Deaf in One Ear and Blind in the Other; Science, Aboriginal Traditional Knowledge, and Implications of Keeyask for the Socio-Environment.

Our Story

Our Story

Stephane McLachlan, PhD
Concerned Fox Lake Grassroots Citizens
Environmental Conservation Lab
University of Manitoba

“I have learned that people can be deaf in one ear and blind in the other”

(Melvin Cook, Split Lake Public Hearings, 2013)

http://uniter.ca/

http://www.thompsoncitizen.net

OUTLINE

- Optimism
- Two-track, three-track
- Process
- Past
- Impacts
- VECs
- Multi-scales
- Rehabilitation
  - Sturgeon
- Heavy Hearts
- Monitoring
- Three-Track Revi
- Recommendations

Our Story

PROVISIO

- No site visits
- Restricted reading
  - 15 volumes (scientific; biological)
  - Public hearings, interviews (ATK)
- Cross-cultural, holistic view
- But…
  - Document review
  - Much work re. hydro development
  - Northern Indigenous communities
  - Arms-length research
- Triangulation
  - Affirmation

OPTIMISM

"The Project provides a broad spectrum of economic, social and environmental attributes important to the Keeyask Cree Nations, the local region, the province of Manitoba, Canada and energy consumers in U.S. markets."

(Keeyask EIS, Executive Summary, 2012; p 6)

"It is our hope that Keeyask…will improve the capacity of our homeland ecosystem to sustain us both physically and culturally."

(CNP, 2012; p 80)

"FLCN welcomes the potential economic benefits from Keeyask, although the need to protect our culture, needs and aspirations in the face of continuing hydro development remains."

(FLCN, 2012; p 63)

"If we can achieve these objectives, then the Keeyask Project and Partnership will make a significant contribution to fulfilling our hopes and expectations for our current and future generations."

(YFFN, 2012; cover letter)

TWO-TRACK

"Manitoba Hydro and the Keeyask Cree Nations (KCNs) undertook a two-track approach to assess the effects of the Keeyask Generation Project (Keeyask).

The KCNs assessed the effects of the Project on themselves through their 50 years of experience with hydro-electric development and their own distinctive worldview, while the Partnership assessed the effects of the Project in terms of regulatory significance through a technical science-based approach."

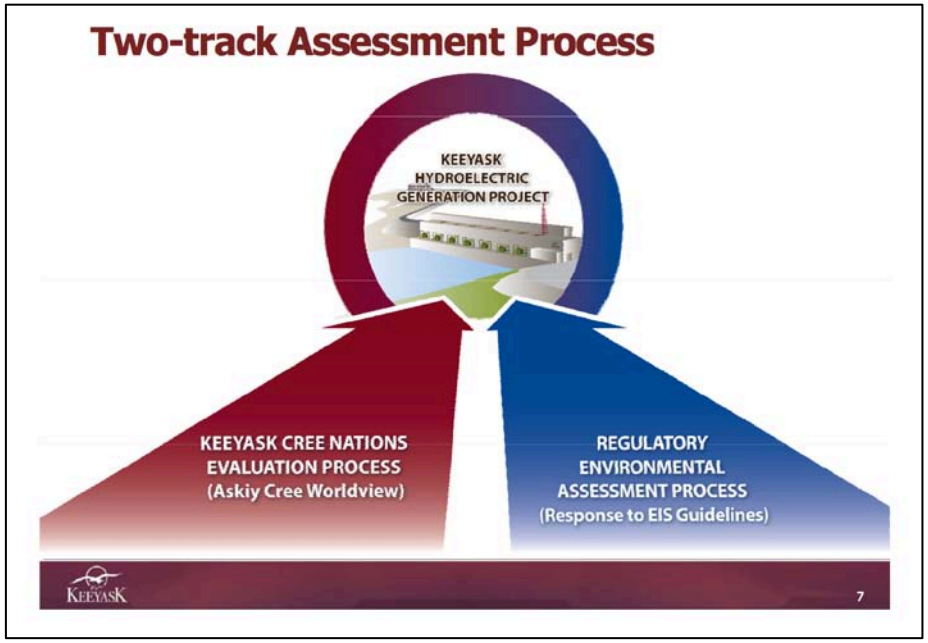
(CEC Rd 1 CAC-0095)

TWO-TRACK

- Two knowledge systems
- Parallel
- Little interaction
  - ground truthing, labour
- Equal weight

"…the Cree worldview basis of the Keeyask Cree Nations' evaluations of the environmental impact of the Project upon themselves is given equal weight and recognition to technical science."

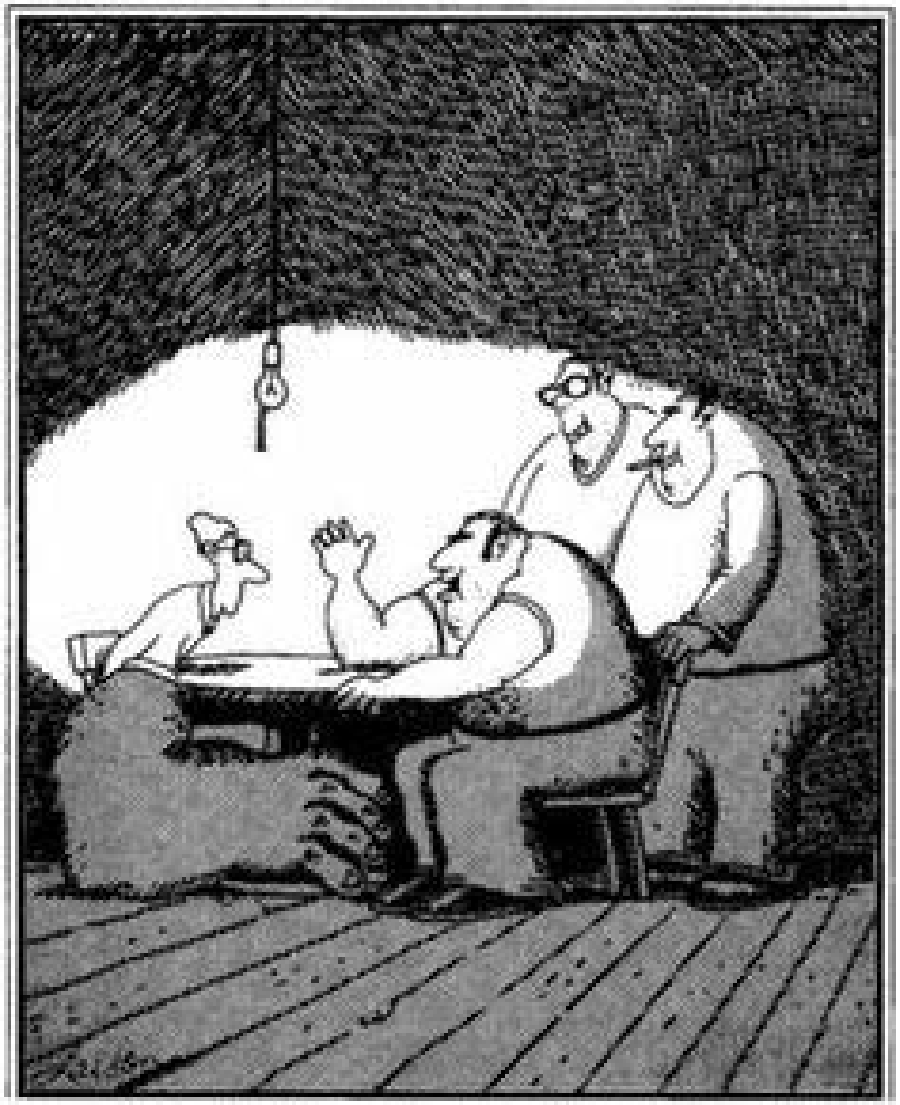
(Keeyask EIS, Executive Summary, 2012; p 3)



