

What Works and What Doesn't Work in RSEA: Examples and Lessons Learned



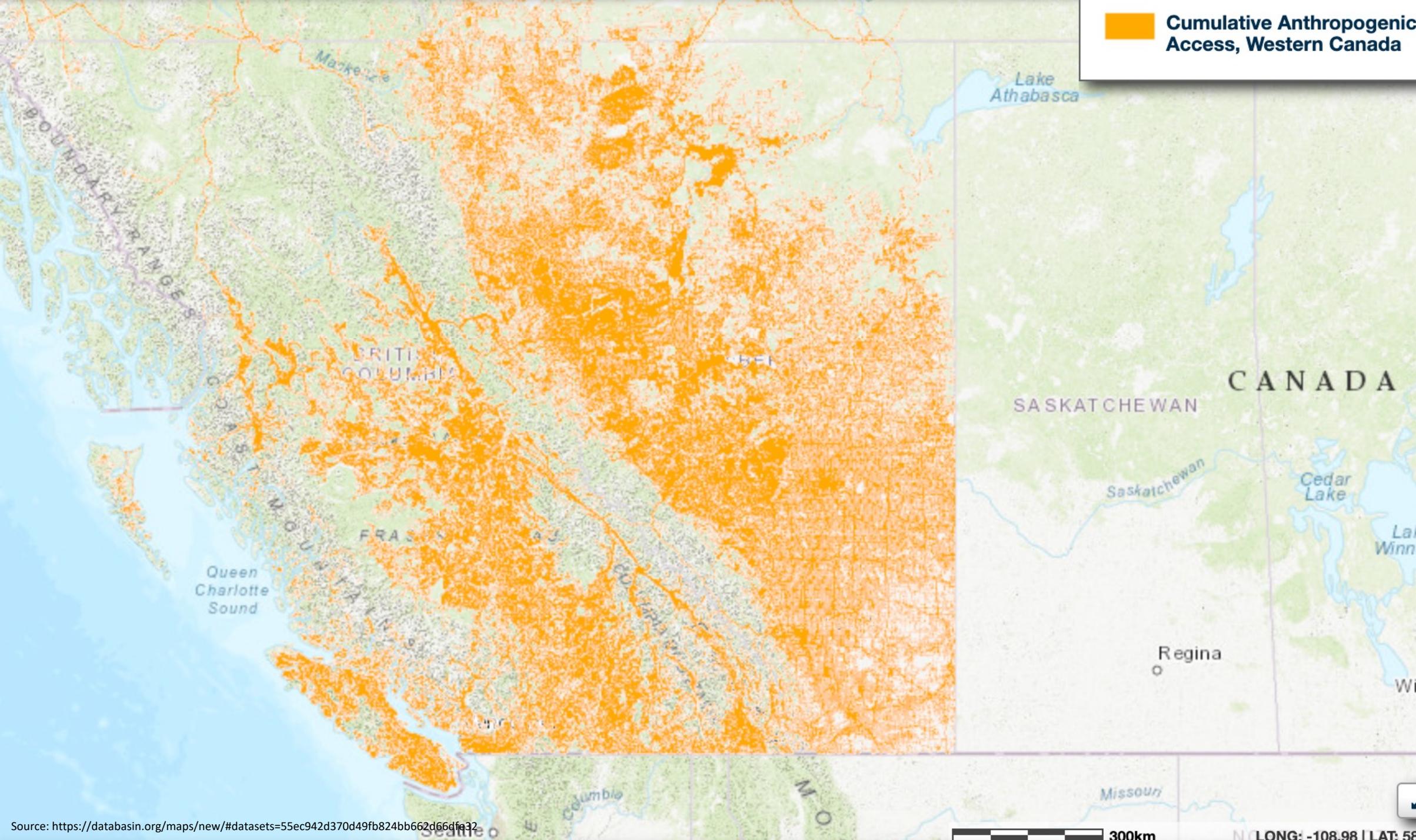
Jill Blakley and Bram Noble

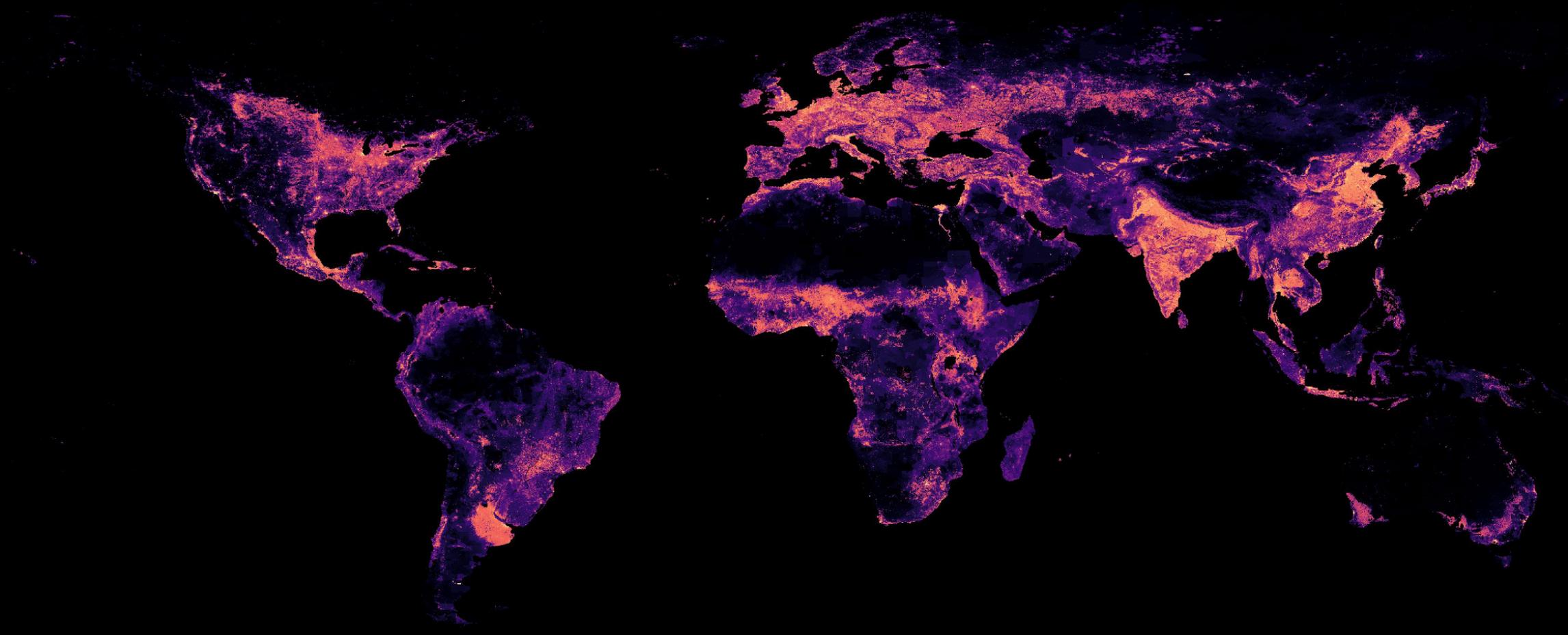
MVEIRB Workshop

June 22, 2022



 Cumulative Anthropogenic Access, Western Canada



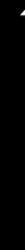


Global Human Modification on Terrestrial Systems

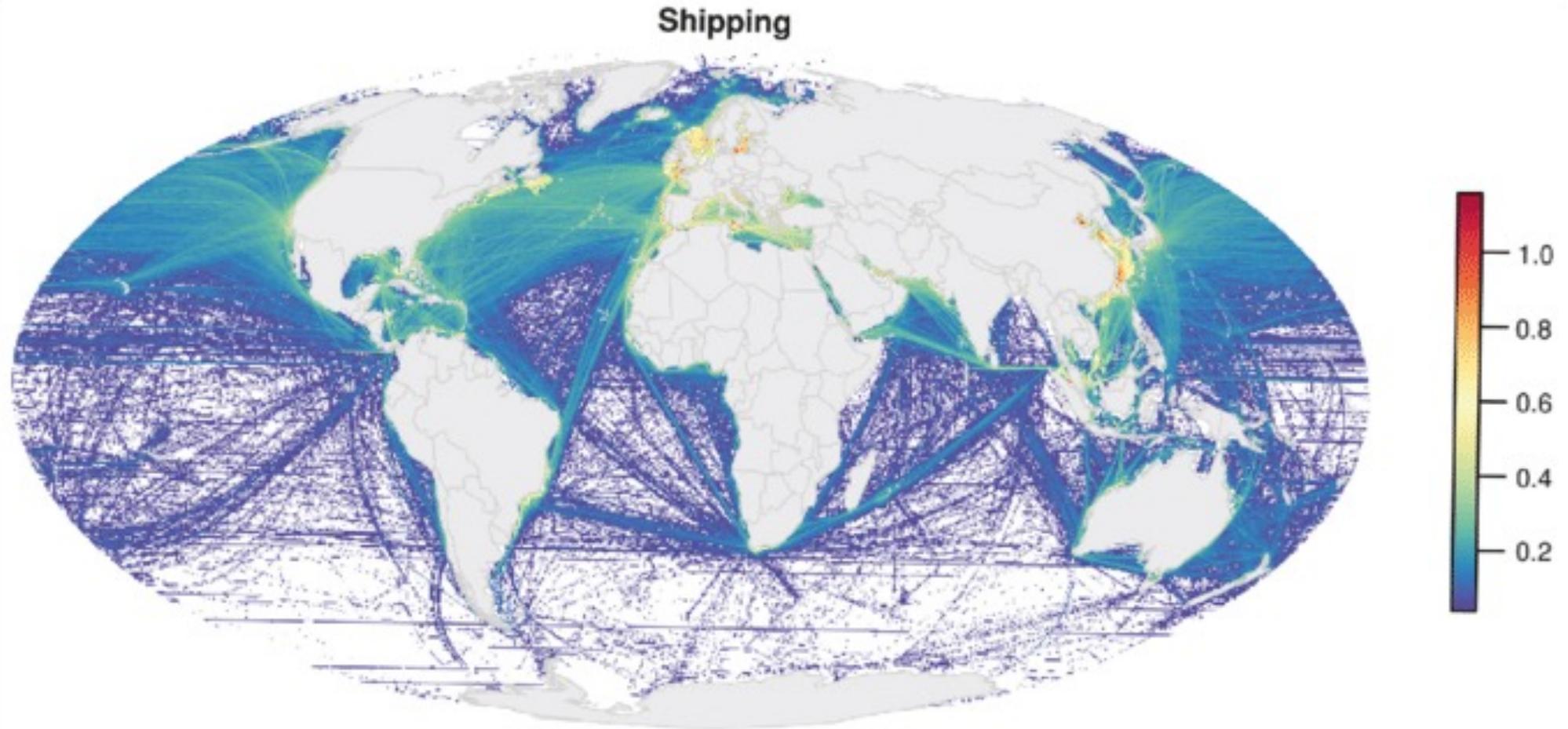
Derived at 1-km resolution from stressors relating to human settlement, agriculture, transportation, mining and energy production, and electrical infrastructure.

