



ESTIMATING THE SOCIAL & ENVIRONMENTAL EFFECTS OF ADVENTURE TOURISM AND RECREATION ON CROWN LAND IN BRITISH COLUMBIA

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BC Crown Land

- 900,000 km²
- 94% public land
- Main Uses
 - Forestry
 - Grazing
 - Oil & gas
 - Mining
 - Tourism & recreation

Main recreation & tourism activities

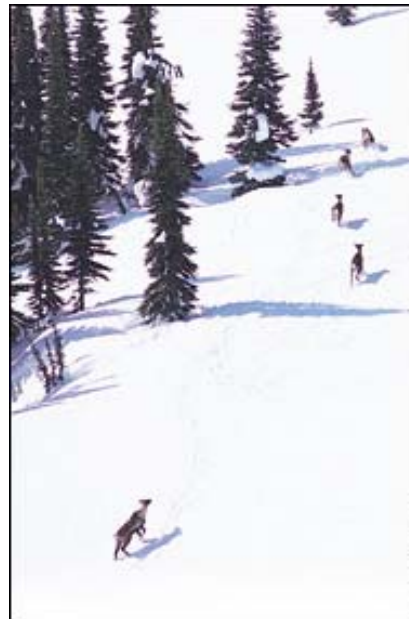
- Summer

- Hiking
- Mtn. biking
- ATV's
- River rafting / kayaking
- (fishing)



- Winter

- Backcountry skiing
- Heli- & Cat-skiing
- Snowmobiling



PATRICE HALLEY



Main decision processes

- Forest Management (Licenses)
- Land and Resource Mgt. Planning (LRMP)

Strategic Land Use Plans in British Columbia

March 2006



Main decision processes

- Forest Management (Licenses)
- Land and Resource Mgt. Planning (LRMP)
- New variations of these decisions processes are on the horizon



Social and Economic Environmental Assessment (SEEA)

- To provide planners, stakeholders and decision makers with three types of information:
- **Background information** on the socio-economic structure of a **plan area** and its communities, as well as an inventory of land and/or marine based resources which are, or could be, important to the area and/or province.
- A **description** of the key socio-economic and environmental parameters that may be affected by the plan.
- An **assessment** of the expected socio-economic and environmental implications relative to a **base case** scenario, along with an assessment of the uncertainties involved in the analysis.

SEEA – scopes

- **Comprehensive SEEA** – includes important resource values covered by the plan would be analysed using the framework presented in these guidelines. includes a socio-economic profile of the plan area and adjacent areas, and an assessment of the land use plan and/or management scenarios.
- **Focused SEEA** – Only resource uses that are proving difficult to reconcile in the planning process would be analysed. The SEEA guidelines would be followed, but the assessment would be abbreviated. includes alternative scenarios. Focused on reconciling the conflicting resource uses.
- **Condensed SEEA** – Analysis limited to projecting social and economic impacts of the land and/or resource management plan (no other scenarios). It would contain a brief description of current socio-economic conditions in the study area, highlighting the main drivers of resource based economic activity

SEEA

- Focus on
 - Economic Development,
 - Provincial Government Finances,
 - Social Implications,
 - Specific Aboriginal Implications,
 - Net Economic Value, and
 - Environment
- Methods:
 - **economic impact analysis,**
 - **social impact analysis,**
 - benefit-cost analysis and
 - environmental risk assessment.

This “**multiple accounts**” format recognises that the implications of land use and resource decisions cannot be properly captured with a single impact indicator or measure, and allows for the inclusion of **quantifiable** outcomes and for **qualitative** analysis of outcomes which are not quantifiable (especially social valuations and environmental outcomes).

SEEA – focus on Net Economic Value

- **Net Economic Value** (mainly provincial) by sector (e.g. forestry, mining, oil and gas, energy, tourism, recreation, and environment). Net Economic Value should consider existing and potential commercial and non-commercial sectors that depend on the resource.
 - **For commercial sectors:** product prices before tax less production costs (economic rent); in addition, estimated rent taken by labour / industry. Net of any externalities.
 - **For non-commercial sectors:** some measure of consumer surplus, i.e. what people would be willing to pay for the activity or amenity above what they are paying. Discussion of implications for natural capital and ecosystem goods and services.