Intro Two-Track Assessment, Oct 22 2013, p 7

http://froshgeometry.blogspot.ca

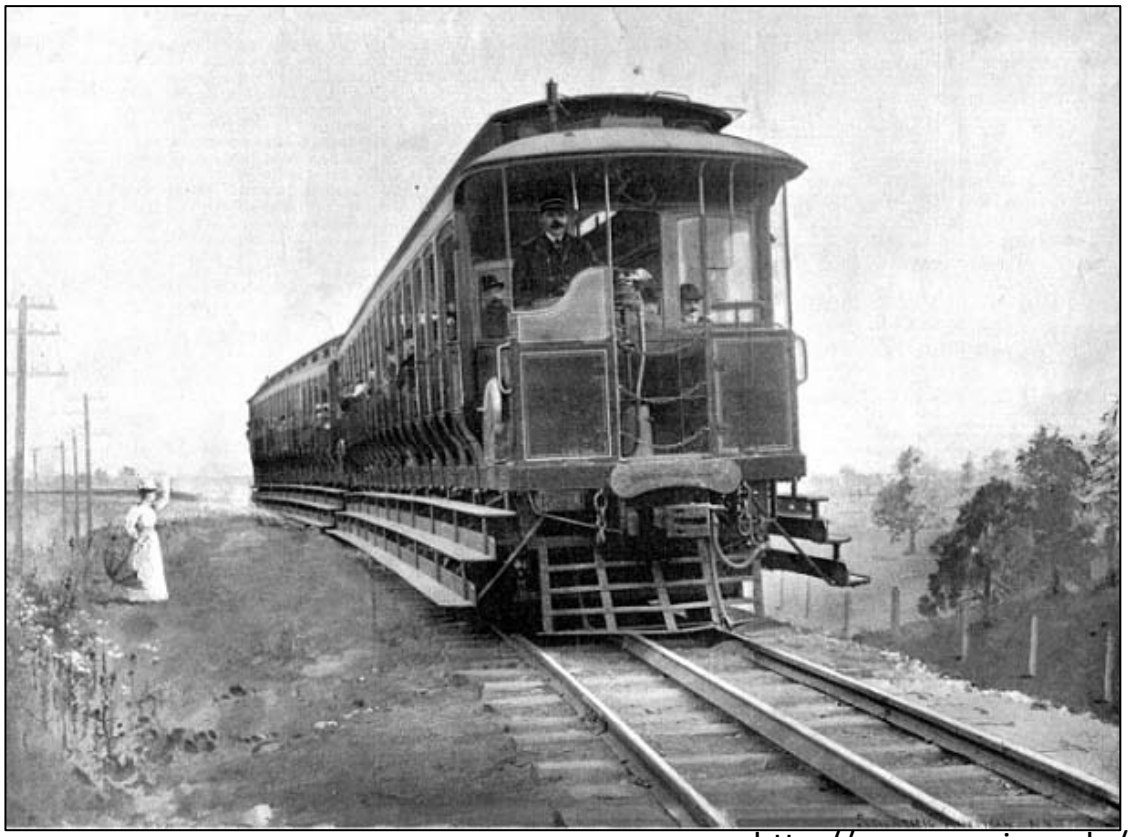
Intro Two-Track Assessment, Oct 22 201, p 23



"Okay, buddy. Then how 'bout the right arm?"

THREE-TRACK

- Two-track: means vs. end
- Middle track
- Intersection and engagement
- Win-win-win



http://www.cs.uiuc.edu/

PROCESS

http://www.yffd.ca/FAQs.html

"This approach is reflected in the Environmental Impact Statement and demonstrates the real efforts of both the Keeyask Cree Nations and Manitoba Hydro to reconcile their differing worldviews in a mutually beneficial and respectful way"

(Keeyask EIS, Executive Summary 2012; p 3)

"Whereas they took eight years to compile this big document. And, you can tell…it was written by lawyers, and stuff, and, they want, expected us to make that decision within three months…"

(Illa Disbrowe, SLPH, 2013; p 101-102)

"Everything is on the move apparently, as far as I hear from my group of people, the Fox Lake band. I keep asking them what is happening, what is happening? And the good answer is, I don't know, I don't know. Everything seems to be strictly like confidential. Why do you keep it confidential to our people…You see, we are prisoners on our land. Our people are not here because they are protesting today…."

