

Seeing the forest and the trees

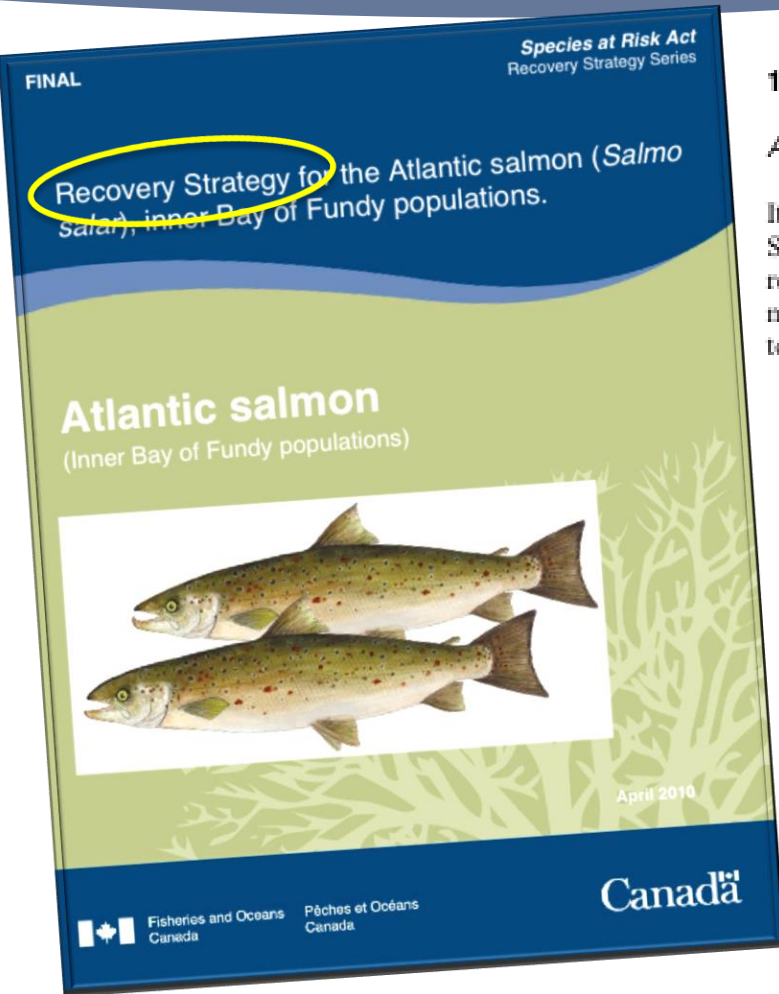
Environmental Economics Decision-Support