SEEA - Origins

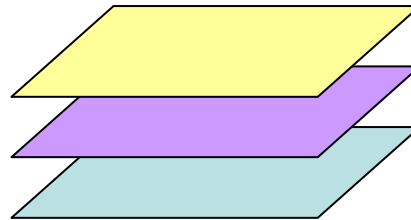
Aspatial tables of analysis

orientiert 3*- Tourist (20%)	(21%)	(30%)	Tourist (26%)
1) Unterkunfts- kat./ Budget 1) Aktivität- Schneelage 1) Schneeprospekt	1) Aktivität- Schneelage 2) Größe Schigebiet 2) Schneeprospekt	1) Unterkunfts- kat./ Budget 2) Aktivität- Schneelage 2) Größe Schigebiet	1) Unterkunfts- kat./ Budget 2) Aktivität- Schneelage 2) Größe Schigebiet
Unbedingt 3*- stiel	Eher 3*- Hotel	4/5*-Hotel	Unbedingt günstig (Gastr./ Ferien...)
Hilflos Schneelage ausreichend; aber keine Schneeprospekt stetig	Unbedingt gute Schneelage; gute Schneeprospekt stetig	Hilflos bis gute Schneelage	Zureichend mittlere Schneelage; aber gute Schneeprospekt stetig
Mittelgroßes bis großes Schigebiet	Großes Schigebiet mit stetig	Größe d. Schigebietes eher stetig	Mittelgroßes Schigebiet stetig sein
o mehr Zusatzangebot, desto mehr	Zusatzangebot eher unselbständig	Mittelgroßes Zusatz- angebot selbstbestimmt	Mittelgroßes Zusatz- angebot selbstbestimmt
Sch. verteilt auf die Altersgruppen	< 20 Jahre	Über 40 Jahre	Zw. 20 und 29 Jahre
750 - € 2.240	< € 750	≥ € 3.000	< € 1.499

Rolling up



Detailed information
and spatial data



Forestry

Original purpose:

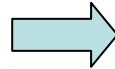
- summarize forest values
- effects on AAC, etc.. By various policies

Purpose now:

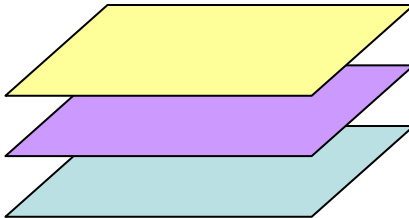
- compare base case and other scenarios

SSEIA - Intentions

orientiert 3*- Tourist (20%)	(21%)	(20%)	Tourist (20%)
1) Unterkunfts- kat./ Budget 1) Aktuelle Schneelage 1) Schneeprognose	1) Aktuelle Schneelage 2) Größe Schigebiet 3) Schneeprognose	1) Unterkunfts- kat./ Budget 2) Aktuelle Schneelage 3) Größe Schigebiet	1) Unterkunfts- kat./ Budget 2) Aktuelle Schneelage 3) Größe Schigebiet
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Mittelgroßes bis großes Schigebiet = mehr Zusatzangebot, desto besser	Großes Schigebiet ist wichtig	Großes d. Schigebietes aber stetig	Hilflos großes Schigebiet reicht aus
Sich verteilt auf die Altersgruppen	Zusatzangebot eher unbedeutend	Hilflos großes Zusatz- angebot wünschenswert	Hilflos großes Zusatz- angebot wünschenswert
750 - € 2.240	< € 750	Über 40 Jahre	Zw. 20 und 29 Jahre
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Expand the table to other land uses



Forestry

Tourism &
Recreation

Other LU

Other LU

Table 12. Example of Net Economic Value for the Recreation Sector

Recreation Activity	Recreation Days	Expenditures per Day
Resident Hunting	hunter days	\$50 - \$100
Resident Angling	angling days	\$90
Snowmobile Activities	recreation/visitor days	non-locals: \$85 to \$225 per day
Camping	camping visits	Not available
Non-Motorised & Other	recreation/ visitor days	\$45
Total Recreation Days	Total days	
Recreation	Net Economic Value / Additional Willingness-To-Pay¹	
Depends on Activity and Source of Data	BC WLAP estimates values in the range \$50 - \$150; Environment Canada survey estimates values in the \$10 to \$20 range	100,000 days @\$10 per day yields \$1 million; @\$50 per day yields \$5 million

Note: (1) For recreation, Net Economic Value represents willingness-to-pay over and above users' costs.



