

# Which Path Will Be Better?

Prepared For STR  
By Barry Wilson, RPF  
20161130

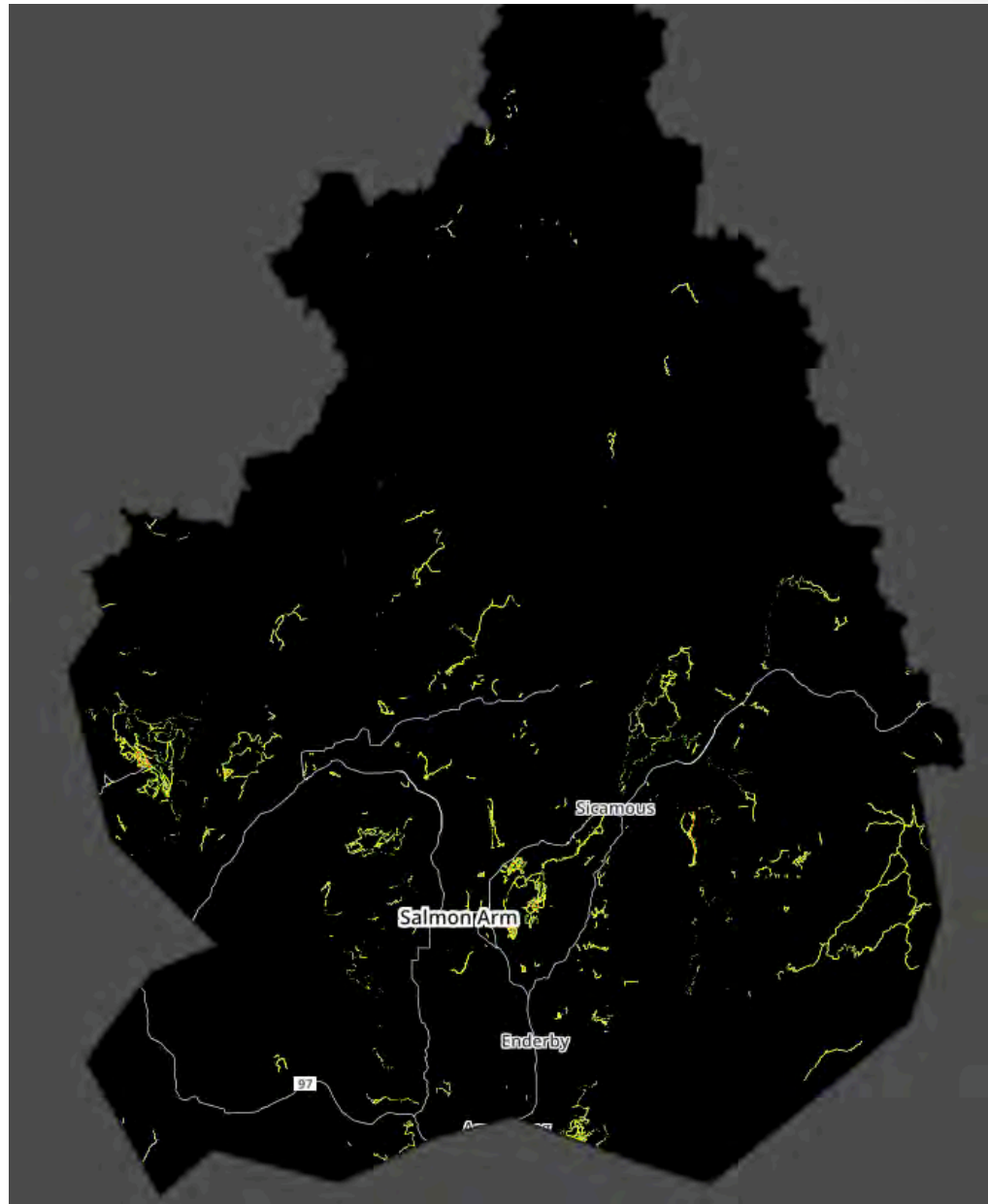


# Thank You Kukwstsétsemc!

- Greg Witzky ALIB
- Bonnie Thomas Switzmalph Cultural Society
- David Lepsoe Village of Chase
- Joni Heinrich Village of Chase
- Gord Bushell Dist.Sicamous, Eagle Valley Snowmobile Club
- Marshall Kronewitt CKMP (Carl Kuster Mtn Park)
- Brian Sansom Shuswap Trail Alliance
- Joni Heinrich Village of Chase
- Phil McIntyre-Paul Shuswap Trail Alliance
- Mike Simpson Fraser Basin Council
- All Survey Participants!

