How is biodiversity policy informed by science?

Cheryl Lewis
Applied Research and Development Branch
Ontario Ministry of Natural Resources

Biodiversity and Ontario

- Canada's global standing
  - Diversity of ecosystems
  - Significant natural and wilderness systems intact
  - Small population on a large geography

Biodiversity and Ontario

- Ontario's biological wealth
- Great diversity
  - 107M ha of land and water
  - 250,000 lakes; thousands of km of rivers and streams
  - More than 30,000 plant, invertebrate and vertebrate species
- Great pressures
- Great potential for stewardship

Ontario's Commitment to Biodiversity

- *Our Sustainable Future (2005)*
  - *Sustainable Development*
  - *Ecological Sustainability*
  - *Commitment to Biodiversity Conservation and Sustainable Use*
  - *Stewardship Principles*
- *Ontario's Biodiversity Strategy (2005)*
  - *Protect genetic, species and ecosystem diversity*
  - *Use and develop biological assets sustainability*

How is Policy Informed by Science?

Presentation in two parts:

1. Examples of science
2. Role of science in policy

“Science-based” information helps us understand and manage our biodiversity

- Inventory – what’s there?
- Status – what condition, uniqueness/rarity, etc?
- Structure and function – how does it work? How is it influenced/shaped by natural and human-related disturbance? Cumulative effects?
- Sustaining – how do we keep/maintain it?
- Policy evaluation – did it work?
- We’ll return to the concept of science-based; but first some examples

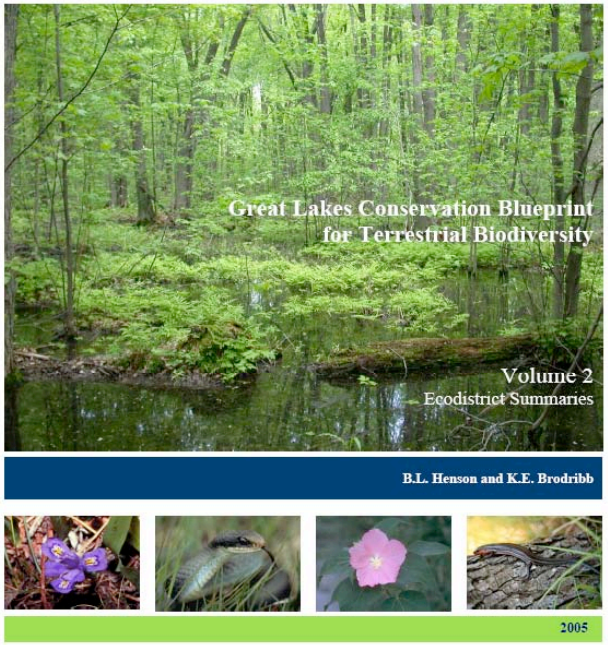
Some Examples

- Inventory and Status
  - Characterization - Caribou, wolves/coyotes, Great Lakes fish populations
  - COSSARO/COSEWIC assessments
  - Far North Biodiversity Survey
  - Breeding Bird Atlas
  - Natural Heritage Information Centre
  - State of the Resource Reporting

Some Examples

- Structure, function, threats and disturbance
  - Mink and fur farms (Bowman)
  - Bird diversity and forest management (Rempel)
  - Lake trout diversity and climate change (Wilson)
  - River fragmentation (Jones)

- Sustaining biodiversity
  - Conservation planning: design of protected areas; priorities for land securement
  - Land use planning: Lake Simcoe, Far North…
  - Management regimes: forest, fish, wildlife management
  - Species at Risk: recovery plans, knowledge gaps