Data published by: Kennedy, C. M., J. R. Oakleaf, D. M. Theobald, S. Baruch-Mordo, and J. Kiesecker. 2020. *Global Human Modification of Terrestrial Systems*. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). <https://doi.org/10.7927/edbc-3z60>. Accessed 13-11-2020

Visualized by Hannah Ker



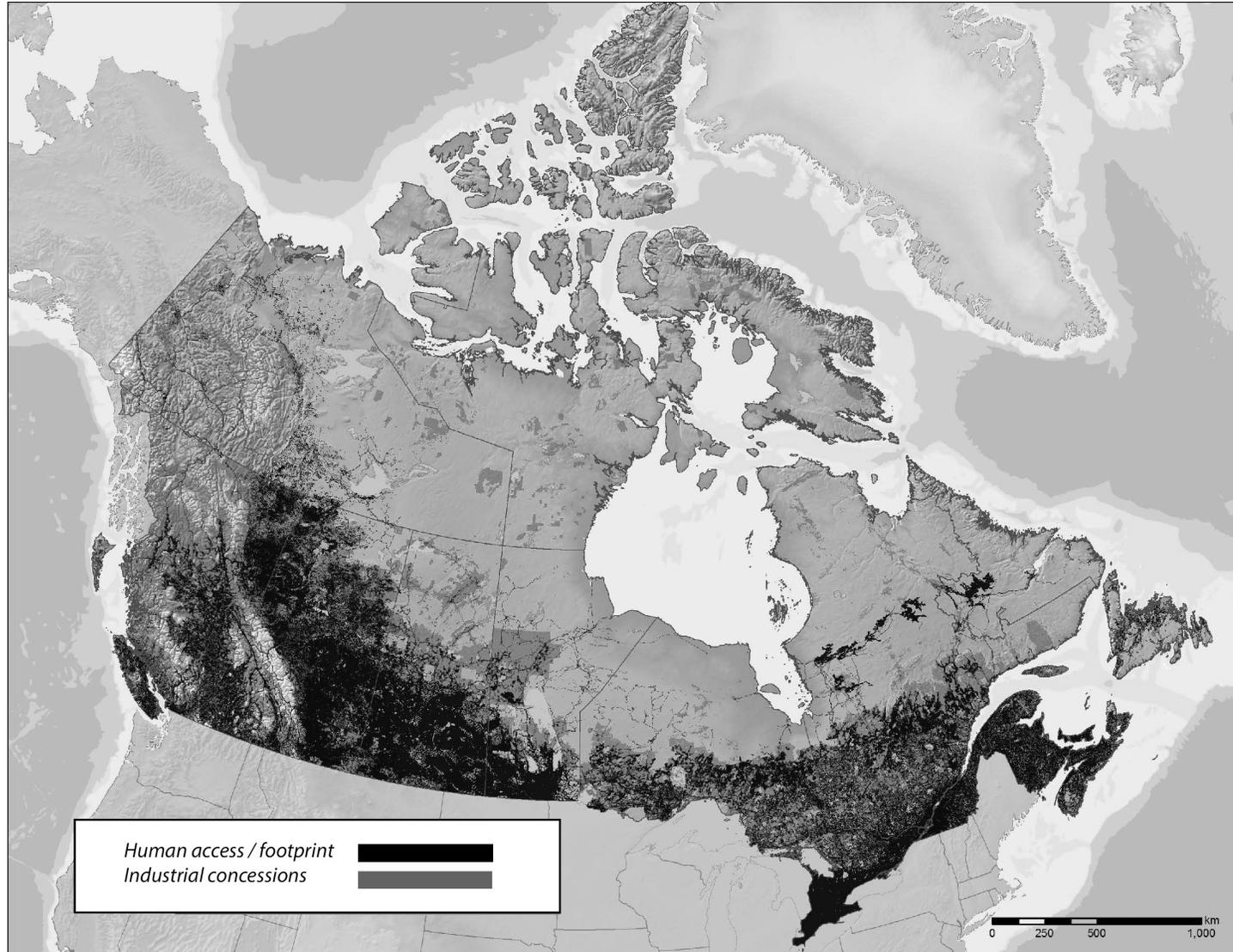
Higher proportion of
landscape modified



Visualizing marine roads.

Global shipping activity showing cumulative human impacts on the ocean from shipping. The color scale and numbers indicate changes in cumulative human impact from 2008 to 2013. Major shipping routes are visible, with the greatest degree of shipping activity and changes in cumulative impacts from shipping occurring predominately in the Northern Hemisphere. (Source: Halpern et al. 2015).

Human access: is a metric that estimates the combined land surface disturbance caused by industrial activities (e.g. pipelines, roads, mines, clear-cuts, agricultural clearings)



Source: Compiled using Data Basin, Conservation Biology Institute, based on data provided by Global Forest Watch Canada, current to 2017.

Regional Assessment Definitions

Example A:

Canada's federal impact assessment legislation, the *Impact Assessment Act* (2019), recently 'innovated' to include a provision for regional 'assessment'.

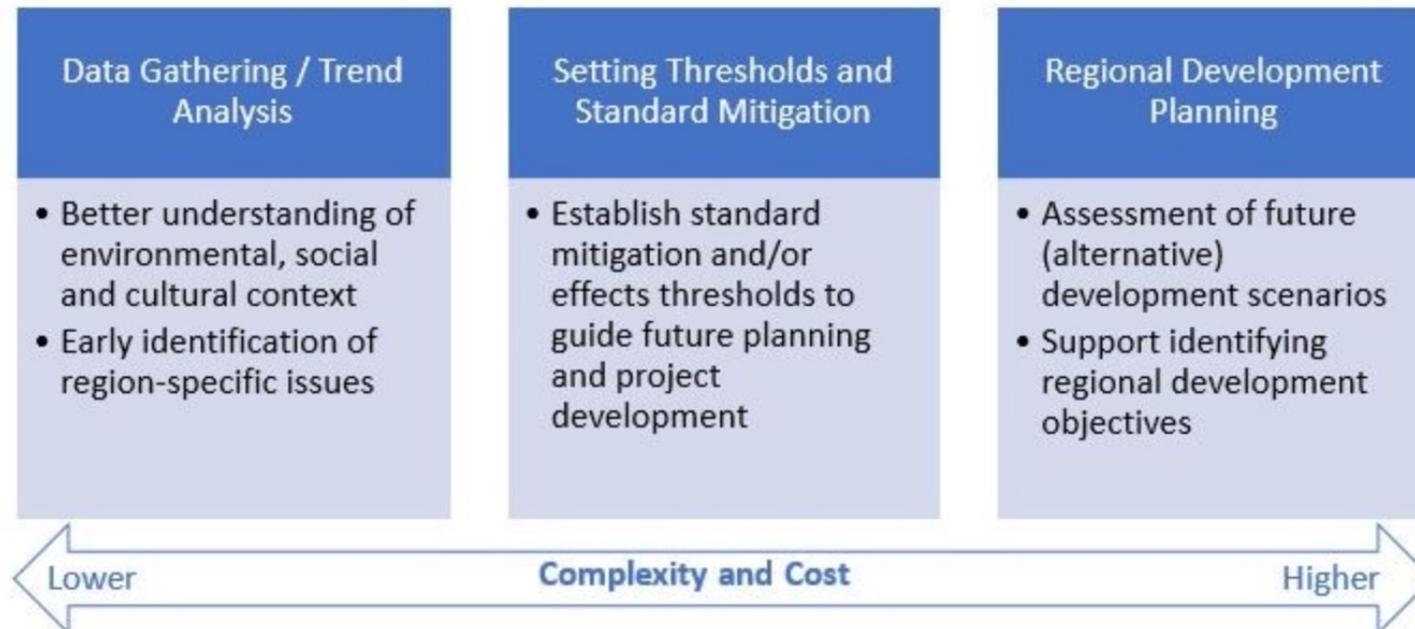
*Minister of Environment and Climate Change is enabled to: “authorize a committee or the Agency to **conduct a regional assessment** on federal lands, or **enter into a partnership to perform a regional assessment** that involves a region partly or entirely outside federal lands” – s. 92 & s. 93(1) The Minister will consult an Advisory Council to make decisions about which regional and strategic assessments will receive priority.*