Table 43 Economic Parameters of Guide Outfitting in the Morice LRMP Area

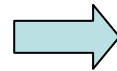
Per Annum	Skeena	Morice LRMP Area	Morice as a % of Skeena	Base Case-4 WMUs	Adjusted for Morice
Number of Guide Outfitters	45 outfitters	9		13	
Hunting Clients	1,152 hunters	174	15.10%	406	154
Non-Hunting Clients	2,343 clients				
• Hunting Days	10,625 days				
• Non-Hunting Days	8,662 days				
Total Days	19,287 days				
Hunting Days (Double-Counting by Species)	12,895 days	1,026	7.96%	2,902	1,103
Hunting Days per Client	11 days	5.9		7.1	7.1
Morice LRMP area as a %			11.53%	38%	
Revenues:					
Hunting Revenues	\$11.4 million	\$1,314,770	11.53%		
Freshwater Fishing	\$1.4	\$158,319			
Guest Ranch/Trail Riding/Wildlife Viewing	\$0.9	\$101,580			
Other Sports and Recreation	\$1.5	\$168,915			
Other Retail & Non-Operating Revenues	<u>\$0.6</u>	<u>\$64,868</u>			
Total Revenues	\$15.7 million	\$1,808,451	11.53%	\$2,755,000	\$1,046,900
Wages and Salaries	\$6.0 million	\$694,108	11.53%		
Person Years of Employment	183 PYs	21	11.53%	52.5	20.0
Government Revenues				\$203,000	\$77,140
Gross Domestic Product				\$1.70	\$0.64
Net Economic Value (note 2)	\$1.41 million	\$163,062	11.53%		
Net Economic Value Per WLAP		\$222,677			

Notes:

1. Government revenues include Guide and Assistant Guide Fees, Guide Royalties, Client Hunting Licences, Client Hunting Tags, Land Tenure, Park Use, Water Licences, Grazing Licences and Property Taxes. Income Taxes are not included.
2. Net Economic Value is calculated as Government Revenues plus 5% of wages, salaries and gratuities (assumed economic rent to labour) plus 5% of Total Revenues (assumed economic rent to capital). This estimate of net economic value is consistent with the economic value associated with non-resident hunting from WLAP. An

SSEIA - Intentions

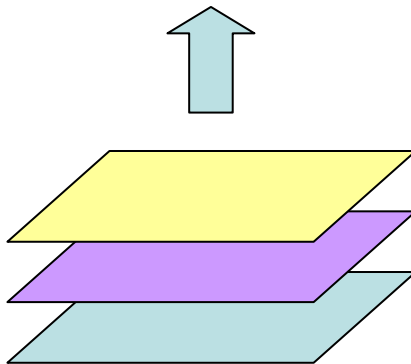
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Expand the table to other land uses

Challenges:

- Data / info for these land uses is introduced immediately on the aspatial level
- Frequently, not even basic info is available → so far, work with assumptions



Forestry

Tourism & Recreation

Other LU

Other LU

SEEA – Improvements

- Collecting most basic of data
 - Monitoring, inventorying
 - Type of user
 - # of users
 - Determining value of economic activity
 - \$ / user day
- Consumer surplus → Valuation
- Understanding relationships (effects)
 - Between resource characteristics and recreation activities
 - Between recreation activities
 - Between recreation and tourism of same activity

Relationship between Adventure Tourism Activities and Features of Resource-Based Industries