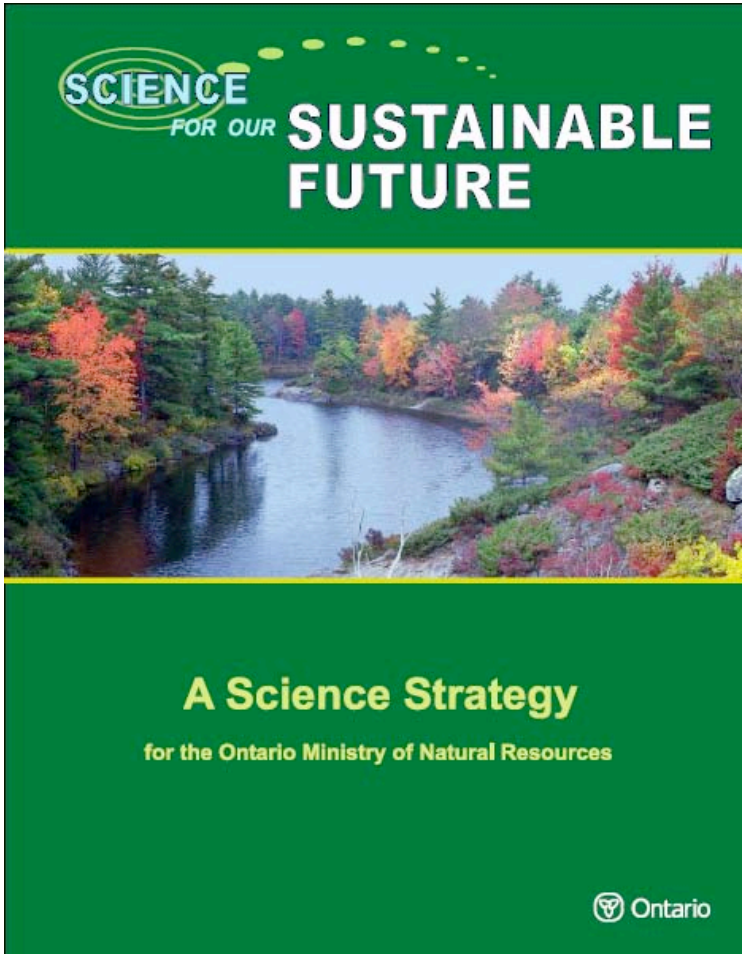


Some Examples

- Policy Evaluation
  - Effectiveness monitoring
    - Forest management guides
    - Fish Culture monitoring program for genetic diversity
  - An important role for science, not just for policy!

