



# Managing Cumulative Effects Through Regional Land Use Planning: A Practical Framework

Regional Land Use Planning and Cumulative Effects  
Management: Linkages and Applications

Yukon Land Use Planning Council and Environment Directorate,  
Northern Affairs Program (DIAND), Yukon Region, Whitehorse  
February 10-11, 2003



**By George Hegmann, AXYS Environmental Consulting Ltd.**



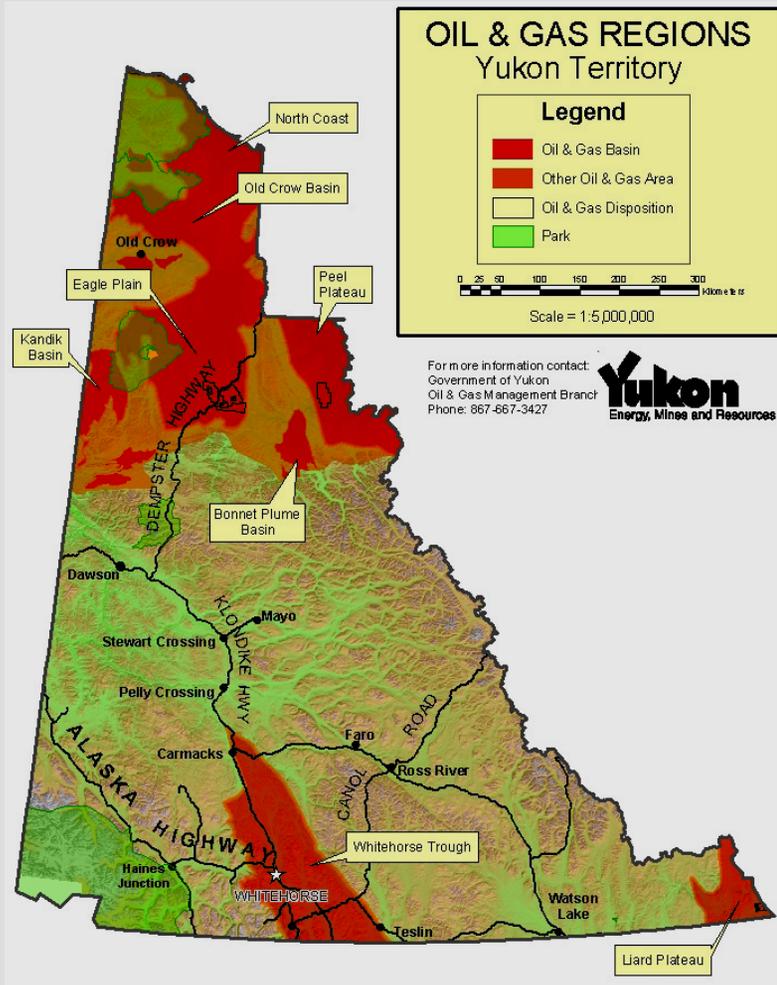
## Outline

- **Definitions**
- **Workshop questions**
- **Thresholds**
- **Effects management**
- **Case studies (plans and frameworks)**
- **Conclusions**



Introduction

# Assessing, managing and planning for the future



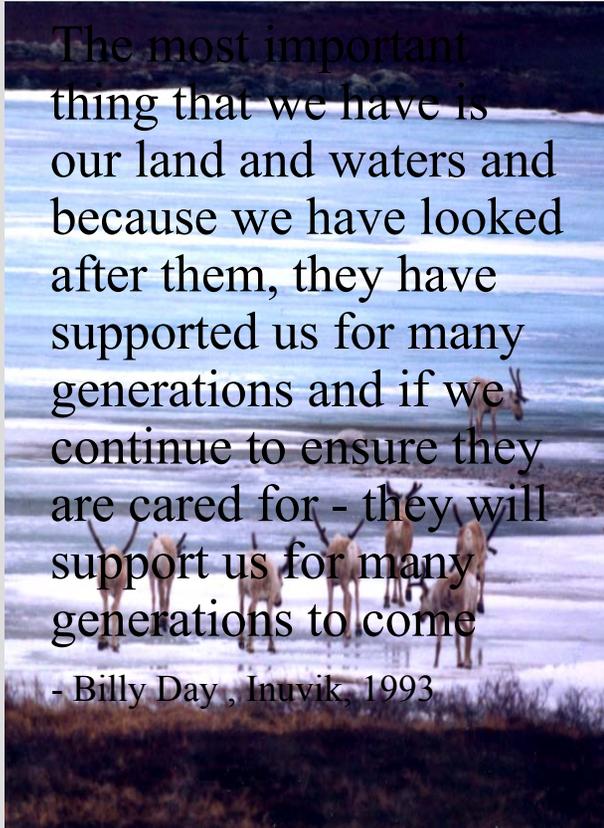


# Expressing what we want

## Introduction

The most important thing that we have is our land and waters and because we have looked after them, they have supported us for many generations and if we continue to ensure they are cared for - they will support us for many generations to come

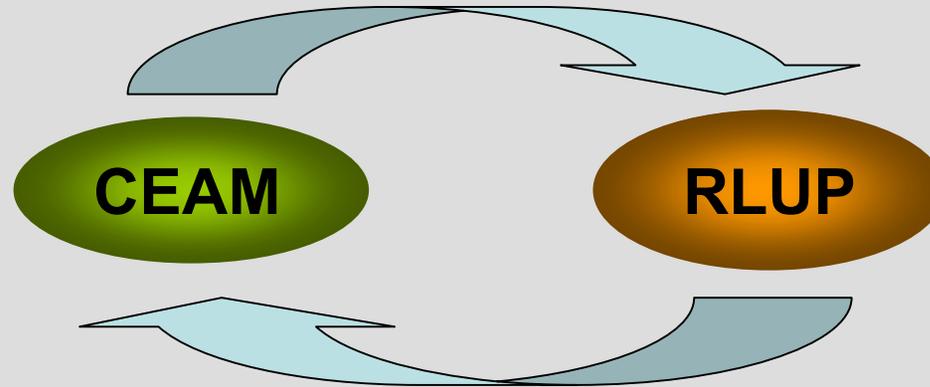
- Billy Day , Inuvik, 1993





## What is a linkage?

Introduction



**CEAM** = cumulative effects assessment and management

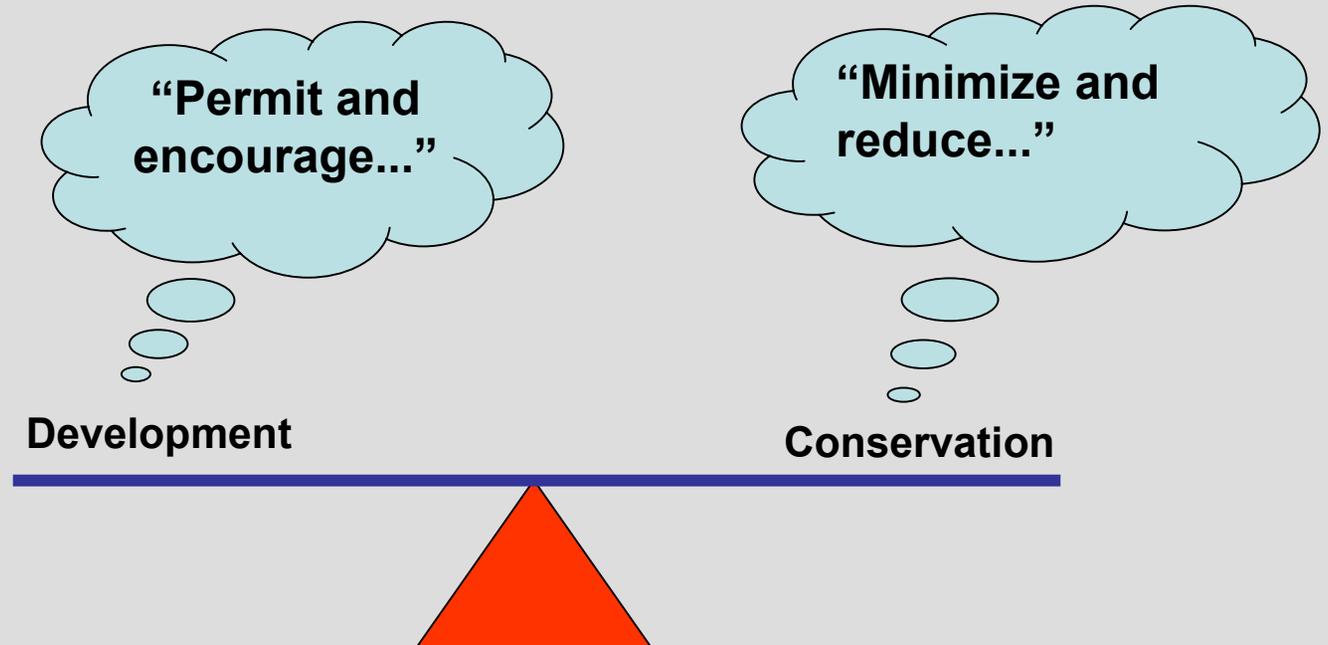
**RLUP** = regional land use plans

**Linkage** = a transfer of information between the two, and a sharing of that common knowledge towards the common goal of managing cumulative effects