Biodiversity Collaborative Conference



New Maryland, N.B.
March 30, 2015

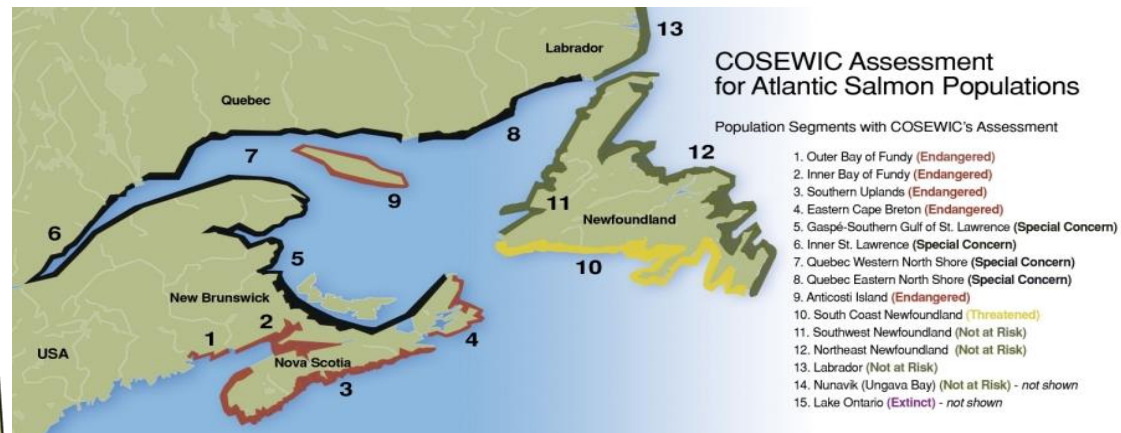
Forests and fish



1.7.2 Assessment of Threats

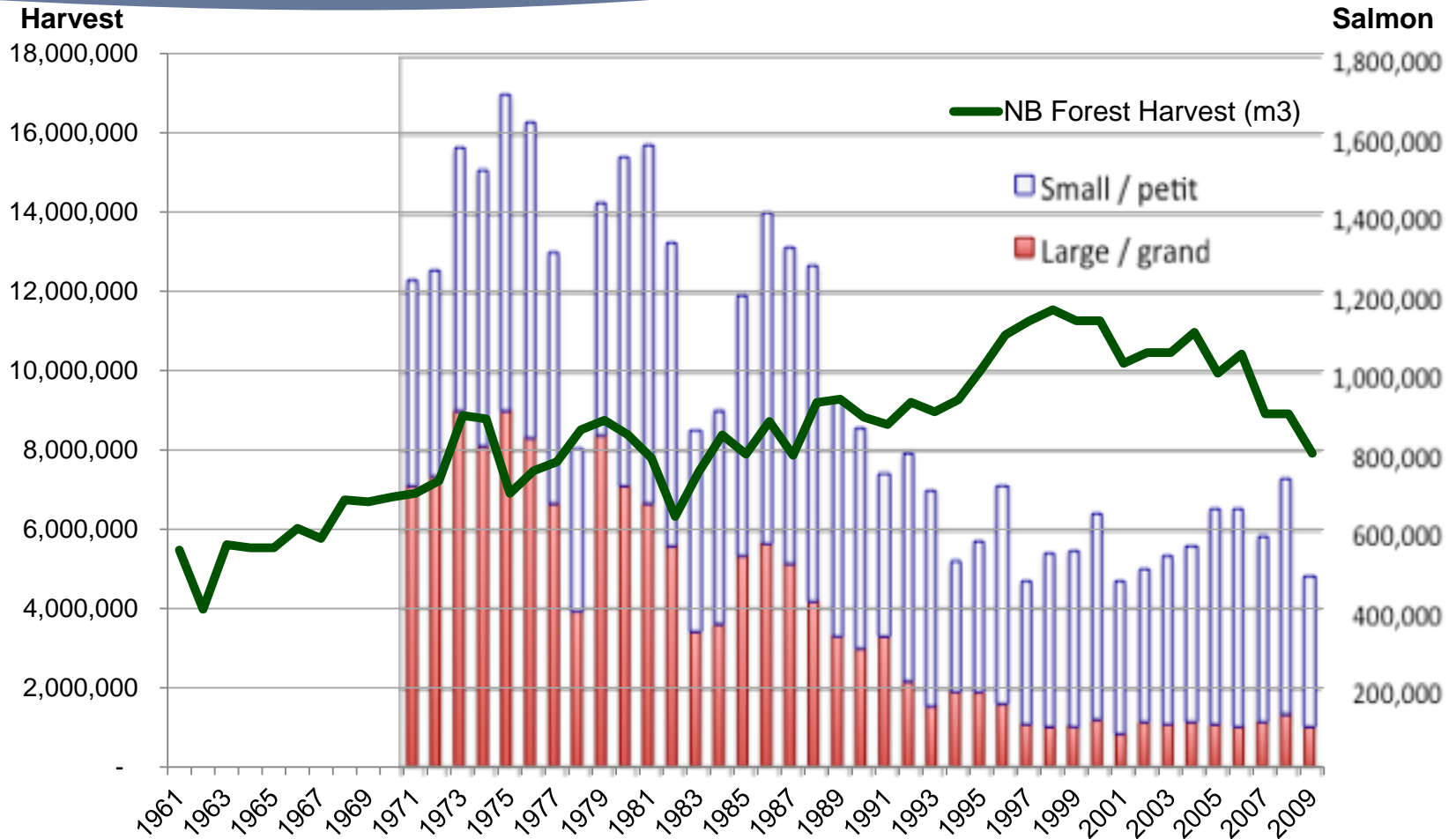
Assessment of threats responsible for the decline

