## Ring of Fire Regional Assessment Working Group
## Timmins, 27 March 2025

Wolves and Moose of Isle Royale Project

# Scenarios for the Ring of Fire Regional Assessment

RAWG Scenario Development Workshop

Robert Gibson

# Scenarios in Regional Assessment Terms of Reference

- "Identify potential development scenarios in the assessment area, with attention to different development intensities (e.g. status quo, low, moderate, high) and timeframes, and analyze the development scenarios to understand the potential impacts" (section 6)
- apply the assessment priorities set out in section 7
- see also final report contents in annex 2


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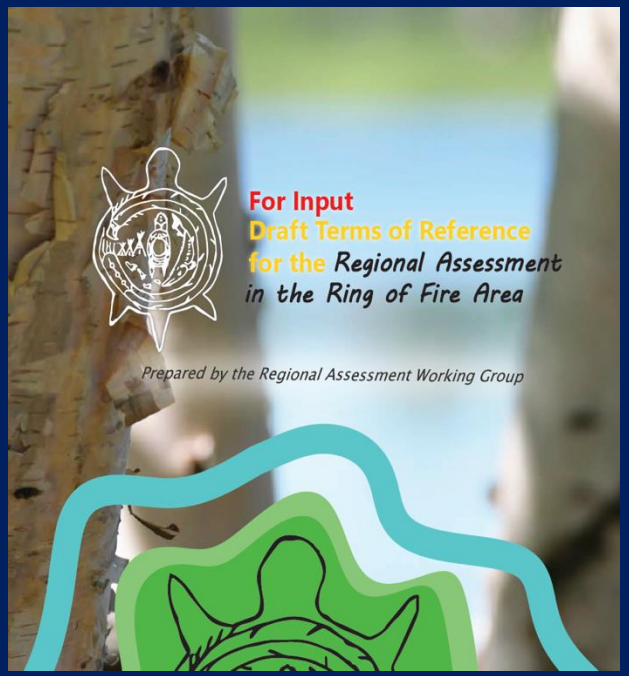
# Regional Assessment priorities for considering future scenarios (in final ToR)

section 7: assessment priorities for analysing scenarios, including

- To be well together (Community wellbeing)
- Cultural and spiritual wellbeing
- Social and Economic Equity
- Healthy Environment Relationships

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# Scenario purposes – depict possible futures and their potential effects

1. depict possible futures, including ones with or without

- mines, roads, power projects, related activities (more exploration, services, jobs, revenues, etc.)

2. anticipate their potential effects

- desirable futures to aim for
- undesirable futures to avoid
- uncertainties to respect
- dependencies or foundations for diverse new options
- positive or negative long-term legacies

Harry Papah

# Scenario purposes – depict possible futures and their potential effects

3. determine implications for

- benefits and risks for communities
- planning future projects
- protecting lands and waters
- future decision making
- needs for new
  - capacities
  - programs and services
  - cooperative decision making
  - governance and management arrangements
- needs for back-up options and diversification

Harry Papah

# Scenario purposes – evaluate the options

- clarify what's desirable and undesirable
- determine what matters most, especially for community wellbeing, now and for future generations
- consider implications for
- improving prospects for desirable futures
- preventing undesirable ones
- preparing for surprises (unexpected opportunities and problems)
- making decisions after the RA ends


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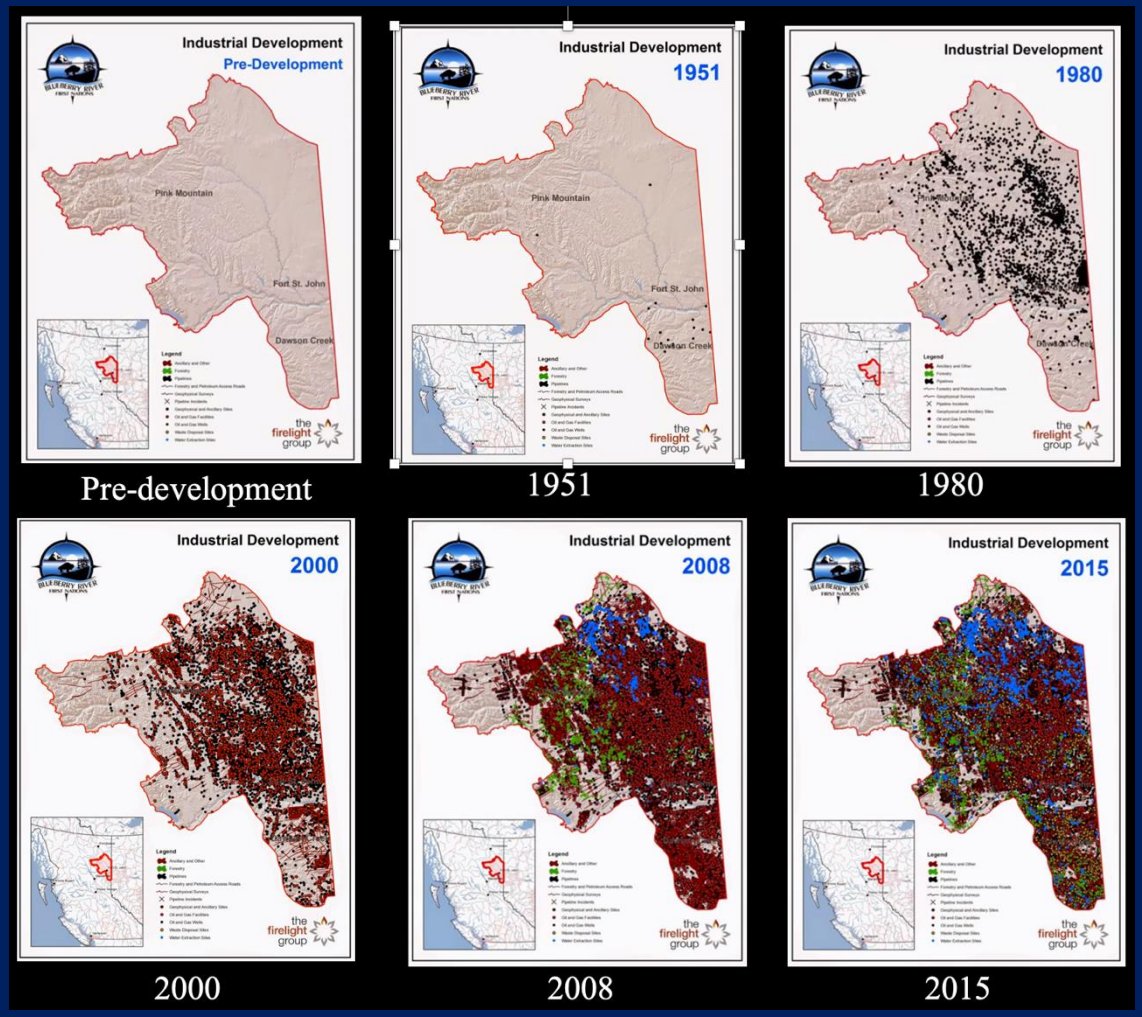
# Scenarios of past experience

Cumulative effects on Blueberry River First Nations' lands in British Columbia, 1900-2015