# What are RLUPs saying?

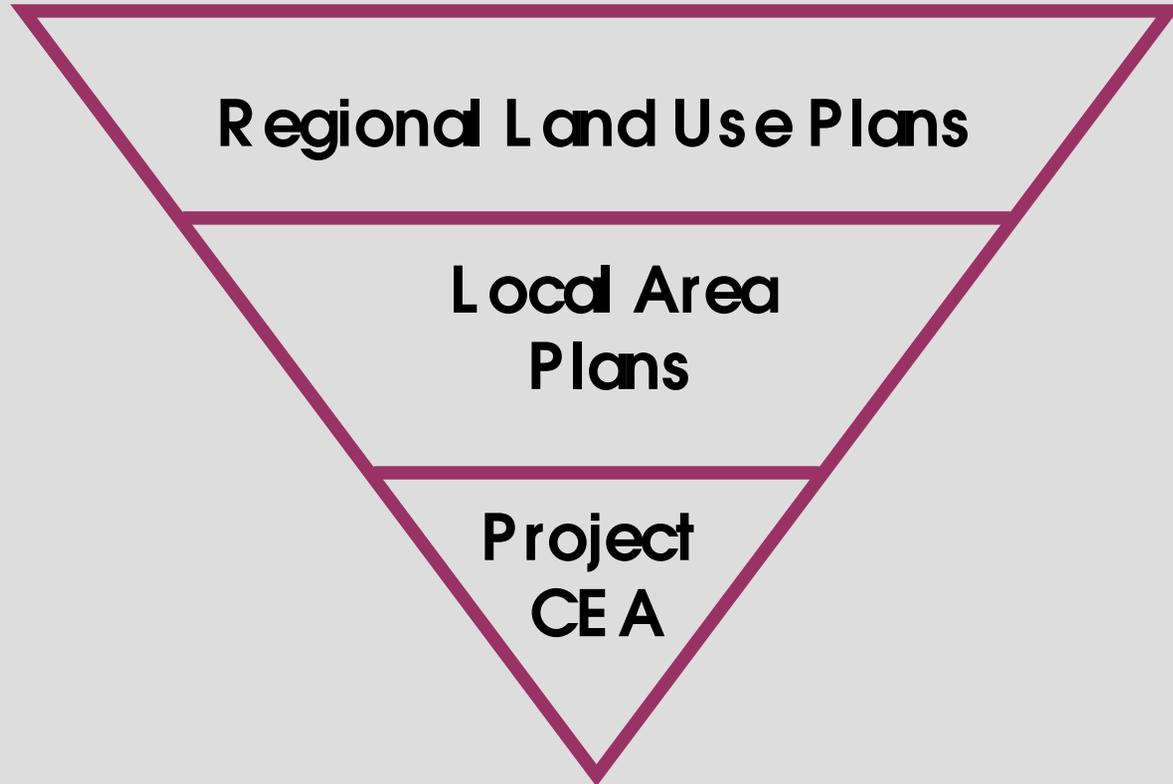
Introduction





## Bottom-up and top-down

Introduction





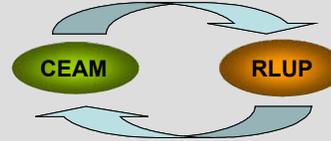
## Questions

# What are key components of RLUPs?

- **A vision**
- **Land and resource management objectives and strategies**
- **Land use zoning**
- **Baseline description (state and trend of environmental features and human use)**
- **Description of allowable activities**
- **Tiered restrictions on activities**
- **Effects management measures**
- **Process**
  - Guideline, not statutory
  - Anticipatory



# What linkages *currently* exist to improve CEAM?



## Questions

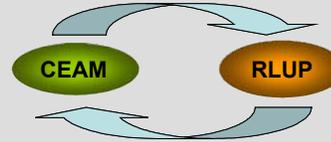
### Identification of:

- regional **issues** of concern and **valued** ecosystem and cultural components that may be affected by development
- appropriate geographic and temporal **boundaries** in which such effects can be assessed and managed
- **study** and **monitoring** requirements for environmental conditions either before projects are permitted (i.e., to establish an environmental baseline) or after projects are approved (i.e., as follow-up)
- environmental **baseline and land use information** that indicates environmentally sensitive areas, other developments, culturally important sites and other regional-wide information



## Questions

# What linkages *could* be established to improve CEAM?



## Provision of:

- clear, meaningful and useful **resource objectives** to assist evaluation of cumulative effects significance (cumulative effects needs a context for comparison)
- **threshold(s)** within each zone against which the incremental effects of proposed projects and all projects may be compared
- clear **jurisdictional** responsibility throughout the region



## Questions

# How can RLUPs be developed to *incorporate* effective strategies to manage cumulative effects?

- Develop and implement RLUPs within regional **CEAM frameworks**
- Develop and implement **thresholds** within each RLUP zone, specifically targeted at particular land uses and features of concern
- Develop and implement regional **databases** to provide necessary information
- Create a regional **advisory committee** to oversee regional initiatives
- Start if possible by managing surface and sub-surface **dispositions**



## Questions

# How do RLUPs help manage cumulative effects?

## Avoidance

- Increases distance of disturbances from sensitive features or in time does not allow disturbance to occur, therefore decreasing likelihood of an effect to occur
- Reduces degree of human disturbances in zones of higher restraint (or greater concern)

## Management

- In areas with development, identifies geographic areas of concern and associated features, within which development is conditional on certain restrictions and application of certain mitigation

## Focus

- Provides a regional context to help understand the acceptability of changes to environmental features and human use
- Provides a clear geographic area, subject to similar conditions, in which to start
- Indicates what is important (e.g., species or their harvesting)



## Thresholds

# Thresholds

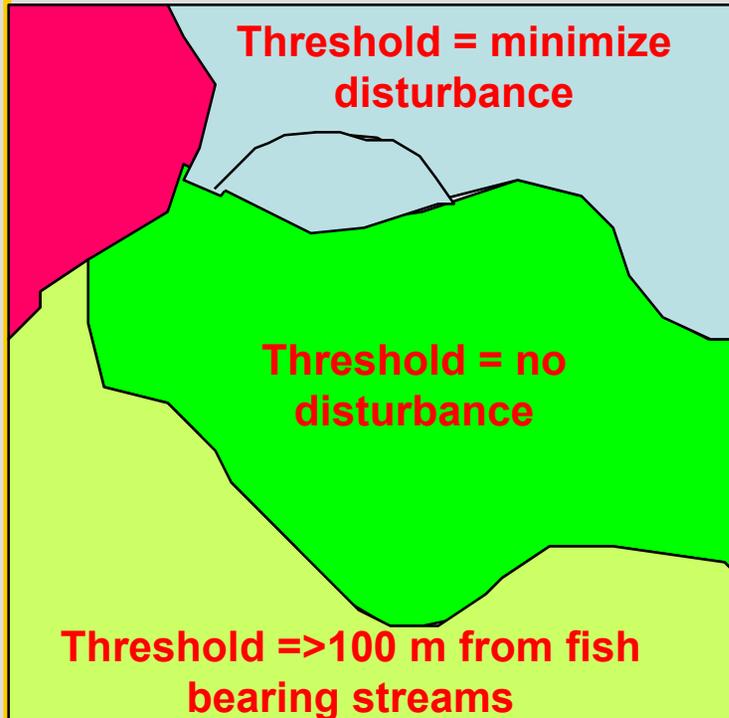
- **Quantitative thresholds rarely provided**
  - if numerical values are provided, typically for desired broad condition
    - e.g., “Maintain the current wintering population of 200 deer”  
(Athabasca Oil Sands IRP)
- **Typically only provides general guidance**
  - general land use objectives
    - e.g., “manage to maintain forest attributes suitable for high elevation caribou habitat” (Fort Nelson LRMP)
  - general data needs or land use management strategies
    - e.g., “identify important habitat”; “minimize development of new access”
    - e.g., “minimum approach, of any activity, of 100 m to wetlands”; “no activity between May 1- Aug 12”