Science and Policy in MNR

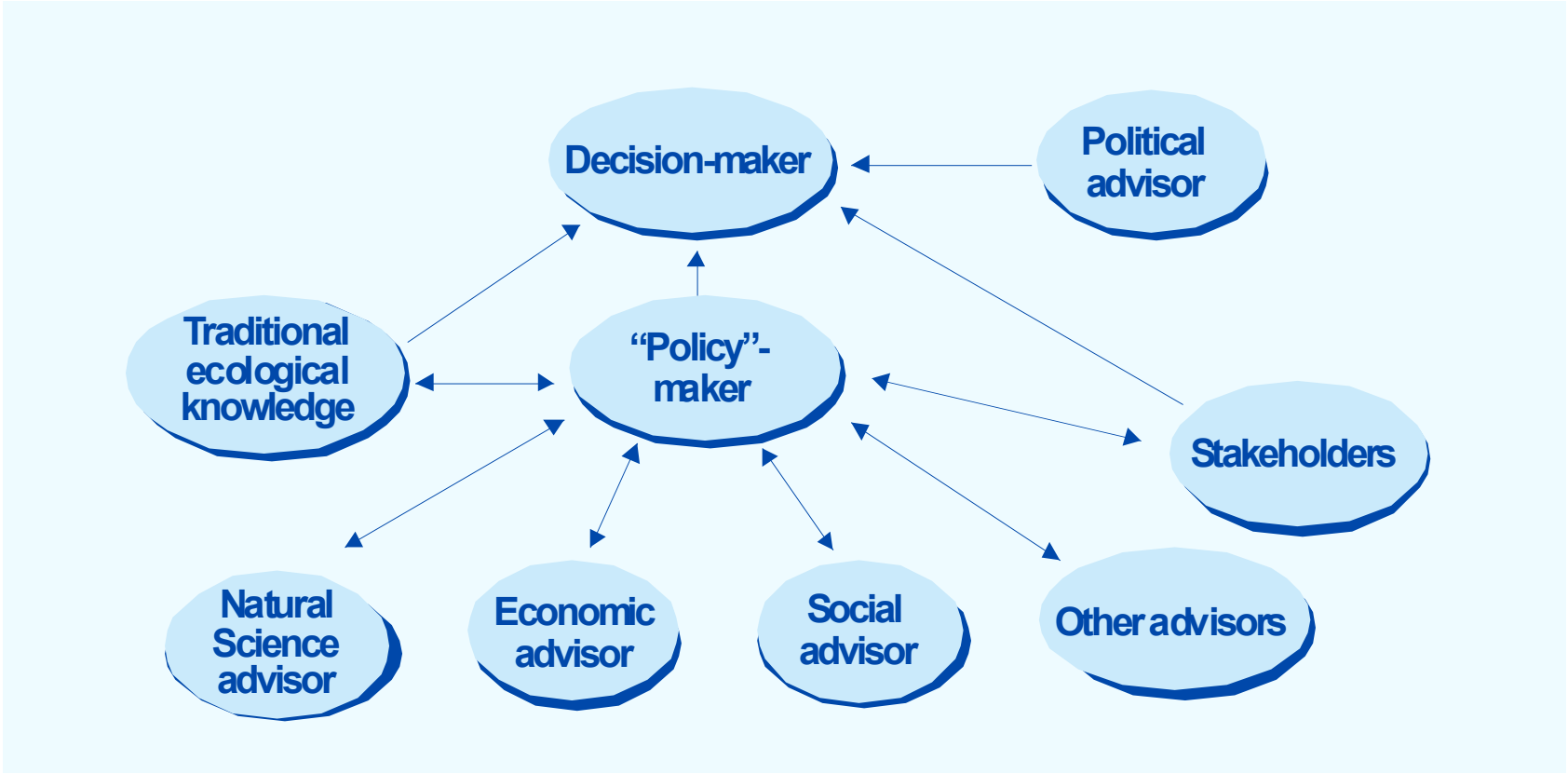
- Internal investments in science to support policy and management
  - Applied Research
  - Inventory, Monitoring and Assessment
- Broadened through
  - Collaboration with universities and agencies
  - Science panels and other external expertise