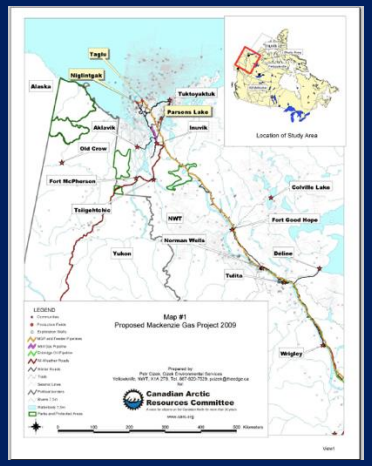


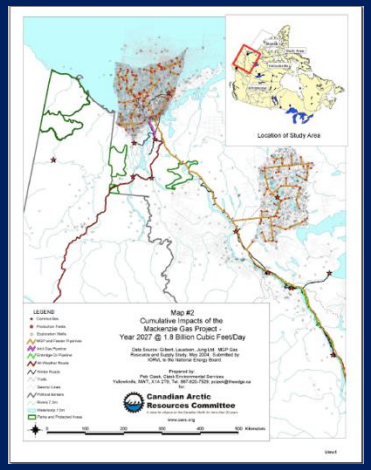

RAG

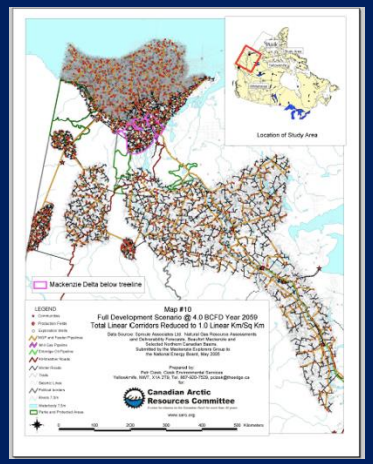
Firelight Group Creative Commons Attribution 4.0 International

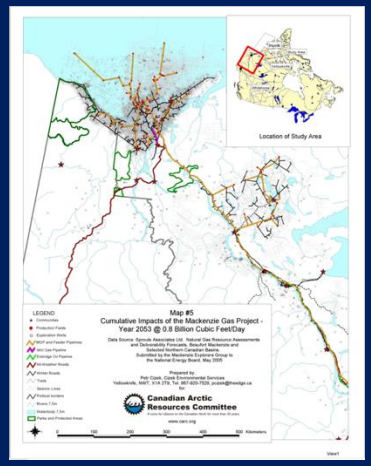
# Scenarios of future development footprints

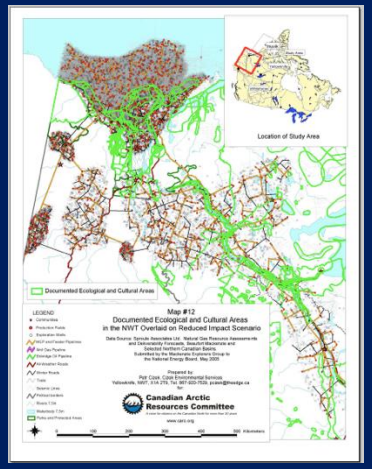
Petr Cizek's maps of different possible futures from natural gas extraction and pipelines in the Mackenzie Valley, NWT



