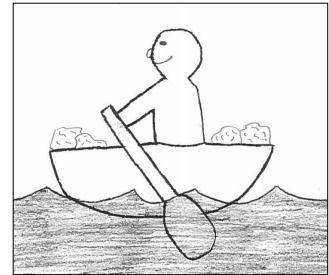


Cummulative Effects: How Much is Too Much and What Can We Do About It?

Cumulative effects refers too many different things that individually would only cause small negative effects, but when combined would cause much larger negative effects. For this essay I will be looking at cumulative effects as they apply to caribou. As an example, one development project on a caribou range may have a small disturbance effect on caribou, while the same type of development on an important caribou range may have a much more damaging effect. The two combined may then have an even greater impact on caribou health and productivity then the sum of their independent effects.

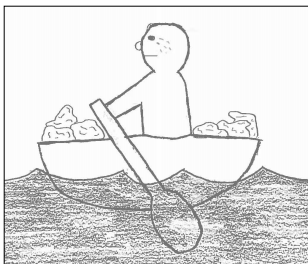
The use of a boat helps me to visualize cumulative effects. A practical example of cumulative effects on caribou is like a boat that you keep adding rocks to. A boat, like anything else, can only withstand so much weight before it starts to become unstable. At one point the boat slows down more and more, then it will eventually sink. This is the same general problem caribou face in the modern world. In this example, we can use the rocks as examples of individual effects on caribou.

The first rocks could represent seasonal range shifts from high quality range due to disturbance by eco-tourists, sport hunters and other commercial tourism and sport hunting activities. When on important ranges, these activities can push caribou into poorer quality ranges. This shift from better range, resulting from this kind of disturbance will and can cause increased predation and reductions in foraging and overall health. This could also mean caribou would have to travel farther to find food and avoid predators.

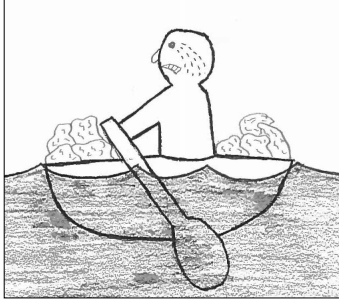


Still more rocks could represent excessive harvest above sustainable levels as well as poor harvesting practices. Taking too many females, taking more caribou than we need, or wasting meat, all can lead to increased harvesting. If too many females are harvested, that will also impact how many calves will be born during calving season. Hunting with rifles that aren't sighted in will lead to wounding animals and further wastage of caribou.

Still another rock might be climate change and its effect on vegetation, slowly changing the caribou's range, effecting the vegetation quality, quantity and availability. Availability can be impacted by snow cover hardness and thickness. Environmental conditions such as deep snow and freezing rain may reduce how much food the caribou can eat adding more rocks to the boat.



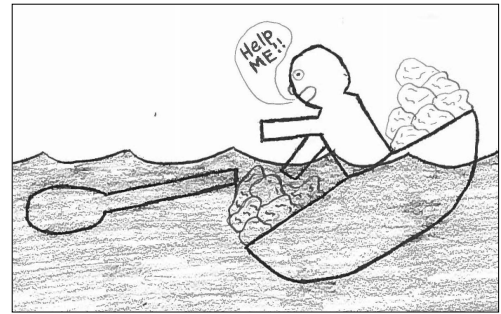
Industrial activities can be another rock added to the boat. Barriers to caribou such as waste rock piles, sound barriers from blasting and industrial noise, heavily used roads and/or the effect of roads on making it easier for people to access caribou, all have the general effect of deflecting caribou away from their preferred



range. Increased access will also have the effect of increasing hunting pressure and overall disturbance of caribou behaviour.

When industrial equipment and activities interfere with the caribou's best quality range, the caribou would be forced out of the best range and would have to go to a poorer quality range where there may be more predators and the nutritional value of the plants would be poorer. Being pushed out of the best quality range by disturbance will mean the caribou will not put on as much fat. Less fat on female caribou will mean fewer calves and overall poorer condition for both males and females. Poorer health and physical conditions mean greater vulnerability to predators and diseases.

We all know that the development of Nunavut to gain self-sufficiency and jobs will impact wildlife; the question is how we can balance these impacts so we don't lose our great caribou herds. How much is too much? We also need to understand mining resources will only last so long until all the minerals are pulled out on the ground. Caribou however, will be around forever if managed properly and with care. We need many more studies on cumulative effects before we lose our caribou herds because we have put one rock too many in our boat.



We cannot control nature though we can help reduce emissions to lessen climate change. All we can really control is people. Taking only what we need or even a bit less or none at all when numbers are down will help substantially. Making sure our rifles are sighted in, will reduce wounded caribou. Taking as few females as possible will help the herds continue to have calves. Perhaps most important is trying to preserve the important ranges of our caribou herds, so they are not pushed into areas where the food is poor and where there is a lot of disturbance and loss of life by predators of all kinds. Everyone should talk more about cumulative effects and listen to our experienced hunters and elders who have the knowledge to preserve caribou for the future and harvest them in a respectful way.

We need to develop a common voice and tell our leaders to slow down development as the non-renewable resources are not going anywhere, but our caribou could if we do not protect their home. Stop overloading our wildlife with negative stress. If we do that, the caribou and the wildlife will be here for our children and their children's children. We need to stop being greedy and start looking to the future. The reward will be caribou for everyone, forever.

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