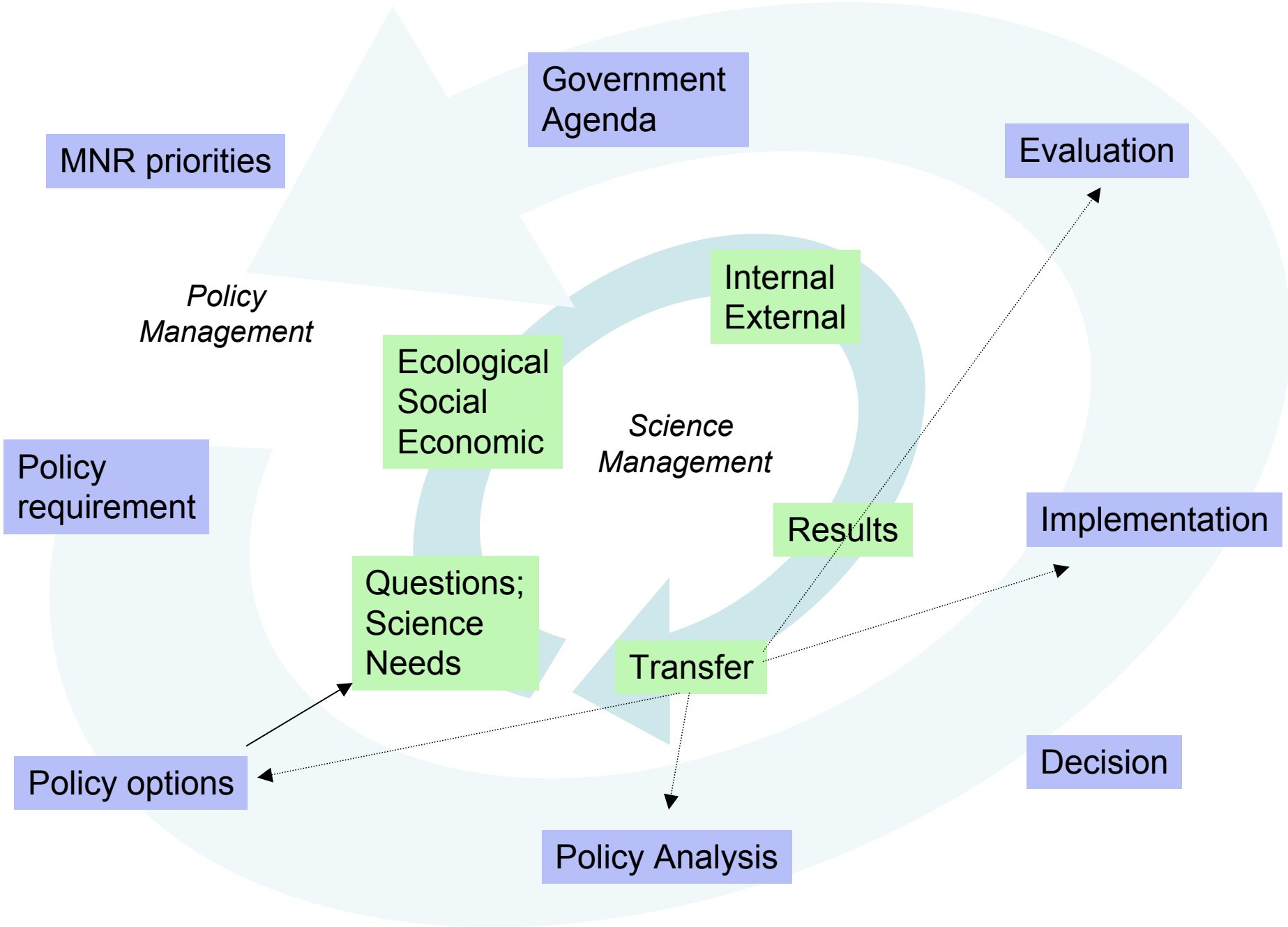


Working together at the science-policy interface

Factors influencing success

Policy is informed by science but not only science




Government Agenda
MNR priorities
Evaluation
Policy Management
Internal External
Ecological Social Economic
Science Management
Policy requirement
Results
Implementation
Questions; Science Needs
Transfer
Policy options
Decision
Policy Analysis

Factors at the interface

- Timing of engagement
- Who's at the table
- Context/framing, including scale
- Positioning – listening, willingness to learn
- Communication - translating science for policy makers
- Culture
  - Detail and complexity vs generalization and simplification
  - View of science – authoritative or learning
  - Use of science – "shield" or "lamp"
  - View of policy – authoritative or "probe" (hypothesis)
  - Confronting uncertainty
  - Definitions of success
- Boundary organizations

Factors Influencing Effectiveness of Working Across the Policy-Science Interface

- Framing – who defines the policy question and how it is defined
- Transparency – scientific input is clear and open to scrutiny
- Available time – vs in-depth research
- Mutual awareness – need for understanding of policy and science cultures
- Strategic thinking – taking account of wider strategic goals, longer-term science requirements
- Relationships – incentives and enablers for information flow

(N.Z. Parliamentary Commissioner for the Environment 2004)

Factors at the Interface

- Scientific information is likely to be effective in influencing social responses to public issues to the extent that stakeholders perceive it to be:
  - Credible: scientific adequacy
  - Salient: relevant to the policy context
  - Legitimate: respectful of stakeholders' divergent values and beliefs, unbiased, fair

(Cash et al. 2003)

Principles for a science-based ministry

- Engage early
- Be mission-oriented
- Think multi-scale
- Share and collaborate
- Seek out and apply available science, but…
- Embrace uncertainty

(MNR Science Strategy 2005)