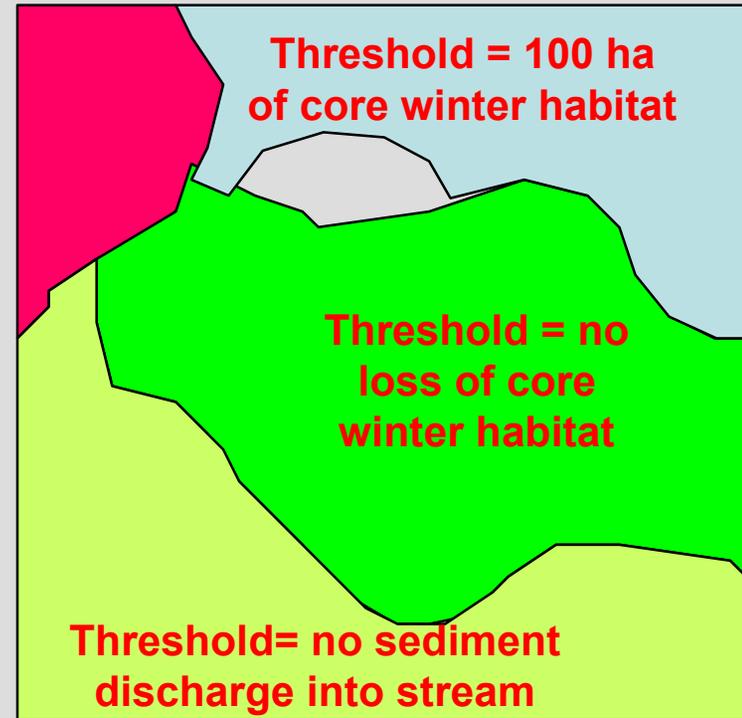
# Thresholds in RLUP zones

## Thresholds

### Current reality



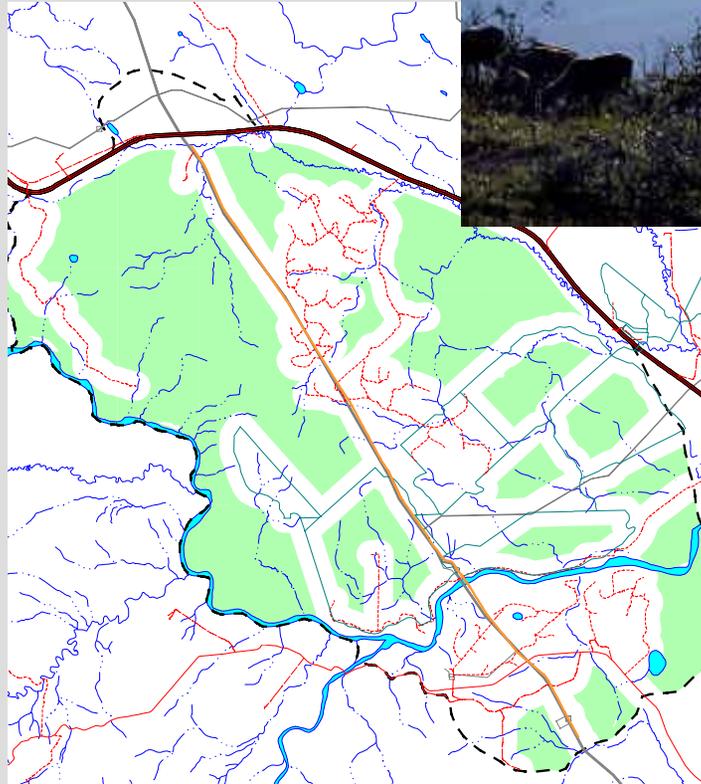
### Ideal



# Caribou thresholds in Yukon



Thresholds





Management

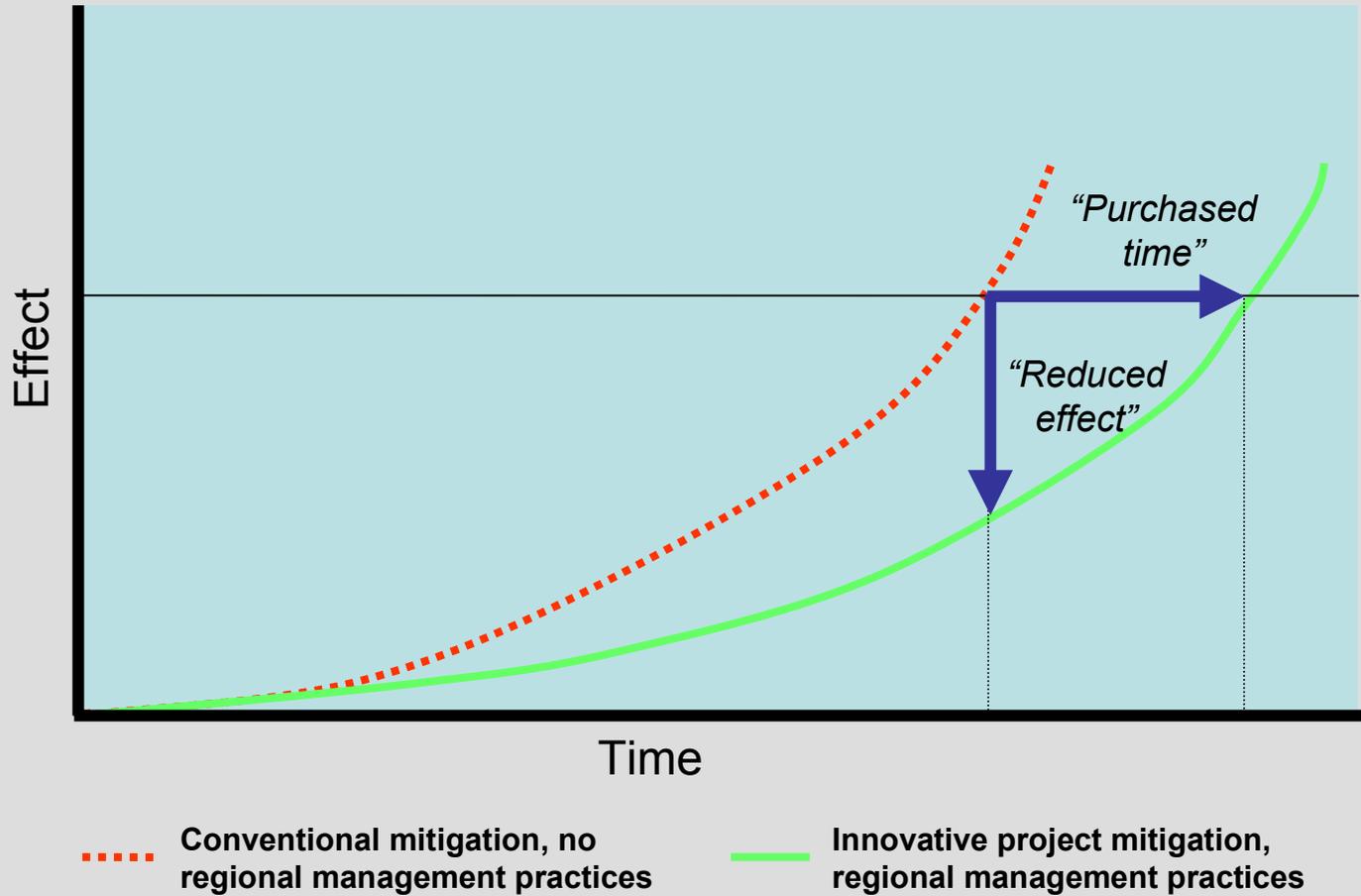
## Effects management: types

Three levels of management:

- ***Project-specific***: applied only to an individual project, and is the responsibility of that project operator subject to government requirements and best practice
- ***Joint project***: applied to multiple projects by multiple operators, and is jointly coordinated amongst operators with government participation
- ***Regional***: applied over a large geographic area, independent of requirements for any project, and is implemented by government with industry participation



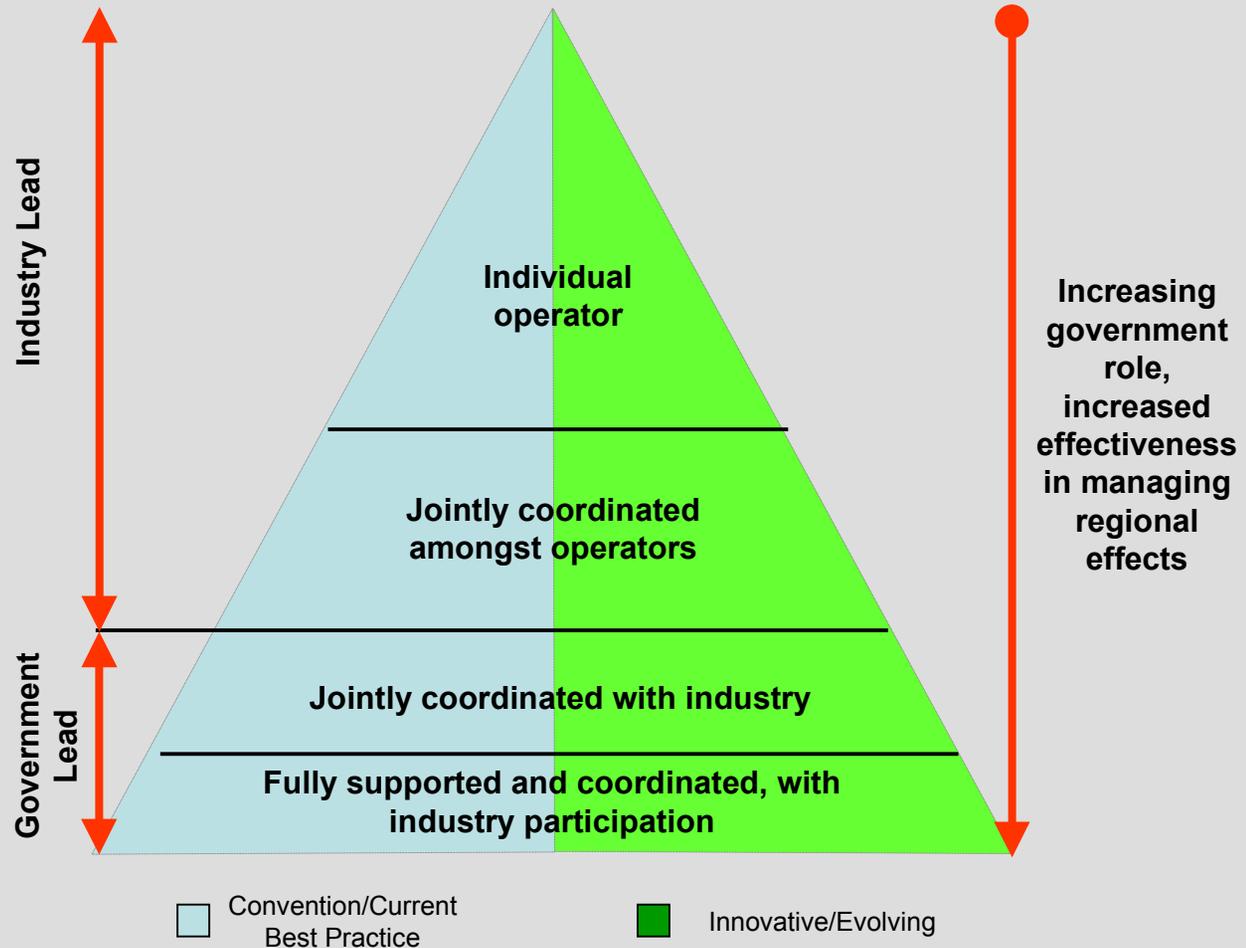
# Effects management: slowing the pace of change