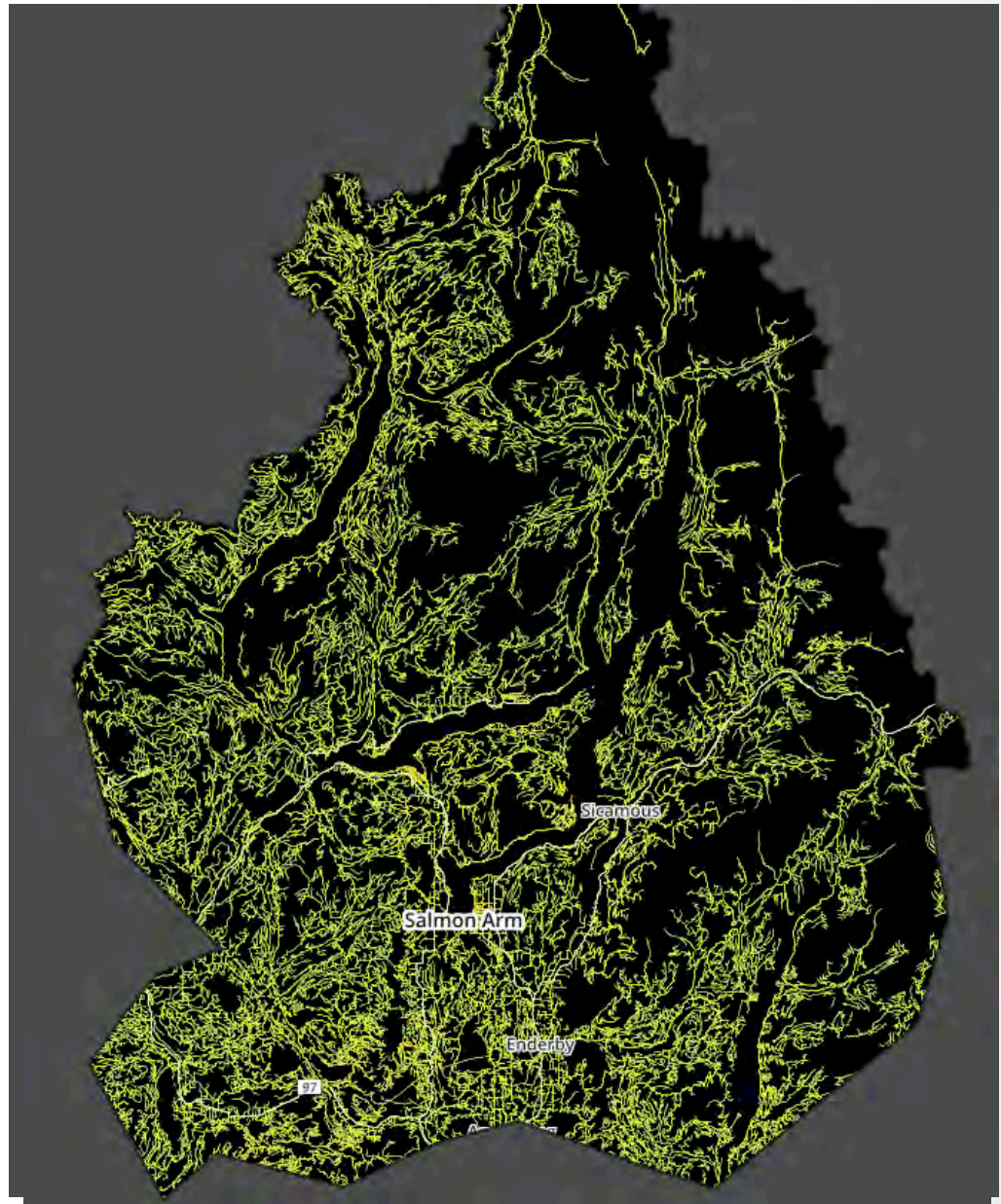
# Shuswap

- 3200 km Trails



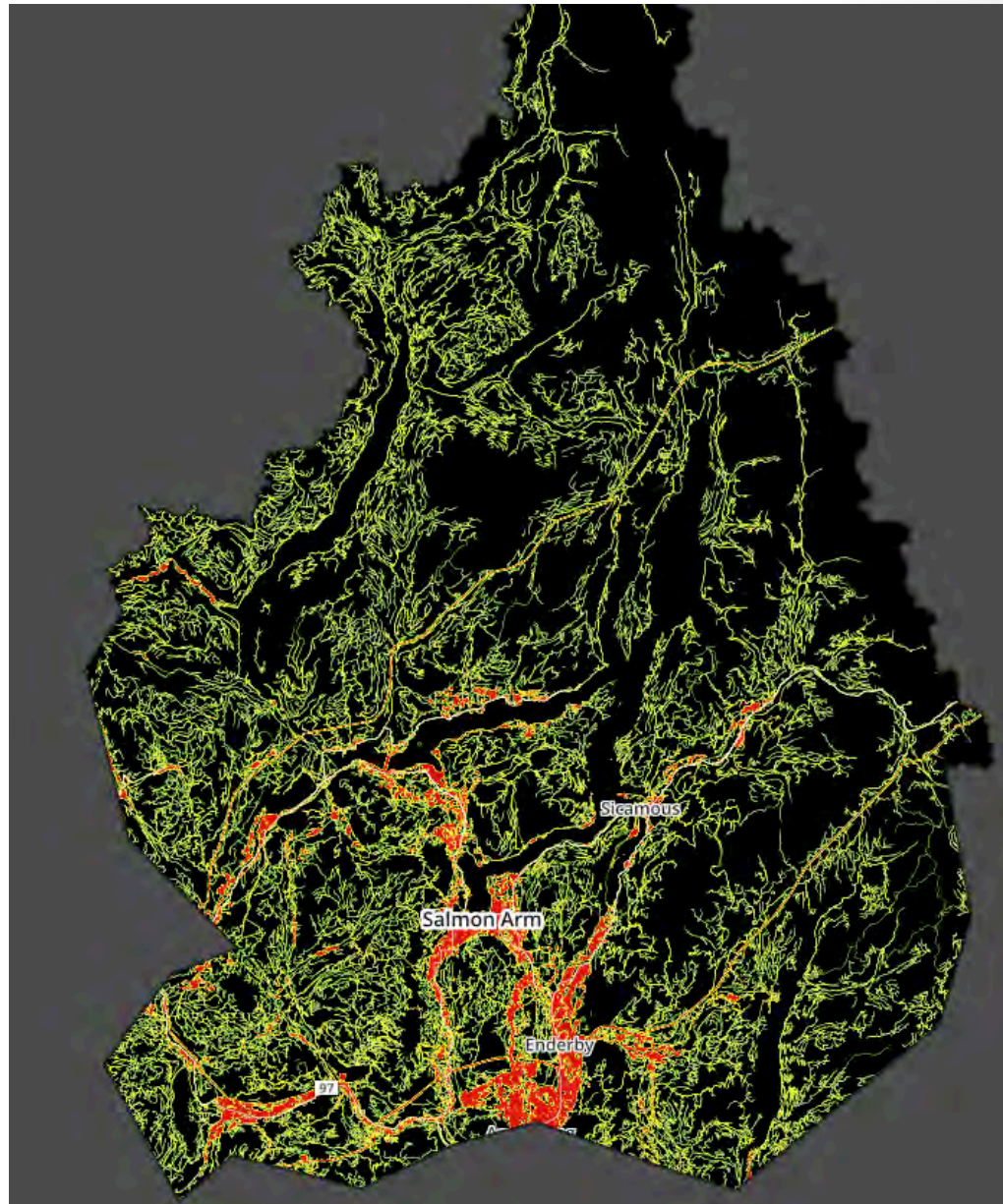
# Shuswap

- 3200 km Trails
- 25,000 km Roads



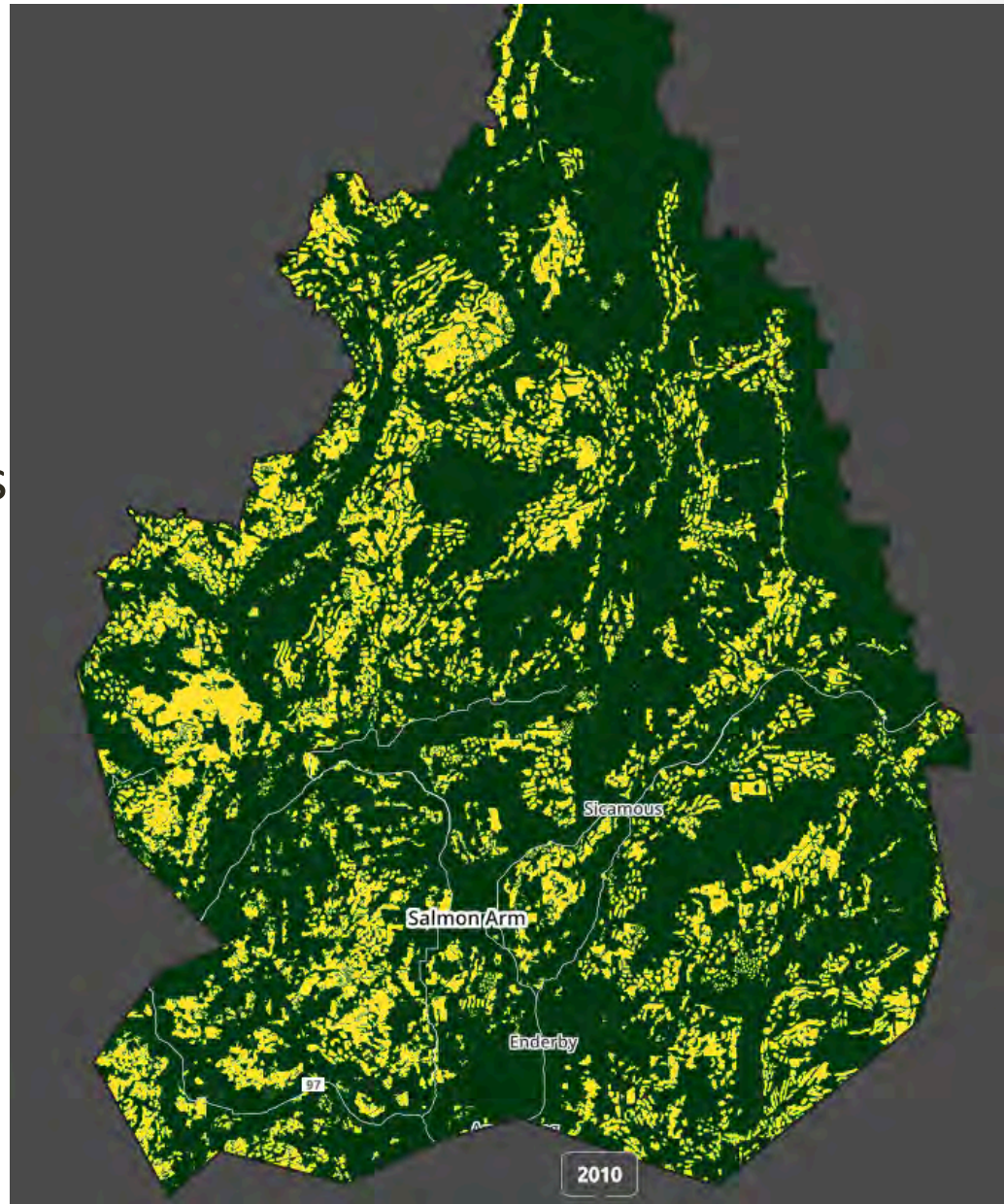
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- 3200 km Trails
- 25,000 km Roads
- 531 km<sup>2</sup> Footprint



