

Fraser River Sockeye Management

Socio-Economic Indicators

Discussion Document

Prepared for:

*Canada Fisheries & Oceans
Vancouver, BC*

Prepared by:

*GSGislason & Associates Ltd.
Vancouver, BC*

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Preface

Canada Department of Fisheries & Oceans retained GSGilson & Associates Ltd. to develop socio-economic indicators for assessing different Fraser River sockeye management scenarios.

The consultants have benefited from discussions with industry, government, and others. Notwithstanding this assistance, GSGilson & Associates Ltd. has final responsibility for the analyses and conclusions of the study.

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1.0 INTRODUCTION

- 1.1 Canada Department of Fisheries and Oceans (DFO) is assessing different management strategies for West Coast salmon fisheries.
- 1.2 A key analytic tool for Fraser River sockeye fisheries is the Fraser River Sockeye Spawning Initiative (FRSSI) or FRSSI model that assesses biological parameters such as escapement and harvest for several stock groupings. A broad-based FRSSI Working Group has been meeting for three years to discuss and identify management options derived during the biological modelling exercise.
- 1.3 In addition, it is also important to assess the socio-economic implications of alternative management regimes on people, businesses, communities, governments and First Nations.
- 1.4 The intent of this pilot study is two-fold:
- to develop a set of socio-economic indicators for salmon fisheries management, and
 - to apply the set of indicators to alternative management strategies for Fraser River sockeye (as modelled using the FRSSI model).
- This initial study can provide the underpinning for more refined analysis in the future.
- 1.5 The first phase of the study involved both primary (direct interview) and secondary (information review) research. In particular, representatives of First Nations, commercial fishing and recreational fishing organizations were interviewed. We also reviewed socio-economic indicator work outside Canada and outside the fisheries field. In addition, the consultant attended and participated in two 2-day FRSSI workshops in January and February of this year.
- 1.6 This Phase I study presents a preliminary list of indicators based on the above research and is a “work in progress”. Comments are welcome.
- 1.7 In March 2006 we will proceed with analyzing the socio-economic implications, using the (revised) set of indicators, of specific FRSSI model scenarios. It is likely that the list of indicators will evolve over time as more direct experience is gained.

