Dawson Region
Cumulative Effects Technical Workshop
September 28-29, 2021
Meeting Notes

The following are meeting notes taken by Dawson Regional Planning Commission (DRPC) staff during the Cumulative Effects (CE) Technical Workshop held at YukonStruct in Whitehorse on September 28-29, 2021.

Workshop Purpose: The purpose of the workshop was to gather key community members with technical knowledge and provide building blocks to help the Commission better understand and build the skeleton of a Cumulative Effects Framework (CEF) and tools for the Recommended Plan.

Attendees: Attached is an attendees list. Attendees included a diverse range of stakeholders invited to attend by DRPC.

Day 1

1. Initial Discussion

- **Land Claims Agreements:** An important touchstone from Chapter 11 is 11.1.1.6: *"to ensure that social, cultural, economic and environmental policies are applied to the management, protect, and use of land, water and resources in an integrated and coordinated manner so as to ensure Sustainable Development."*
- **Relationship to YESAA**:
  - The role of YESAB is important (Link to Chapter 12)
  - Implementation of a CEF will rely on cooperation amongst planning bodies, regulatory bodies and YESAB.
  - Dawson is most active region, in terms of YESAA screenings. This makes it different from other planning regions.
- **Adaptive management:**
  - We are all in a state of learning; adaptive management is a crucial part of CE and how we better plan for it on the landscape.
  - If something isn't working, opportunity to revisit and think about how we can do better.
- **Flexibility:**

    - An aim for CE in the North is: 'everyone can do everything, but within a certain limit'. That flexibility is only possible with a CEF.
    - Currently, the timeline for review is every 10 years, but can CEF change before that? Amendments very 10 years might not be enough.
    - New studies and new understanding that might come in through individual programs review.
    - The Plan shouldn't be so prescriptive that it doesn't allow for new science.
    - A CEF is just one part of plan implementation.
    - Certainty is important.
- **Cost:** Consider the cost-effectiveness of different cumulative effects indicators.
- **Industry Perspective:**
    - Want to do a good job, just don't want to be so constrained. How can we move forward?
    - Recovered lands are different to undisturbed areas. We need to talk about how look within context of a landscape-level plan.
    - Values are important, what does recovery mean? Need to think about values-based reclamation.
    - Industry wants to help, wants to be stewards of the land, water, resources.
    - More detail is needed in terms of definitions. E.g. definition of "recovered" - what plant species types?
- **Management Objectives:**
    - Need to think about the end goal vs the process to get there.
    - Need to think broadly. E.g. for moose: *'a healthy moose population'*

Local and Traditional Knowledge

- **Suggestion:** Invite FNs to discuss linkage between CE and TK
- Canadian rangers (esp. TH citizens) may be a good source of knowledge as they are out on the land. Worth presenting / contributing to local and traditional knowledge and values

2. Management Objectives

The Draft Plan's proposed cumulative effects framework is based around the values and management objectives for caribou, moose, and salmon. At this workshop, break-out groups were formed for the discussion of management objectives

related to these key values. Management objectives are important to identify, as the commission needs to know what the targets are in order to establish the CEF.

2.1 Caribou Management Objectives

- **Objectives vs Management Practices:**
  - The Draft Plan objective statements are actually management practices.
  - Reflect the value in each objective statement.
  - Sustainable wild food availability is an objective for caribou.
  - The management practice that supports this objective is to reduce disturbance.
- **Caribou Objectives:**
  - Restore historic levels of migratory caribou.
  - Herds stable or increasing for woodland caribou.
  - Caribou herds no longer listed under SARA.
  - Could be even more holistic, possibly for all values.
- **Links to other plans**
  - Clear Creek Herd is a species of risk; SAR Management Plan identifies objectives and threats.
  - Objectives of range expansion and maintaining connectivity.
- **Move development around:**
  - A management practice could be to move development around to alternate caribou habitats so as to note disturb them (woodland), keep migratory routes open (migratory).
  - Time of year is important.
- **Migratory vs woodland caribou:**
  - There are two different values to consider, migratory and woodland, which require have different management approaches.
  - Different management objectives for different types of caribou.
  - Are we trying to manage their movement in ways that are not beneficial for the caribou?

