:

- A: Balanced Economics
- B: Balanced Environmental
- D: Blended Benefits

Natural Flow Plan

- E: Natural Flow

Interest Specific:

- Ontario Riparian Plan
- Recreational Boating Plan

Reference Plans:

- Plan 1998
- Plan 1958DD
- Plan 1958D
# Net Economic/Ecologic Benefits of Alternative Plans

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# Economic Robustness of Plans w.r.t Climate Change Scenarios

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<th>Avg. ann. net benefits ($US million)</th>
<th>Plan 1958DD</th>
<th>Plan A</th>
<th>Plan B</th>
<th>Plan D</th>
<th>Plan E</th>
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<td>6.48</td>
<td>6.52</td>
<td>-12.30</td>
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<td>C3 - Hot/Wet</td>
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<td>C4 - Warm/Wet</td>
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<td>8.33</td>
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Figure 42: Five-year moving average of the net total supply (NTS) for the four stochastic centuries (S1-S4) and the historical.
Ecological Robustness/Resiliency - Stochastic Scenarios
(# Ecological PI’s with gains or losses)
Conclusion

• U.S. and Canadian Governments have Agreements in place for boundary waters issues
  – Boundary Waters Treaty
  – Great Lakes Water Quality Agreement
• IJC assists in binational monitoring & implementation
• Great Lakes Water Quality Agreement requires an ecosystem approach; recent information and upcoming review an opportunity to improve
• Lake Ontario – St. Lawrence River study takes inclusive ecosystem approach to water level regulation
• Ecosystem approach will be further applied in Upper Lakes Study