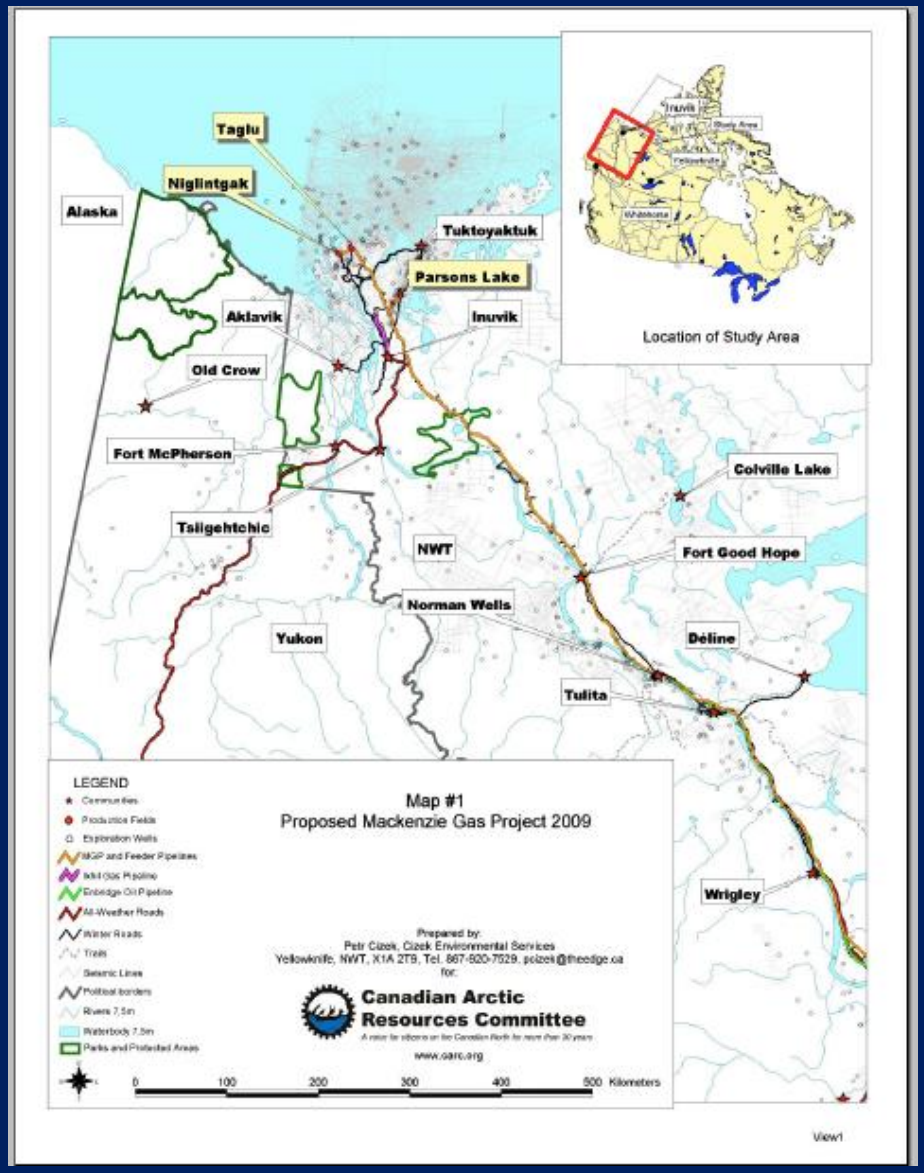




Canadian Arctic Resources Committee

# Mackenzie pipeline cumulative effects: the project as proposed

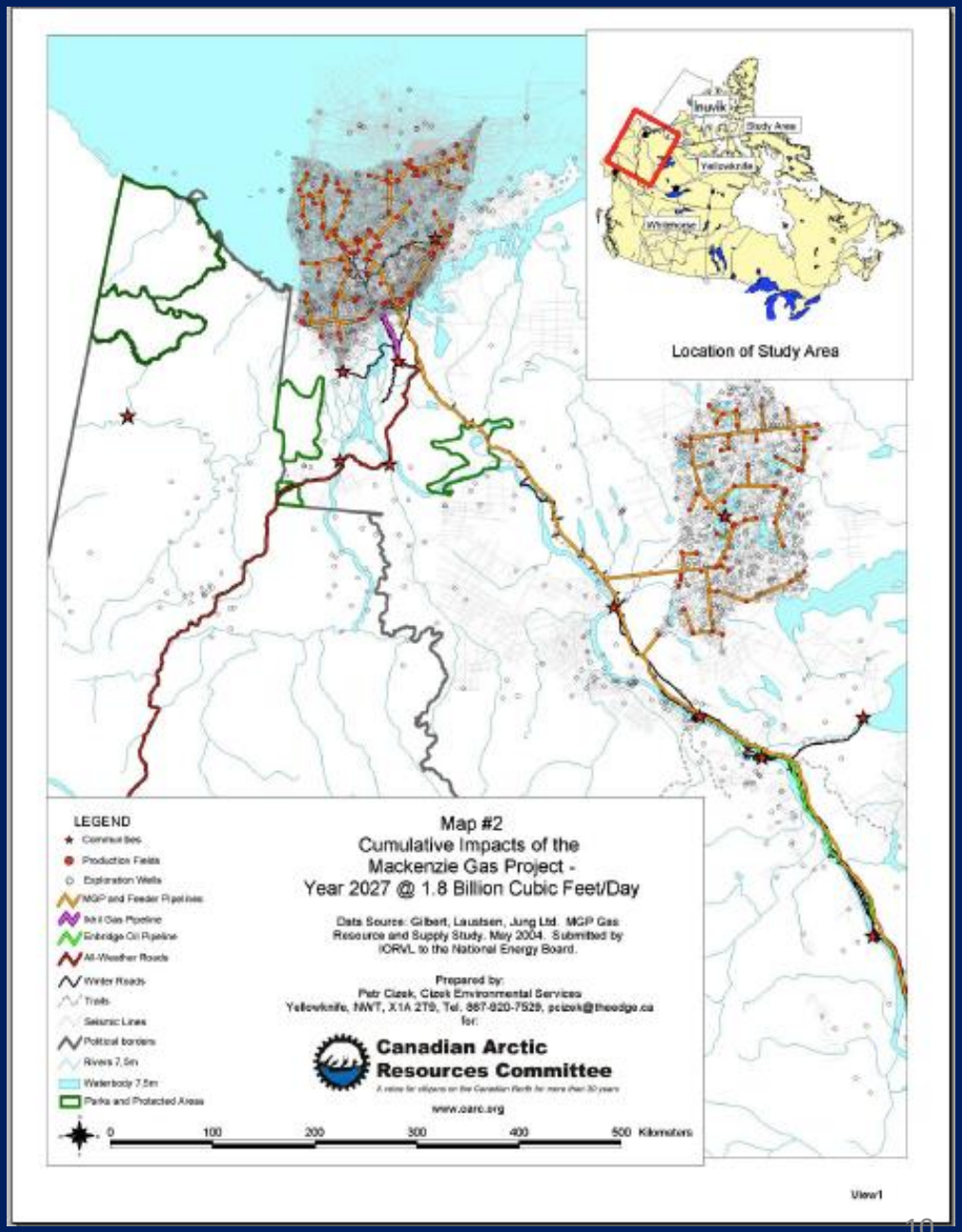
- initial extraction from three gas fields in the Mackenzie Delta region
- a 1000 km pipeline up the river to Alberta
- initial throughput 0.83 billion cubic feet per day, but pipeline designed for more




Footprint of project as proposed

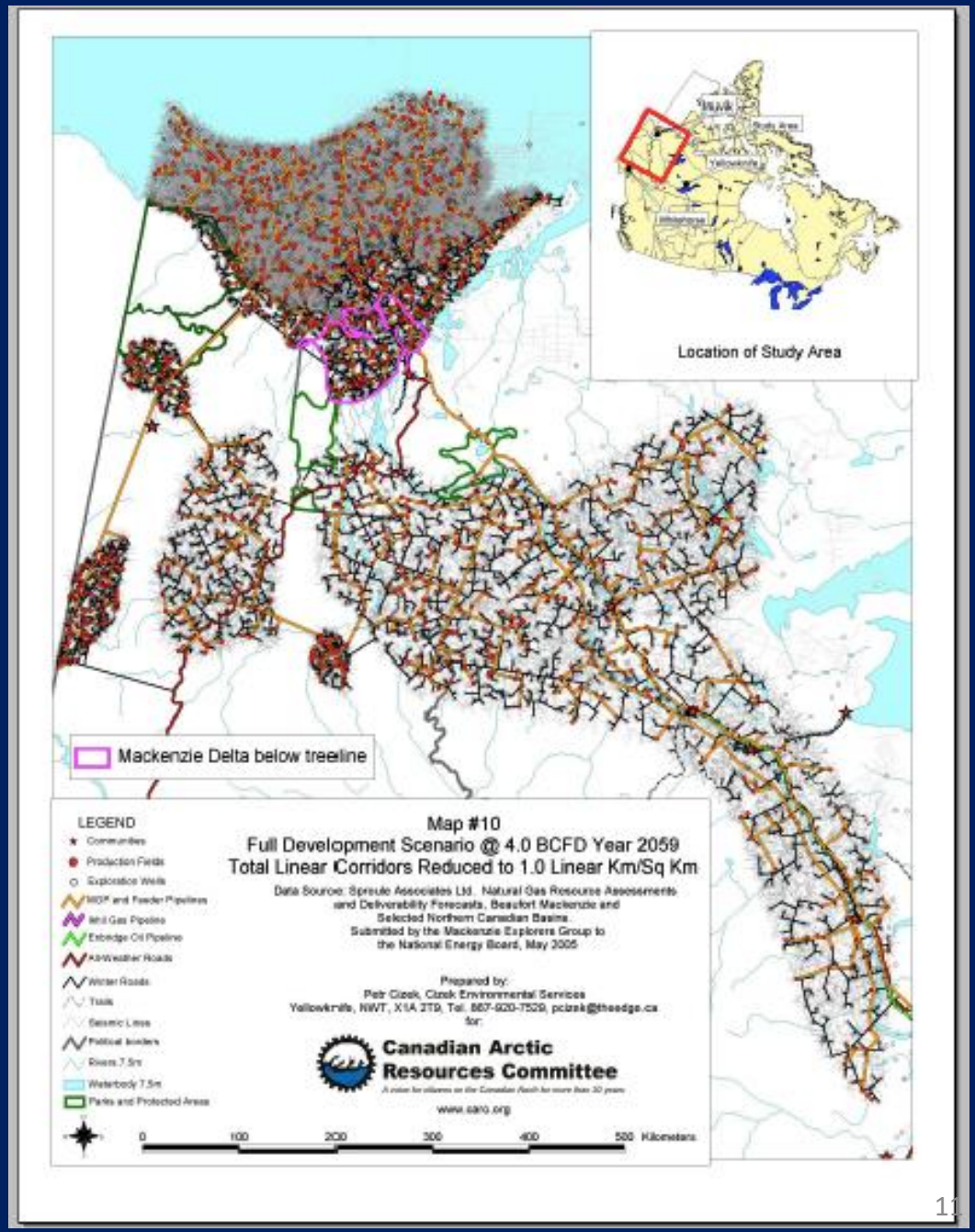
# The proposed project plus induced gas development to 2027

- pipeline capacity at 1.8 bcf/d
- does not include other infrastructure (roads, etc.)