Management

# Effects management: levels



# Effects management: examples of options



Project	Joint Project	Regional
Individual operator subject to government requirements and best practice	Jointly coordinated amongst operators with government participation	Government with industry participation
Codes of Practice	Development Plans	Conservation Area Design
Conservation and Reclamation Plans	Integrated Landscape Management	Future Scenario Forecasting
Constraints Mapping	Trunk Road Coordination	Indicators (for Monitoring/Thresholds)
Construction Best Practices		Local Area Plans
Environmental Protection Plans		Pre-tenure Plans
Forestry Operations/Management Plans		Protected Areas Strategy
Geophysical Operating Guidelines		Regional Access Management
Geophysical/Environmental Field Reports		Regional Ecological Monitoring
Low Impact Seismic		Regional Spatial Databases
Minimization of Clearing		Regional Plans and Zoning
Planning and Engineering Design		Regional Thresholds
Setbacks		Resource Management Plans
Timing Windows		Regional Steering Committee



## Case studies: planning

# Case studies: planning

## Case studies

- BC Muskwa Kechika Management Area (MKMA) Besa-Prophet pre-tenure plan
- Gwich'in Land Use Plan (GLUP)
- Inuvialuit Community Conservation Plans (CCPs)
- BC Land and Resource Management Plans (LRMPs)

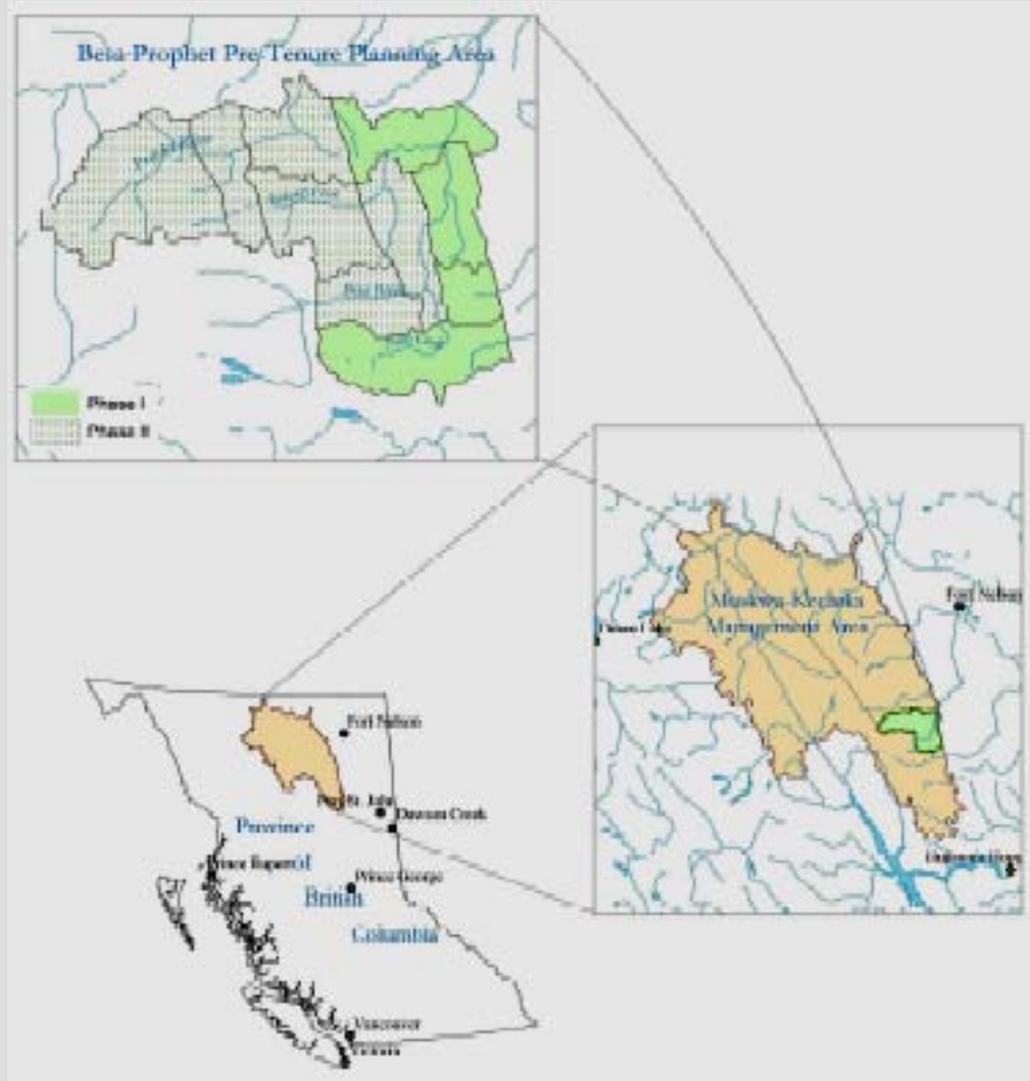
## Lessons to learn

- Levels of zoning classifications
- Definition of objectives



Case studies:  
planning

# MKMA Besa-Prophet pre-tenure plan





# Besa-prophet pre-tenure plan: key attributes

- **General management direction**
- **General objectives (what you want) and strategy (how you get it)**

