

APPENDIX A

Method for Socioeconomic Analysis

A. METHOD FOR SOCIOECONOMIC ANALYSIS

The overall approach for the study was to examine a range of social and economic benefits associated with the environment, working towards the development of a full accounting. This means focusing not simply on commercial values (e.g., forestry and mining), but more broadly on the values attributed to, among others, recreation, education and research (information values), ecological functions and services (e.g., water quality maintenance, biodiversity maintenance), existence (value from knowing the ecological system exists in a given state or condition, although there is no actual or potential use of the environment), and bequest values (the value of a potential benefit or having the option to use the environment in the future). Specific approaches to valuation and the selection of methods were driven by the specific policy or management questions for the candidate Wilderness Area in question, the socioeconomic and environmental context of the study sites, and the types of socioeconomic values of importance.

The socioeconomic analyses were accomplished by:

- 1) Describing the socioeconomic baseline conditions in each of the three candidate Wilderness Areas;
- 2) Developing a socioeconomic trade-off analysis framework; and
- 3) Analyzing the socioeconomic trade-offs associated with designating each of the three candidate Wilderness Areas.

A.1 Description of Socioeconomic Baseline Conditions

The description of socioeconomic baseline conditions was based on a review of available secondary information (including literature, documents and digital databases) and interviews with key stakeholders.

A.1.1 Literature and Document Review

Based on the literature and document review, socioeconomic cost-benefit categories were reviewed and those most appropriate for use in the analysis of impacts from designation of Wilderness Areas were identified. These categories include:

- Personal use and non-use values;
- Commercial values;
- Societal values (such as education, scientific and community development values); and
- Ecosystem service values (such as support for biodiversity, carbon sequestration, and water management).

Selection of the most appropriate categories considered:

- The types and characteristics of the personal and commercial direct uses of the candidate Wilderness Areas;
- The biophysical characteristics of the environment;

- The types of indirect use and non-use values that can be anticipated based on the characteristics of the environment and the relationship of the environment to people and communities; and
- The technical characteristics of the available socioeconomic studies in the literature from which value estimates may be applied.

A.1.2 Interviews

To supplement the information provided by secondary sources, it was important to gather information on uses and other values associated with the candidate Wilderness Areas. To obtain this information, Jacques Whitford conducted interviews with relevant stakeholders. Key informants were selected based on their direct involvement in local activities, representation of a stakeholder group with a specific interest in the candidate Wilderness Areas, or their specific knowledge of the candidate Wilderness Areas. This task required the interest and co-operation of the organizations and individuals – where such co-operation was not readily forthcoming, the analyses was restricted according to the deficiencies in the available information.

For the socioeconomic baseline description of the candidate Wilderness Areas, it is desirable to provide descriptions of the characteristics of land uses (i.e., types of use, user groups and stakeholders involved, extent of use, use patterns, user perceptions and qualitative values) and to develop a specific profile for key socioeconomic value categories. Key informants were asked specific questions using a semi-structured interview guide. Questions focused on describing:

- The individuals or organizations involved in activities;
- The types of land use;
- The frequency and extent of use;
- Spatial use patterns; and
- Perceived values of the area

A.1.3 Quantifying and Qualifying Socioeconomic Values

The study accounts for a comprehensive range of social, ecological and economic values. This includes both marketed and non-marketed benefits associated with current uses, both direct and indirect (including ecosystem service values), of the candidate Wilderness Areas. Non-use values are also considered to the extent that is feasible and defensible.

The description of personal use values and commercial values describe the characteristics of user activities and user groups. These values are quantified to the extent possible, based on the available information. Monetary values are the preferred metric of choice, although other non-monetary measures are employed to provide a sufficient characterization of the socioeconomic values. For personal non-use and societal values, the baseline description is primarily qualitative. However, the feasibility of using a valuation approach to quantify monetary values, based on the available secondary information, is explored. Documentation of societal values focuses on ecosystem service values specifically including biodiversity conservation,

carbon sequestration and watershed protection. This description includes a mixture of qualitative and quantitative measures, as determined by the available secondary data. Monetary quantification is applied where feasible and defensible.

Overall, the socioeconomic analyses provide estimates as they apply to the Province of Nova Scotia as a whole. However, with the anticipated change in the management of the lands in question, attention is paid to the distribution of the costs and the benefits. In other words, the study identifies any particular groups of stakeholders or regions in the province, such as HRM and Queens County, which can expect effects from the designation of the candidate Wilderness Areas.

A.2 Development of Trade-Off Framework and Analysis

The level of analysis provides government, stakeholders, and the public with a basic understanding of the implications, positive and negative, of designating the candidate Wilderness Areas. Both quantitative and qualitative descriptions of the scale and characteristics of the values are provided. Quantitative monetary valuation relies on two different approaches: direct use of market values for commercial activities; and a benefits transfer approach for select non-market values where applicable secondary economic valuation information is available from the literature. Where quantification of socioeconomic values is not possible (i.e., due to an inability to derive reasonable, defensible estimates) qualitative descriptions are provided.

In order to provide direction for further discussions and consultation concerning designation and management of the candidate Wilderness Areas, a simple trade-off analysis framework is presented to demonstrate how boundary delineations or variations in the set of allowed activities may affect uses and socioeconomic benefits. This framework is based on a multiple accounts approach, in which a separate reporting of the predicted effects of designation on each value category is provided. A change in the management of the area will affect resource conditions and related commercial, personal and societal values. A related question of interest is that of the change in values over time that could be realized with designation. The *Wilderness Areas Protection Act* (1998, c.27, amended 2005, c.56, s.18) (the Act) serves as the guide for the trade-off analysis. That is, it focuses on the socioeconomic values that are associated with the purposes of the Act, prohibited activities, and activities that may be considered for issuance of a license under the Act.

Changes in the management policy and regulatory regime associated with the designation of a candidate Wilderness Area may result in changes to the socioeconomic values. The prohibition or exclusion of activities will result in the loss of values associated with those direct uses. Restrictions in the level of activities may also lead to a reduction in values, although, in the long-term, it is possible that values will be enhanced. Also, the exclusion or restriction of some activities may result in an increase in the values associated with other activities. For example, a reduction in the use of an area for logging or mining activities may ultimately lead to an increase in fisheries production values. In short, there are economic trade-offs and interdependencies involved in the management of uses. The distribution of the costs and benefits associated with a change in the management regime must be carefully considered.