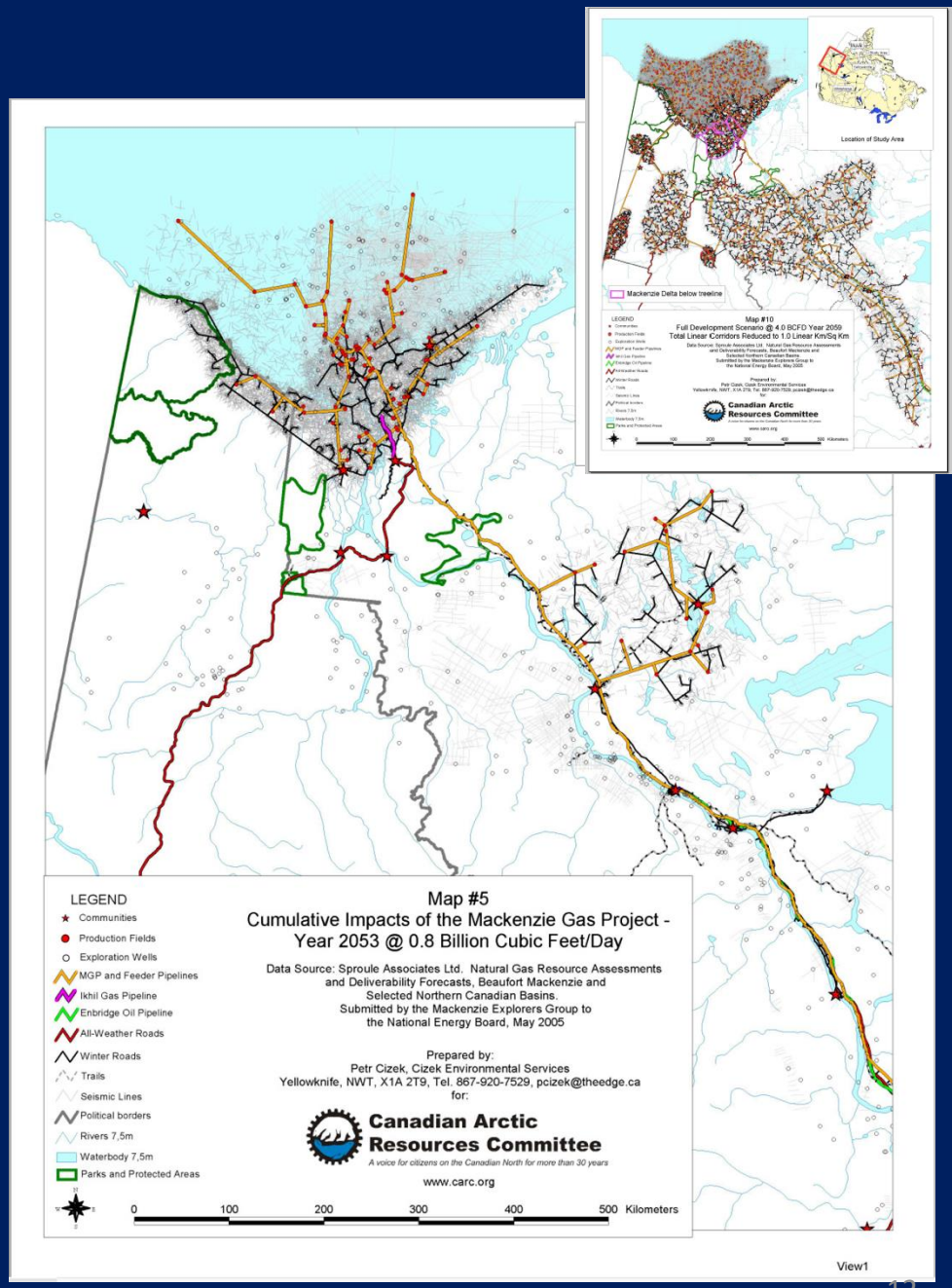
# Full build-out scenario to 2059 with 4.0 bcf/d capacity pipeline

- with conservative assumptions about the scale of seismic disturbances



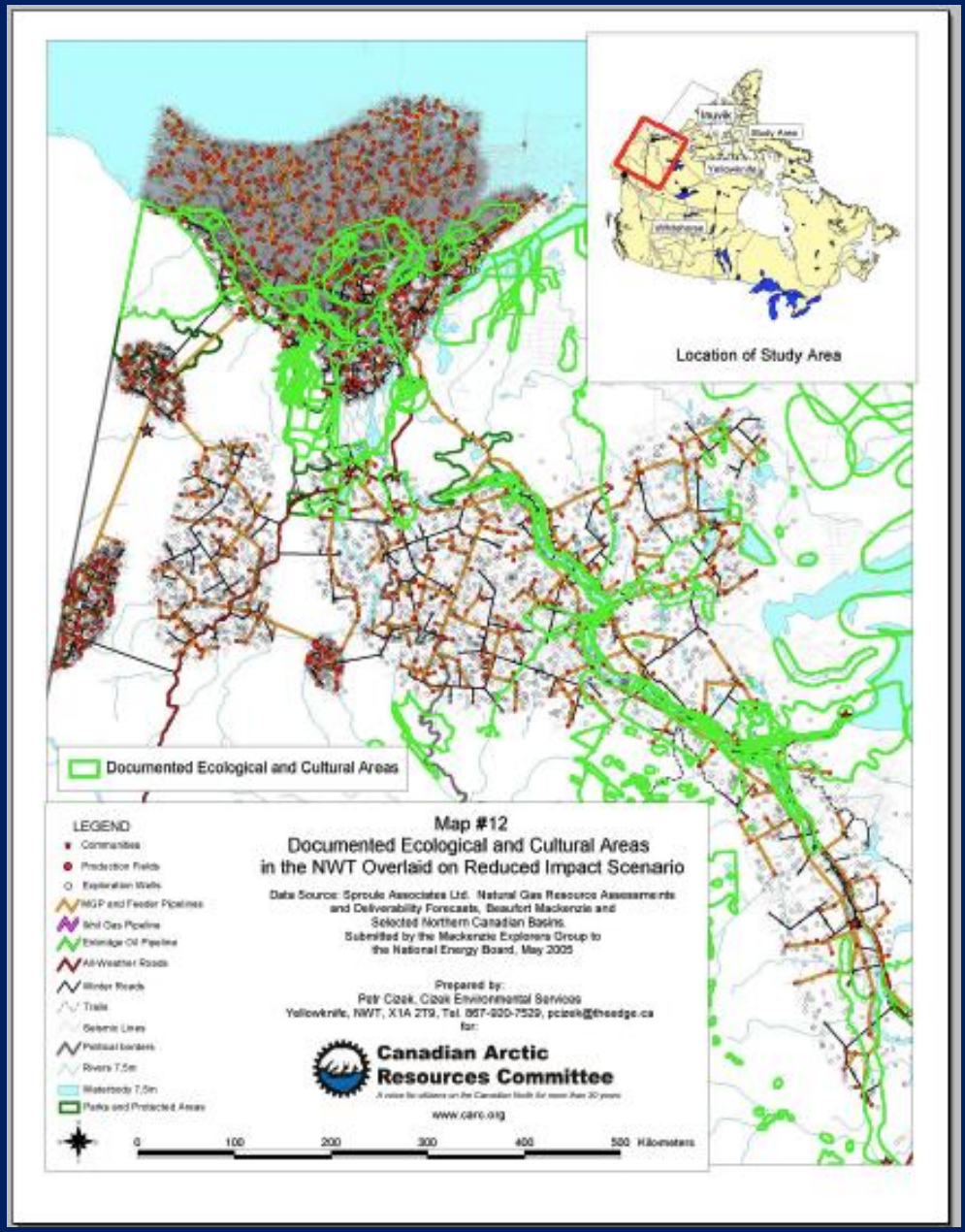
# The lower pace and scale scenario for 2053

- cumulative effects in 2053 of the project as proposed with throughput kept to 0.8 bcf/day



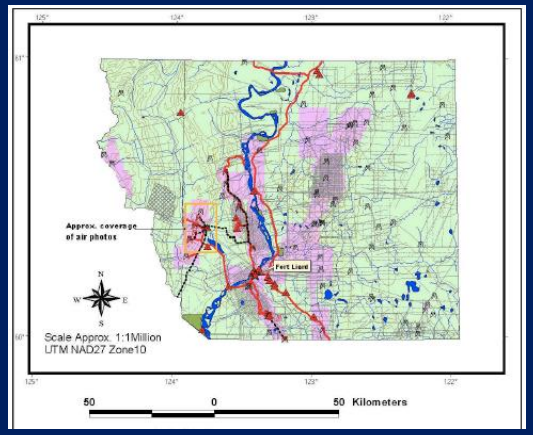
**Map of development footprint plus overlay of important ecological and cultural areas (Mackenzie high pace and scale scenario for 2059)**