Eg. Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador

Example B: *Canadian Council of Ministers of Environment, RSEA, 2008:*

‘a process designed to systematically assess the potential environmental effects, including cumulative effects, of alternative strategic initiatives, policies, plans, or programs for a particular region’ (p.6)

Example C: *Indigenous-led; industry-led and NGO-led RAs*

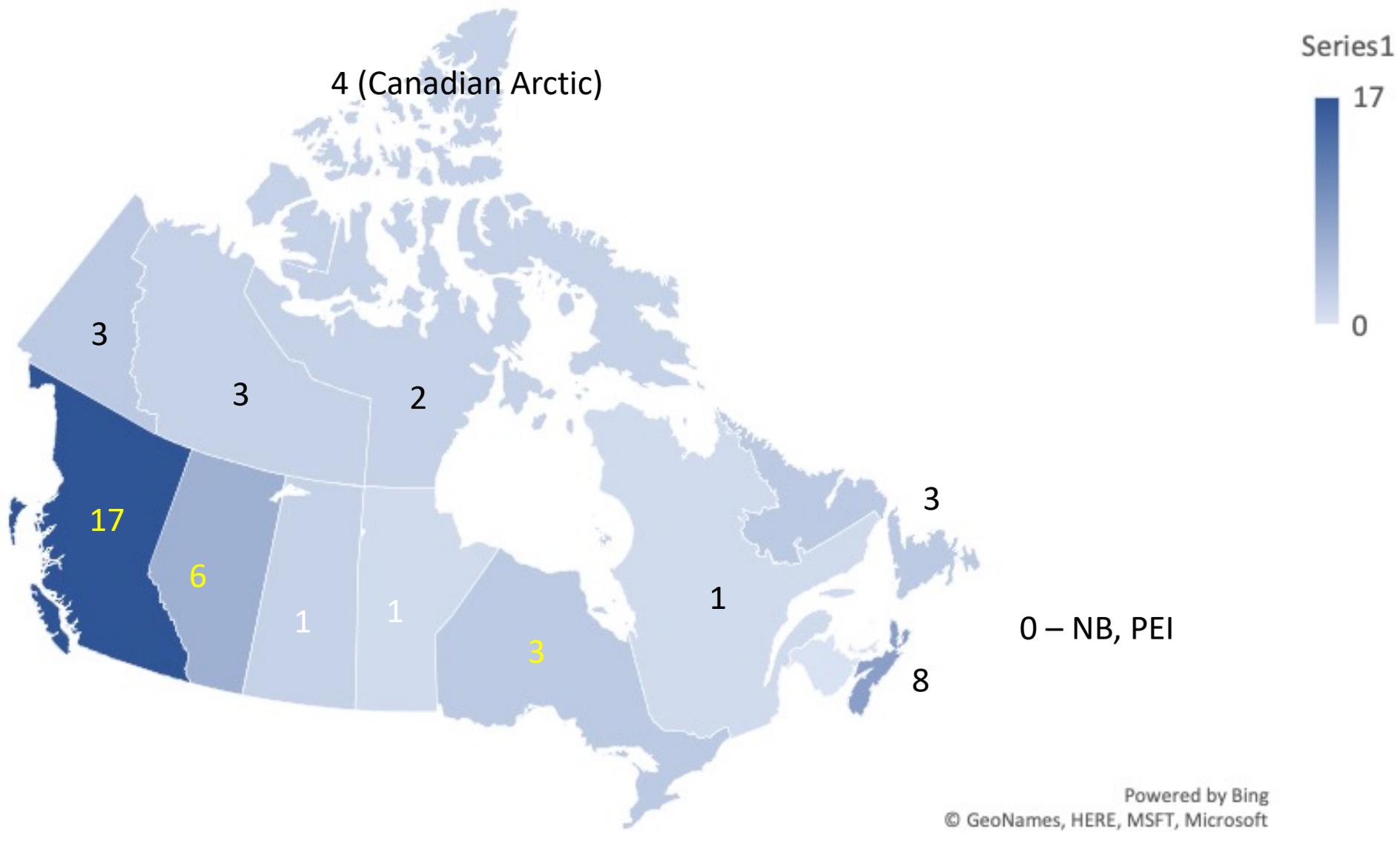


IAAC 2019

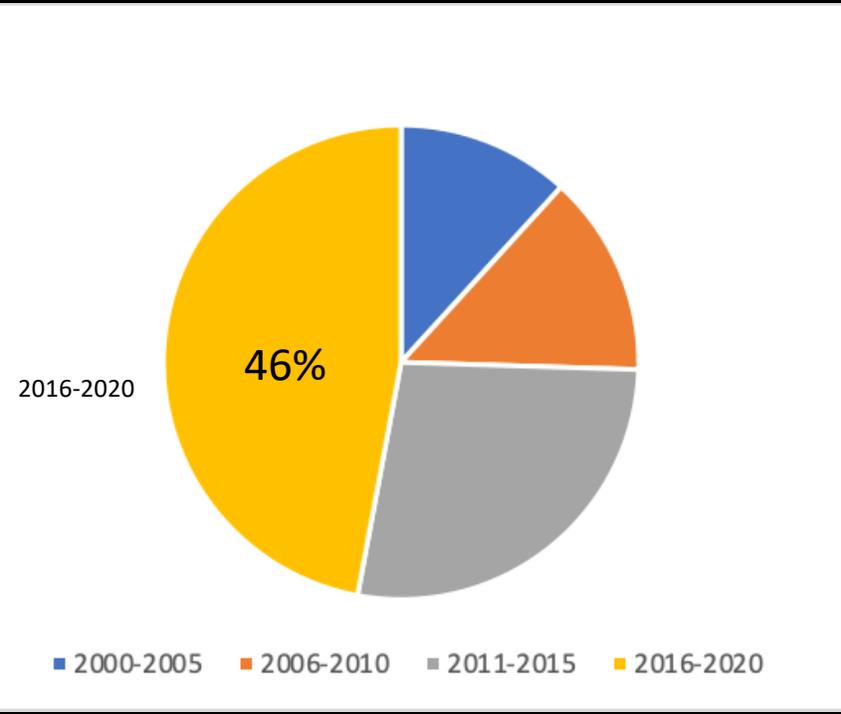
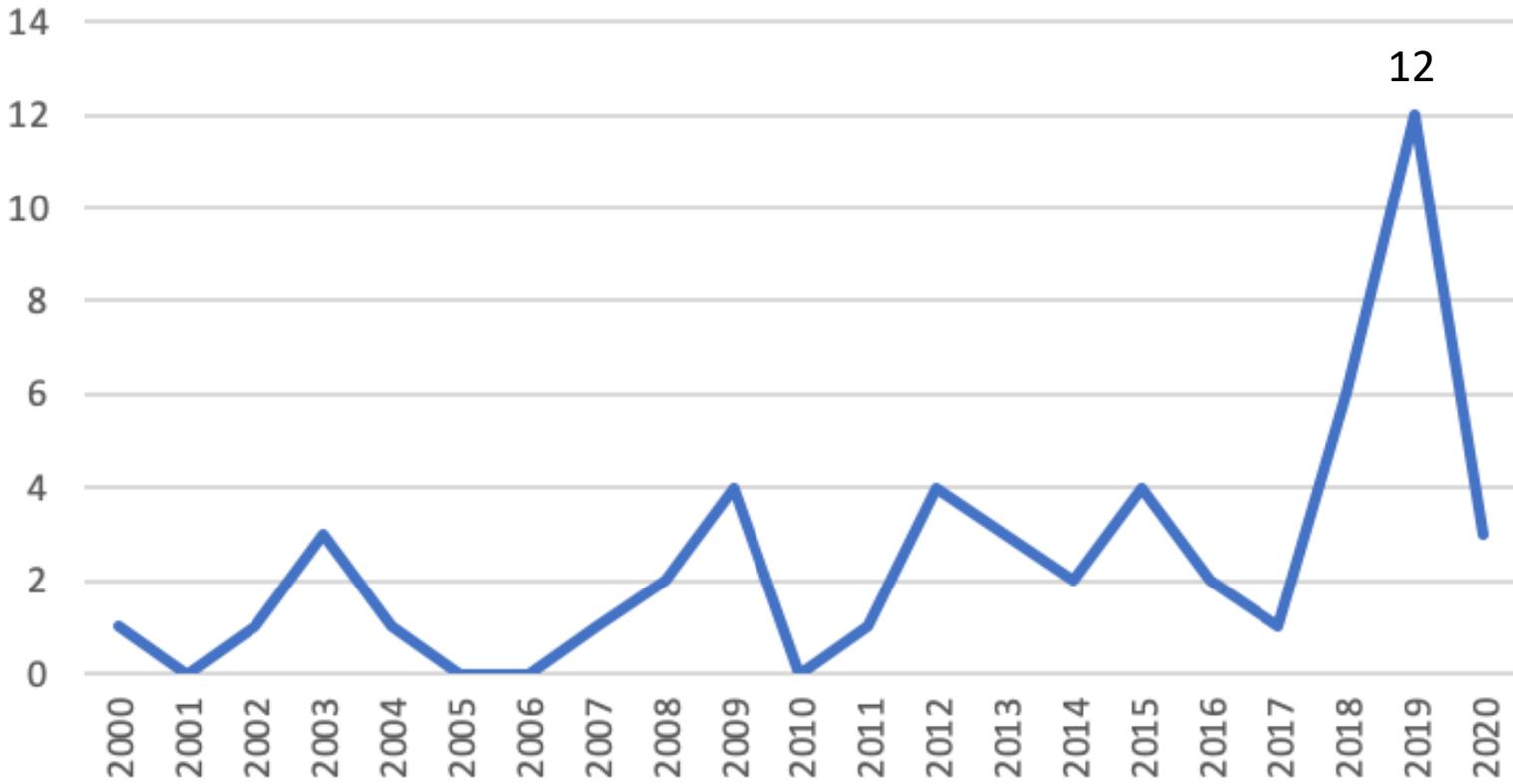
Canada has a rich history of regional assessment – at least 52 cases completed between 2000 and 2020