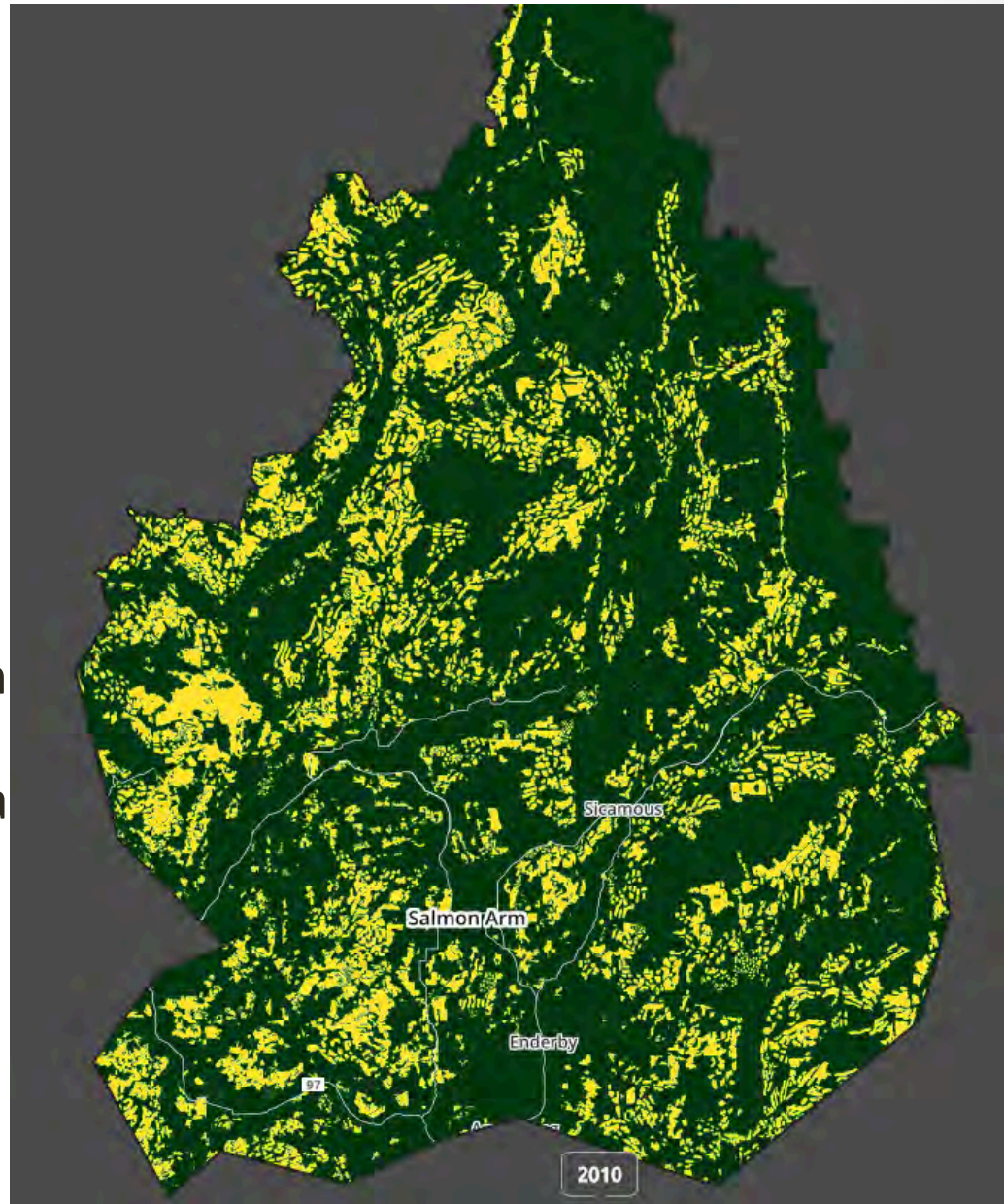
# Shuswap

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# Shuswap

- 3200 km Trails
- 25,000 km Roads
- 531 km<sup>2</sup> Footprint
- 2,364 km<sup>2</sup> Cutblocks
- 38,000 people
- 18,000 cattle
- Toursim Days??
- 6.5 million vehicles on highways/yr
- Settlement Area just a bit smaller than Vernon
- 3-day boat count in 2010 13,416





**WE'RE ALREADY  
BUMPING INTO  
EACH OTHER**

## **BALMORAL BLUFFS TRAIL**

29% OVERLAPPING LAND USE – STR CE SCOPING SURVEY





**WE'RE ALREADY  
BUMPING INTO  
EACH OTHER**

## **BOTTOM OF MARA MOUNTAIN LOOKOUT (OWLHEAD)**

27% - HABITAT OR SENSITIVE AREA DEGRADATION – STR CE SCOPING



**WE'RE ALREADY  
BUMPING INTO  
EACH OTHER**

## **SALMON RIVER – OCTOBER 30, 2016**

16% - WATER QUALITY DEGRADATION – STR CE SCOPING

# It's Time To Stop Admiring The Problem

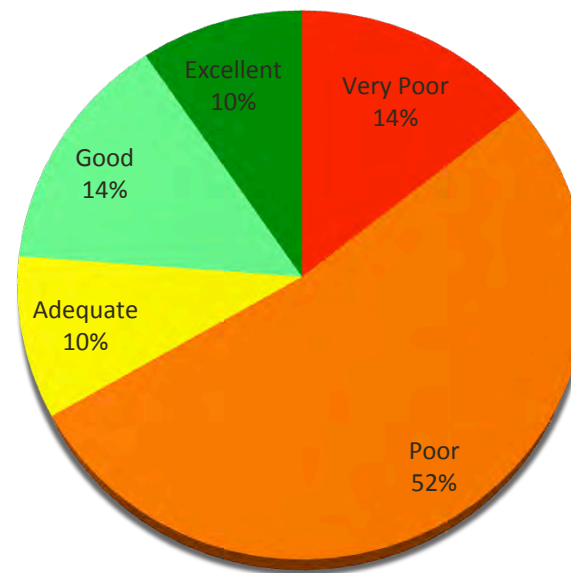
Surveyed my CEA Group  
on Linked In ....

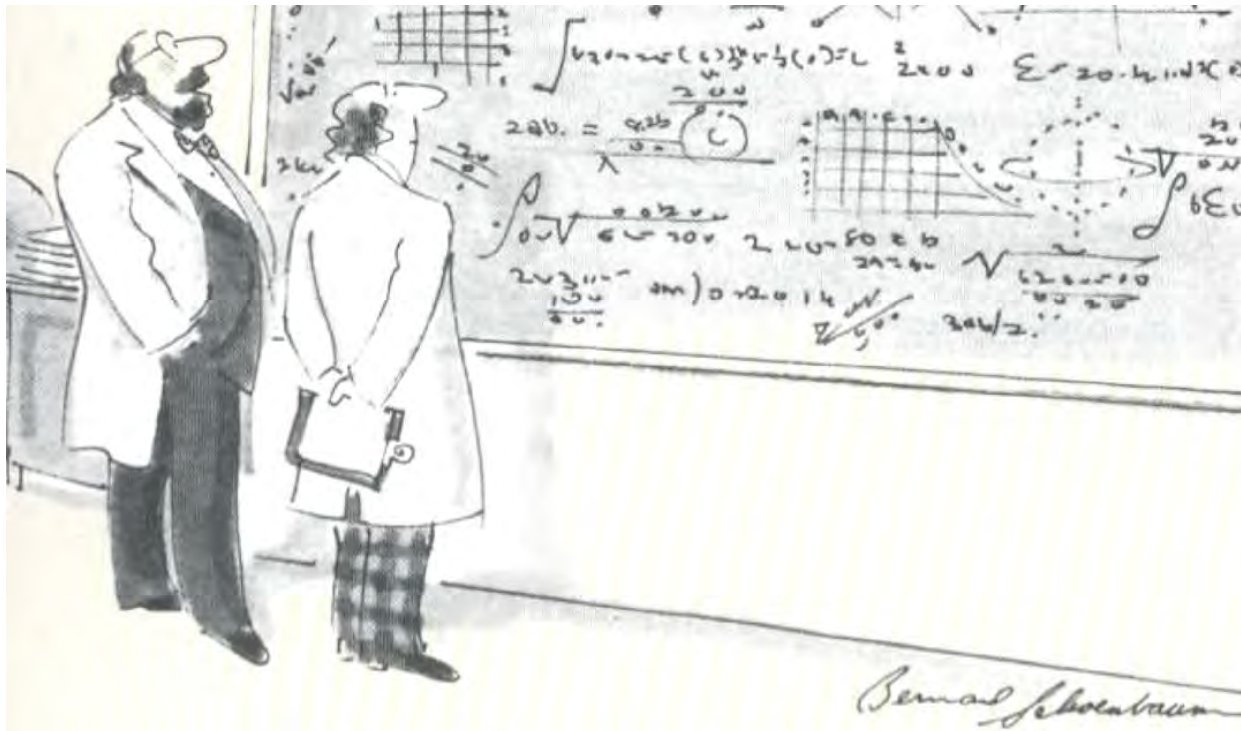
2/3's say existing  
processes are Very Poor or  
Poor