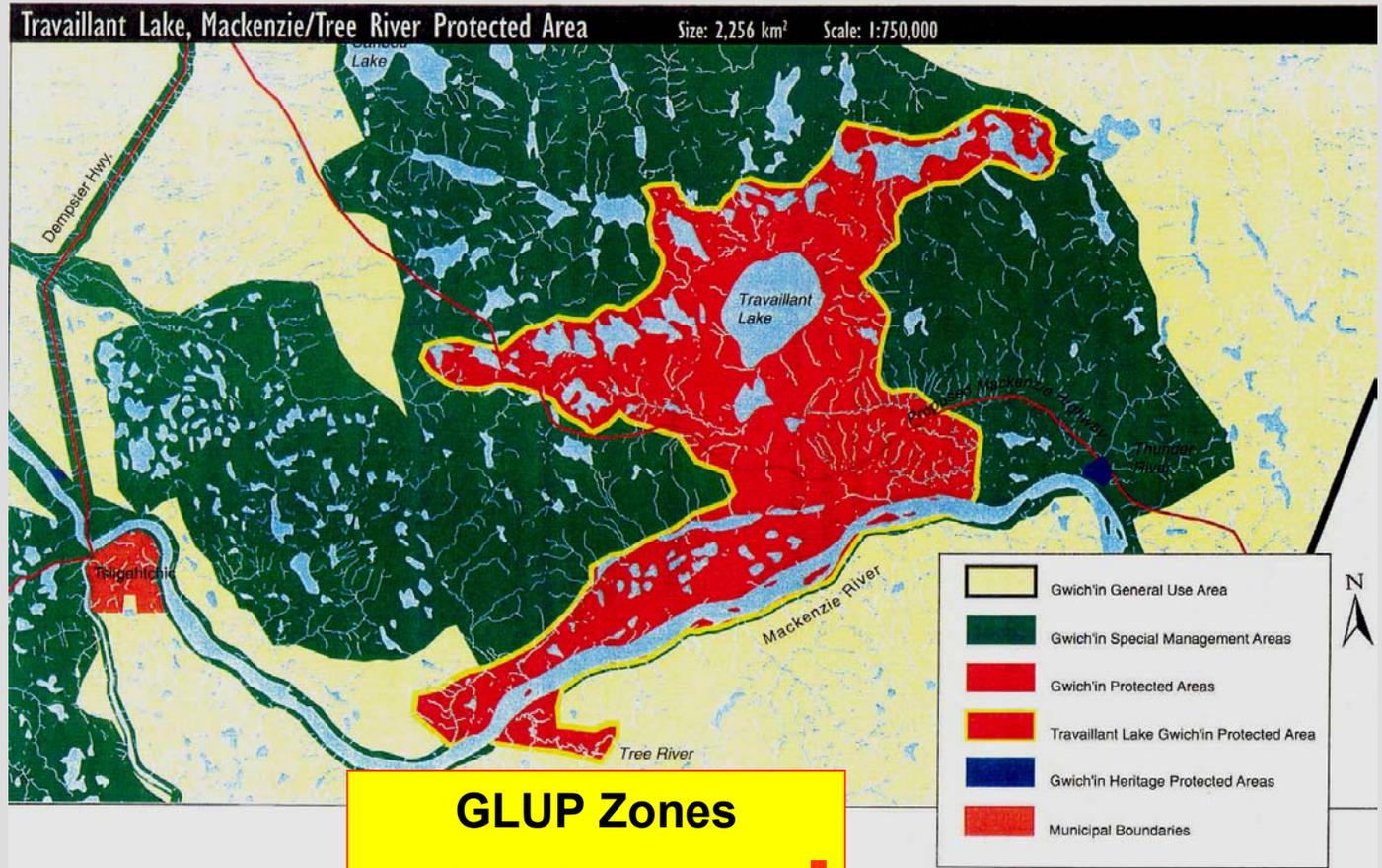
Case studies:  
planning

Objectives: Environmental Values	Strategies: Environmental Values
<p><i>Water and Sediment Control</i></p> <p>(A) Minimize or mitigate negative effects to water quality and quantity during all phases of oil and gas activity.</p> <p>(B) Minimize or prevent changes to drainage patterns.</p>	<p>(a) Locate lease sites and access routes away from watercourses, steep slopes (&gt;45%) and landslides to the extent practicable.</p> <p>(b) Construct and maintain sedimentation and erosion control measures, where required.</p> <p>(c) Divert surface runoff in a controlled manner away from areas of surface disturbance to avoid erosion. Contain runoff and sediment produced on site.</p> <p>(d) Prevent contamination of the ground water system; (e.g. in areas of permeable substrate or where a remote sump is not practicable, use a non-permeable liner in containment pits. [Note: the onus is on the proponent to determine permeability] )</p> <p>(e) Use the most benign mud system compatible with the drilling situation and objectives.</p> <p>(f) Use innovative or best management practices to contain hazardous materials, install leak detection systems and monitor surface and groundwater quality.</p>



Case studies:  
planning

# Gwich'in Land Use Plan



**GLUP Zones**

- General Use
- Special Management
- Protected



Case studies:  
planning

## Gwich'in Land Use Plan: key attributes

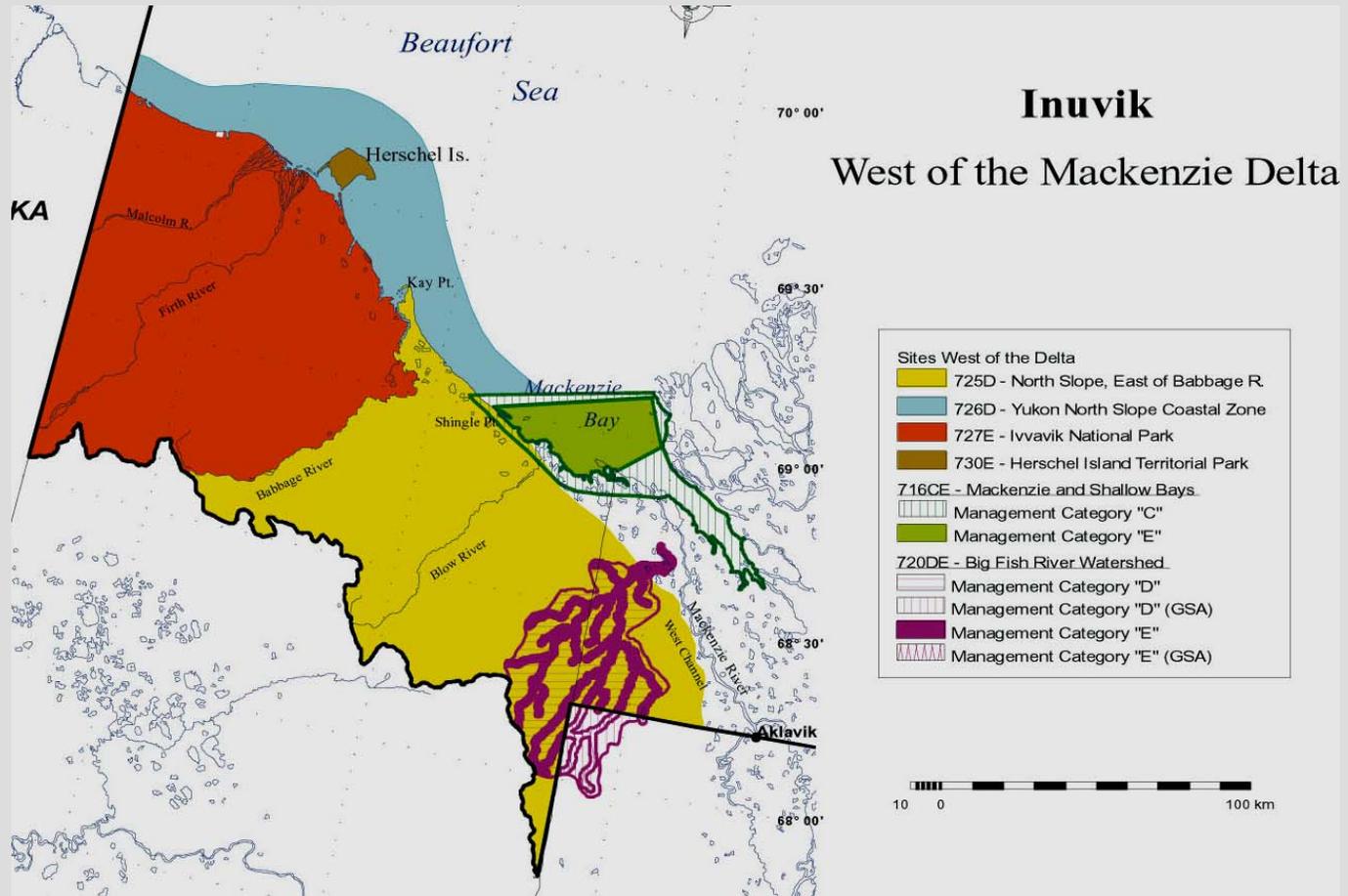
- **Objective = “sustainability of a way-of-life”**
- **For Travillant Lakes (map), to protect fish and heritage resources**
- **Zoning protects or buffers important areas (e.g., range of caribou herd)**





Case studies:  
planning

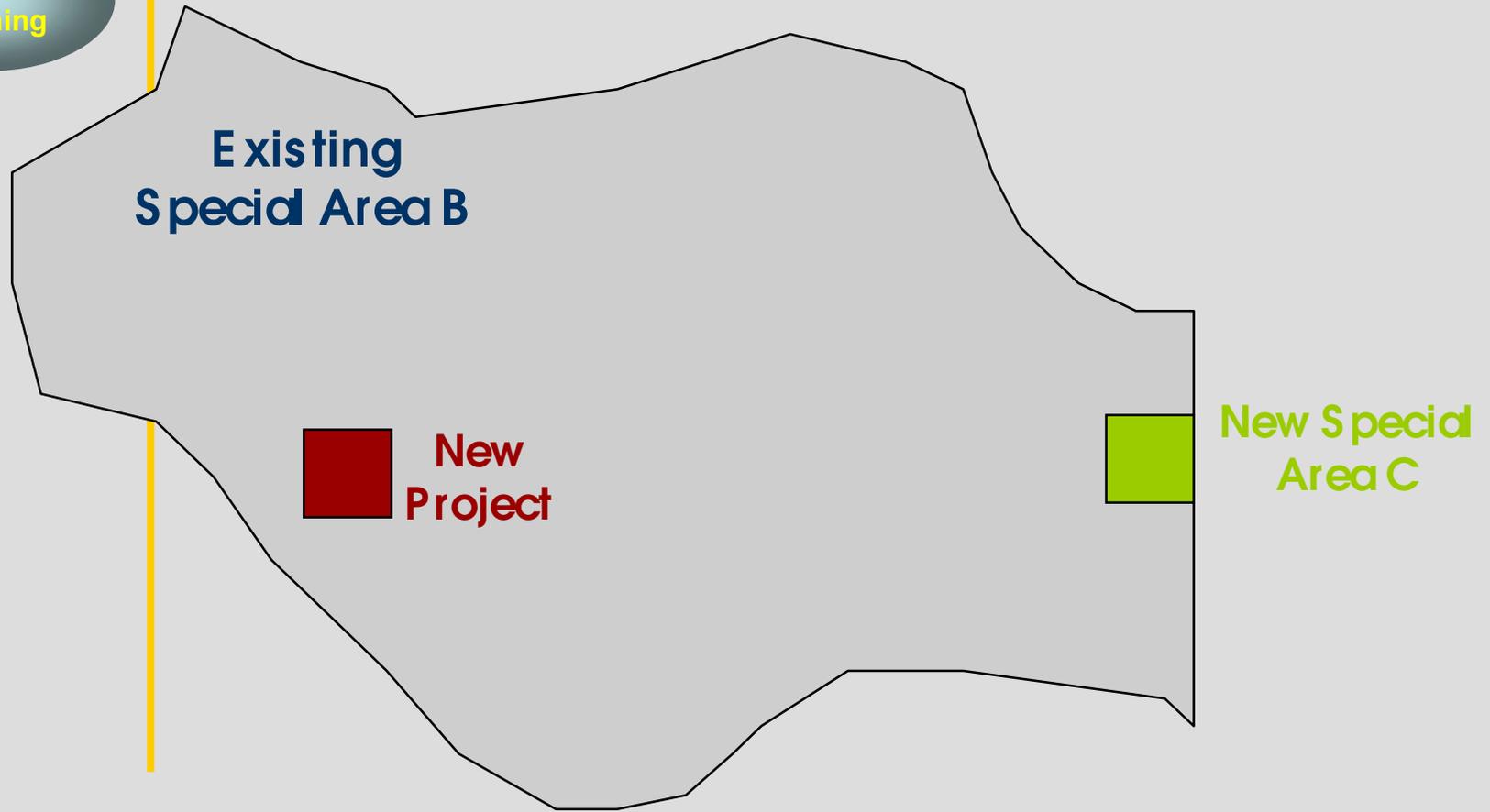
# Inuvialuit CCPs: Special Designated Areas