	PROFILE		
	Final Report Released	Strategic/Proactive?	Cumulative Effects Focused?
British Columbia			
Assessing Road Decommissioning in the Adams River Watershed and Kamloops Timber Supply Area	2020	Y	Y
An Assessment of the Cumulative Effects of Land Use and Management in the Adams River Watershed	2019	Y	Y
An Assessment of the Cumulative Effects of Land Use and Management in SSN	2016	N	Y
The Baynes Sound Coastal Plan for Shellfish Aquaculture	2002	N	N
A Broad Scale CIA Framework for the Cariboo-Chilcotin	2015	N	Y
Cortes Island Coastal Plan for Shellfish Aquaculture	2003	Y	N
Cumulative Effects Assessment for the Merritt Operational Trial	2015	N	Y
Current Condition Report for Grizzly Bear in the Northeast Region	2018	N	Y
Eight Peaks Winter Recreation Sustainable Resource Management	n.d.	Y	N
Elk Valley Cumulative Effects Assessment and Management	2018	Y	Y
Howe Sound Cumulative Effects Project	2018	N	Y
The Johnstone-Bute Coastal Plan	2004	Y	Y
The Kyuquot Sound Coastal Plan	2003	Y	Y
Metlakatla Cumulative Effects Management Program	2019	Y	Y
Robson Valley Enhanced Forest Management Pilot Plan	2003	Y	Y
Salmon Threat Index - Adams Lake Indian Band	2019	Y	Y
Trans Mountain Pipeline and Wildlife Habitat - North Thompson Watershed	2019	Y	Y
Alberta			
Chief Mountain Cumulative Effects Study	2011	Y	Y
Cumulative Effects Assessment of the North Saskatchewan River Watershed	2009	Y	Y
Lower Athabasca Regional Plan	2012	Y	Y
South Saskatchewan Regional Plan	2018	Y	Y
Terrestrial Ecosystem Management Framework for the RM of Wood Buffalo	2008	Y	Y
Wood Buffalo Strategic Environmental Assessment	2018	Y	Y
Saskatchewan			
The Great Sand Hills Regional Environmental Study	2007	Y	Y
Manitoba			
Manitoba Hydro Regional Cumulative Effects Assessment - Phase II Report	2014	N	Y
Ontario			
Greenbelt Plan	2017	Y	Y
Lake Simcoe Protection Plan	2009	N	Y
A Place to Grow: Growth Plan for the Greater Golden Horseshoe	2019	Y	Y
Quebec			
Gulf of St. Lawrence SEA - Offshore Oil and Gas Exploration and Development	2009	Y	Y

	PROFILE		
	Final Report Released	Strategic/Proactive?	Cumulative Effects Focused?
Nova Scotia			
Eastern Scotian Shelf and Slope - Middle and Sable Island Bank	2012	Y	Y
Eastern Scotian Slope (Eastern Portion) and Laurentian Fan (Western Portion)	2013	Y	Y
Eastern Scotian Slope Strategic Environmental Assessment	2012	Y	Y
Fundy Tidal Energy Strategic Environmental Assessment	2008	Y	Y
Middle Scotian Shelf and Slope Strategic Environmental Assessment	2019	Y	Y
Misaine and Banquereau Banks (draft report)	2013	Y	Y
Sydney Basin and Orpheus Graben Offshore Cape Breton	2016	Y	Y
Western Scotian Shelf	2014	Y	Y
Newfoundland and Labrador			
Regional Assessment of Offshore Oil and Gas Exploratory Drilling	2020	Y	Y
Strategic Environmental Assessment of Gros Morne National Park Management Plan	2019	Y	Y
Strategic Environmental Assessment of Terra Nova National Park Management Plan	2019	Y	Y
Northwest Territories			
Cumulative Effects Assessment, Monitoring and Management Framework	2015	Y	Y
Thcho WeneK'e Land Use Plan	2013	Y	Y
Northwest Territories Cumulative Impact Monitoring Program 2016-2020 Action Plan	2015	N	Y
Nunavat			
Keewatin Regional Land Use Plan	2000	Y	N
Strategic Environmental Assessment in Baffin Bay and Davis Strait	2019	Y	Y
Yukon Territory			
Beaufort Regional Environmental Assessment	2020	N	Y
North Yukon Regional Land Use Plan	2009	Y	Y
Peel Watershed Regional Land Use Plan	2019	Y	Y
Canadian Arctic			
IRIS 1 An Integrated Regional Impact Study of Climate Change and Modernization in the Western and Central Arctic	2015	N	Y
IRIS 2 An Integrated Regional Impact Study of Climate Change and Modernization in the Eastern Arctic	2018	N	Y
IRIS 3 An Integrated Regional Impact Study of Climate Change and Modernization in Hudson's Bay	2019	N	Y
IRIS 4 An Integrated Regional Impact Study of Climate Change and Modernization in the Eastern Sub-Arctic	2012	N	Y

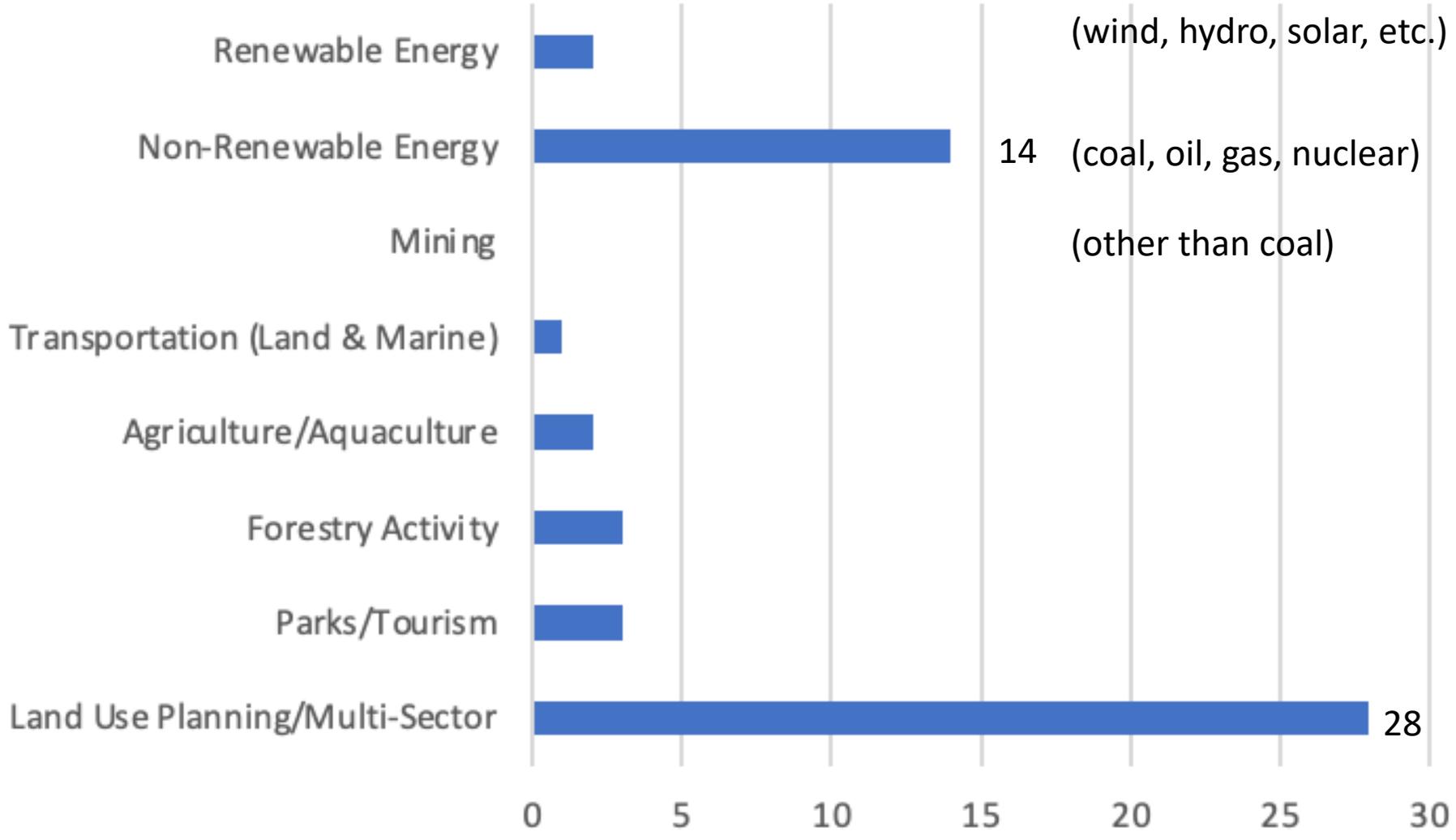


RA initiatives in Canada are concentrated in the west and the north (56% of sample)



There is recent sharp rise in RA activity in Canada.

Almost half the reports were produced between 2016 and 2020. In 2019 alone, 12 final reports were tabled.