Secwépemc also saying  
this

We need a better way

**Effectiveness Of CEA In  
Planning**





*"Oh, if only it were so simple."*

**Everyone would be feeling a lot better about it if we were working TOGETHER from the beginning, sharing a feeling of meaningful involvement and creating a sense of understanding and collective benefit.**

- BARRY WILSON -

# The Story Of Cumulative Effects



Elements of Landscape Change (disturbance)



Natural Disturbance



Forest harvesting  
Agriculture  
Urban Expansion  
Infrastructure  
Recreation/  
Tourism  
Energy  
Forestry

## Economic Indicators

- GDP
- Royalties and Rents
- Direct and Indirect Employment
- Commodity Production
- Property Value and Taxes



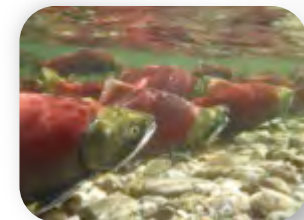
## Social Indicators

- Quality of Life
- Recreation
- Traditional Land Use
- Liveable Community

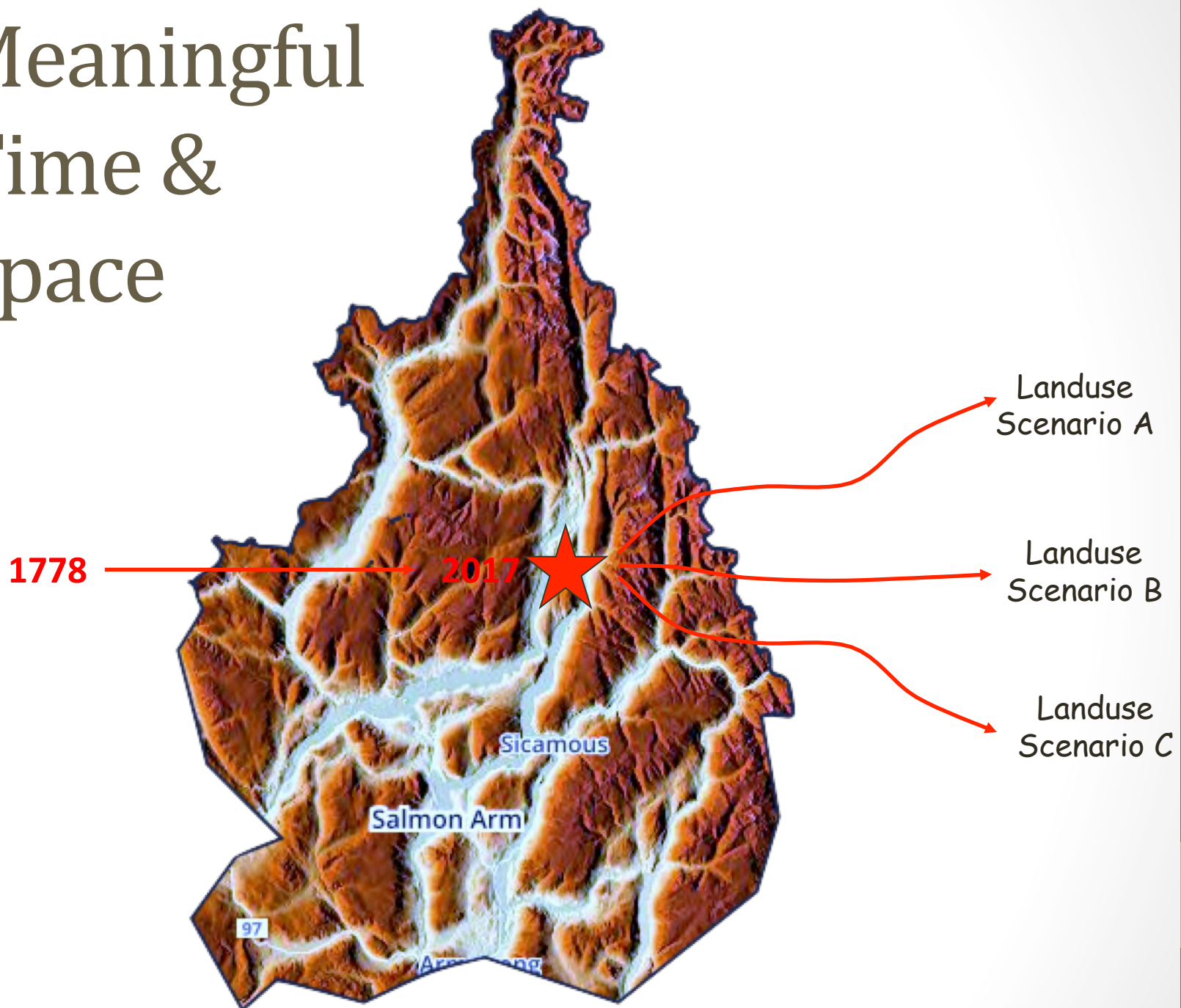


## Environmental Indicators

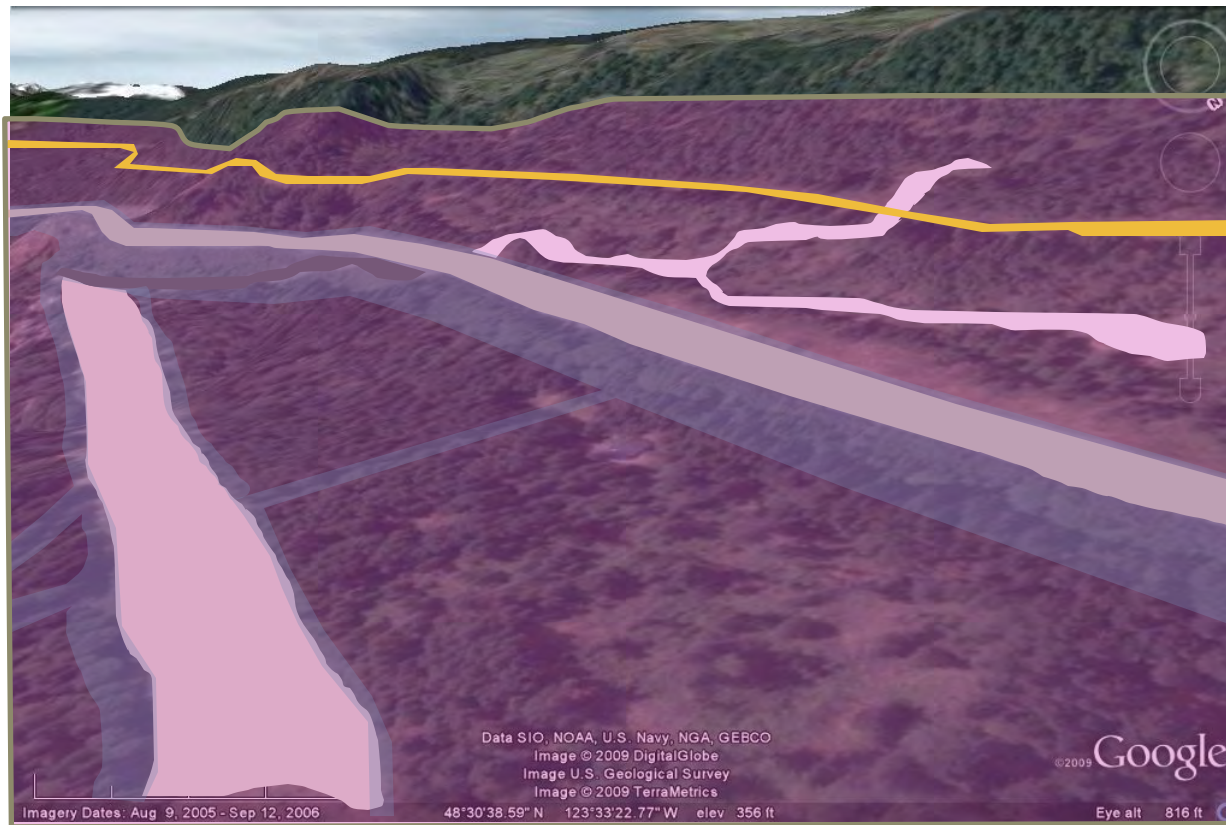
- Water Quality/Quantity
- Landscape Fragmentation
- Wildlife Habitat
- Ecosystem Representation