- identifies areas of expected conflicts

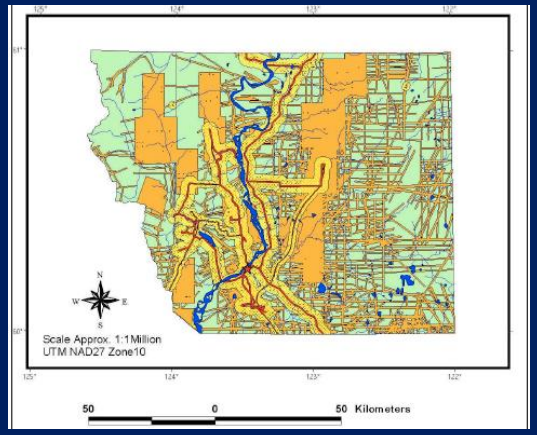


# Maps of development footprints plus associated disturbance of large mammals, birds, plants, food chains, etc.

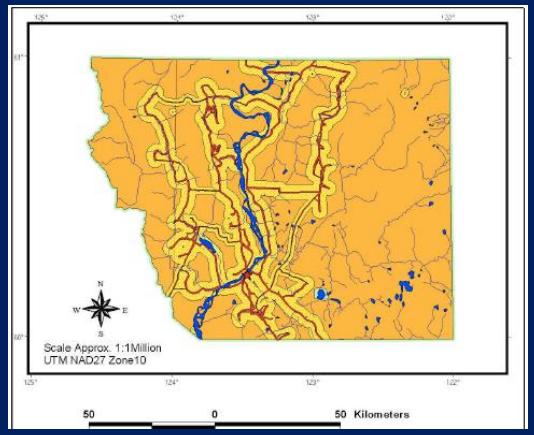
2001

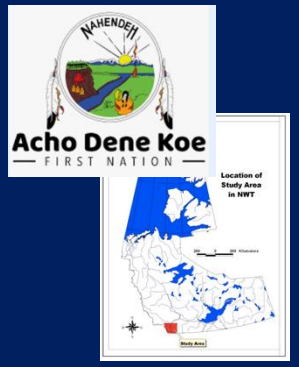



2010




2050

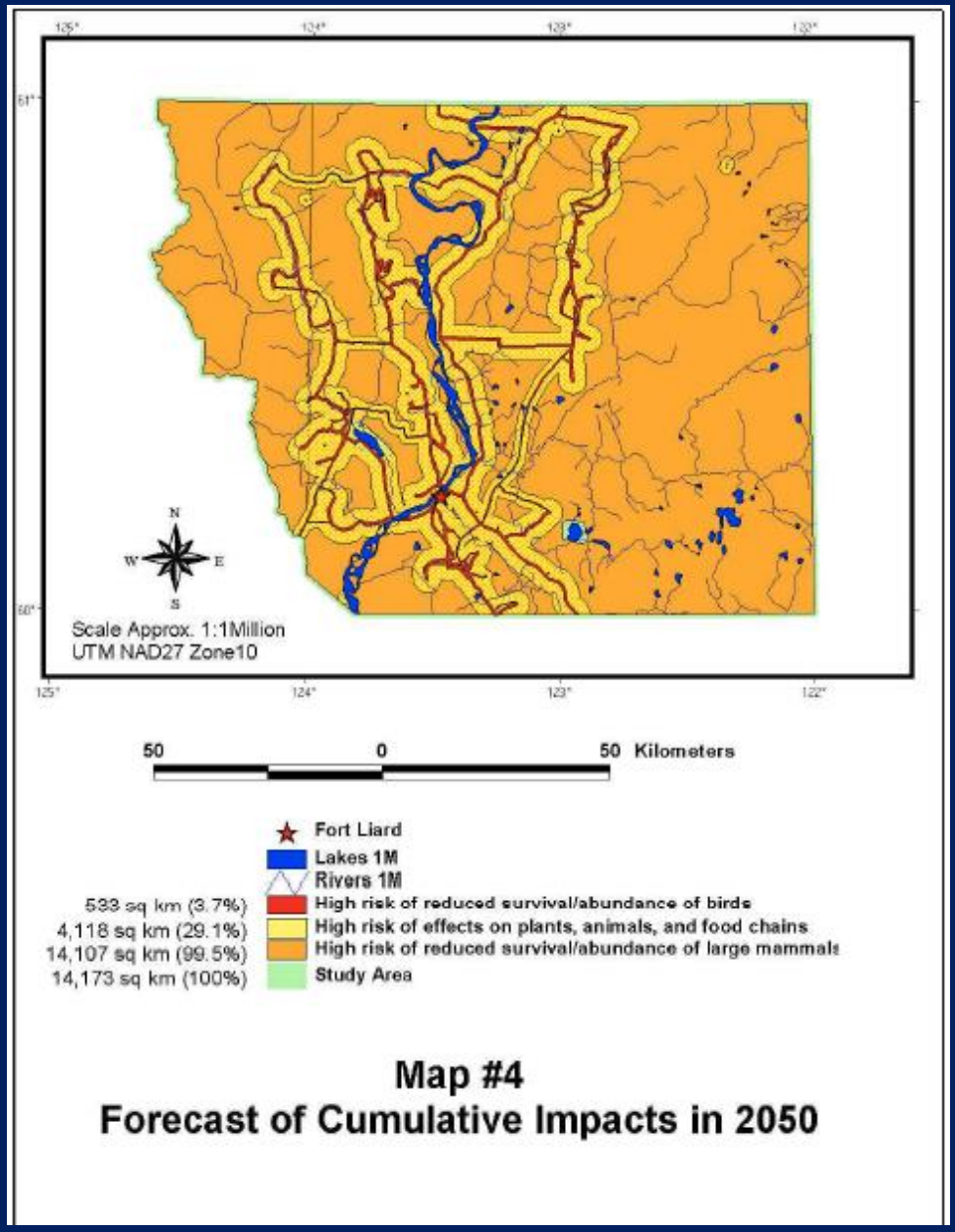




Petr Cizek, Fort Liard Oil/Gas Development, 2002

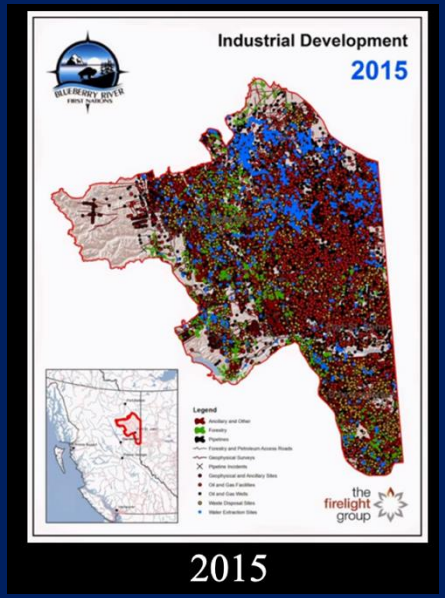
# Projection to 2050




Cizek, 2002

# What possible futures to depict?

- how far to look ahead?
- e.g., 15 years, 30 years, 60 years, 150 years?
- what levels of industrial development and related activities?
- e.g., none, only in specified areas, low and slow, moderate, unlimited?
- what other different assumptions?
- e.g., about possible major hydro power developments
- or about management and decision making, revenue sharing, resources and authority to protect lands and waters

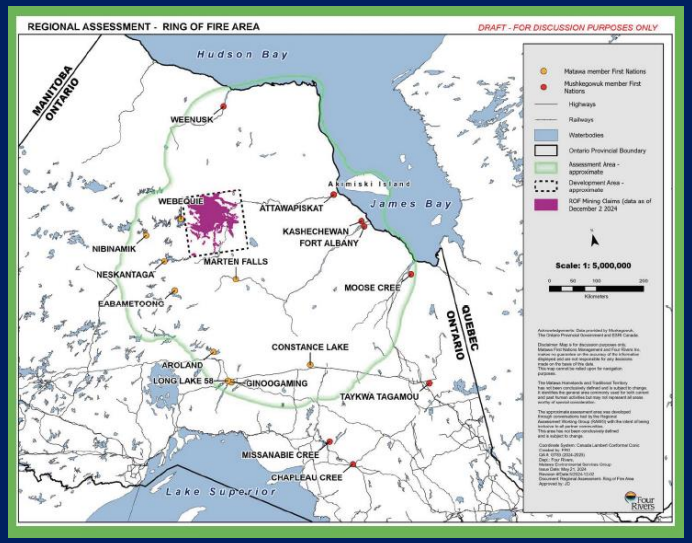




Ontario Mining Association
https://oma.on.ca/en/ontario-mining/social-responsibility.aspx