# Inuvialuit CCPs: land re-zoning



Case studies:  
planning





Case studies:  
planning

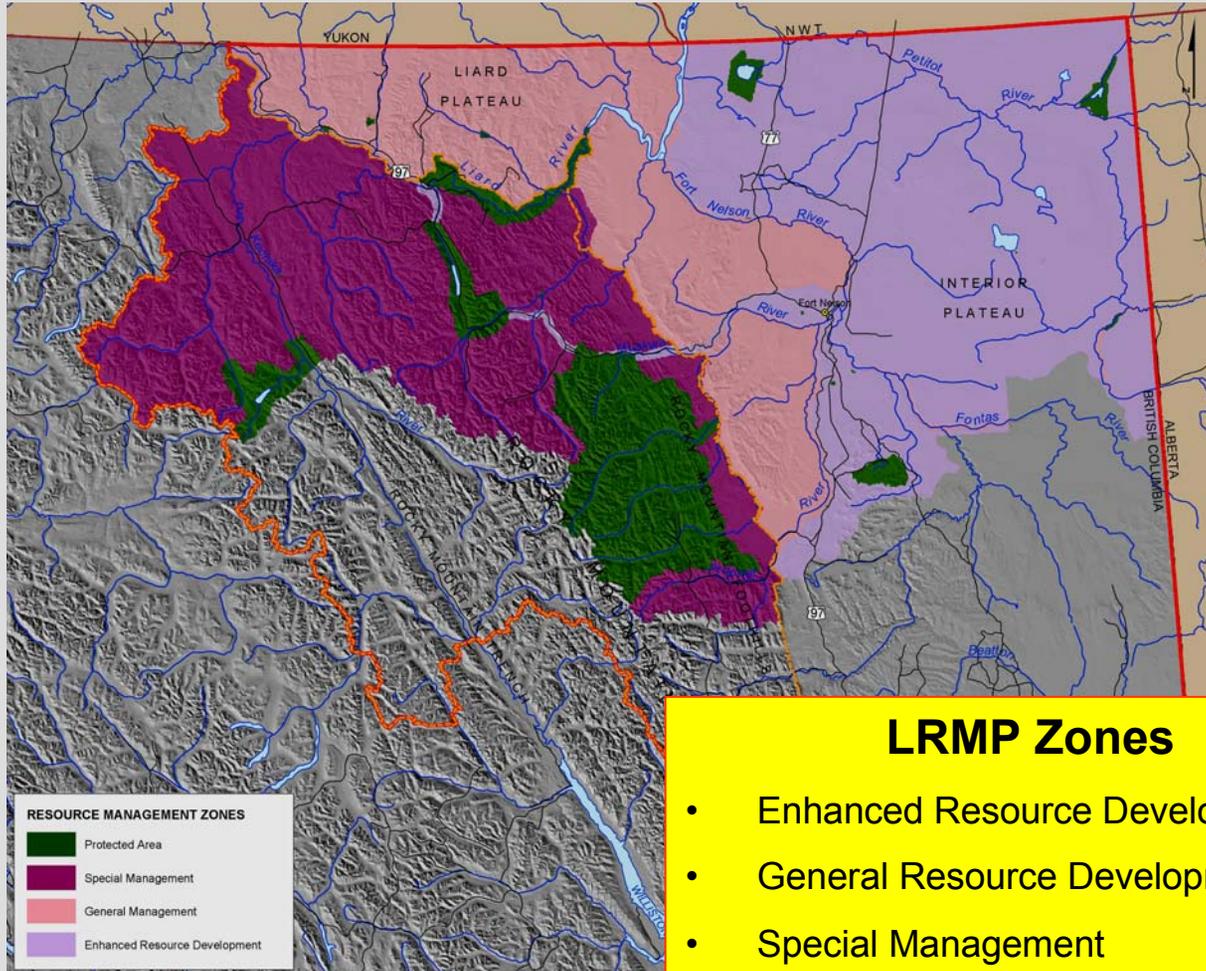
## Inuvialuit CCPs: key attributes

- Objectives based on sustainability of wildlife, wildlife habitat and renewable resource harvesting by communities
- *General Land Use Guidelines*, focusing on wildlife, harvesting and tourism
- *Species Conservation Summaries*, indicating habitat, research, population status and goals, conservation measures for each selected species
- *Special Designated Areas*, based on a certain geographic site + management category (describes feature of concern and where it is)

# BC Land and Resource Management Plans (LRMPs): Fort Nelson



Case studies:  
planning



## LRMP Zones

- Enhanced Resource Development
- General Resource Development
- Special Management
- Protected Areas



Case studies:  
planning

## BC LRMPs: key attributes

- ***General Management Direction*** (e.g., coordinated access management plans) by sector, land and resource use, environmental feature and desired end land use
- ***Category Management Direction*** (combines RMZs)
- ***RMZ Special Direction***



### Case studies: frameworks

# Case studies: CEAM frameworks

## Case studies

- Alberta's Athabasca Oil Sands Cumulative Effects Management Association (CEMA)
- NWT Cumulative Effects Assessment and Management Framework (CEAMF)
- *proposed* northeast BC Sustainable Resource Management Plan (SRMP)

## Lessons to learn

- How RLUPs may be packaged up within a process to address cumulative effects

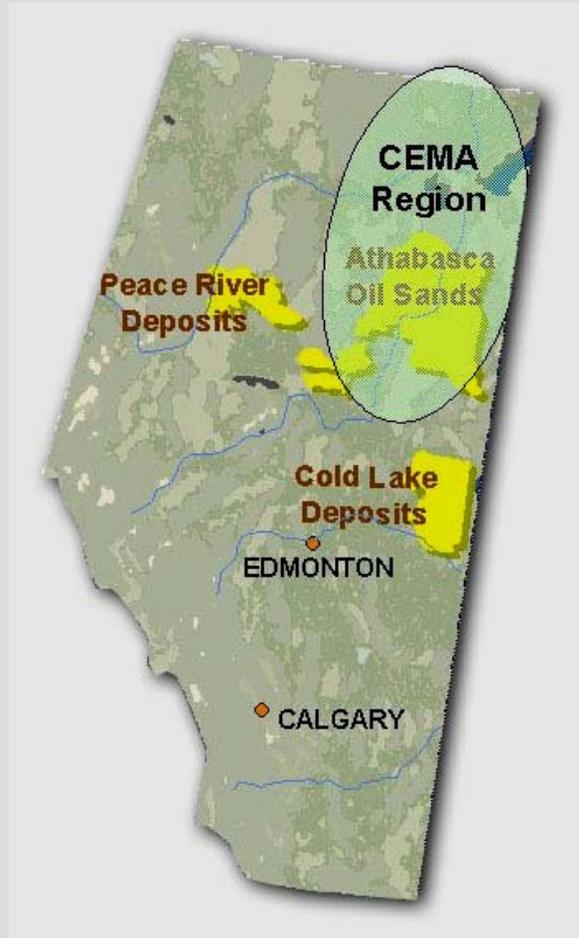
## A framework is

- An administrative and regulatory structure that pulls together anything that can usefully contribute to assessing and managing cumulative effects, and makes it clear how those parts work together towards a common goal