			Activities									
			B/C Skiing	<u>Snow-mobiling</u>	Cat-Skiing	<u>Heli-Skiing</u>	ATV	<u>MTB Downhill</u>	<u>MTB Cross-country</u>	Hiking (Over-night)	Hiking (Day)	Rafting
Forestry	FSR - Inactive	Ploughed	++	++	++	-	+	+	+	+	+	+
		Unploughed	+	+	+	-						
	FSR – Active (ploughed)		-	-	--	--	-	-	-	-	-	-
	FSR – Decommissioned		+	+	+	-	+/-	+	+	+/-	+/-	-
	Pullout/Landing		+	+	+	-	+	+/~	+/~	+	+	+/~
	Clear Cut	Visual	-	-	-	-	-	-	-	-	-/~	n/a
		Use	-	+	-	-	-	~/-	~/-	+/~	+/~	n/a
	Selective Cut	Visual	~	~	~	~	~	~/-	~/-	~	~	n/a
Use		~	+	unknown	~	+	+/~	+/~	+/~	+/~	n/a	
Proximity of cut to water		~	~	~	~	n/a	n/a	n/a	+	+/~	++	
Mining	Quarries – Active		--	--	--	--	--	--	--	--	--	n/a
	Quarries – Inactive/Decommissioned		-	+	-	-	+	+	+	~/-	~/-	n/a
	Mining Roads - Inactive		+	+	+	-	+	+	+	+	+	+
Hydro	Dams											
	<u>Powerlines/Right of Ways</u>											

Legend:

- ++ Necessary for recreation activity
- + Enhances recreation experience
- ~ No Effect on recreation experience
- Detracts from recreation experience
- Causes displacement (i.e. Does not allow for activity to take place).
- n/a Does not apply

Relationship between Adventure Tourism Activities and Features of Resource-Based Industries

			Activities									
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Forestry	FSR - Inactive	Ploughed	++	++	++	-	+	+	+	+	+	+
		Unploughed	+	+	+	-						
	FSR – Active (ploughed)		-	-	--	--	-	-	-	-	-	-
	FSR – Decommissioned		+	+	+	-	+/-	+	+	+/-	+/-	-
	Pullout/Landing		+	+	+	-	+	+/~	+/~	+	+	+/~
	Clear Cut	Visual	-	-	-	-	-	-	-	-	-/~	n/a
		Use	-	+	-	-	-	~/-	~/-	+/~	+/~	n/a
	Selective Cut	Visual	~	~	~	~	~	~/-	~/-	~	~	n/a
Use		~	+	unknown	~	+	+/~	+/~	+/~	+/~	n/a	
Proximity of cut to water		~	~	~	~	n/a	n/a	n/a	+	+/~	++	
Mining	Quarries – Active		--	--	--	--	--	--	--	--	--	n/a
	Quarries – Inactive/Decommissioned		-	+	-	-	+	+	+	~/-	~/-	n/a
	Mining Roads - Inactive		+	+	+	-	+	+	+	+	+	+
Hydro	Dams		-	+	-	-	n/a	n/a	n/a	~/-	~/-	+/-
	<u>Powerlines/Right of Ways</u>		~	~	~	~	+/~	+/-	+/-	-	~/-	n/a

Table 3 – Interaction effects between winter recreational activities

Recreation Group		Source of Influence		
		B/C Skiing	Snowmobiling	<u>Heli-Skiing</u>
Recipient of Influence	B/C Skiing	n/a	-- - Noise - Snow quality	-- - Noise - Snow quality
	Snowmobiling	~	n/a	~
	<u>Heli-Skiing</u>	- - Snow quality	-- - Noise - Snow quality	n/a

- Legend:**
- ++ Necessary for recreation activity
 - + Interactions of activities can enhance recreation experience (Complementary)
 - ~ Interactions of activities have no effect on recreation experience (Supplementary)
 - Interactions of activities detract from recreation experience (Competitive)
 - Interactions cause displacement (i.e. one activity precludes the other) (Antagonistic)
 - n/a Does not apply

Modified after Marcoullier et al, 2006

SEEA – The Challenge: including relationships in analysis

- Earlier experiences have shown that such an analysis cannot be done strictly rule based
- Use information in local GIS context, and mix with locally specific knowledge
- Only then “roll up” specifically for the area

SEEA – valuation

- Benefit Transfer
- Travel cost method
- Hedonic pricing studies
- Stated choice surveys appear to be appropriate at 2 scales:
 - Actual activity space (valuation of activity AND physical features)
 - Larger scale spatial dynamics on a regional scale
 - Substitution (time, location, activity)
 - displacement

SEEA – Context and Outlook

- SEEA not perceived as the main decision tool, but as a tool in a process oriented conflict resolution based planning process
- Assists in identifying and organizing the info required
- Provide INFO, toolboxes and frameworks for analysis

Currently: joint data collection with LAC process on sea kayaking