# How to evaluate the different possible futures?

- what do the communities want to have for the region in 15 years, 30 years, 60 years, 100 years?
- community-based wellbeing goals and indicators (e.g. EFN)
- regional wellbeing priorities (e.g., in the RA ToRs)
- examples from other places that evaluated extractive development futures




RAWG, Ring of Fire RA, Terms of Reference

# Regional Assessment priorities for considering future scenarios (in final ToR)

section 7: assessment priorities for analysing scenarios, including

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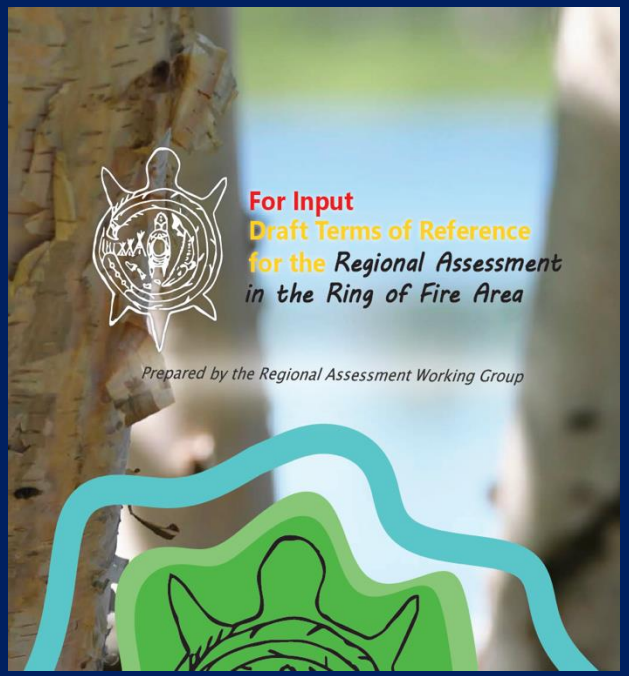


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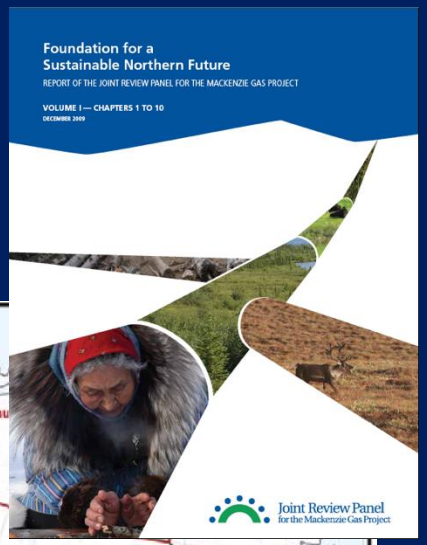
# How the Mackenzie Joint Review Panel evaluated the project and its possible futures





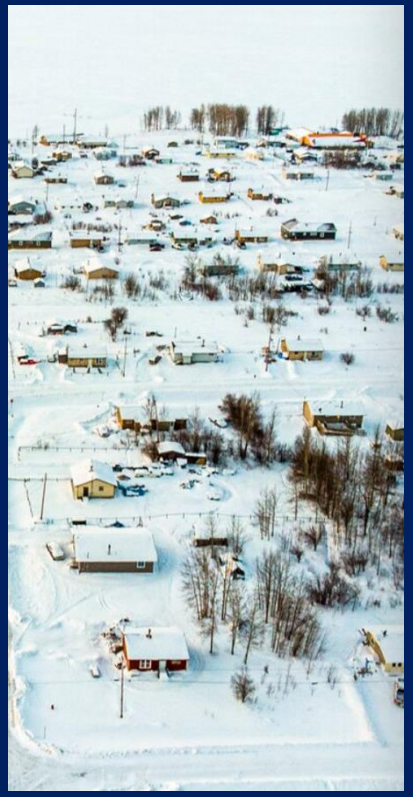
compared the different future scenarios in light of five big concerns

- cumulative biophysical effects
- cumulative socio-economic effects
- equity effects
- legacy and bridging (long term effects)
- preparedness to manage the cumulative effects

(each of these five core criteria was accompanied by attention to more specific issues and indicators)

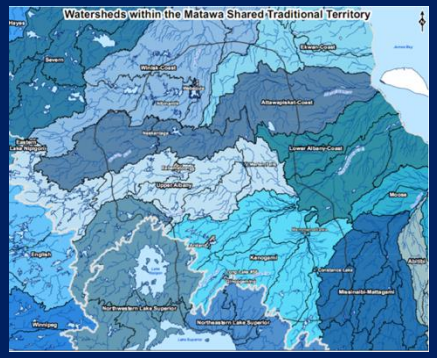
# Beyond footprints, what else needs to be depicted in scenarios – in maps and other material?

- community and regional priorities for lasting community wellbeing
- potential disturbance of the lands/waters and land/water-based activities (e.g., hunting and fishing)
- employment and business opportunities for the communities, and potential revenue flows
- potential stresses on community services and other infrastructure
- potential governance issues and needs
- implications for long term management and maintenance
- opportunities and needed for more lasting livelihood/economic foundations