It is challenging to separate the roles of historical and current impacts in the decline of iBoF Salmon. Atlantic salmon in the iBoF have experienced a long history of fishing (commercial, recreational and bycatch), habitat changes (e.g., poor forestry practices, barriers to salmon migration), chemical use in watersheds (e.g., agriculture), and other threats that have contributed to their decline and current status (COSEWIC 2006).



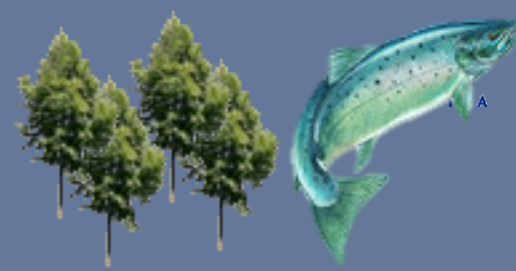
Map source: Atlantic Salmon Federation

Forests and fish



Sources: Fisheries and Oceans Canada; Statistics Canada - Cansim 153-0030; National Forestry Database

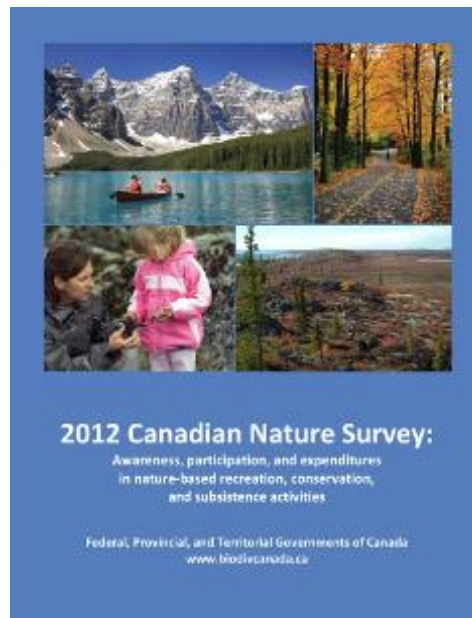
Why economics?



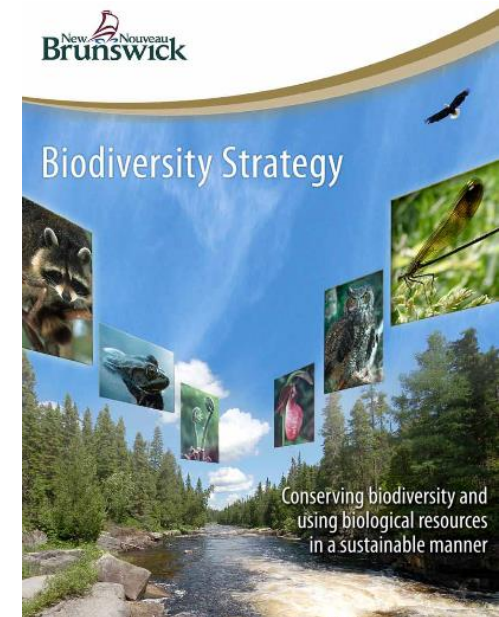
The Economics of Ecosystems & Biodiversity