(John Spence, GPH, 2013; p 44-45)

"Lack of information they give us. Lack of everything. Like I said, when they talk to a couple of people they say they've consulted. Yeah, that's what they do sometimes…"

(Ivan Moose, FLCN; interview)

"Aboriginal traditional knowledge (ATK) played an important role in both technical data collection and describing the existing environment…"

(SV Terrestrial Environment, 2012; 3-3)

Keeyask EIA: Executive Summary

"And then North-South and them, they did their western science studies on the same thing. Then they write up all the reports about what their findings were, but nowhere do they report anything that we have told them. And I, last few meetings I had with Hydro, I told them, like why do you even ask to talk to us…?"

(Christine Massan, FLCN; interview)

"Jack: *We asked the researchers, we ask questions, and they don't tell us. I don't know if Manitoba Hydro is telling the research, what…*

Christine*: Not to say.*

Jack*: Not to say anything else, but what, what Hydro wants them to say."*

(Jack Massan and Christine Massan, FLCN; interview)

“The other band councillor, there is only two of us, the other band councillor needed to get his speech approved by Hydro as well. And that is why I feel that I need to talk right now, because my speech is not scripted. I am not accountable to Manitoba Hydro. I am not even accountable to my lawyer, who advised me not to speak. No longer will I remain quiet. No longer will I regret being silent. No longer will I allow Hydro's timeline to go ahead without us being ready.”

(Conway Arthurson, SLPH, 2013; p 92-93)

THE PAST

Our Story

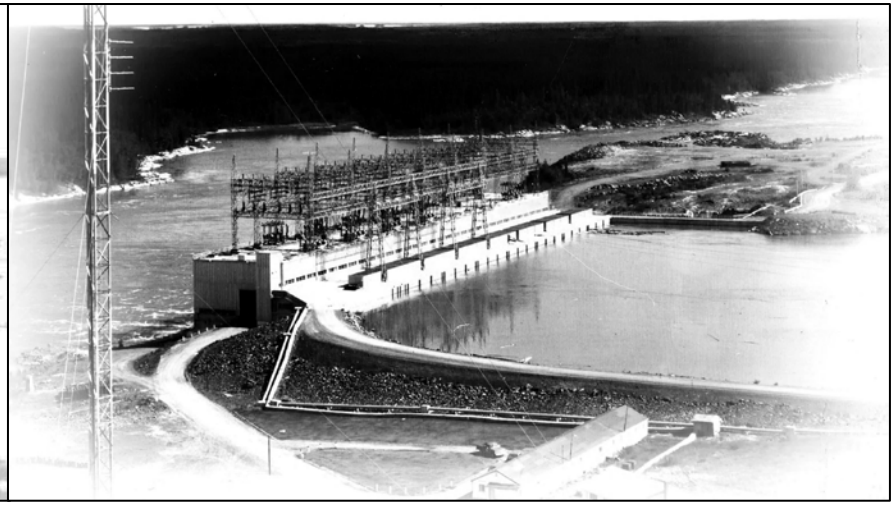
"Yeah, everybody got along. There was not trouble.
We were never hungry, we were never hungry.
I don't remember being hungry, we always had food, wild food.
Everything, eh. Lot of them, like my grandparents, did a lot of trapping.
We lived, they lived; they lived through trapping
and hunting and fishing…"

(Ivan Moose, FLCN; interview)