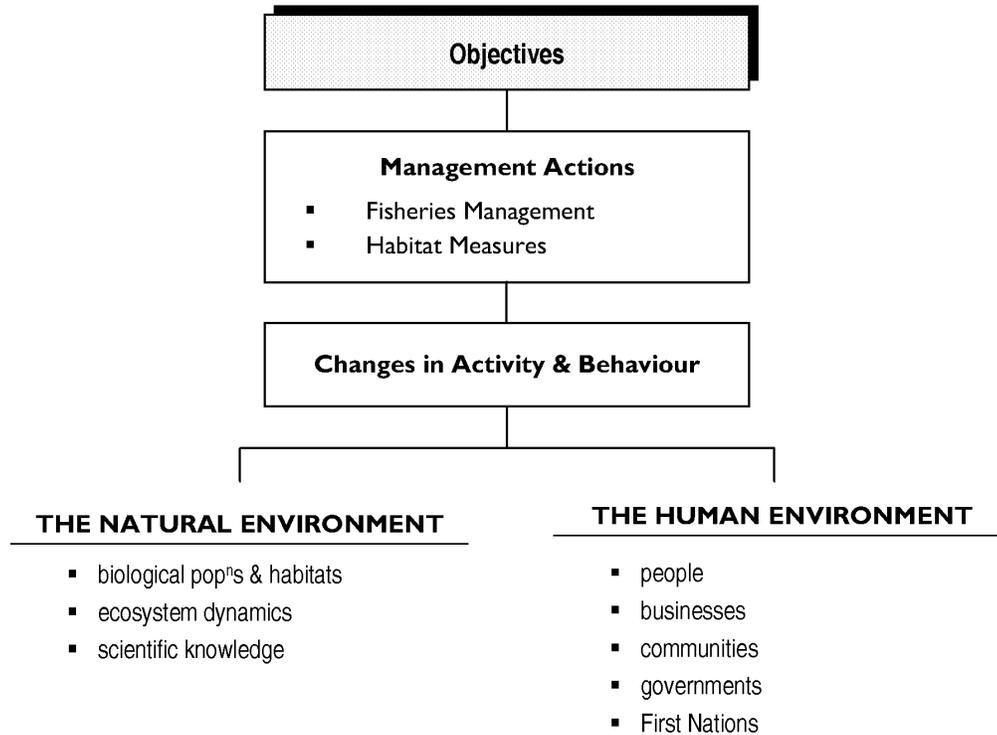
2.0 SOCIO-ECONOMIC ASSESSMENT FRAMEWORK

2.1 This section presents a Multiple Account Evaluation framework for assessing the socio-economic implications of Fraser River sockeye management. The framework reflects what we heard in our interview program and what we learned from the literature review. The framework is revised from that presented in the socio-economic assessment work on the Species at Risk Act for Fraser River salmon (Gislason 2005, GSGislason 2005).

2-1 Evaluation Framework

- 2.2 Multiple Account Evaluation (MAE) is a method for systematically displaying a broad spectrum of impacts associated with development projects or policy initiatives. An MAE framework organizes project information and anticipated implications or impacts under different objectives or "accounts".
- 2.3 MAE informs processes and decisions, and makes the trade-offs between accounts/objectives transparent. But, MAE says nothing about how to arrive at a decision. MAE does not offer a process to choose from competing proposals since MAE does not have any explicit weighting and rating scheme for the various accounts. This is both an advantage and disadvantage.
- 2.4 In impact assessment one develops a base case scenario or assessment of economic and social environmental activity/well-being in the absence of the environmental program, regulations or policy, in this case Fraser River sockeye management, and then develops the alternative scenario with the initiative. The impacts then are the differences between the "with" and "without" scenarios i.e., impact analysis focuses on incremental effects.
- 2.5 Typically a set of quantitative and qualitative impact indicators are identified for each account or category of impact. The indicators should focus on the key changes in activity and behaviour as a result of the regulatory action.
- 2.6 If one cannot designate in some detail the differences in activity and behaviour attributable to regulation, it is very difficult if not impossible to assess impacts of the regulations.
- 2.7 The impact framework can be used to assess the impacts of a single regulation. It can also be used to assess the impacts of a variety of potential regulations or measures. In the latter situation, it is unlikely that any one proposed measure will be uniformly superior to all interests for all indicators. However, the value of a formal impact framework is that it makes tradeoffs between interests or indicators transparent.
- 2.8 DFO launches management change to achieve certain objectives. Two broad types of DFO actions are possible – fisheries management changes and habitat initiatives (e.g., restoration, environmental controls, and enhancement).

Exhibit 1: Fraser Sockeye Management Framework



- 2.9 These DFO actions, as well as affecting the Natural Environment, can also affect them on Environment, its people, business, communities, governments, and First Nations.
- 2.10 The Evaluation Framework is displayed in Exhibit I. DFO will be assessing the repercussions of the Fraser River sockeye management scenarios on a set of environmental indicators on a separate exercise. The next chapter of this study presents the proposed set of socio-economic/human environment indicators for Fraser River sockeye.

2-2 Some Observations

- 2.11 The same or similar set of indicators developed for this study can be used for other fisheries initiatives. These other initiatives include the Wild Salmon Policy (WSP), the Species at Risk Act (SARA), ongoing Fisheries Reform discussions involving fleet rationalization, the Salmonid Enhancement Program (SEP), and a myriad of other policy contexts.
- 2.12 Distribution issues are very important to socio-economic analysis of alternative management regimes. The “who gets what” issues relate to geographic region, harvest sector, income distribution (to people, business, government), short term vs long term etc.
- 2.13 It is important to assess both short term and long term implication of fisheries management actions. In many cases, such actions involve “short term pain for long term gain” i.e., the costs are front-loaded, the benefits are back-loaded.
- 2.14 The implications of fisheries management on affected business often is more amenable to numerical measurement than are the people, community and First Nations implications. One should strive to quantify as much as possible impacts and effects to all. However, if impacts cannot be quantified, this does not mean that such impacts necessarily are less significant or important than impacts that can be quantified.
- 2.15 Some First Nations representatives are reluctant to identify First Nations indicators because they feel so doing may affect the Treaty process. Other First Nations feel that the whole Fraser River sockeye planning initiative is premature until longstanding grievances related to European settlement are resolved. Nevertheless, decisions on Fraser River sockeye management need to be made for the 2006 season and beyond – and the FRSSI Working Group process is tasked with providing advice to DFO on these matters.
- 2.16 The evaluation framework of Exhibit I embodies the “scientific method” as applied to fisheries management i.e., set clear objectives, launch management actions intended to meet the objectives, identify information items or indicators that tell whether objectives are being met, gather and analyze data/evidence on the indicators, and draw conclusions as to the meeting of objectives. The framework also can be used in an iterative manner e.g., if the performance is unsatisfactory, then identify an alternative management action and see what its implications are.