# Meaningful Time & Space



# Zone Of Influence Is A Product Of Footprint Type X Value Component



*“No innovator works alone. And the most innovative of all collaborate not only within their institutions but also with others across the country and around the world.”*

*Aled Edwards, PhD*



**COLLABORATION CREATES SOLUTIONS**



# Source Water Protection

## Canada

Canadian Environmental Assessment Agency

Natural Resources Canada

Environment Canada

Fisheries and Oceans Canada

Species At Risk Public Registry

Public Safety Canada

Public Health Agency of Canada

National Roundtable on the Environment and the Economy

Agriculture and Agri-food Canada

Indian and Northern Affairs Canada

Canadian Tourism Commission

Environmental Protection Review Canada

National Research Council Canada

## British Columbia

Interior Health

FLNRO

Ministry of Transportation

Ministry of Community Services

Energy and Mines

Ministry of Aboriginal Relations and Reconciliation

Agriculture

Environment

BC Hydro

BC Parks

## Municipal

Shuswap Watershed Council

Regional Districts of North Okanagan-

Columbia Shuswap Regional District

Cities/Towns of Armstrong, Salmon Arm, Sicamous, Enderby, Chase, Sorrento, Scotch Creek

## First Nations

Splatsin

Neskonlith

Adams Lake

Little Shuswap

Simpcw

Shuswap

## Métis

Métis Nation of BC

## Other

BCIT Rivers Institute

BC Agriculture Council

BC Cattlemen's Association

BC Fruit Grower's Association

BC Groundwater Association

BC Lake Stewardship Society

BC Water and Waste Association

Shuswap Lake Watch

Canadian Water Resources Association

Adams River Salmon Society

BC Tomorrow Society

Fraser Basin Council

David Suzuki Foundation

Waterbucket

Water Supply Association of BC

Shuswap Trail Alliance

*The Shuswap  
Trails  
Roundtable is  
the  
personification  
of communities  
coming together  
for the greater  
good of their  
watershed*

## Shuswap Regional Trails Strategy

As at 2 October 2015

*Chapters 6, 11, 13, 14 and 16 were approved at a workshop on 17 June 2015.*



Prepared on behalf of the Shuswap Trails Roundtable  
by the Fraser Basin Council  
Kamloops, BC

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Tel. 250-314-9660

# COLLABORATION CREATES SOLUTIONS

# STR CE Scoping Survey (38%)

**There was 100% agreement among survey respondents with the following definition of cumulative effects:**

"Cumulative effects are the changes, both benefits and liabilities, caused by our actions today in combination with other past and reasonably foreseeable human and natural disturbances."

# STR CE Scoping Survey

## Highest Ranked Priorities for land use planning in the Shuswap Watershed

- Control of Invasive Species
- State of environmental and/or cultural Sensitive Area integrity & protection
- Wildlife habitat integrity
- State of the economy & jobs
- Water quality

# STR CE Scoping Survey

## Highest Ranked Opportunities for including a cumulative effects assessment in the Regional Trails Strategy

- To help determine the type appropriateness, amount or intensity of [land uses](#) in the watershed
- To identify areas that need to remain [undisturbed](#)
- To learn and understand how one land use affects other land uses and users and apply this knowledge to help set priorities for land [management zones](#) to avoid conflicts
- To establish monitoring [measures](#), and to set targets and/or thresholds
- To [connect](#) the Strategy to other plans like Official Community Plans

# STR CE Scoping Survey

**87%** of respondents feel that the potential implications of **climate change** need to be included in the assessment.

**70%** of respondents identified that it is either a **high value or critical** that the STR be seen as a leader in the application of cumulative effects assessments in innovative, collaborative and community-based land use planning in BC.

## Proposed Objectives

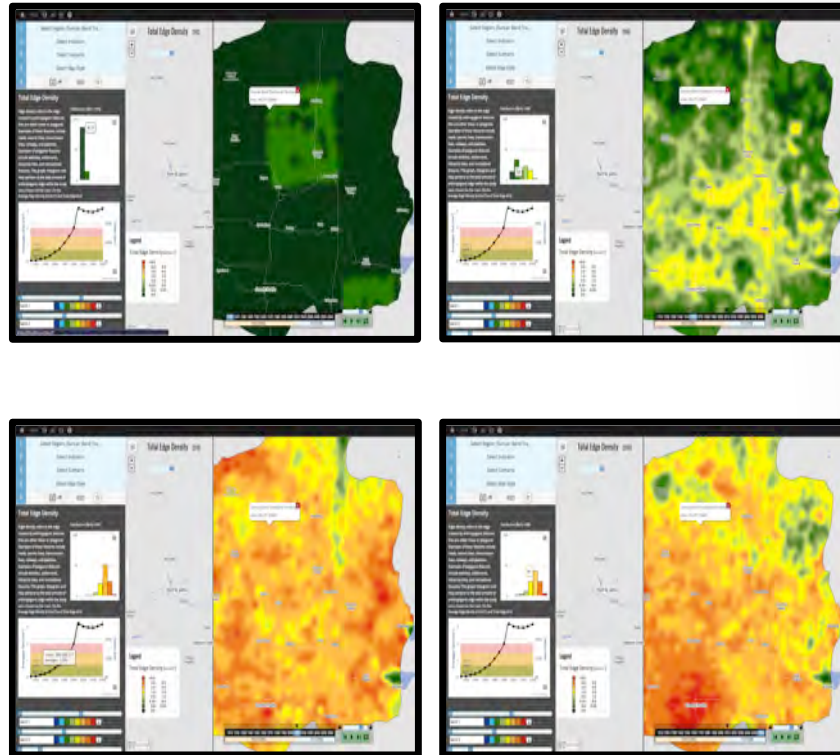
1. To increase landscape dynamics [understanding](#) within the Shuswap Watershed using scenario planning



**Partnership Planning Tool That Can Help All Planners**

## Proposed Objectives

2. To establish a spatial, tool that creates maps, graphs, histograms and imagery quickly and on demand:
  - show [historic](#) change
  - show [future](#) change under different management strategies
  - assess the [risk](#) to key values including climate change.