Our Story

IMPACT

Our Story



Our Story

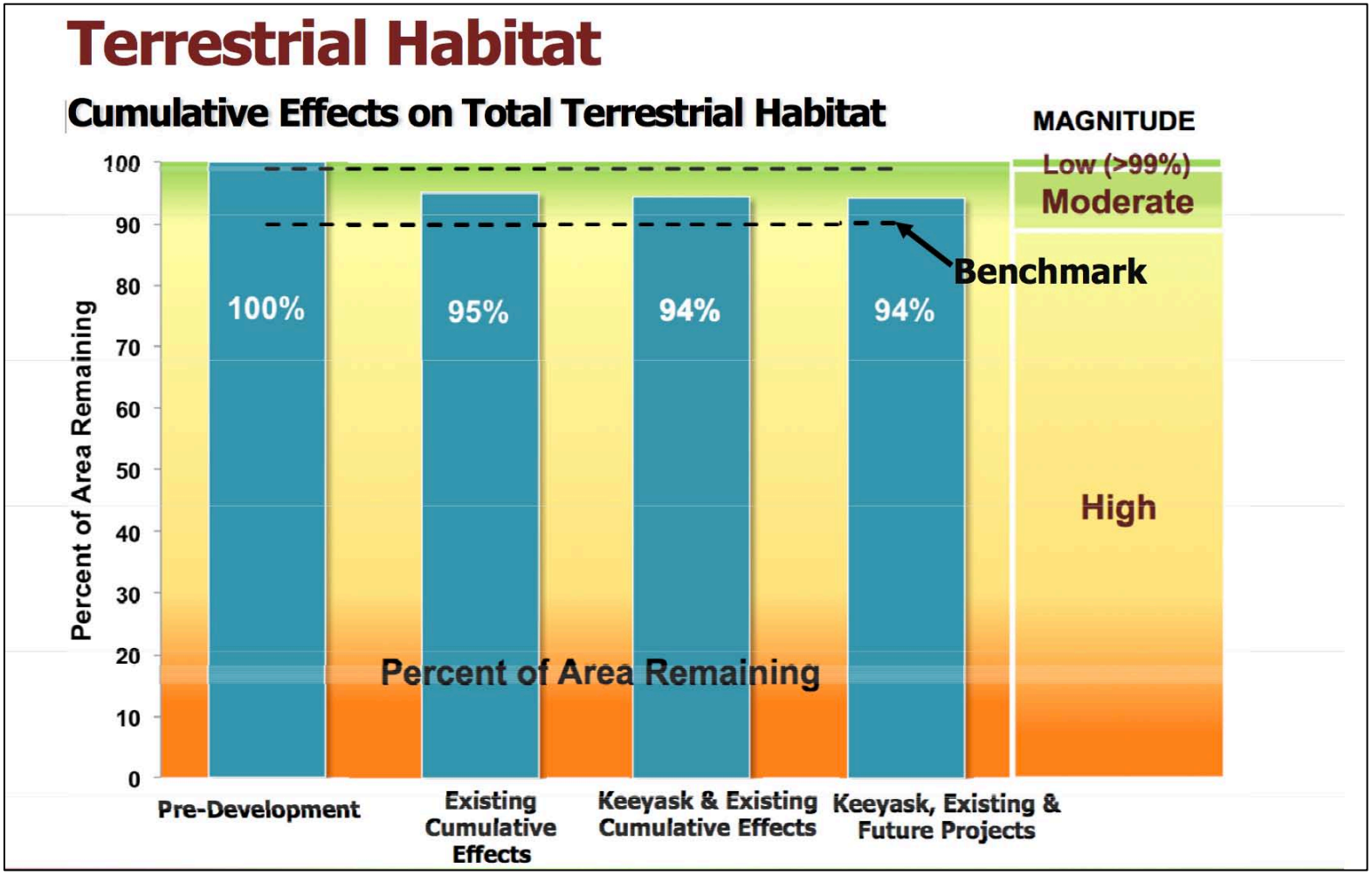
IMPACT

"Hydro, I find, are destroyers. They destroyed everything here. Destroyed our way of life, peaceful life. Honestly, in all honesty, I don't have any use for Hydro….You know, they're the ones that came here and uprooted everything, displaced everybody."

(Ivan Moose, FLCN; interview)

"Besides, when I was out working here, just before 1957…,
it was still good, there was still lots of animals and lots of birds and bees.
Yet when I came back in the 1970s, big change.
All I see is a lot of water and lots of power lines and that's
-- all that stuff, they chased everything away"

(Samson Dick, GPH, 2013: p 56)



Ehnes et al., 2013, Terrest Env p 38

FISH

Our Story

"All the fish. I remembered, it was, what you call this, mariahs. There used to be lots of them there, eh. Just right where that, that, that island is, there's a river, the Limestone River, then it goes around that island, there used to be lots of those mariahs there. We used to catch them, you know, the eggs and that?...Yea, used to be, oh God, they used to be nice. Nowadays, all those mariahs are just, can't, there are not that many. I don't know what happened to them."

(Jack Massan, FLCN; interview)

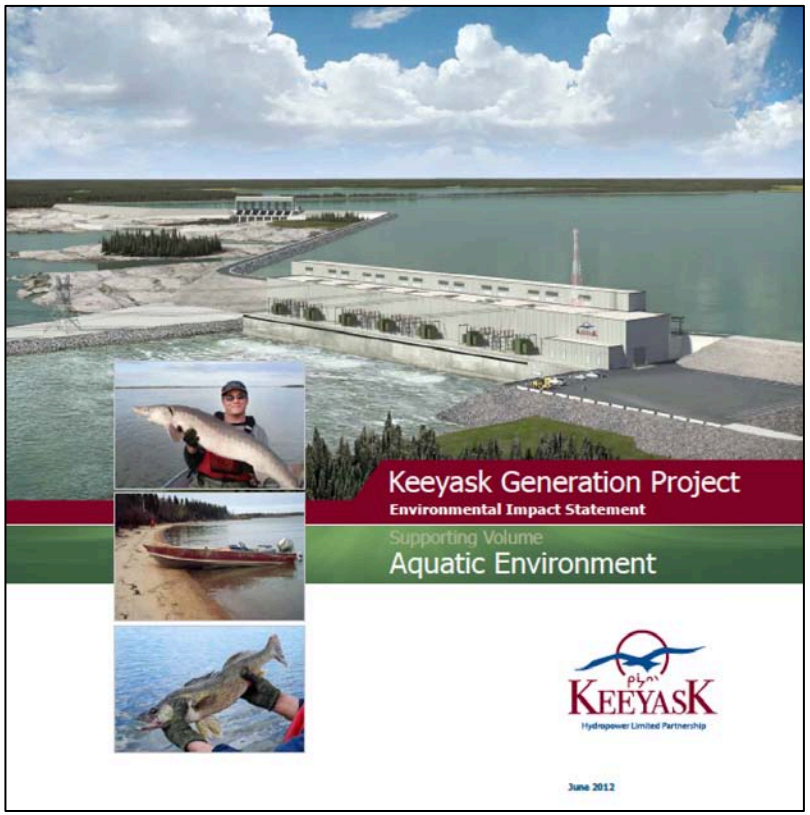
“Even our fish, they are not good nowadays either. We used to have, we used to get all kinds of fish from sturgeon to jack fish, all kinds of fish we had used to taste good, they taste nice. Now you eat fish today, I'll bet you wouldn't eat it yourself because it doesn't taste like fish anymore. All that stuff that floats, it is kind of like green sometimes from the sediment, all of that stuff, all of that green stuff is stuck on the net. Where did that come from.”

(Samson Dick, GPH, 2013; p 56-57)

http://ourfoodhealthculture.com

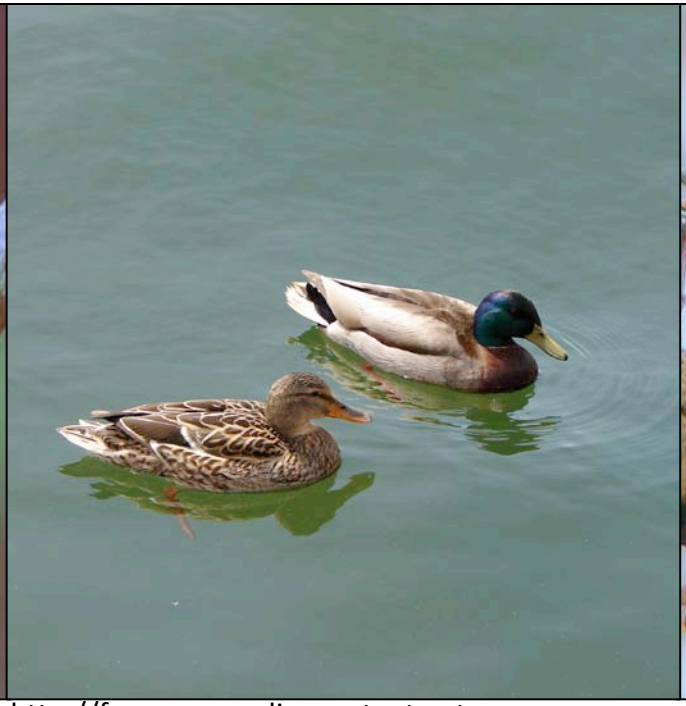
"Walleye and lake whitefish in Stephens Lake are predicted to experience negative effects during construction, but effects will be neutral in the long-term. In the Keeyask reservoir, both species are expected to experience a small, positive (population increase) effect…Adverse effects during construction and the initial years of operation are reversible, as VECs are expected to recover over time"