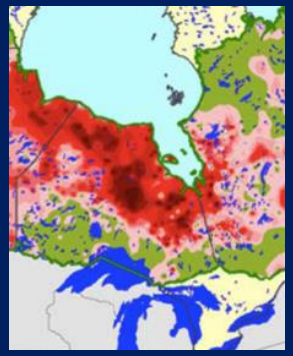


Eabametoong, G&M 2020

# What else needs to be considered in scenarios – in maps and beyond maps



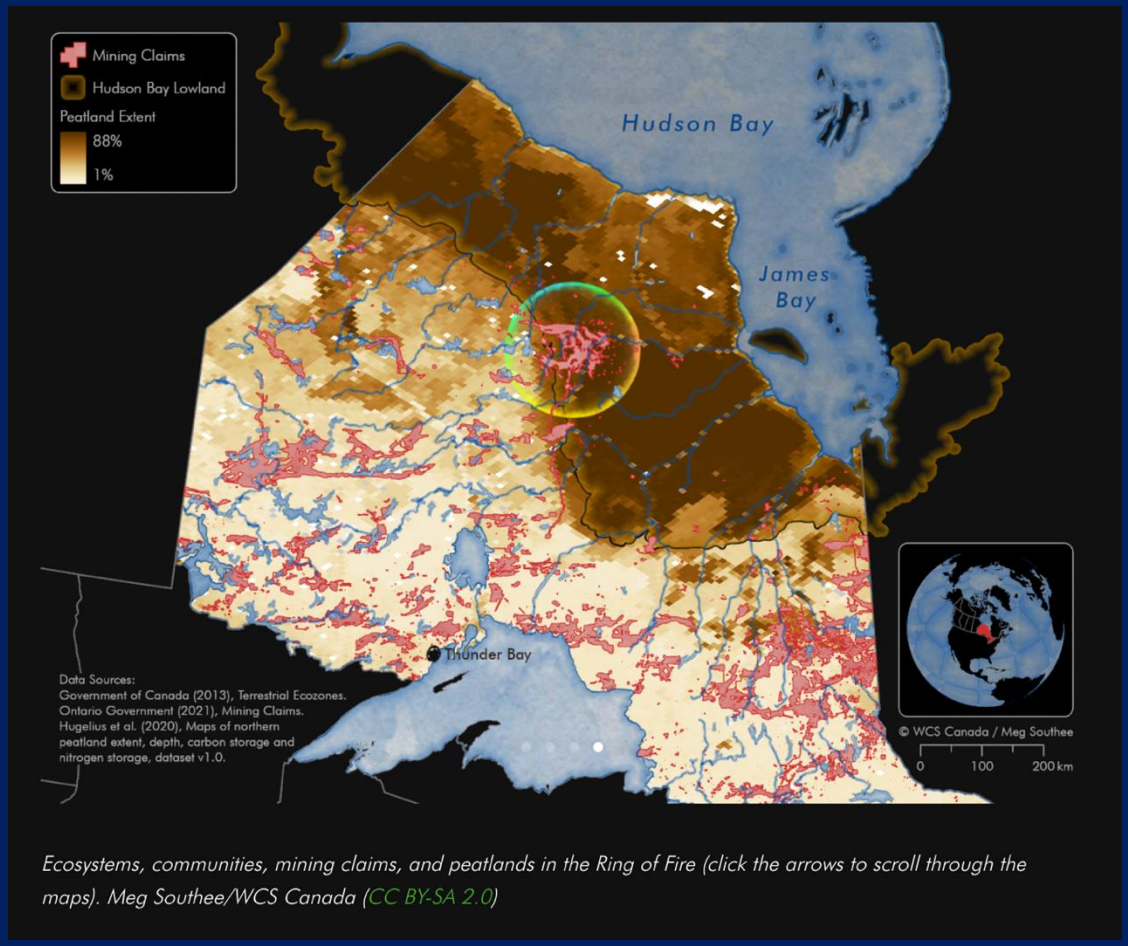

watersheds



peatlands

- important considerations that may already be available on some maps
  - identified potential mine sites, road links and transmission lines
  - mine claims, mineral exploration permit areas (past and anticipated)
  - communities' traditional use lands, key harvesting and cultural or otherwise sensitive/protected areas
  - potentially affected watersheds and downstream communities
  - vulnerable areas of boreal forest and peatlands, habitat, etc.
  - larger transportation and transmission systems potentially linked to RoF
  - area of subsequent processing (e.g., smelting opportunities)
  - area of employment effects
  - area of revenue effects
  - areas especially vulnerable to worsening climate change effects

# What else needs to be considered in scenarios – in maps and beyond maps

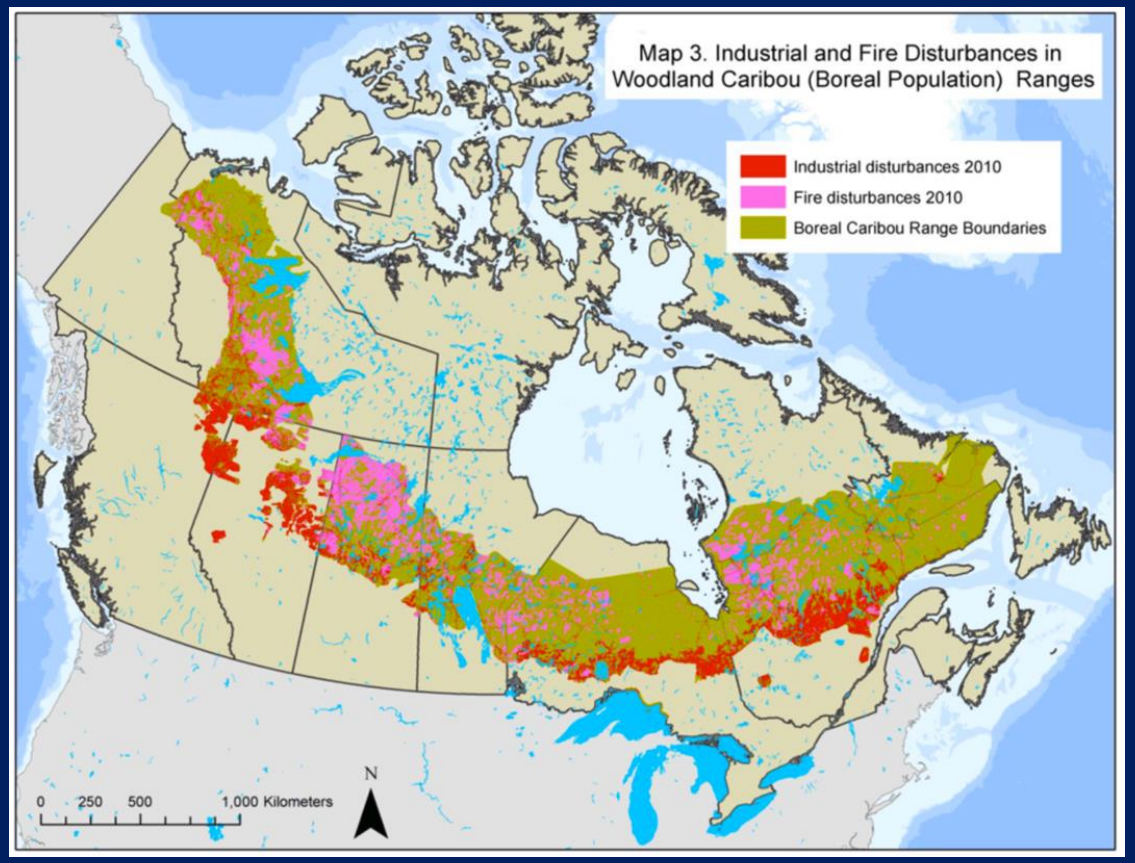



*Ecosystems, communities, mining claims, and peatlands in the Ring of Fire (click the arrows to scroll through the maps). Meg Southee/WCS Canada (CC BY-SA 2.0)*

peatlands and mining claims

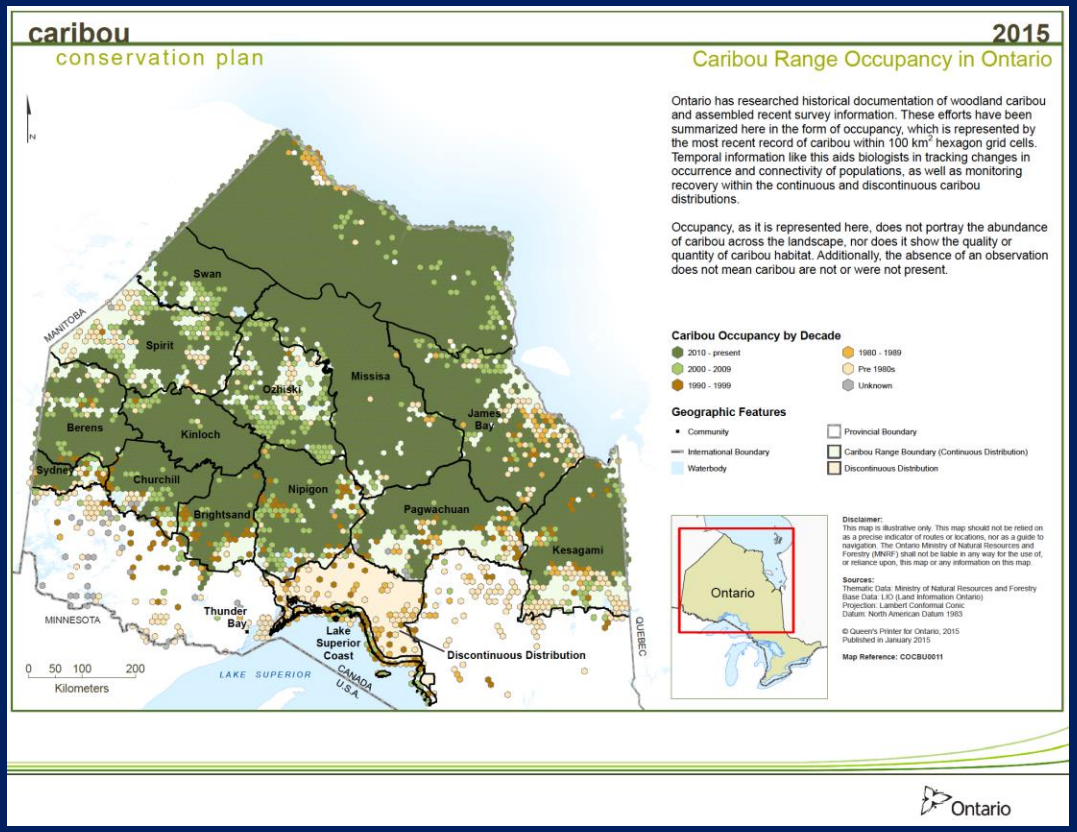
# What else needs to be considered in scenarios – in maps and beyond maps