2.2 Moose Management Objectives

- **Objectives**
  - Harvest maintenance.
  - Maintain a healthy population.

    - Range expansion. Links to availability of habitats in relation to now and future changes.
- **Habitat availability:**
    - Habitat objectives support moose management objectives.
    - Moose in Yukon could be considered generalist, but certain stages (post-rut, calving) are very crucial for non-disturbance.
    - Consider different habitat needs during calving, winter, and summer.
    - Usable habitat.
    - Lens of climate change is important, need connectivity so moose can get to new / different habitats.
- **Other sources for objectives:**
    - Final Agreements Ch. 16 provides objectives for moose management.
    - There is a lack of moose conservation plans for which to refer.
- **Moose / Caribou relationship**
    - Caribou and moose indicators have linkages.
    - Balance between moose and caribou populations; When moose increase beyond certain numbers, can increase predators and then reduce caribou numbers.
    - Need to consider that there will be overlapping priorities.

2.3 Salmon Management Objectives

- **Objectives**
    - Restore salmon numbers to where they should be / historic levels
        - Can you achieve this regionally?
        - Need to get Alaskans to help.
        - Support global efforts; No control over Bering Sea
        - Modify value for regional approach to focus on spawning, overwintering and cold water habitat.
- **Habitat considerations**
    - Different salmon use water and land differently.
    - Know where spawning takes place, but difficult to track juveniles going upstream.
    - Cold water contribution and climate change; Mountainous streams should be included in the objective.
    - Water quality and impacts of erosion, including Placer and natural erosion.
- Water is a broader consideration *(the next section outlines a continuation of the discussion, which evolved from salmon to water)*

2.4 Water Management Objectives

- **Objectives**
  - Clean water?
    - Not necessarily the case. Need to tie it to UFA Chapter 14 - leave water in its natural state (quality, quantity and rate of flow, including seasonal rate of flow)
    - Natural state is better? If reclamation makes it clean, could be bad for what's in the stream using it.
  - Access to traditional grounds and lands.
  - Maintain channel length
    - Diverting to straighten is an ineffective management technique; reduces amount of habitat; can reduce quality.
  - Importance of temperature in relation to quality and withdrawal
  - Preserve groundwater aquifers and levels
  - Preserve as refugia
  - Water in frozen state in relation to climate change
- **Inventory needed**
  - Recommend to government to do an inventory of water, both in summer and in winter
  - Temperature and the effects of withdrawal of water
- **Placer**
  - How would CE decision affect enclosed systems for placer?
  - Settling ponds; how does this contribute?
  - Effects of withdrawal
- **Traditional Knowledge**
  - TK recognizes water as having spirit, huge stewardship implications, need to recognize this different viewpoint
  - Water as a living being
- **Management approach**
  - Place based management worst for fish habitat, as people want certainty, but that is not how land/water works e.g. Klondike River always moves. Biological processes vary related to land processes.

2.4 Management Objectives Discussion

The workshop discussion on management objectives included a reporting back, during which some common objectives were observed.

- **Broad objectives**
  - Could be even more holistic, possibly for all values.
  - For all 3 values: recognition of seasonality and seasonal needs for species, and critical life stages (post rut, spawning, calving etc).
  - Replace objectives in the Draft Plan that are really management tools.
  - Important to include reference to natural cycles.

- **Common objectives:**
  - Harvest maintenance.
  - Healthy population.
  - Restore historic population levels.
  - Expanded range.
  - Habitat availability and connectivity.