((SV) Aquatic Environment, 2012; 5-66)



VECs

http://www.naturecanada.ca



http://forums.canadiancontent.net

http://www.outdooralabama.com

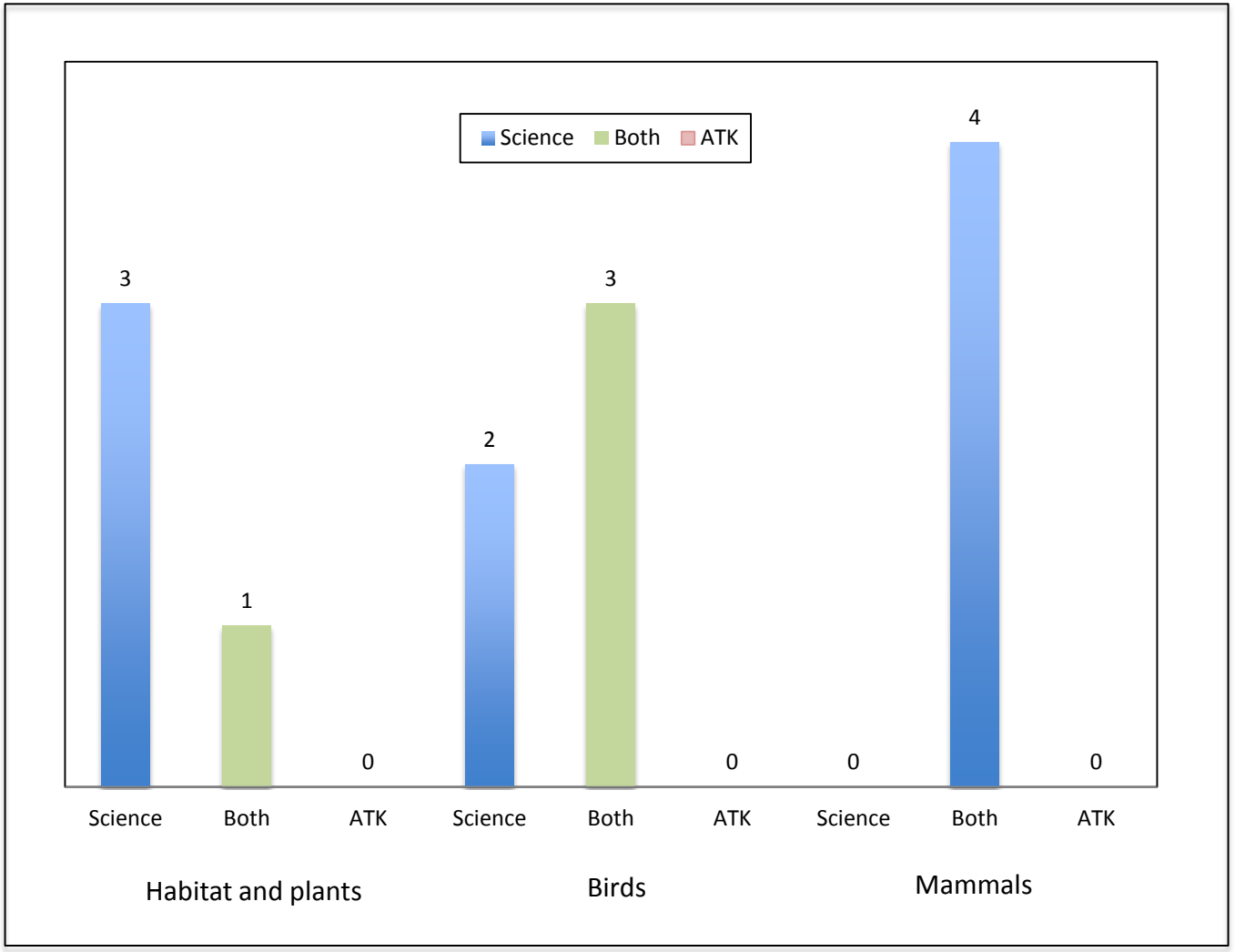
"The priority plants VEC considered plant species that are particularly important for ecological and/or social reasons. Priority plants were the native plant species that are highly sensitive to Project features, make high contributions to ecosystem function and/or are of particular interest to the KCNs (e.g., spiritually important, used as medicine or food). A plant species was considered to be highly sensitive to human features if it is globally, nationally, provincially or regionally rare, near a range limit, has low reproductive capacity, depends on rare environmental conditions and/or depends on the natural disturbance regime."

- VEC vs. Priority Species vs. Supporting Topic

Ecosystem Component	VEC	Supporting Topic
Terrestrial Ecosystems, Habitat and Plants	Intactness	Fire regime
	Ecosystem diversity	Terrestrial habitat
	Wetland function	Soil quantity and quality
	Priority plants	Invasive plants
Terrestrial Invertebrates		Invertebrate community
Amphibians and Reptiles		Priority amphibians
Birds	Canada goose	Other priority birds
	Mallard	
	Bald eagle	
	Olive-sided flycatcher	
	Common nighthawk	
	Rusty blackbird	
Mammals	Caribou	Other priority mammals
	Moose	
	Beaver	
Mercury		Mercury in wildlife

Ehnes, 2013, Terrest Env p 14

SCIENCE VS. ATK



"…finding the balance between Indigenous knowledge and "western" science has been a continuing challenge. Fox Lake participated in the Valued Ecosystem (VEC) process but found the process difficult to accept. The VEC approach of identifying and studying key issues of importance operates on the basis of selecting a number of species for study, often determined by their "at-risk" or "endangered" status. When consulting with FLCN Elders and Harvesters about important species and areas, FLCN researchers were reminded that it is problematic to categorize species based on a "western" point of view"