- 2.17 The implementation of socio-economic impact considerations in fisheries management planning is a relatively new venture for DFO. As one interviewee commented,

... DFO traditionally has a firewall between biological and socio-economic work, especially when it comes to decision-making.

- 2.18 The process as to how you get to a decision is important to the “buy-in” of the decision-making process (MMSD 2002, Hodge 2004). Engagement of affected communities of interest and a transparent, inclusive process is critical to sound and effective management of a public resource such as Fraser River sockeye.

3.0 A PRELIMINARY LIST OF INDICATORS

3-1 Indicators

3.1 We propose to organize socio-economic indicators under five (5) accounts:

1. Business - capital and labour benefits from commercial and recreational fishing activities on Fraser River sockeye
2. Regional Development - impacts on Canadian and regional economies, including governments, from Fraser River sockeye
3. Net Benefits - Canadian social net benefits (gross benefits less costs) from Fraser River sockeye i.e., economic efficiency benefits
4. First Nations - First Nations use and benefits from Fraser River sockeye (including FSC plus other use)
5. Social & Community - quality of life and community values derived from Fraser River sockeye

3.2 The first three are economic accounts, the latter two are social accounts (although the First Nations account does include First Nations participation and benefits from the commercial fishery).

3.3 The order of the five does not indicate rank importance but rather the logic of information flow e.g., you need to estimate business revenue impacts before tackling economic impacts and efficiency benefits, you need to estimate commercial sector impacts before addressing First Nations impacts from changes in commercial sector activity.

3-2 Next Steps

3.4 In early March, DFO will define and model the biological repercussions of 2-4 alternative management scenarios for Fraser River sockeye. The model outputs will include escapement and aggregate harvest level. Model output will form the input to the socio-economic work.

3.5 The consultant will hold a meeting with DFO to ascertain how best to partition or allocate the aggregate harvest levels amongst FSC, commercial, recreational and potentially new in-river aboriginal commercial fisheries for 2006 and in the future.

3.6 The consultant then will estimate the socio-economic indicators, based on available data, under each scenario and collate the results. A report on the socio-economic implications of each Fraser River sockeye management scenario will be produced by the end of March.

Exhibit 2: Socio-Economic Indicators for Fisheries Management

Socio-Economic Indicators

1. Business

- Commercial sector
 - harvest levels
 - participation
 - landed & processed values
 - net cash flow, net income
 - employment & wages
 - stability of access
 - gear/area breakouts
- Recreational sector
 - harvest levels
 - participation/angler-days
 - revenues/expenditures
 - employment & wages
 - lodge vs charter vs independent
 - stability of access
 - regional breakouts

2. Economy-Wide

- GDP, wages, employment
- Direct plus multiplier effects
- Canadian vs regional impacts
- Gov't revenues/taxes & costs

3. Net Benefits to Canada

- Market & non-market benefits
- Opportunity costs
- Total benefits net of opportunity costs
- Net Present Value

4. First Nations

- Section 35 activities
 - harvest levels
 - community participation & distribution
 - use of traditional sites & technologies
 - season/duration of fishing
 - stability of access
 - ceremonial/First Salmon Festival
 - regional distribution
- Traditional commercial fishery
 - share of revenues, employment, wages
 - gear/area breakouts
- Quality of life

5. Social & Community

- Population characteristics e.g., age, education
- Community organizations & capacity e.g., SEP volunteers
- Community partnerships/stewardship e.g., co-management
- Quality of life e.g., health
- Social capital e.g., access to services

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