thewolfintelligencer.com




caribou, climate change and fire

# What else needs to be considered in scenarios – in maps and beyond maps

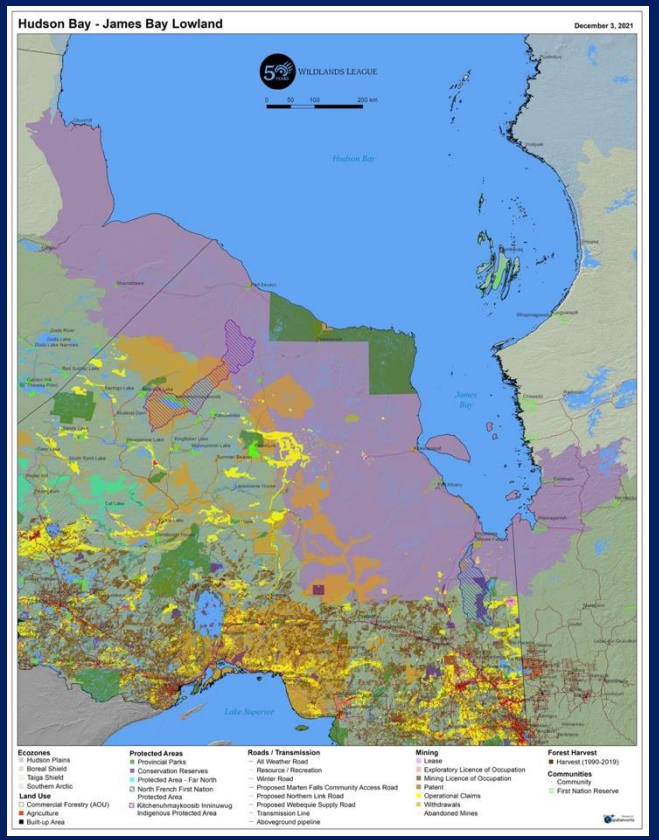



caribou conservation

# What else needs to be considered in scenarios – in maps and beyond maps

other contributions to cumulative effects in and beyond the immediate RoF area

- multiple past and current activities and land designations in the region including the ones on this map
- potential climate change effects and consequences
- effects induced indirectly by more activities beyond the RoF region



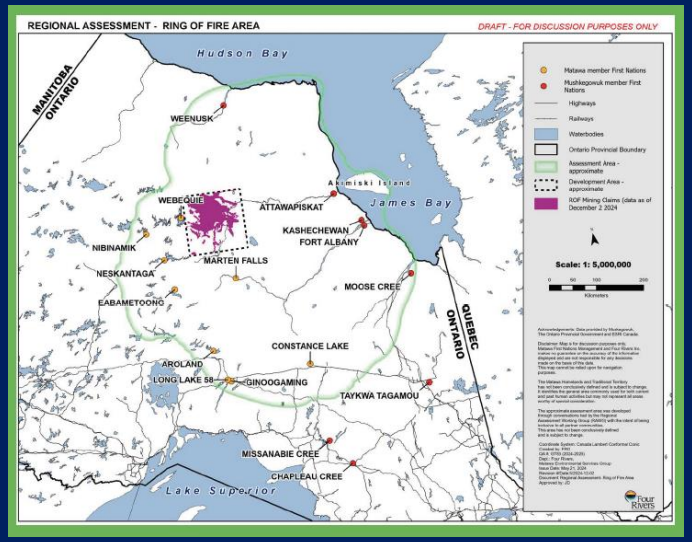

Wildliands League map of activities

# Cumulative effects scenario depictions for the Ring of Fire assessment area

depictions of different plausible development futures, for example:

scenarios of the region in 2050 with

1. no significant development change from today
2. community roads but little new exploration and no Ring of Fire mining
3. several RoF mines with associated infrastructure and further exploration spread over several decades
4. a major rush of further exploration, more roads and other infrastructure, and many mines




RAWG, Ring of Fire RA, Terms of Reference

5-8. scenarios 1-4 projected ahead 15, 30, 60 and 100 years to cover mining life and legacies

# Scenarios and the Ring of Fire Regional Assessment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1. community studies of needs and priorities for the future
2. regional cumulative effects: current knowledge, anticipated vulnerabilities and opportunities
3. future possibilities: regional development scenarios and associated cumulative effects
4. evaluation of development scenarios and associated options
5. determination of implications for managing cumulative effects and guiding development activities
6. guidance for individual project assessment and community decision making
7. maybe showing possible continuing structure for regional collaboration

# Attractions of non-renewable resource extraction projects

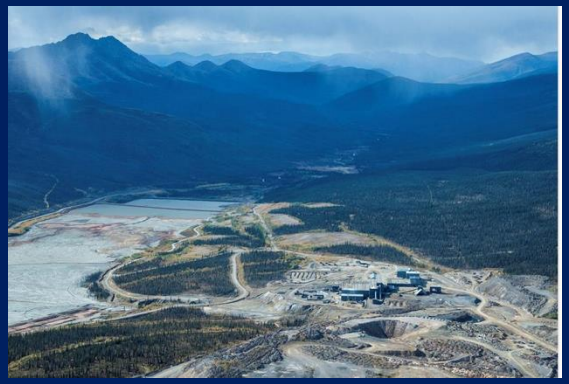
- can be big revenue sources
- many well-paying jobs during construction and operations
- valuable economic opportunities, especially in remote areas with few other livelihood options
- some extracted materials may be crucial at least in the short run for transitions to lasting wellbeing (e.g., lithium and cobalt for batteries and electronic devices)
- well-entrenched activities with many dependents

bauerfoundations.ca


Natural Resources Canada

# Concerns about non-renewable resource extraction projects

- uncertain and limited life expectancy – boom and bust
- resource depletion
- inequitable distribution of benefits – livelihood opportunities, revenues, risks and gains
- socio-economic dependencies – local and provincial/national
- un-funded clean-up costs
- negative post-project legacies – cumulative environmental and socio-cultural damage



Faro mine contaminated site, Yukon

bitumen extraction liabilities, Alberta
(photo: Sierra Club BC)

# Project-level issues of non-renewable resource extraction projects 1

Largely biophysical:

- land and wildlife disturbance, ecological fragmentation and degradation, effects on traditional food sources
- effects of process emissions and discharges, wastes/tailings, risks of contaminating receiving waters
- adequacy of end-of-mine-life site clean-up and restoration
- GHG emissions and damage to carbon sinks

www.valuethemarkets.com/education/metal-mining-and-the-environment

# Project-level issues of non-renewable resource extraction projects 2

Largely social/economic/cultural:

- job opportunities and potential for building transferable skills
- income and revenue flows
- dependencies, boom-bust effects
- effects on Indigenous rights, and on traditional cultures and languages
- implications for food security, health, equity and security
- dependencies, boom-bust effects
- overall short and long term community wellbeing.


Ontario Mining Association
https://oma.on.ca/en/ontario-mining/social-responsibility.aspx

# Adverse cumulative effects of extraction projects

- opening new areas to industrial extraction and associated infrastructure/activities
- multiple extraction and related projects in the same area (watershed, Indigenous lands, sensitive habitat, carbon sinks, vulnerable communities, …)
- multiple induced or facilitated development in region
- multiple boom/bust cycles
- growing legacy of orphaned and abandoned unrehabilitated sites and stressed communities


TVO. org

acid mine drainage

Tulsequah Chief mine 2016, Juneau Empire

# Regional and strategic issues raised by extraction projects

- climate change implications
- regional cumulative effects, pace and scale management and regional planning
- choice among system alternatives
- clean-up/rehabilitation rules, including bonding
- revenue sharing
- broad alternatives for energy (renewables and non-renewables and CDM), materials (new or reused/recycled or renewable substitutes)


David Parkins, G&M 2015

Ont Aggregates pits CBC