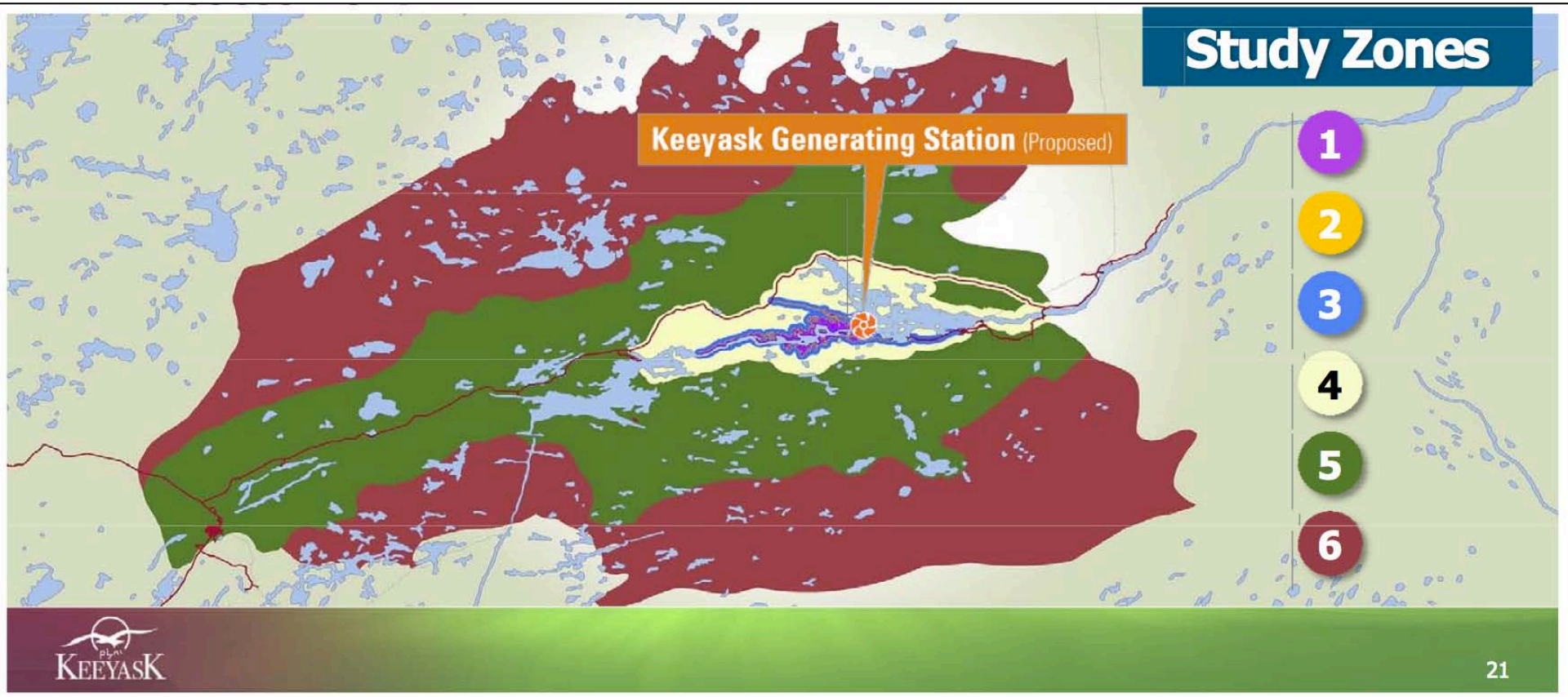
(FLCN, 2012; p. iv)

MULTI-SCALE

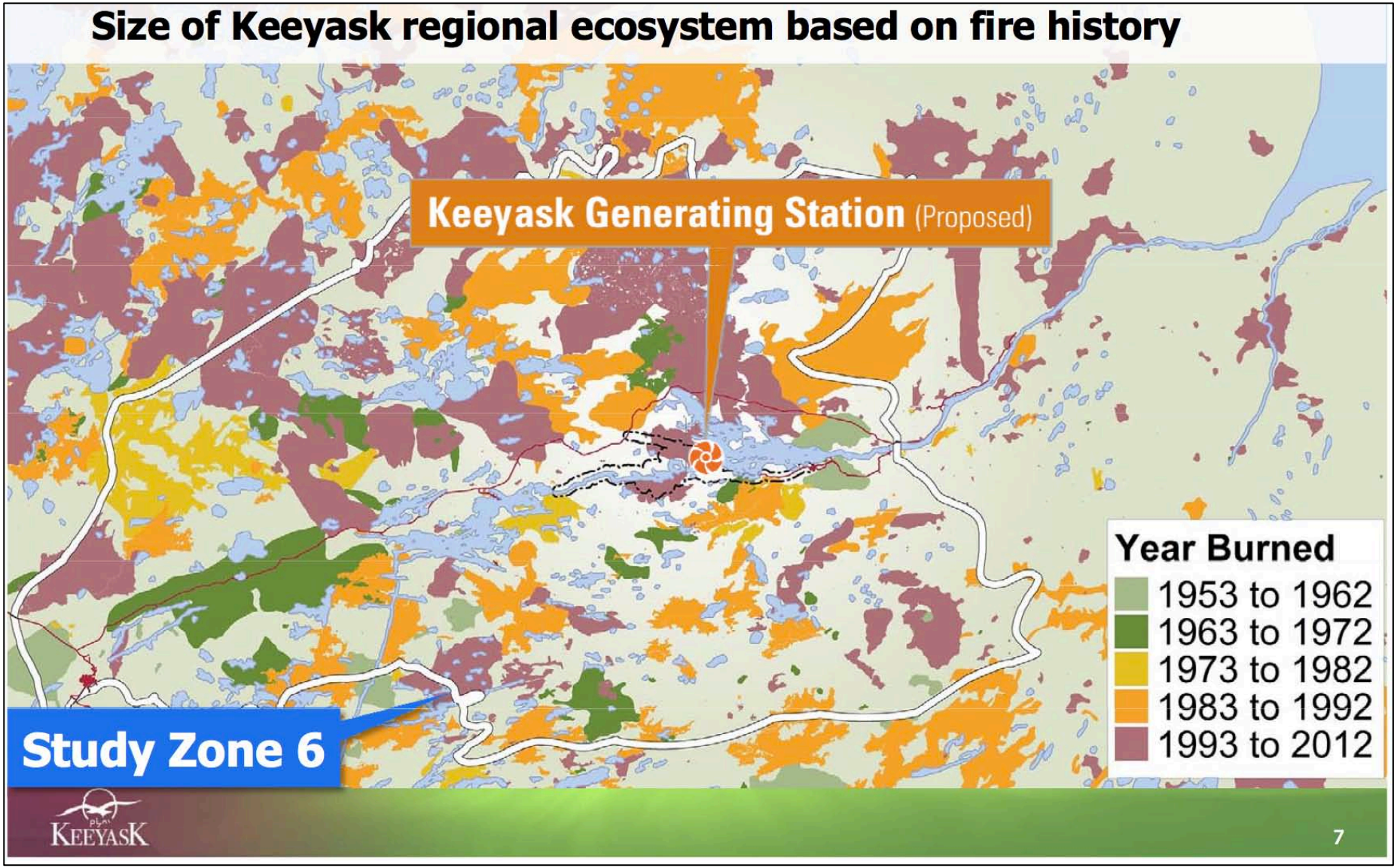
"The Local Area captured the potential zone of Project influence on individuals in the case of species and individual elements in the case of non-species topics. The Regional Study Area captured the area needed to assess how local effects were expected to affect population viability in the case of species or the regional manifestation of the attribute for non-species key topics."