# Athabasca Oil Sands Cumulative Effects Management Association (CEMA)

Case studies:  
frameworks





Case studies:  
frameworks

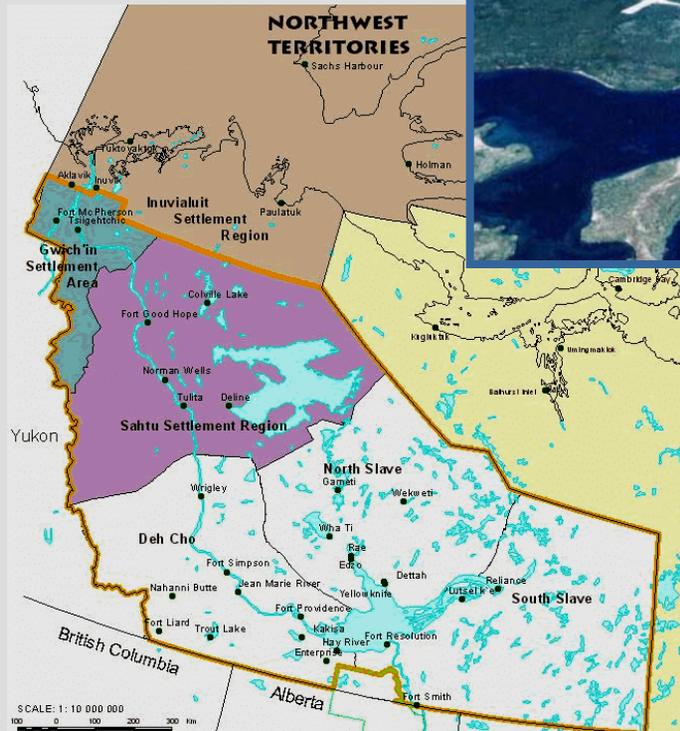
## CEMA: key attributes

- Under umbrella of Alberta Environment's Regional Sustainable Development Strategy (RSDS), which provides elements of a RLUP
- Initiatives done through many working groups
- Open and inclusive approach
- Prevention oriented
- Based on scientific and traditional knowledge
- Founded on best practices and technology
- Considers economic, social and environment issues
- Adaptive management/continuous improvement
- Enhanced predictability