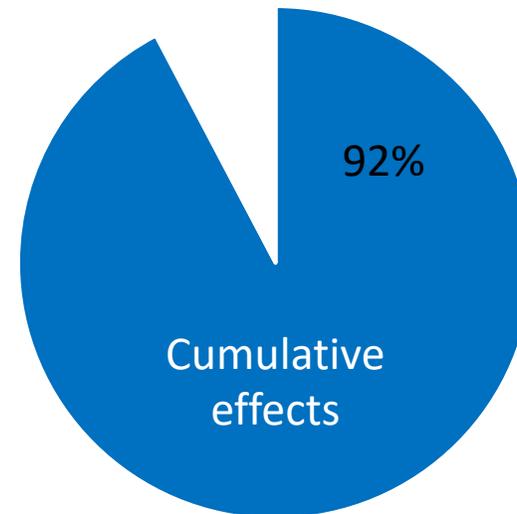
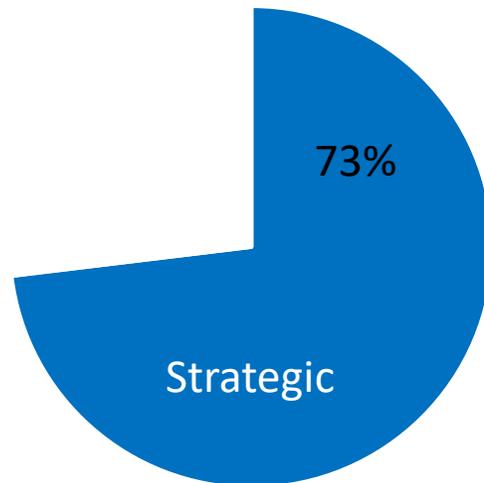


Most RA initiatives concentrated in the land use planning and non-renewable energy sectors.

Are all regional assessments strategic?

No. Not all are strategic*.

* An initiative was considered strategic if it included a future-focused impact analysis, or –as a primary goal– was designed to influence future development in the region.



That said, almost all RAs adopt cumulative effects assessment as a central focus.
67% of RAs are strategic and adopt CEA as a central focus

How are regions defined?

Region size varies widely!

Usually ecologically defined

(e.g. watershed, sub-watershed, biogeoclimatic zone, “home range” of an individual or population, etc.)

Can be administratively defined

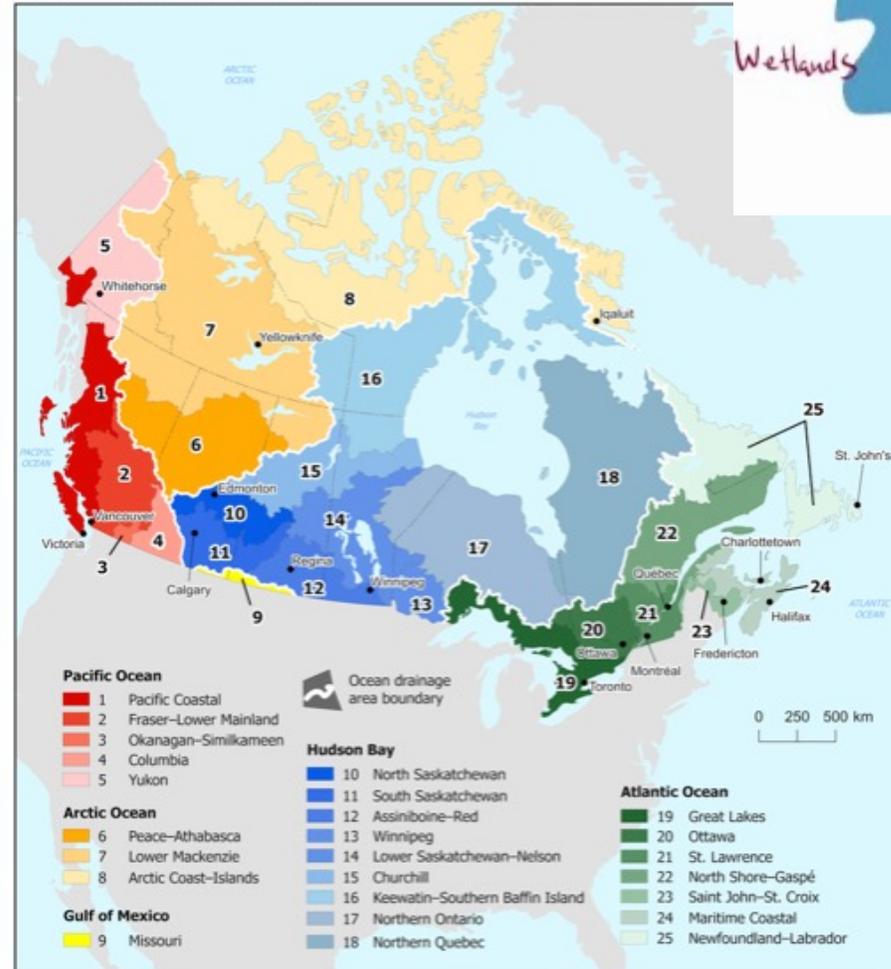
(e.g. coincident with park boundaries, provincial or national borders, or a rural municipality, etc.)

Can be culturally defined

(e.g. Indigenous homelands, language groups, traditional economies, etc.)



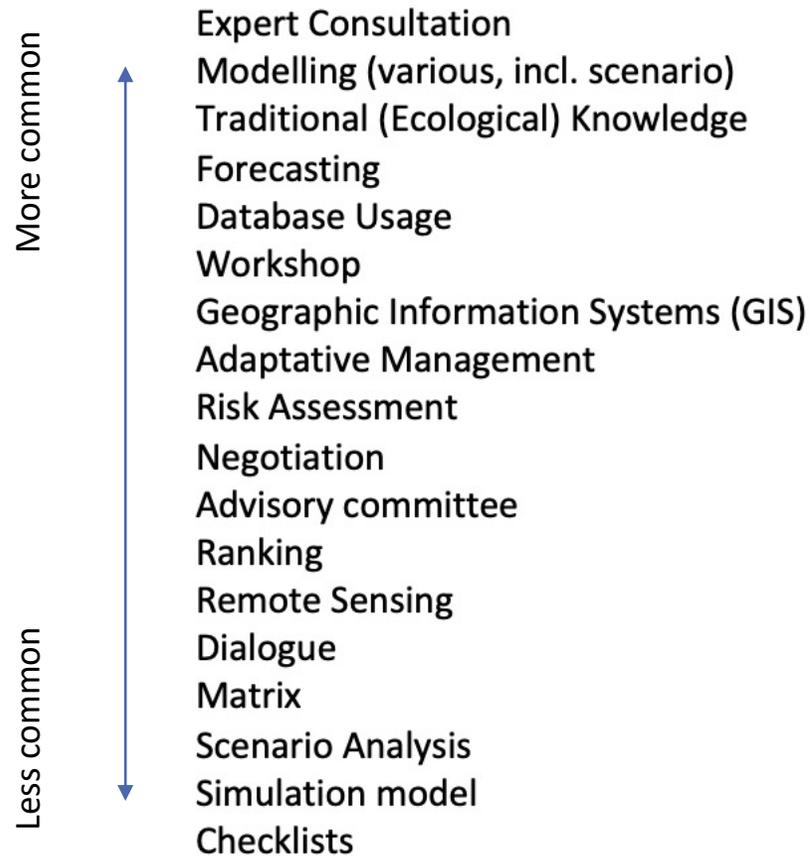
Map 1.1 Drainage regions of Canada



Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2009, special tabulation from Pearce, P.H., F. Bertrand and J.W. McLaren, 1985, *Currents of Change: Final Report of the Inquiry on Federal Water Policy*, Environment Canada, Ottawa.

Which methods are common in regional assessment?

Regional assessments are methodologically highly diverse. Method mix is 'fit-for-purpose'. There is no 'one-size fits all'.



Which valued components are assessed?

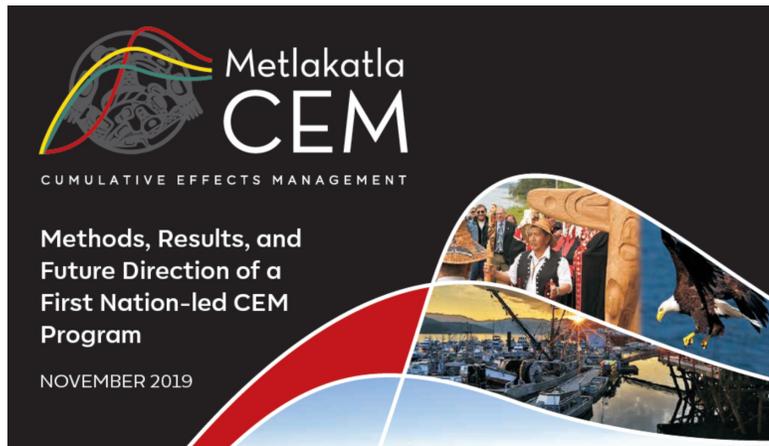
Regional assessments typically evaluate impacts on fewer than 10 valued components; bio-physical components heavily favoured

Sample of socio-cultural components evaluated in RAs

Land dispossession and tenure	Wellbeing and health
Community economic diversification	Archaeological resources
Cultural Identity	Traditional activities
Economic prosperity	Community knowledge
Outdoor recreation	Food security
Historic/heritage resources	Land access
Regional demographics	Education and training
Regional and community change	Employment contracting
Community infrastructure and services	Quality of life

CASE EXAMPLES

Metlakatla Cumulative Effects Management Program (2020)