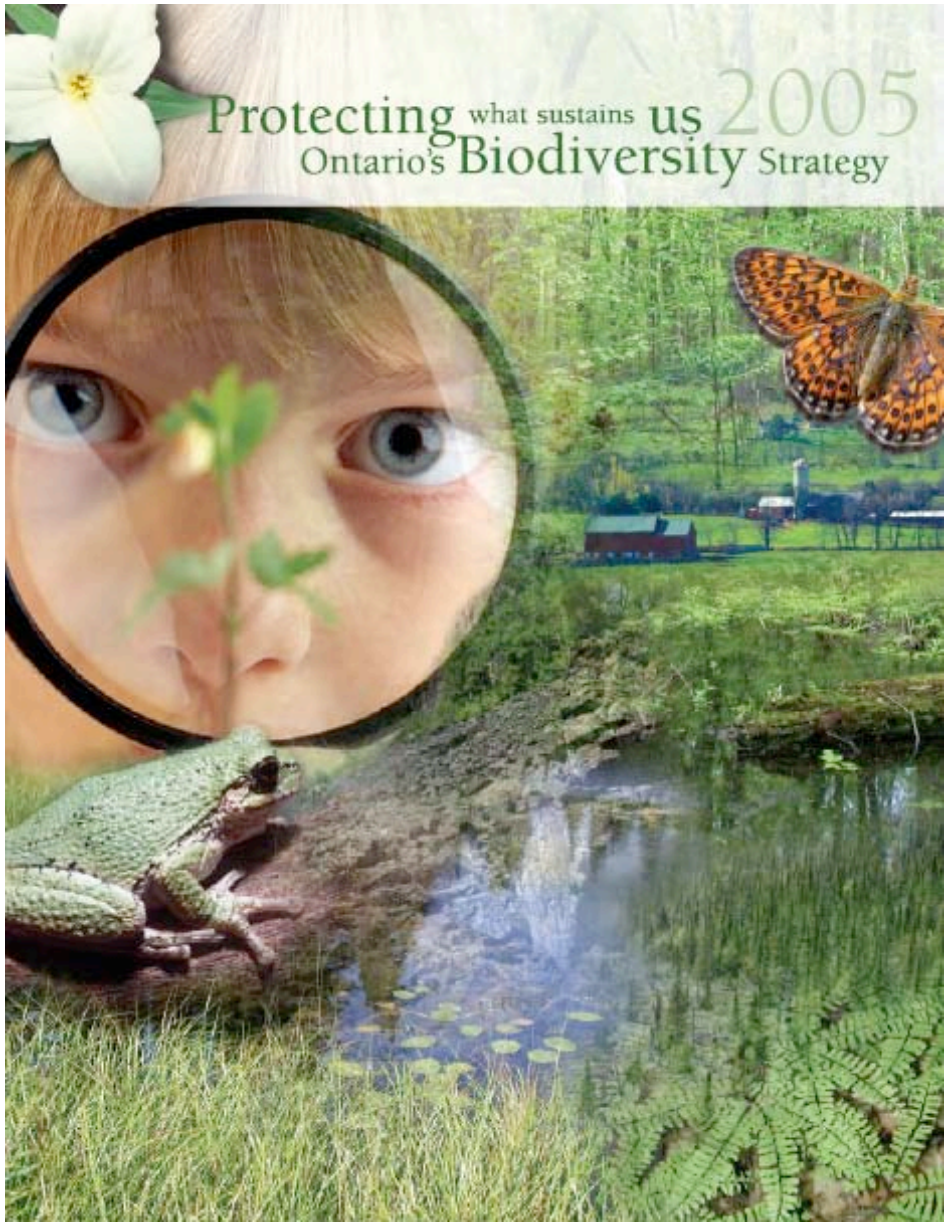
Final Thoughts on Science and Policy (from Tom Nudds)

- Science is mute on whether to conserve biodiversity!
- Knowledge is in a constant state of flux
  - We are learning new things
  - The world is changing
- But the scientific process, properly engaged, can inform on the potential risks and rewards of alternate policy scenarios, and aid to reduce risk associated with uncertainty

For your consideration…

- Where have you participated in a “science-policy” space?
- What factors were present that enabled the effective use of science to support policy?
- What factors worked against such effective support?
- What “model situations” can you point to that we can learn from?
- Ontario’s biodiversity is influenced by more than provincial policy. In what other forums do we need to ensure science is better-linked?
- What would you recommend to ensure biodiversity policy (and practice) is appropriately linked to science?

Thank you


Protecting what sustains us
Ontario's Biodiversity Strategy
2005