# NWT Cumulative Effects Assessment and Management Framework (CEAMF)



Case studies:  
frameworks





# NWT CEAMF: key attributes

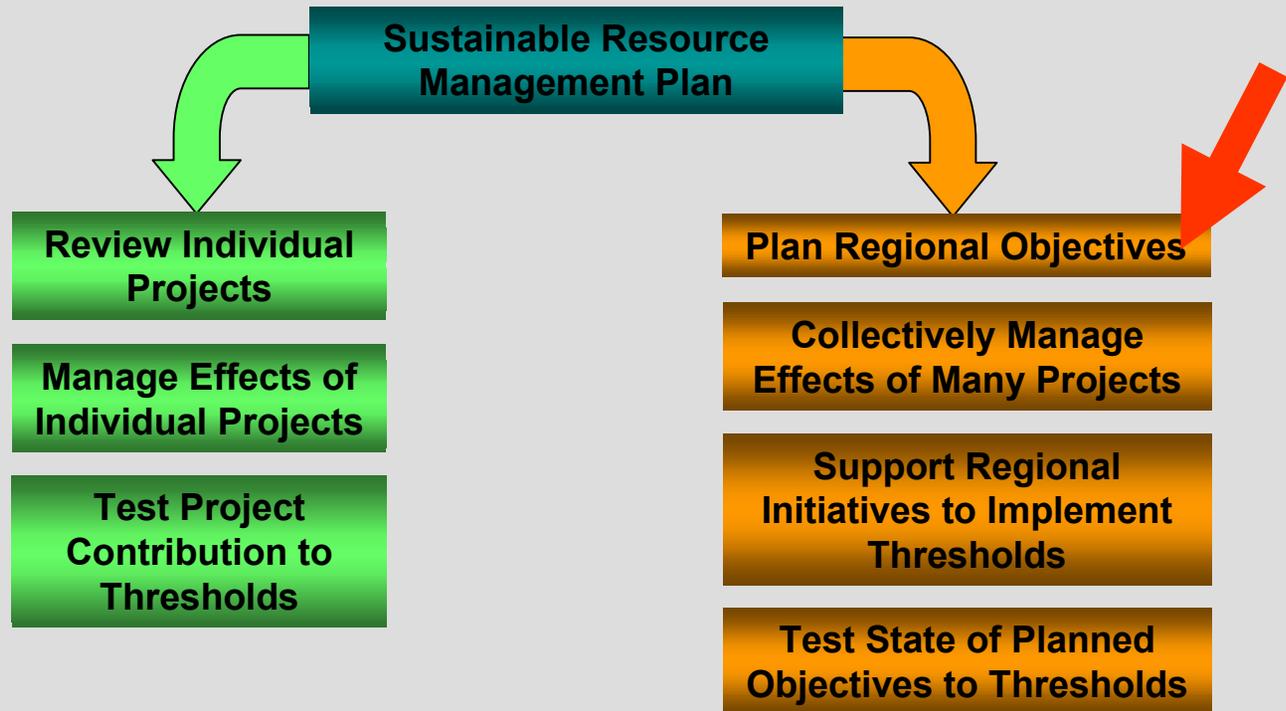
Case studies:  
frameworks



# *proposed* Northeast BC Sustainable Resource Management Plan (SRMP): foundation



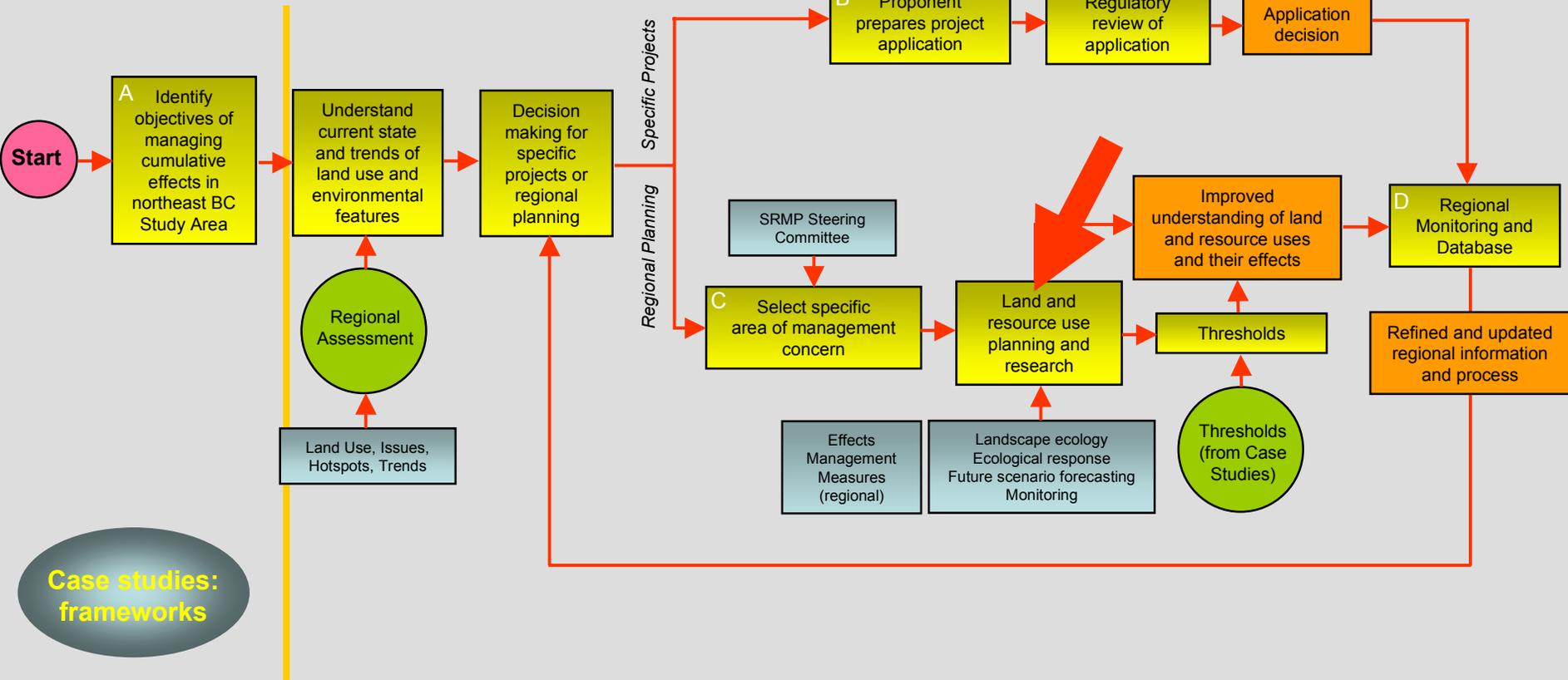
Case studies:  
frameworks





# proposed Northeast BC SRMP: implementation

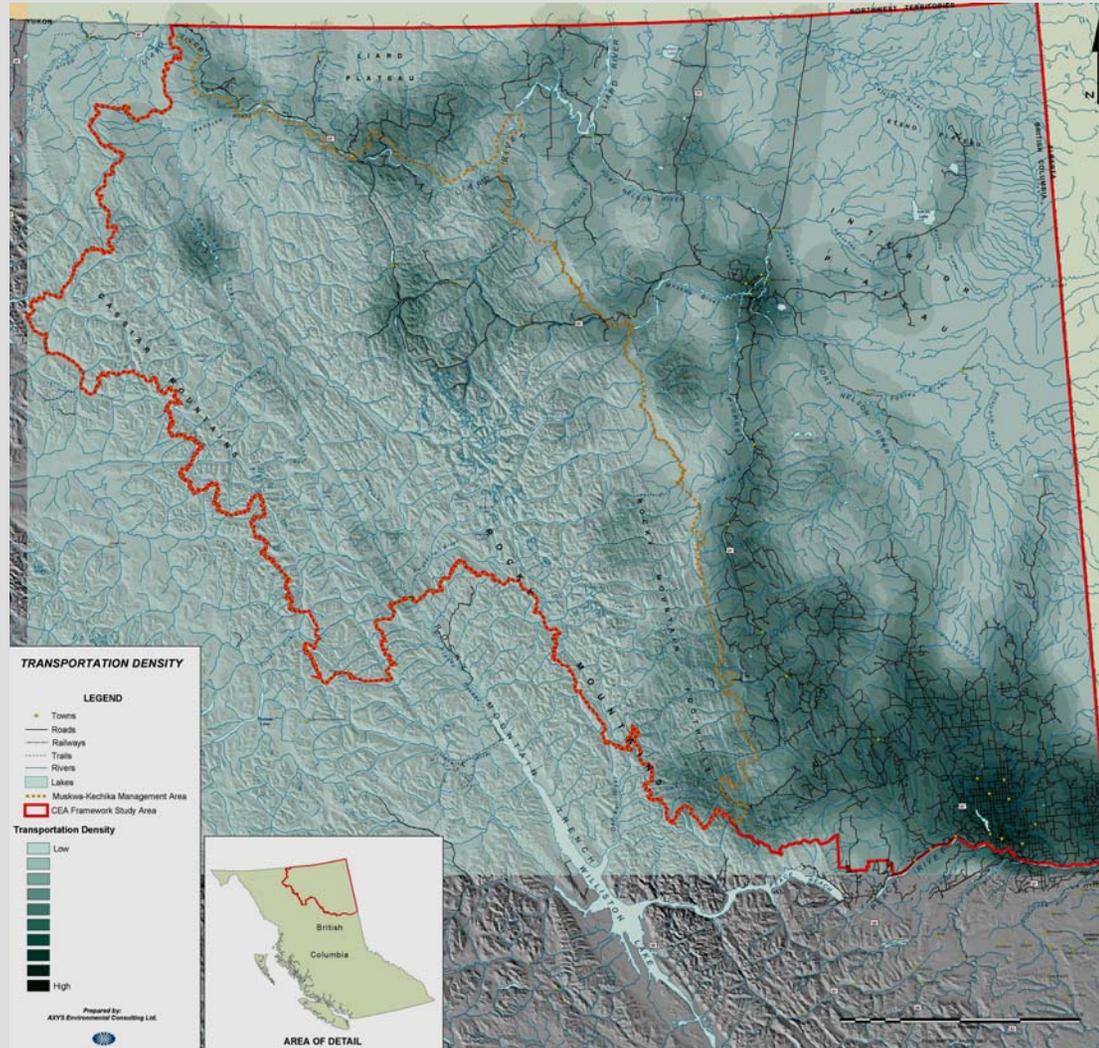
- major CEAMF components
- sub-components
- management and decision points
- result of decision making





Case studies:  
frameworks

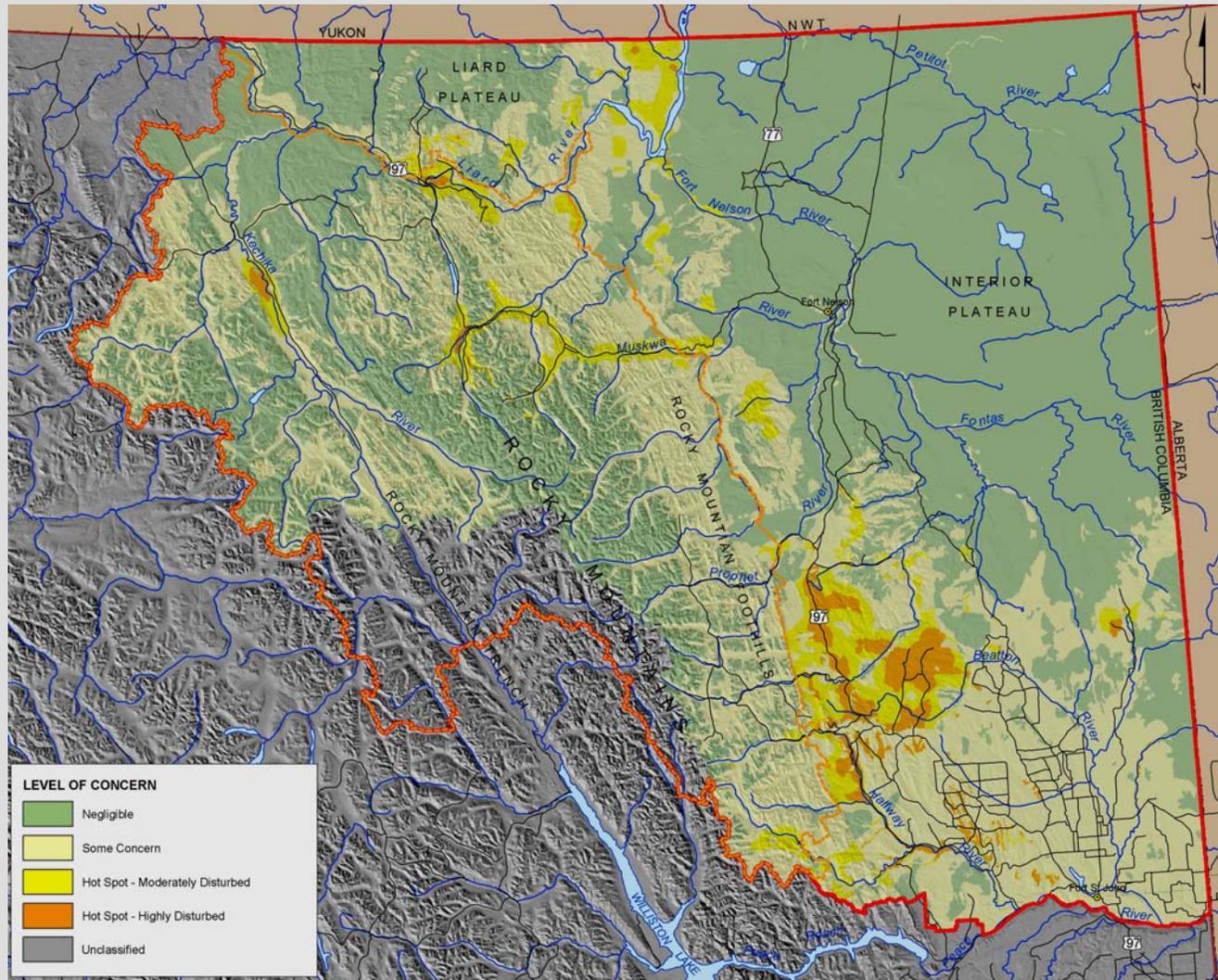
# SRMP baseline mapping (roads)





Case studies:  
frameworks

# SRMP hotspot mapping (Grizzly bear)





## Conclusions

# Conclusions

- **RLUPs are “...intended to be comprehensive guidelines for management decisions” (from YLUPC)**
- **Implementation of regional land use plans (RLUPs) should precede effective cumulative effects assessment and management (CEAM), after which they can continuously “feed each other” with information in an adaptive way**
- **Major strengths of most current RLUPs in addressing CEAM include providing:**
  - geographic areas for management focus
  - information within those areas to help address cumulative effects
- **Major weaknesses of most current RLUPs in addressing CEAM include having:**
  - too vague land and resource management objectives
  - no quantitative thresholds



## Conclusions

# Conclusions (cont'd)

- **RLUPs may not yet provide useful thresholds, but they do provide information to assist their development**
- **Thresholds are a recognition that we can't always mitigate ourselves out of every problem**
- **Framework provides process redundancy; if one approach does not work or takes too long, there's always another option (e.g., not a single reliance on modeling)**
- **RLUPs provide a context for pre-planning of future development and therefore preparation for possible development (e.g., "line-up" now appropriate monitoring and management measures in proportion to anticipated change)**
- **Neither CEAM nor RLUP will alone solve the cumulative effects problem; both are needed to work together**



## Conclusions

# Conclusions (cont'd)

**RLUPs kick-start the management of cumulative effects by saying:**

- “Here’s an area on a map
- In this area there’s something important going on we want to keep
- This is what we can do to try to make that happen”