Released a cumulative effects guide in March 2020

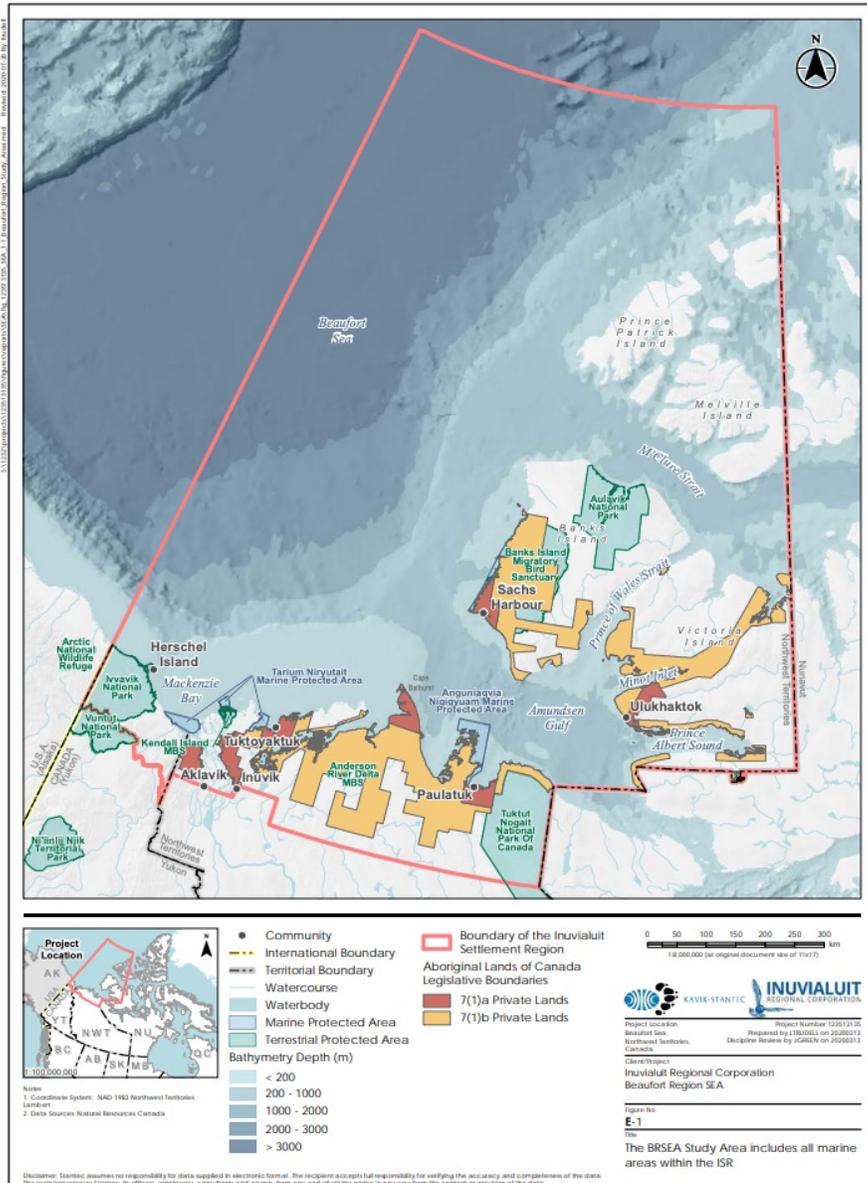
Step-by-step guide for FNs that want to measure the full impact of development on their communities through Cumulative Effects Management (CEM): https://metlakatlacem.wpcomstaging.com/wp-content/uploads/2020/02/Metlakatla_CEM-Synopsis_FIN.pdf

Describes techniques and practices

- identifying and selecting values
- measuring values, defining indicators
- influence diagrams to map potential interactions between development and Metlakatla values
- exploration of future development scenarios
- community monitoring program
- setting management triggers and actions

 <p>ENVIRONMENTAL Ləx Yuubm</p> <p>BUTTER CLAM (PILOT VALUE) Butter clams are large, hardshell clams generally found in the lower intertidal zone. They are an important historical, traditional, and cultural resource for Metlakatla.</p> <p>CHINOOK SALMON Chinook salmon are the largest of the seven Pacific salmon species. They are an important cultural, traditional, and commercial resource for Metlakatla and a good indicator of estuary health.</p>	 <p>ECONOMIC PROSPERITY sagayt gat lledm</p> <p>EMPLOYMENT (PILOT VALUE) The ability of Metlakatla individuals to earn income to be self-sufficient. A core indicator for economic development.</p> <p>WEALTH DISTRIBUTION The degree to which wealth is distributed among Metlakatla people. A measure of economic and social disparity.</p>
 <p>SOCIAL/HEALTH Yugyetk</p> <p>HOUSING (PILOT VALUE) Housing that is affordable, in good condition, and not overcrowded is important for the overall health and well-being of Metlakatla members. Rental housing in Prince Rupert is under pressure from development activity.</p> <p>CHRONIC HEALTH CONDITIONS Linked to overall physical, mental, and spiritual well-being of Metlakatla individuals. Focused on Diabetes (Type 2) and Hypertension.</p> <p>ACCESS TO HEALTH SERVICES Access to primary health care services, notably hospital emergency services, is important for the overall health and well-being of Metlakatla members. Health care capacity is strained in Prince Rupert.</p> <p>PERSONAL SAFETY Metlakatla individuals' actual and perceived degree of safety.</p>	 <p>CULTURAL IDENTITY Looda Goo Wilaaym</p> <p>FOOD, SOCIAL, AND CEREMONIAL (PSC) ACTIVITY (PILOT VALUE) Harvesting, gathering, processing, and preparing of any traditional foods and materials. An indicator of the resilience of Metlakatla culture across generations.</p>  <p>GOVERNANCE Int Albagan Kwduumm</p> <p>ABILITY TO STEWARD The ability of the Metlakatla to manage lands, waters, and resources within Metlakatla Territory.</p>

Beaufort Regional Strategic Environmental Assessment (2020)



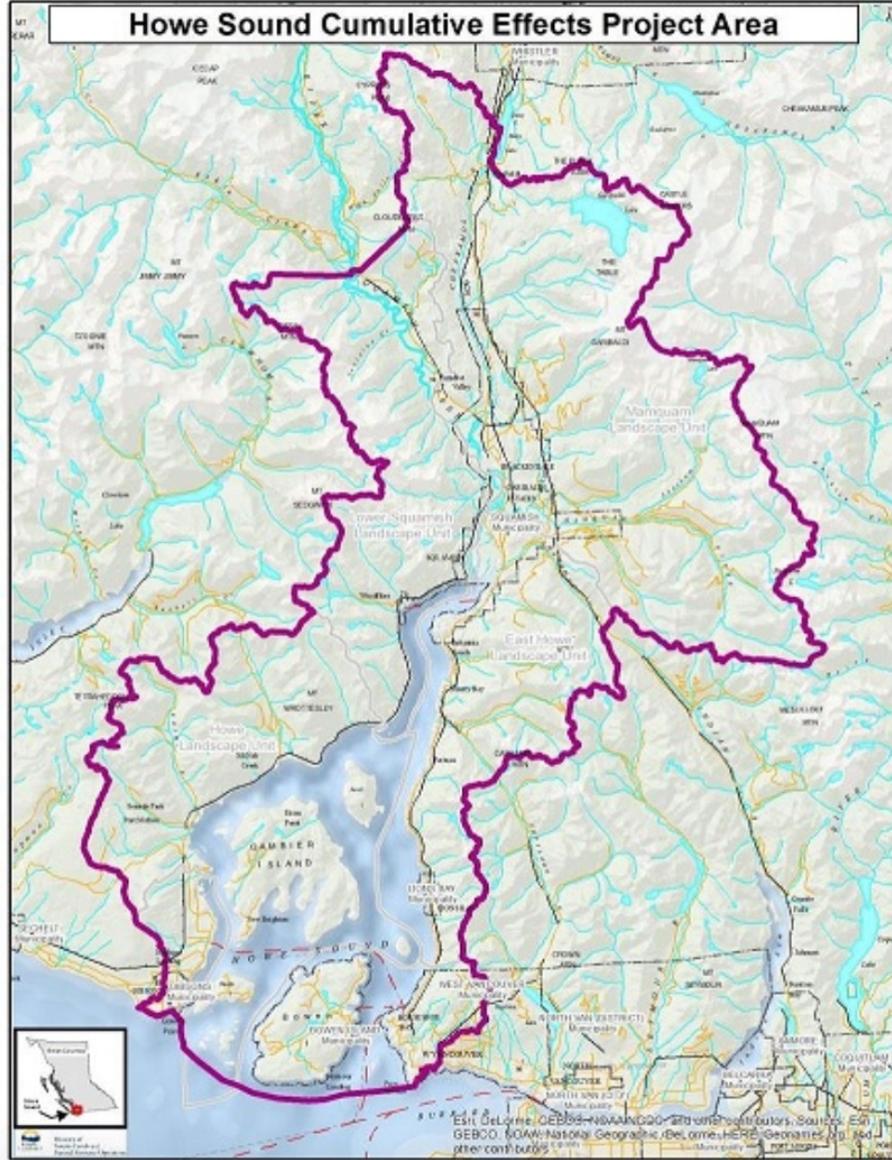
Purpose: Recommend desired economic and environmental outcomes and thresholds for oil and gas development in the marine area of the Inuvialuit Settlement region

Innovation: Humanizing the landscape; recognizing “places”

- Mapping Inuvialuit place names – as the people travelled, they gave names to camping places, settlements and landmarks. The names reflect the kinds of activities carried out, the resources in the area and the events that occurred
- Identifying regional thresholds of wellness and economic impacts associated with the cumulative impacts of several oil and gas development scenarios

Source: <https://rsea.inuvialuit.com/Activities>

Howe Sound Cumulative Effects Project (2018)