**Partnership Planning Tool That  
Can Help All Planners**



## Proposed Objectives

### 3. To assist long-term stewardship of multiple land uses by:

- applying [traditional Secwépemc laws](#) & oral knowledge through a systems view of the watershed
- identifying specific [strategies](#), actions, monitoring and planning that can reduce conflict, increase shared benefits and avoid negative, unintended consequences.
- provide valuable [input](#) into natural resource management planning in the Shuswap Watershed
- [combine](#) historic and contemporary traditional and western science knowledge
- inform [individual project](#) development referral responses
- identify strategies that lead to long term [resilience](#) of culture, economy & environment
- identify future [research](#) priorities



## Partnership Planning Tool That Can Help All Planners

## Some Of The Successful Examples I've Had With This Approach

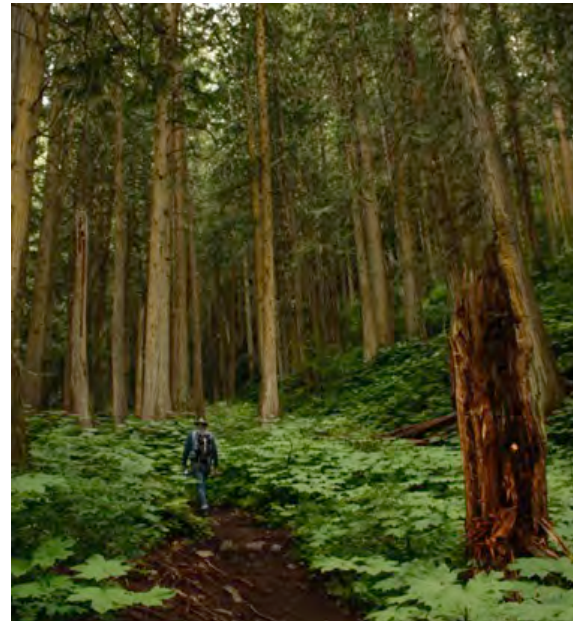
- ***The Chief Mountain Cumulative Effects Study***...has helped guide land use planning and policy development for local municipalities and has assisted the South Saskatchewan Regional Plan committee – [Tim Romanow, Executive Director Milk River Watershed Council](#)
- ***BC Land Use Planning*** - Leading edge modelling and analysis techniques for assessing cumulative effects arising from various resource development initiatives on a broad landscape – [Larry Pedersen, DM BC Agriculture & Lands](#)
- ***Land Use Framework*** - Ground breaking work linking GIS and environmental decision-making for large industrial development – [Jason Switzer, Director Corporate Consulting, Pembina Institute](#)
- ***Terrestrial Ecosystem Management Framework***
  - *the project has formed the basis of Regional programs being implimented by the Alberta Government to manage land and biodiversity in the oil sands region* – [Judy Smith, Senior Advisor Regulatory, Shell Oil](#)
  - *Successful in working with a large mult-stakeholder group that included Aboriginal, federal, provincial and regional government representatives, industry and NGO's* – [Kathy Porter, Change Agent: Collaborative Global Initiative](#)
- ***Elk Valley Cumulative Effects Management Framework***
- ***Fraser Basin Council*** – [Bob Purdy](#)

# The Robson Valley Landscape

## Jobs, Livelihood

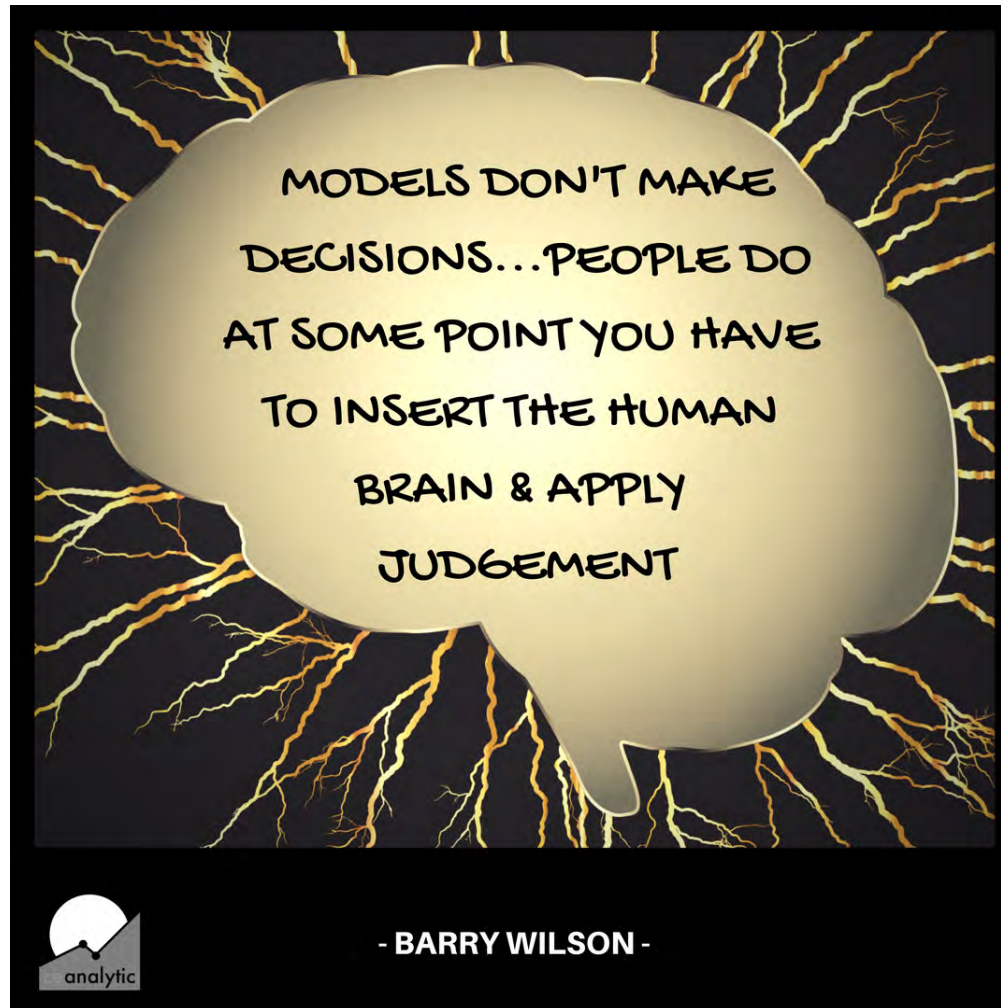


## Antique Forest



“The results of this project affirm that scenario planning methodologies and spatial temporal modelling technologies can enable “planning participants” **a credible means of exploring alternative futures** and reaching consensus on a plausible set of management objectives, strategies and indicators for the future”

# It's A Tool To Help Us



# Business Case Benefits

- ✓ Streamlining project referral processes leading to faster approvals and lower development costs
- ✓ Greater multi-interest buy-in and support
- ✓ Increased investment certainty and clarity of risks
- ✓ Home grown solutions informed by learning from our past
- ✓ Fewer unintended or unforeseen conflicting land uses
- ✓ Increased inter-agency cooperation and reduced duplication
- ✓ Better protection of rare and threatened ecosystems through increased understanding

# Business Case Benefits

- ✓ Opportunities for innovation and synergies among land users  
– e.g. cost sharing for road development, maintenance and decommissioning
- ✓ Enhanced opportunity for private/public partnerships
- ✓ Identifying potential improvements to existing legislative processes and requirements for land management
- ✓ Harness big data from multiple sources for regional perspective and tactical detail
- ✓ Leading edge visualization to make it easier to understand and communicate landscape dynamics using multi-media
- ✓ Value-relevant scalability
- ✓ Providing direction to key research needs and opportunities

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## Can We Afford Not To?

# Business Case Benefits

Would greatly benefit and assist other initiatives that could become active partners with the STR. Some examples include:

- Secwépemc
- Shuswap Watershed Council
- Forest Stewardship Plan development
- Twinning of the Trans Canada Highway
- Agricultural Land Reserve
- Columbia Shuswap Regional District
- City of Salmon Arm
- Ministry of Forests, Lands and Natural Resource Operations
- a wide range of organizations that make up the 217 members of the STR.