- **Intrinsic value of species and habitat**
  - Value of being able to see these species on the landscape, respect, stewardship (holistic).
  - Value of having them there for other reasons. Harvesting is not the only reason we value these species. E.g. tourism
  - Maybe we need another value for 'wild ecosystem' because e.g. if you focused on maintaining harvesting numbers, you'd get rid of the wolves (which you don't want)

3. Other Values

While the cumulative effects discussion has mainly focused on management objectives for caribou, moose, salmon and water, what other values and objectives should be considered in a CEF?

- Biodiversity
- Intrinsic value of habitat and having wildlife
- Landscape connectivity
- Landforms; morphological integrity & function
- Permafrost
- Trees - biodiversity, species, function
- Other fundamental elements (earth, air, fire)

4. Study: Linking Disturbance Indicators to Values

A grad student recently completed a study which looked at surface disturbance and water quality indicators in the Dawson region. This work was in partnership with Tr'ondëk Hwëch'in First Nation and Wildlife Conservation Society.

The intent of the presentation was to demonstrate how a cumulative effects indicator could be linked to different values.

- Caveat:
  - Not published, preliminary analyses, will be peer reviewed.
- Based on current work, using publicly available data.
- Adaptive management approach is great, but will cost more to do. Monitoring is important.
- Thresholds linked to habitat sensitivity is a good idea.
- Some concern expressed about the photos used in the presentation.

5. Indicator Discussions

The workshop divided into groups for discussions about indicators pros and cons, including surface disturbance, linear density as proposed in the Draft Plan.

5.1 Challenges and Opportunities:

Challenges:

- With thresholds as a cap on activity, there is potential for a race to get a project in first (perverse incentive).
- What if Yukon Energy build a hydro line? Threshold could be reached. Adaptive management & reclamation is really important.
- Will always be behind on surface disturbance mapping. Currently a contract out for Dawson region to map surface disturbance - aim is to be done by end of fiscal 2021-22.
- Disconnect between what is permitted for and what is actually happening on the landscape.
- Not understood how restoration and reclamation piece will be incorporated.
- Indicators are simplistic.
  - Need to identify what land uses are compatible / incompatible and identify specific areas where this happens.
  - We are all looking for certainty - caribou / mining.
- Regulators may not renew permits because of threshold limits. Should there be a guarantee of renewal?

- Reclamation happens over years. A threshold increases the risk of reclamation not happening.

Opportunities

Discussion about applying indicators differently and exploring other indicators.

- Suggest that priority be given to more responsible operators.
- Scalable indicators:
    - Different thresholds for different values in LMUs based on habitat areas.
    - Whole region for some values, small area for key areas.
    - One threshold for the herd range.
- Socio-economic values and indicators
    - Surface / linear disturbance indicates economic performance. Quantity of land disturbed = GDP
    - Value of minerals - identify where they are.
    - % of land available for development.
- Framework for Adaptive Management huge opportunity. Keep it simple. Apply new science.
- Thresholds are only one tool. There are other tools such as management plans.

5.2 Pros and Cons

The following is a table of pros & cons of Surface and Linear Disturbance as identified by one of the break-out groups.

Pro	**Con**
Mappable	Enables speculation around permitted activities (buy and sell? Like carbon pricing…)
Cheap	Not connected to other stressors e.g. noise, timing, activity, population, GDP, tourism
Restorable	Can only control activities that are regulated i.e. those that require permits. Unregulated activities not captured.
Quantifiable / measurable	Limits activities (thresholds)

Permanent vs temporary (type matters & affects timelines)	Values are weighted (or can be) and this is problematic. E.g. moose / caribou could have conflicting negative / positive
Deforested vs Forested (a.k.a. renewable)	Not connected to ecological values, too blunt and not able to be location specific
Simple	Insensitive to landscape change (e.g. big fire)
Political buy-in (ish)	Some activities e.g. firebreaks, powerlines etc. may then preclude existing land use activities
Works within / links to permitting process	
Experience of it	
Effects are known and there's lots of research to draw upon	Effects are known and there's lots of research (science is questionable?)
Regulatable, prescribable, doable and enforceable	
Scalable	
Can encompass multiple values and multiple land uses	
Understandable	
Because mappable can ask more nuanced questions	
Enables speculation - people can get permits? Pro for some!	
Could prevent mega projects from going ahead (land use plan isn't actually enforceable)	Could prevent mega projects from going ahead and therefore limit economic development & benefits this brings
Useful or 'honable' for some localized values	