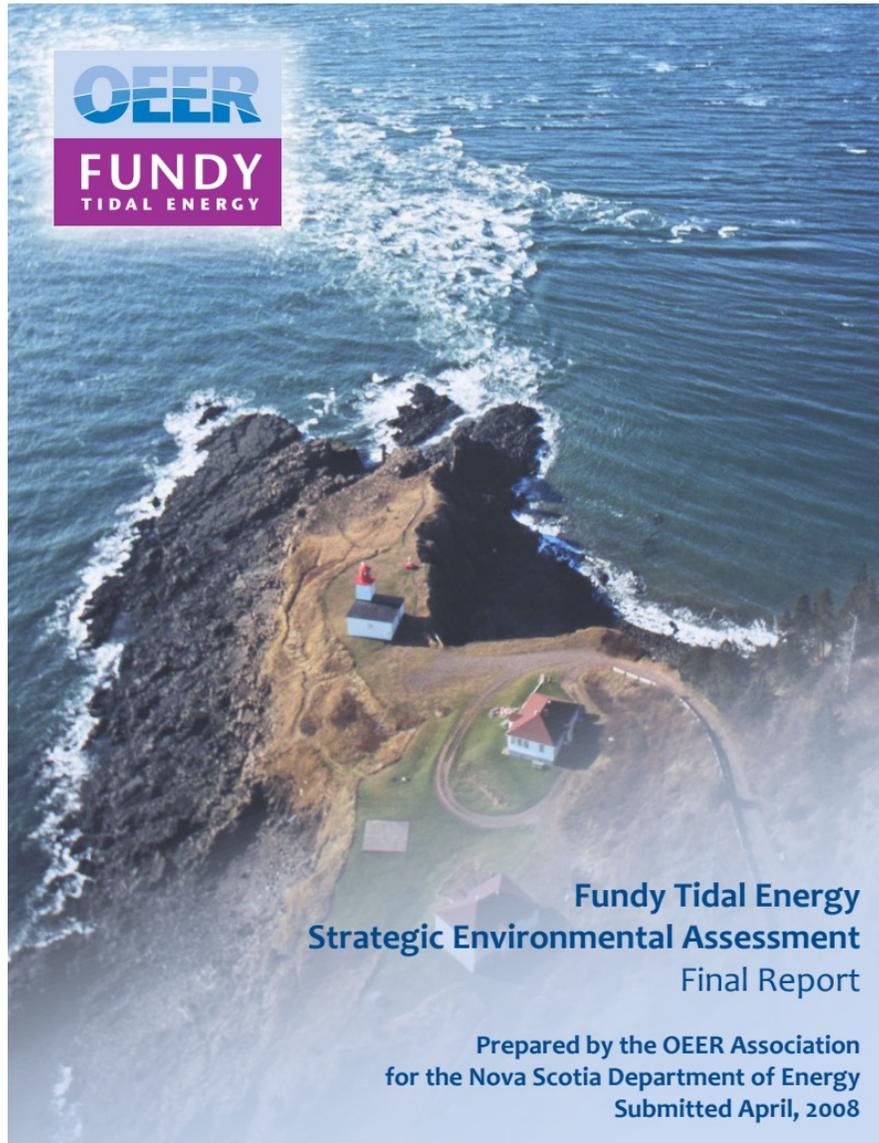
Purpose: Province of BC's first application of the Cumulative Effects Framework (2014) to the South Coast Natural Resource Region. Coordinated, multi-sector approach to assessing, managing and monitoring cumulative effects.

Innovation: 'Core values' include aquatic ecosystems & forest visual quality

- Evaluated three major components of aquatic ecosystems: water quality, water quantity, and streams/riparian systems. Developed current condition indicator maps for 43 watershed assessment units in the Howe Sound area
- Estimated the extent to which the Visual Quality Objectives (VQO's) established by government for 89 Visual Sensitivity Units have been achieved by forest licensees

Source: <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/cumulative-effects-framework/regional-assessments/south-coast/howe-sound-cumulative-effects-project>

Fundy Tidal Energy Strategic Environmental Assessment (2008)



Purpose: Provide advice to the Nova Scotia Department of Energy on whether and under what conditions tidal energy demonstration and commercial projects should be allowed in the Bay of Fundy

Innovation: Characterizing cumulative effects specific to renewable energy technologies and marine tidal environments

- Effects of energy extraction on tidal flows
- Effects of exclusion zones
- Effects of other development (LNG, tourism, etc.)
- Effects of other ecosystem changes (substrate disturbance caused by causeway removal)
- Effects of site preparation (substrate disturbance)

Source: <https://oera.ca/sites/default/files/2019-05/Fundy%20Tidal%20Energy%20Strategic%20Environmental%20Assessment%20Final%20Report.pdf>

Assessing Road Decommissioning in the Adams River Watershed and Kamloops Timber Supply Area to Reduce the Negative Cumulative Effects of Land Use on Wildlife Populations (2020)



Photo credit: Barry J Wilson, 2020

A strategic scenario analysis exercise commissioned by the Adams Lake Indian Band (a Secwepemc community) in British Columbia

Used the Population Dynamics Simulator of ALCES Online to explore spatial and temporal wildlife population responses to the cumulative effects of key drivers of pressure: land use, natural disturbance, wildlife harvest, and access management. This was overlapped with effects of natural disturbance and climate change.

Approach to cumulative effects assessment:

- **estimated pre-European contact conditions**
- **spatial and temporal chronology of historic changes since arrival of settlers**
- compare and contrast indicator performances (habitat suitability/population metrics) for moose, mule deer, grizzly bear) under a range of alternative scenarios:
 - business as usual
 - Indigenous tourism potential
 - alternative forest harvest rates
 - various climate change conditions

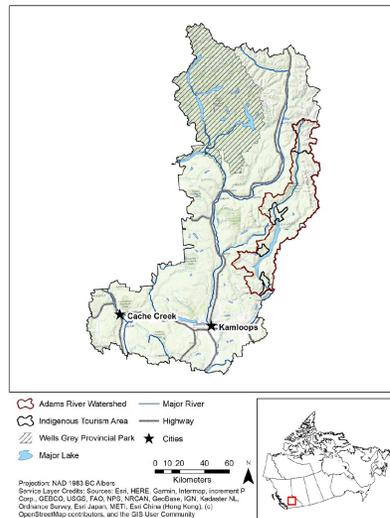
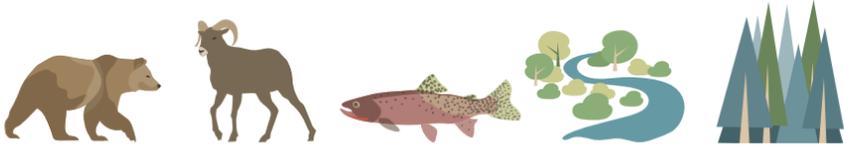


Figure 1. Map of the Kamloops Timber Supply Area.

Source: Milligan et al. 2020

Elk Valley Cumulative Effects Management Framework (2018)

ELK VALLEY ENVIRONMENTAL INDICATORS



RISK ASSESSMENT



EXPERT KNOWLEDGE



BEST AVAILABLE DATA

What did the Elk Valley CEMF team do?

Five indicators of ecosystem health were selected. These indicators represent things that people and government care about or see as important for assuring the integrity and well-being of the province's communities and ecological systems.

Expert knowledge and the best available data were then used to understand how to identify risk to these indicators.

Current and future habitat conditions were then studied to identify potential risks to each indicator.

LEADING RISK FACTORS



HIGH ROAD DENSITY



HUMAN ACCESS

What did the team find?

Across all indicators, high road density and increasing human access were two of the leading contributors to negative cumulative impacts.

Road rehabilitation was identified as the highest priority management action to address cumulative effects in the Elk Valley and will be addressed through the next phase of this work.

For more information, visit:
<https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/cumulative-effects-framework/regional-assessments/kootenay-boundary/elk-valley-cemf>