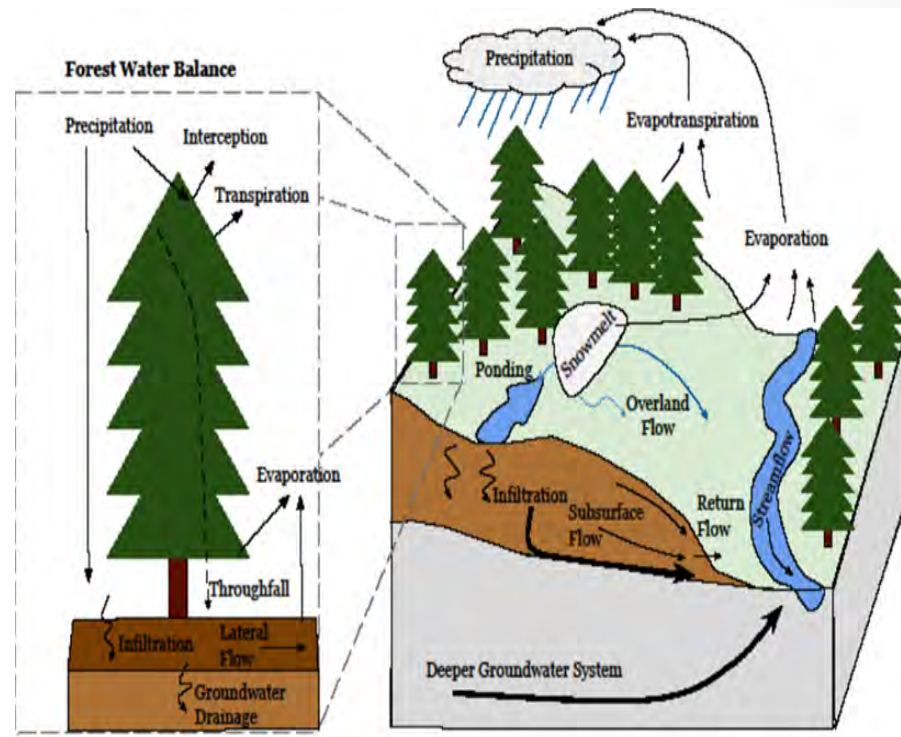


# Building on Secwépemc Leadership Using ALCES

- Reconciliation Framework Agreement – Secwépemc BC Traditional Territory BAU
- SSN Ajax Gold Mine EIA Review – SSN Territory
- Revelstoke 6 EIA – 5 watersheds of Columbia
- Yucwmenlúcwu TCH Twinning (Chase – Golden)
- ALIB Governance Framework (Adams River Watershed)
- \*\*Shuswap Roundtable

# Connecting Water To Land Use

- ALCES Online provides climate and landscape & climate change scenarios
- Raven forecasts the river flow. Over time we hope to add stream flow and chemistry



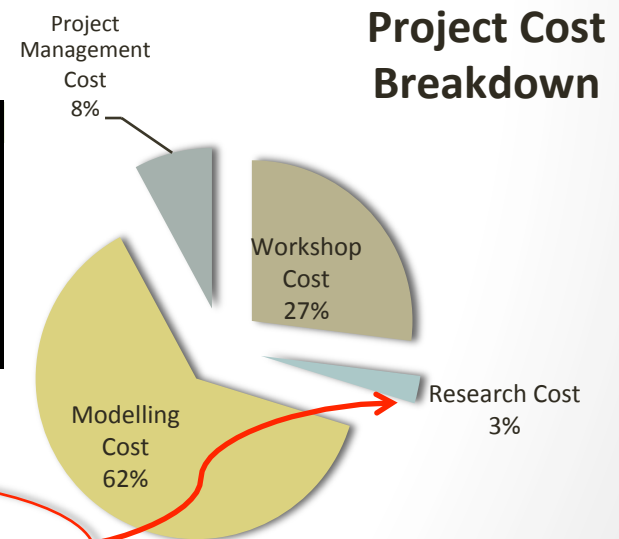
# Common Measures So You Can Manage



# Investment & Schedule

Phase	Phase Name	Person Days	Fees (\$)	Expenses (\$)	Total (\$)
1	Model Setup	13	17,700	220	17,920
2	RNV & Backcast	26.1	18,465	0	18,465
3	Base Case	34	41,203	110	41,313
4	Learning Scenarios & Sensitivity	46	45,335	110	45,445
5	Best Combinations Scenario	17	19,015	110	19,125
PM	Project Management	9	12,150	0	12,150
<b>Total</b>		<b>146</b>	<b>153,868</b>	<b>550</b>	<b>154,418</b>

Phase	Q1	Q2	Q3	Q4
1	[Bar]			
2	[Bar]	[Bar]		
3	[Bar]	[Bar]	[Bar]	
4	[Bar]	[Bar]	[Bar]	
5	[Bar]	[Bar]	[Bar]	
PM	[Bar] contingency			



Local Student Opportunity



# Funding

## STR CE Scoping Survey Ranking

High

frequency

Low

- BC
- Canada
- Municipal
- Grants
- Corporate Partnerships
- STR Member Contributions
- Community fundraisers, crowdsourcing, philanthropy, pro bono

## Other Examples

- CEMA - industry funded
- EFMPP / LUF - Provincial Gov't funded
- Chief Mtn Study – Grass roots funded
- SRFA – FN / BC

# Strategic & Tactical Planning Tool That Benefits Many Now and In The Future

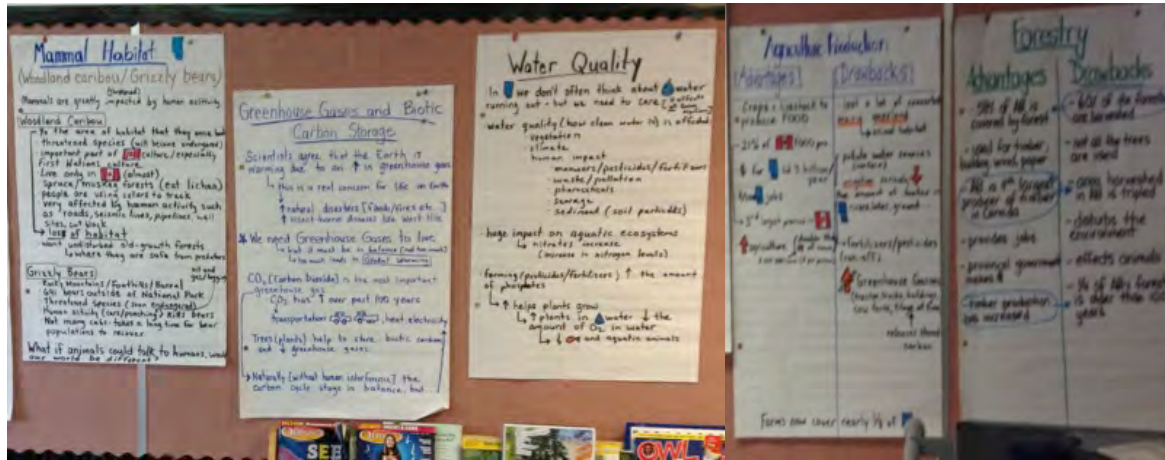
- \$4/person in study area
- \$0.12/ha
- A Bargain when you compare with:
  - 35% of Ross Street Underpass Design - \$433,050
  - 38% of Larch Hills Chalet expansion - \$407,500
  - 9% of RJ Haney Heritage Village & Museum upgrade - \$1.7 million
  - 28% of purchase price for property for rec center add-on in Salmon Arm - \$550,000
- Decimal dust compared to:
  - Salmon Arm West upgrade \$162.7 million
  - BC spending \$22.9 million for campsites in new Parks Strategy
  - BC Forecasting a \$2.2 billion surplus this year

# Investment Sharing Far Better Than Work Phasing

## Potential Partnership Contributions

- 25% BC
- 20% Canada
- 10% Municipal
- 20% Grants
- 15% Corporate//Initiative Partnerships
- 5% STR Member Contributions
- 5% Community fundraisers,  
crowdsourcing, philanthropy, pro bono