Saves $ and time, over time i.e. activities can be better planed / given more forethought	

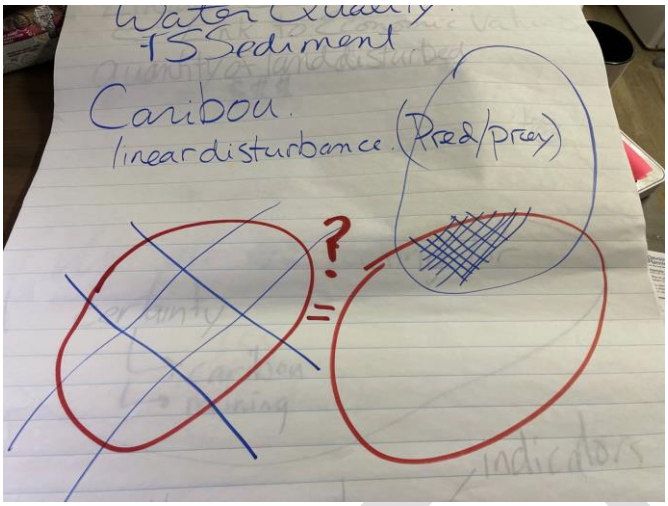
6. Other Indicators

6.1 General

- Recommend expanding water quality indices supported by long term monitoring.
- Limited baselines across the north - tremendous gaps exist.

6.2 Moose & Caribou Indicators

- Tiered approach - Herd migration
- Hunting effort:
  - Time & distance travelled
  - CPUE (Catch Pen Unit Effort)
- Perceived quality of harvest (experience)
- Population
  - Reality vs perception
  - Western data & community
- Habitat quality (values based)
- Zone of influence (i.e. functional habitat)
- Animal life cycle numbers
  - Calving
  - Rutting
  - Sex ratios
- Animal health & condition
- Connectivity
- Habitat fragmentation - Forest vegetation inventory
- Distribution of animals
- High quality summer habitat – availability & accessibility
- Habitat creation
- Traditional Knowledge (Health, Smell, Taste)
- Linear disturbance ad Predator / Prey relationship:



6.3 Salmon & Water Indicators

- Water quality & environment health
- Traditional Harvest rights
- Return to commercial fishing
- Benthic health
- Flooding
- Stream temperatures
- Sediment (suspended sediments)
- Withdrawal rates
- Juvenile habitat availability
- Riparian health
- Foliage
- Mapping channel changes
- Rate of flow
- Water quality (Metals, Nutrients, Temperature, Sediments)
- TK Indicators
    - Usage (Numbers, Smell, Taste, Visual)
    - Stewardship & teaching
- Water quantity
- Seasonal patterns
- Water indicators used by regulators (none have much baseline):
    - CCME
    - Water Quality Indices
- Site-specific objectives

Day 2

7. Management tools

The workshop divided into groups to talk about existing and proposed cumulative effets management tools that are (or could be) applied to the key values of caribou, moose and water. Management tools may include government, industry, or other.