(SV Terrestrial Environment, 2012; 2-6)

- Type II error
- regional scale given priority

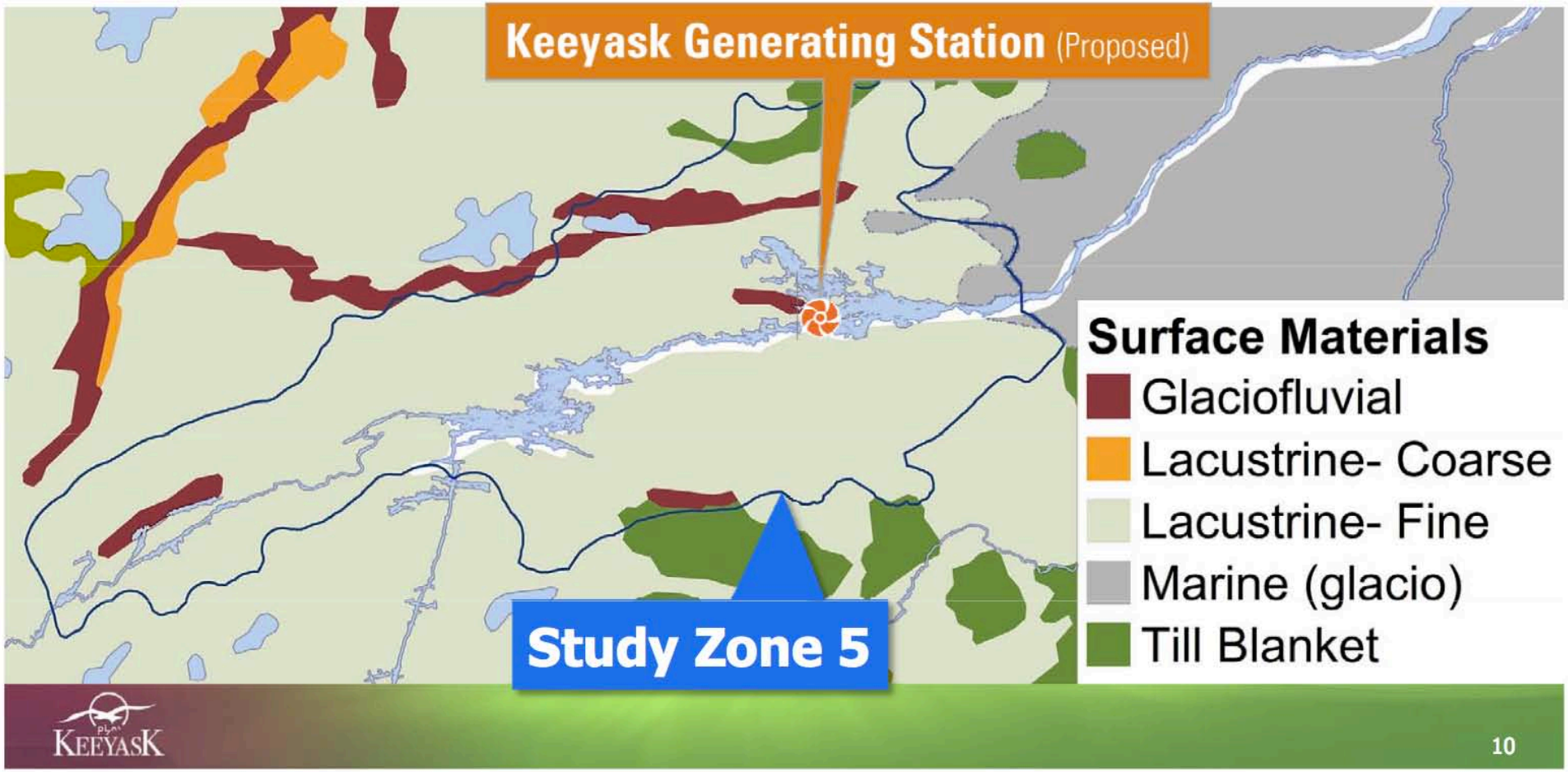


Ehnes, 2013, Terrest Env p 21

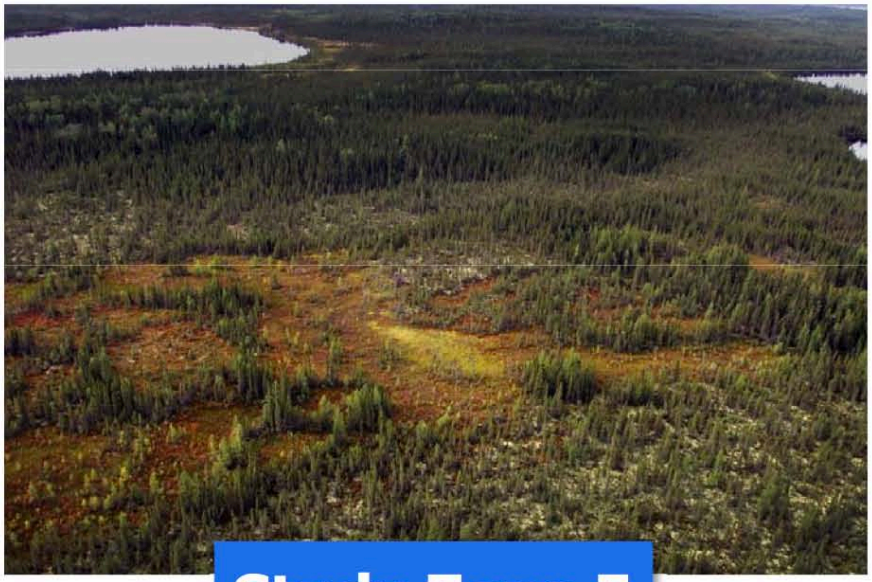


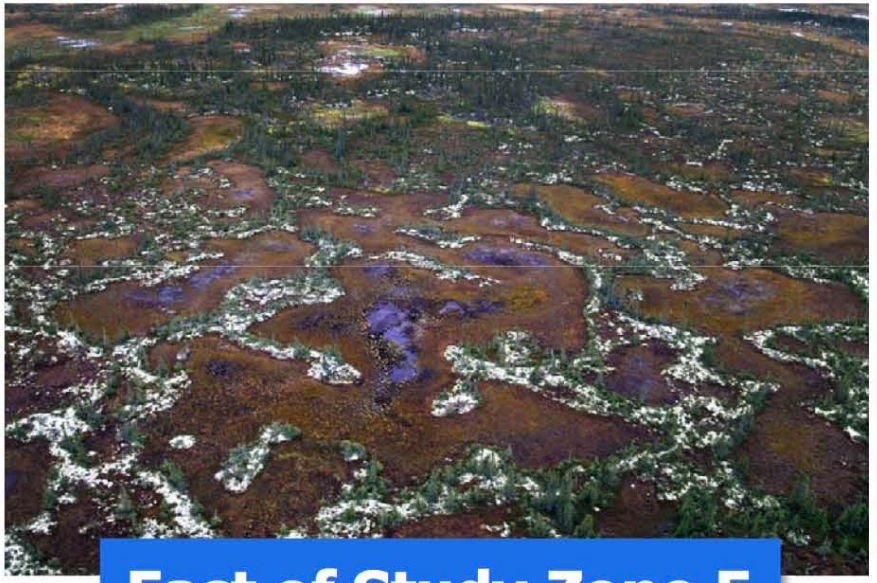
Ehnes, 2013, Terrest Env, p 7

- **Regional ecosystem boundaries based on similar fire regime, surface materials, landscape level features and climate.**



Ehnes, 2013, Terrest Env, p 10





Ehnes, 2013, Terrest Env p 14

- Two ecosystems?
- Focus sampling on SZ 5
- Implications

FURBEARERS

- regionally rare species assumed not to be threatened by hydro development because they are typically

"common and secure in other parts of Manitoba and beyond"

((SV) Terrestrial Environment, 2012 7-137).

http://www.healthywildlife.ca/

There are fewer beaver in the York Landing area today (YFFN Evaluation Report (Kipekiskwaywinan)). They were abundant along the shoreline of the Nelson River, and are now rare in these areas (FLCN 2010 Draft) due to previous hydroelectric development (FLCN 2010 Draft; YFFN Evaluation Report (Kipekiskwaywinan)).

(SV Terrestrial Environment, 2012; 7.56)

"Declining trends [in beaver] are more likely to be associated with Depressed fur prices and reduced trapping effort as opposed to a regional population declines; however, there is an element of uncertainty in this assertion."

(SV Terrestrial Environment, 2012; 7.56)

"I don't want to see that land be flooded. These other dams. Those beavers that make their houses already and everything, they don't have time to go move out. They like that old lady I was telling you about whose house knocked down. Beaver must have a same feeling [laughs]."

(Noah Massan, FLCN; interview)

"The cumulative effects assessment step that deals with future projects and activities focuses on VECs that are adversely affected by the Project and are vulnerable to the effects of future projects and activities. As terrestrial furbearers are not a VEC, they are not covered in the cumulative effects assessment step that deals with future projects."