# BC Tomorrow





# Kukwstsétsemc! Thank You!



Connect With Barry Wilson

<https://www.barrywilsonbc.com>

**LinkedIn:** [ca.linkedin.com/in/bwilsonceanalytic](https://www.linkedin.com/in/bwilsonceanalytic)

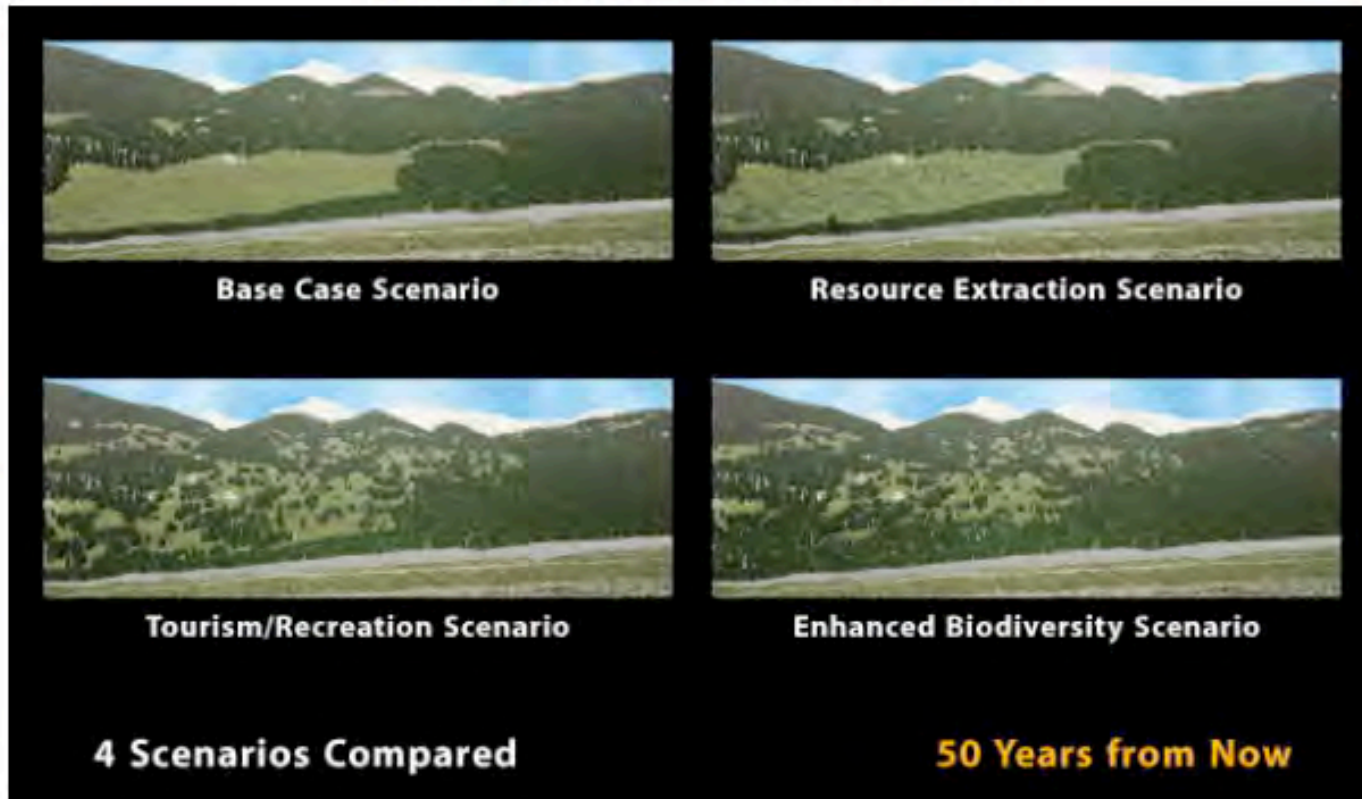
**Facebook:** [FB/barry.wilson.ceanalytic/](https://www.facebook.com/barry.wilson.ceanalytic/)

**Instagram:** [barrywilsn](https://www.instagram.com/barrywilsn)

**Twitter:** [barrywilsonbc](https://twitter.com/barrywilsonbc) or [ceanalytic](https://twitter.com/ceanalytic)



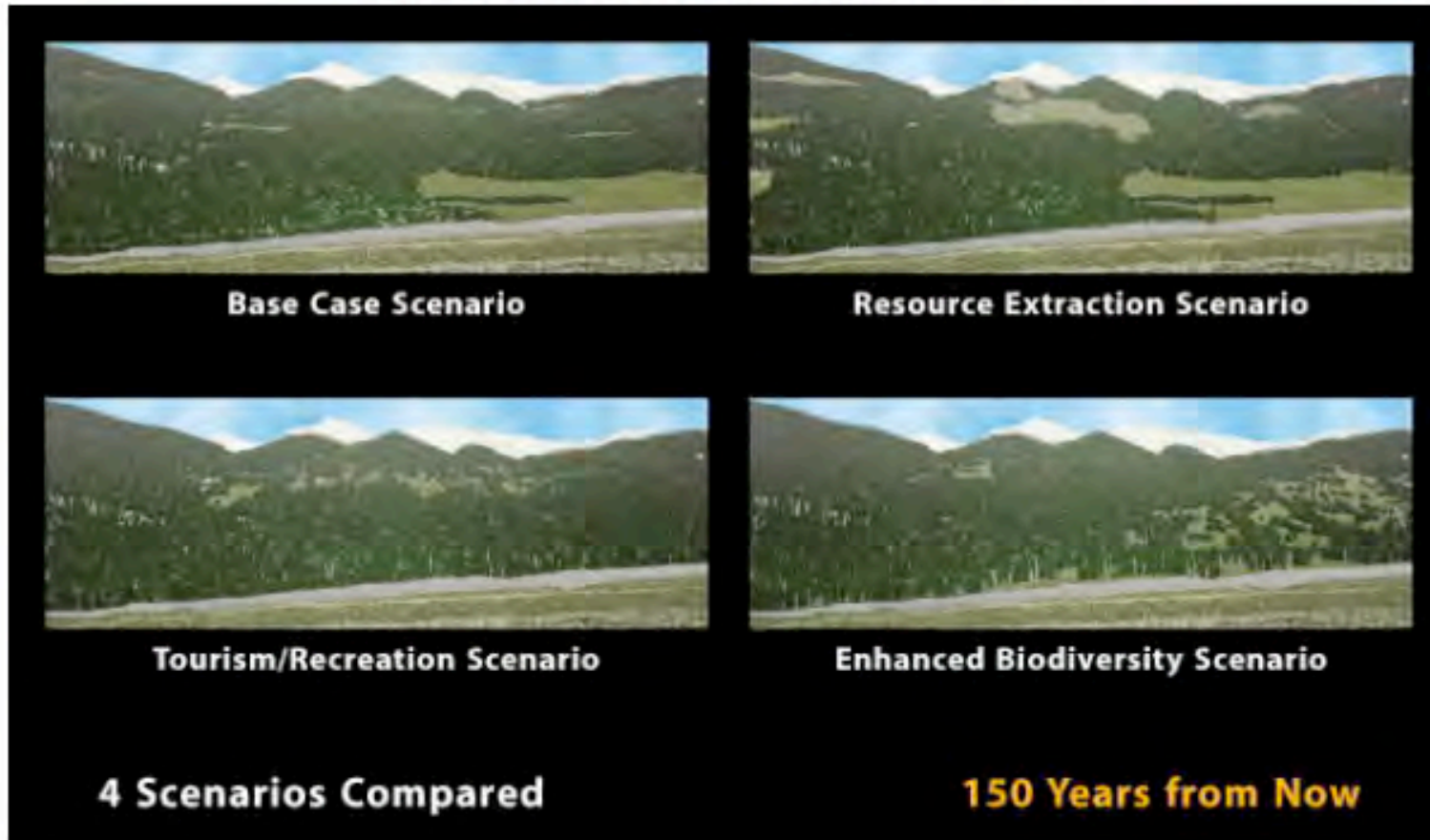
Figure 62. Learning Scenarios Visualized – Time 50



# LEARNING SCENARIOS

Source: Robson Valley EFMP

Figure 65. Learning Scenarios Visualized – Time 150



# LEARNING SCENARIOS

Source: Robson Valley EFMPP

*Figure 69. Composite Scenario Visualized – Time 50*



# BEST COMBINATION SCENARIO

Source: Robson Valley EFMPP

*Figure 71. Composite Scenario Visualized – Time 100*



# BEST COMBINATION SCENARIO

Source: Robson Valley EFMPP

*Figure 72. Composite Scenario Visualized – Time 150*



# BEST COMBINATION SCENARIO

Source: Robson Valley EFMPP