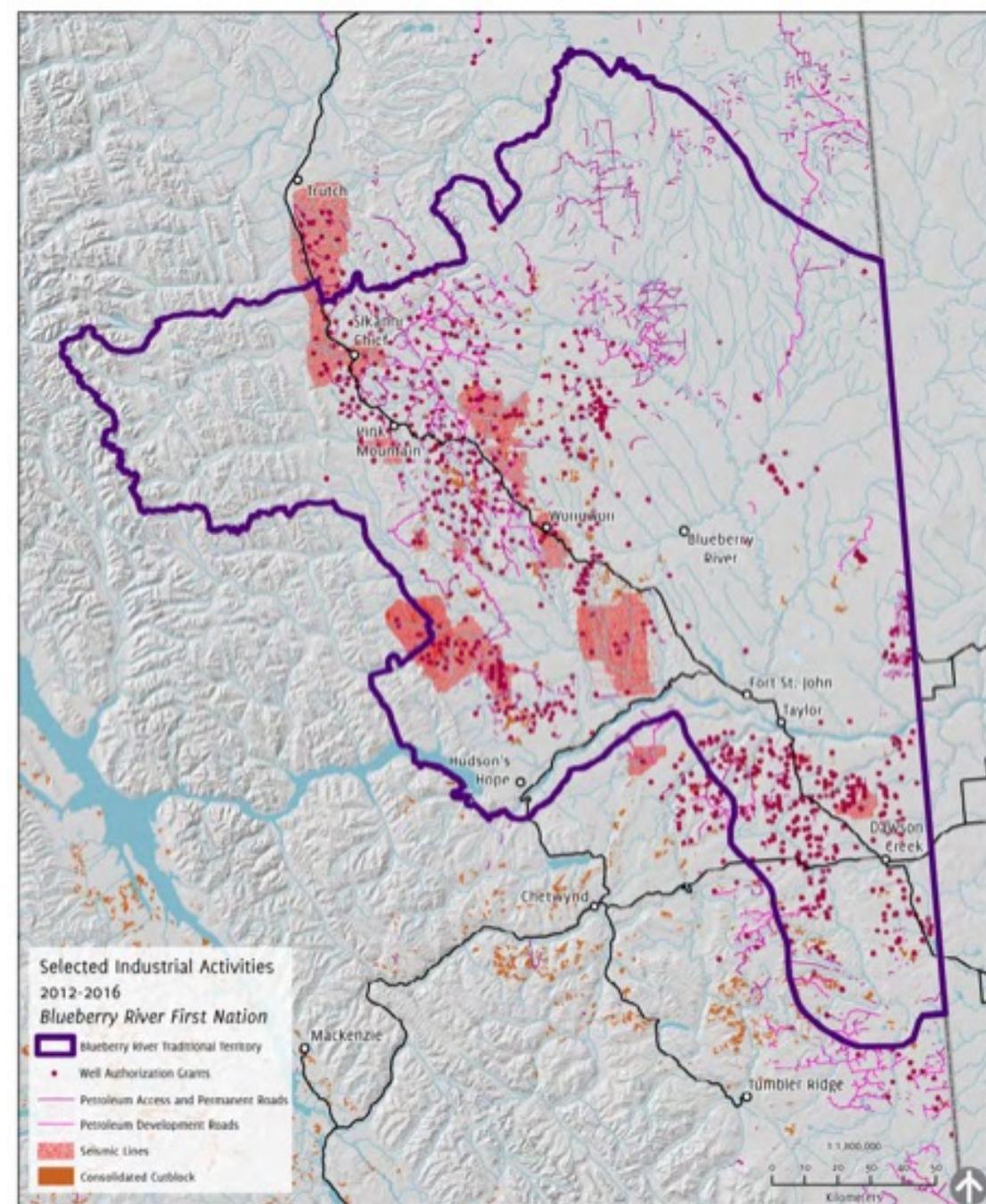
Source: https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/cemf_elkvalleyinfographics_aboutcemf_v03_01.pdf

Landscape Disturbance in the Blueberry River First Nations Territory, BC (2016)

Landmark court decision, 2021

- 38,327 km² territory
- < 14% is covered by intact forests

Since January 1, 2013, the government of British Columbia has authorized construction in Blueberry River First Nations traditional territory of more than 2,600 oil and gas wells, 1,884 km of petroleum access and permanent roads, 740 km of petroleum development roads, 1,500 km of new pipelines and 9,400 km of seismic lines. Also since that time, approximately 290 forestry cutblocks were harvested in the Nation's traditional territory.



Map 35. Selected industrial activities, 2012-2016

Source: Macdonald, 2016 <https://davidssuzuki.org/science-learning-centre-article/atlas-cumulative-landscape-disturbance-traditional-territory-blueberry-river-first-nations-2016/>

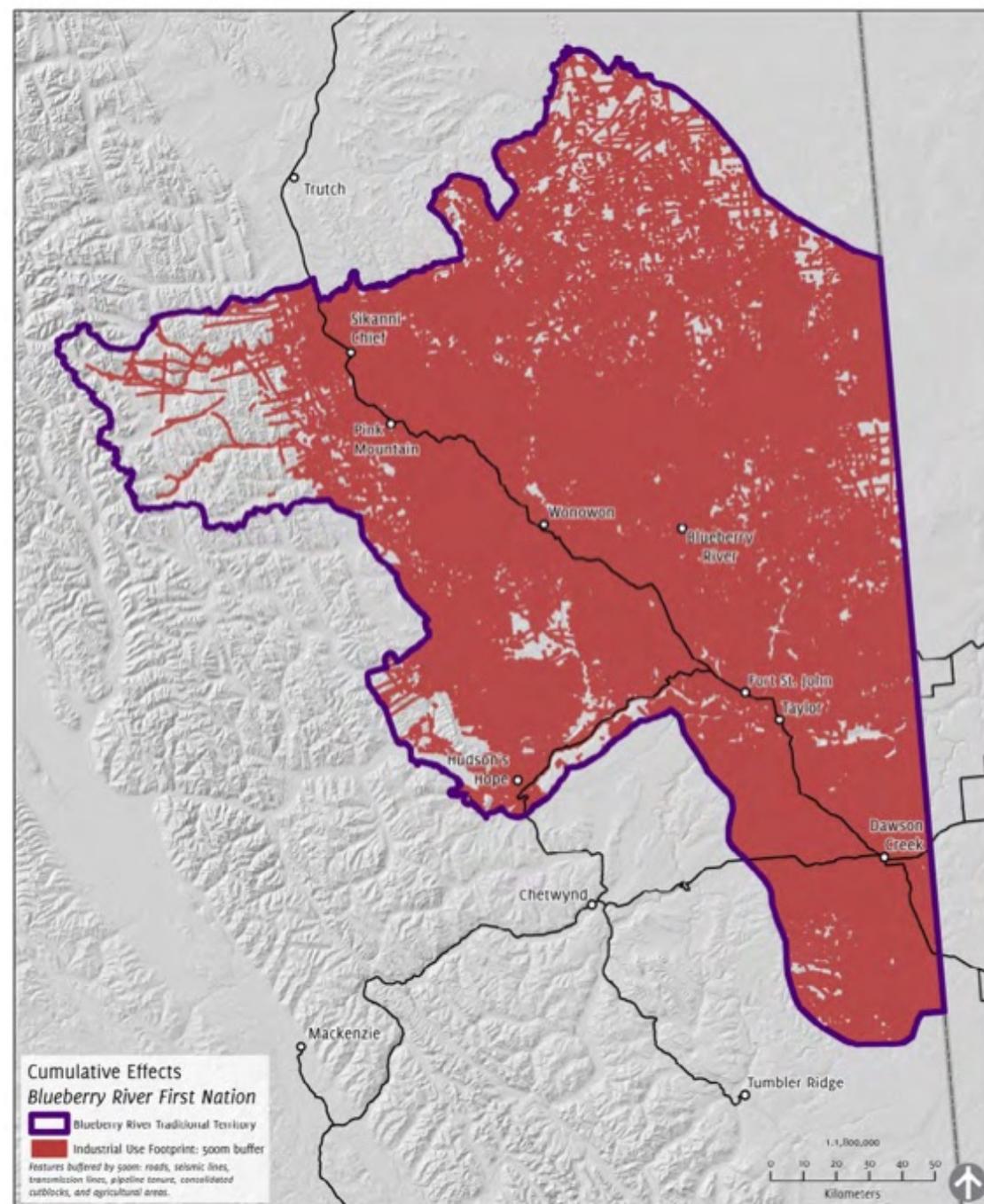
Satellite image showing commercial forest harvesting, oil and gas developments, access roads and evidence of wildland fire in Alberta, Canada.

Map data @2019 Google

Source: NRCan 2022



73% of the area inside Blueberry River First Nations traditional territory is within 250 metres of an industrial disturbance, and 84% is within 500 metres of an industrial disturbance.



Map 34. Cumulative changes - including seismic lines (buffered by 500 m)

(Source: Macdonald, 2016) <https://david Suzuki.org/science-learning-centre-article/atlas-cumulative-landscape-disturbance-traditional-territory-blueberry-river-first-nations-2016/>

So far, under IAA 2019, just one regional assessment has been completed: it was legally challenged and widely criticized for missing CEA.

A Regional Assessment in Practice: Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador

The Governments of Canada and Newfoundland and Labrador are conducting a regional assessment in the eastern portion of the Canada-Newfoundland and Labrador Offshore Area focused on the effects of existing and anticipated offshore oil and gas exploratory drilling in this region. The regional assessment aims to improve the effectiveness and efficiency of the impact assessment process as it applies to oil and gas exploration drilling in this region, while at the same time ensuring that the highest standards of environmental protection are applied and maintained. The assessment is building upon the experience and knowledge gained in assessing previous projects and will reduce duplication in processes and information.



FLAWED ENVIRONMENTAL ASSESSMENT OF OFFSHORE DRILLING IN NL TO BE SCRUTINIZED IN COURT

WWF - August 5, 2021

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Environmental groups disappointed exploratory drilling will proceed in the interim

ST. JOHN'S, NL – Ecojustice and its clients welcome the Federal Court's decision to reject the federal government's attempt to shut down a judicial review application challenging a flawed Regional Assessment (RA) on the impacts of exploratory drilling off the coast

There is significant potential for RSEAs to meaningfully address sustainability goals, cumulative effects issues and inform project impact assessments.

To maximize their utility :

1. Ensure the strategic value-added to regional planning and project IA (e.g., targeting the specific kinds of issues proponents are being asked to assess - fish and fish habitat, migratory birds, aquatic species).
2. Use/design the assessment process as a means to advance reconciliation efforts in Canada and a tool for Indigenous Nation building; process should respect and reflect nation to nation relationships; braid Indigenous, local, and Western knowledges; emphasize preserving of places and heritage; assess impacts to Indigenous law, legal principles and rights
3. Prioritize assessment of sub-regions stressed by the cumulative effects of intensive natural resource extraction + anthropogenic development + climate change, or those that will soon be (e.g. in SK: the Palliser Triangle, or see: Tan and Gan 2015)

What 'works' in RSEA is still emerging

What Works and What Doesn't Work in RSEA: Examples and Lessons Learned



Jill Blakley and Bram Noble

MVEIRB Workshop

June 22, 2022