International

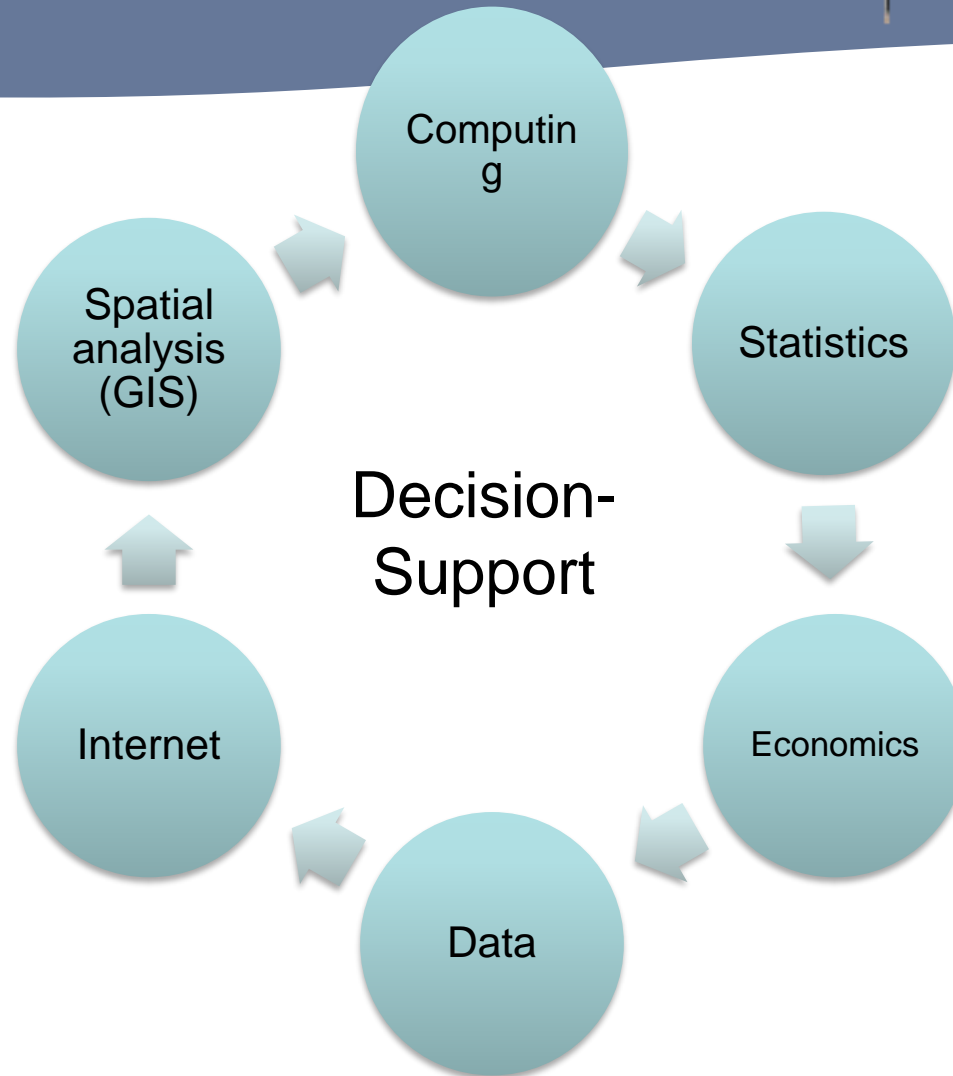
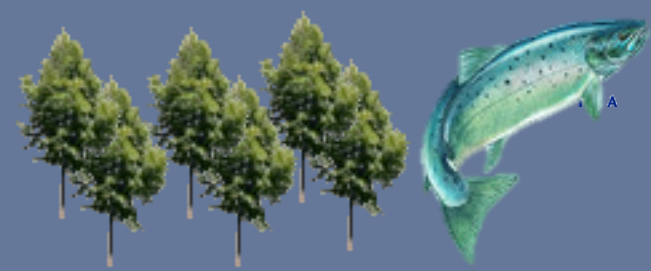