7.1 Caribou

- Identification & protection of mineral licks (Baseline knowledge)
- Evaluation of potential disturbance at Precautionary level and have accurate projections
- Hunting and outfitting permits (i.e. quotas)
- Re-inventory of disturbance & reviewing habitat reclamation
- Development moratorium at Critical level
- Fighting forest fires to save habitat
- Maintain connectivity in respect of climate change
- Focused CE assessment when Cautionary level reached
- Offsetting
- Active reclamation of caribou habitat
- Better protection of key areas (e.g. summer range, calving)
- Stringent mitigations for projects e.g. avoid certain times, minimize disturbance, better defined buffers
- Better understand zone of influence

7.2 Moose

<u>Ongoing</u>

- Enhanced monitoring (people on the land)
- Map habitat suitability
- Natural factor assessment (fire, precipitation, predators, etc.)
- Government policies
- Hunting access management
- Harvest management plans & compliance
- Regional Plan review / amendment
- Moose working group - RRC to lead
    - Community monitoring program

- Review traditional knowledge (Past & present)

<u>At precautionary / cautionary / critical levels</u>

- Land use assessments (e.g. agriculture)
- CE study on Moose
- Existing management plan review and modification
- Disease transfer, bio research and agriculture

7.3 Water

- Characterize water
    - Inventory, types of water

<u>Ongoing:</u>

- Water allocations / licenses
- Cooperative water management among users
- Reporting & measurement of quality, quantity & flow
- Water license cuts
- Operation shut downs
- Effects assessment - Section 110 (YESAA)
- Discharge management
- Education
    - Commercial and residential use of bleach, impacts on sewage discharge
- Habitat compensation, offsets & credits
- Increase production habitat capacity
- Plan variance, amendment and review
- Need better reclamation guidance
- Empower individuals - carrots vs sticks

8. Roles

We asked workshop participants to think about what they are already doing and could do in the future to limit cumulative effects, and to put themselves in the shoes of somebody else.

8.1 Caribou

<u>Already doing</u>

- Monitoring (e.g. population monitoring, water quality, bug studies in wetlands, mapping caribou habitat)
- Training & education (e.g. special waste management, violence & harassment, best management practices)

- Wetland classification handbook (KPMA)
- Monitoring - Guardianship & stewardship of water, rangers, DDRRC, YESAB, TK, YG, DFO
- Development assessment considers CE - YESAB
- Reclamation including historic sites
- Proponent reporting (fuel, tax, water, animals, heritage, paleontological) and land use coordination.
- Developing policies (e.g. wetlands)
- Transboundary agreements
- Harvest plans

What else could we do in the future:

- Familiarization of issues - education crucial of current and past practices and activities: Tours, Schools, Elders, Politicians
- Encourage people to take responsibility / stewardship
- Take pride & ownership of Yukon's successes: UFA, industry, citizen science
- More coordinated reporting and monitoring and review - where is the research going and how it will be used? When and by whom?
- Focused community based knowledge gathering and role of TK - need to create space.
- Better guidance on reclamation & policy.
- Independent & collaborative inspection & compliance agency.
- Community ownership of what restoration / reclamation might look like.
- Self-enforcement: peer pressure, positive reinforcement; industry to industry
- Fine the bad operators

8.2 Water & Salmon

Doing already

- Indigenous guardian program – community based monitoring
- Mineral Development Strategy
- Withdrawing land
- Creating parks
- Avoid wetlands
- Follow decision documents
- Industry 'policing' itself
    - Education & advocacy for responsible use
- Leckie Award
- Resource Roads & ORV regulations

- Mapping (drones)
- Helicopter access

What else could we do in the future:

- Recognition of good practices
- Mining legislation
- Apply technology
    - Geophysics improvements (e.g. LIDAR)
    - Less cutlines - Drone use instead of roads
    - Inventory potential salmon habitat through thermal studies
- Provide incentives for adopting of new technology
- Silviculture – tree planting, habitat enhancement
- Create salmon habitat
- Underground placer mining
- Bore hole mining
- Regulation that allows flexibility e.g. easier to amend licenses, e.g. pig farm
- Reclamation (Now & future)
    - More clear rules & certainty & responsible mining opportunity
    - Future-forward looking assessments
    - Land use permits that include post-activity vision for the area
        - Biodiversity
        - Values based reclamation

8.3 Moose

Doing already

- Data collection / monitoring - Harvest numbers tracking, land guardian, DDRRC
- Access management – restricting road access, predation / access relationship
- TH working with researcher to understand socio-cultural CE indicators – harvest (success / energy) etc. is considered
- Reclamation
- Identifying important areas for moose life stages (i.e. calving)

What else could we do in the future:

- In depth discussion on the amount of research that is being done by numerous agencies. This applies to not only moose research but other values that factor into a CE framework generally.