National



Provincial

Expanding capacity



Expanded Approach



Total Economic Value (TEV) Framework

- **Direct Use Values**
 - **Extractive (e.g., recreational and subsistence fishing)**
 - **Non-Extractive (e.g., wildlife viewing)**
- **Indirect Use Values (e.g. fishing dependent species)**
- **Option Values (i.e. deferring use of a resource until later)**
- **Quasi-Option Values (i.e. the value of information in the future)**
- **Non-Use Values (also known as Passive Use Values)**
 - **Existence Values**
 - **Bequest Values (e.g., value of keeping for future generations)**

Expressed Values



Spending by activity...could be forest-related

Activity	NL	NS	NB	PEI	QC	Total
Aboriginal and food	\$226,000	\$10,000	\$42,000	\$0	\$132,000	\$409,000
Recreational fishing	\$28,630,000	\$5,166,000	\$53,951,000	\$173,000	\$40,363,000	\$128,283,000
Federal govt	\$5,103,000	\$2,846,000	\$3,951,000	\$100,000	\$0	\$12,000,000
Provincial govt	\$2,400,000	\$560,000	\$2,000,000	\$300,000	\$3,500,000	\$8,760,000
Academic research	\$139,000	\$190,000	\$122,000	\$121,000	\$193,000	\$765,000
NGOs	\$859,000	\$2,142,000	\$10,729,000	\$309,000	\$1,706,000	\$15,745,000
Total	\$37,357,000	\$10,914,000	\$70,795,000	\$1,003,000	\$45,894,000	\$165,962,000

- **Note: Non-profit conservation and education spending exceeds federal government spending.**
- **Aboriginal and food spending does not capture the total “value” they place on wild salmon including non-use values...**

Revealed Values – Choice survey



All about choices...could be forest options

- QC and Atlantic representative sample n=953
- Non-anglers to avoid double-counting (e.g. urban, taxi drivers)
- Preamble and other questions (anchors and drivers)
- 4 choices per set including 1 opt-out (14 sets, 1 repeated)
 - Levels of salmon restoration (e.g. 20%, 40%...of historic)
 - Likelihood of success (e.g. 40%, 60%, 80%)
 - In resident province or not
 - Tax vehicle annual cost (e.g. \$10, \$20, \$50, \$100, \$200)

Revealed Values – Choice survey



Strong support & need for education

- Participants evaluated over 34,000 choices
- Before taking survey, 61-72% were either not at all or not very familiar with wild salmon status
- 80% public support for a new comprehensive 20-year conservation program to restore wild salmon
- One additional screen of information (30 sec) increased % supporters and WTP (\$2.91 added per household)

Nature of support



Annual WTP of \$26 per household

- Eastern Canada tax-paying households WTP of at least \$105 million; higher if programs can restore wild salmon to over 80% of historic highs with over 80% certainty.
- Probability of success was most important factor.
- Value of research – Canadians will pay a \$0.18 premium (\$700k collectively) for each % increase in salmon abundance that is “very likely” (95%+) instead of just “likely” (80%+)
- Top two rationales for support are 1) existence value, and 2) the importance of maintaining natural heritage and ecosystem integrity. Note: 7% of public would never offer support

Investing in salmon – *Business case*



Recreational fishery growth and public support

- Doubling DFO budget with \$15 million of new program spending each year
- A 20-year return to peak number of anglers even without increased spending rates provides ROI of 18%, NPV of \$51 million and break-even point of 6 years
- Such a program is at the low end of public WTP (\$4.50 - \$12.50 per tax paying household)
- Support for phased approach, demonstrate success (certainty) then work toward full restoration
- Communication of clear and specific goals to public and stakeholders is important for garnering support

Policy-relevance & trade-offs



NB annual TEV is estimated at \$80 million

- We make trade-offs consciously or unconsciously
- NB salmon use value (GDP) of ~ \$65 million + non-use value of ~\$15 million = \$80 million
- Forestry-related GDP in NB is approximately \$1.6B therefore NB salmon-related value is ~ 5%.
- This is just salmon, what about other aquatic life, birds, other wildlife, wetlands, recreation...
- Question is how do we maximize all forest-related values in NB? Need to account for TEV in forest management options.

Thank You



Questions?

Full report at: www.asf.ca

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