- Potential for the creation of a CE Hub in partnership with an academic body (Yukon U?) to maintain a database of publicly available Yukon (Northern) based research.
- Maximizing the reach of research that is currently undertaken. (breaking out of the silo approach).
- Create stronger connections with the work that Renewable Resource Councils (RRC) are doing on the land. In addition to Land Guardians, FN governments, Rangers etc.
- Access management plans (consideration of configuration of new roads i.e. loop roads)
- Reclamation with focus on Moose habitat where appropriate
- Industry is often required to do in depth Wildlife assessments and management plans. How are these assessments / plans used by gov agencies once submitted.
- Transparency regarding what purpose it serves and how it is used / referred to.

8.4 Other Roles and Tools

Forestry

- Act / policies / regulations
- 3 levels
- Best practices
- Other
- Reforestation
- Reclaim roads
- Education & training (machine operators)

Water Board

- Training for regulators on CE
- Clear responsibilities (waterboard? YESAA?)
- Clear guidance on operations
- Stream capacity
- Waterboard intervention
- Understanding stream flow requirements

FN (TH)

- Land stewardship
- Harvest surveys
- Identify changes overtime

- Resolutions from council
- Identified issues
- Education and outreach
- Communication
- Policy
- Restoration projects
- Areas of importance

NGOs

- Interventions
- Capacity (triage based on values)
- YG policy
- I.e. waste management, electric fences
- Redundant
- Technical & science based
- Studies

9. Wrap up

Ideas for future cumulative effects topics we should be considering moving forward

- Climate change
- Discussion about the relative benefits of using industrial, economic, ecological or social indicators
- Discussion about accountability and assessment
- How do you tackle CE on an LMU or regional basis
- Implementation & monitoring
- How do we determine reasonable future projects - what is in the bucket?
- Agriculture capacity of the lands in the planning area?
- Navigation - watercraft
- Need a way to incentivize individuals to continue prospecting and map out information - we need to know where the minerals are
- Multiple land uses inc. agriculture, wind farms etc. Double up on a footprint best way to use land, efficient!
- Reclamation
- Access - decommissioning
- Economic diversification
- Traditional Knowledge

10. Best Advice for the Commission

- Identify an umbrella of people / organizations that should be working on a CEF
- Don't feel rushed
- Have something concrete - don't leave it too open to change
- Implementable
- Scenarios
- Think outside the box
- Keep in mind mineral exploration
- Direct link between plan and vision statement
- Take time to do it right
- Attend sessions where they can
- Right people in the room (YESAA)
- This is a template to do a proper job
- Leave room for new uses
- CEF fulfill obligations under Ch. 11 and be considerate of the erosion of rights that CEF might entail
- Take time to flesh out what revision looks like as well as Adaptive Management
- Be innovative on a complex topic but make it realistic (dream small)
- Derive science and TK informed indicators that can map CE well and thresholds linked to values of the draft plan; if information isn't know, take a precautionary approach and don't wait for YESAA or YG to make important climate decisions
- Be proud of hard work and move forward with confidence in recommendations, intent needs to be clear so its not misinterpreted going forward by the Parties
- Recognize the importance and the challenge of CE and adaptive management, recognize it's an iterative process. If AD done right, there's opportunity to refine this in the future
- Think about how the CEF can build support, turn to community and industry to get as involved as possible
- Keep things in balance - 3 pillars of sustainability
- Unambiguous language
- Think about the implementors
- Sub-regional --> scalable
- YESAB invited to closed-session of the Commission meeting?