(SV Terrestrial Environment, 2012; p 7-100)

MEDICINES

Jack: *"You know, a number of our Elders still use plants for medicinal uses. So Hydro will come and ask, where do you get your plants and we won't go in that area. Like, do you always go in the same spot to pick things* [laughs]*?"*

Christine*: "Do you go to the same shopping centre to buy whatever?"*

Jack*: "But you know, you can go in a place, you used to go in a place and pick."*

Christine: *"And now you gotta go further and further."*

(Jack Massan and Christine Massan, FLCN; interview)

http://northernbushcraft.com/guide.php?ctgy=edible_berries&region=mb

"Noah: *"You should've seen that Landing Lake road. Berries all over, all over town too."*

Ivan: *"Especially by the Radisson there."*

Noah*: "Yep, on that hill…They gotta go all over the place. Hardly any berries now."*

Ivan*: "Far, eh. Gotta go far. They miss that, you can tell, the Elders. Especially the older ones, like our age, or the women. They love to pick berries but they can't do it no more. Nothing."*

(Noah Massan and Ivan Moose, FLCN, interview)

"Substantial Project effects on the KCN species are not expected. Most of the KCNs species are either generally widespread or widespread in their preferred habitat. A small to moderate number of the known locations of each of the remaining species occurs within the terrestrial plants zone of influence."

(SV Terrestrial Environment, 2012; 3:39)

Table 3-6: Number of Locations – Species of Particular Interest to the KCNs Found During Field Studies in the Regional Study Area and Other Areas

Species		Number of Field Records		
Common Name (Scientific Name)	Cree Name	Local Study Area	Regional Study Area	Areas Northeast of the Regional Study Area
Sweet flag *(Acorus americanus)*	*wekes, wekas, wihkis*	0	0	0

http://www.hellotcm.com/Herb/herb244.thtml

http://psychotropicon.info

"Several participants also highlighted the need to incorporate a 'traditional plants' perspective in Keeyask monitoring activities (through the ATK monitoring programs), and in remediation and re-vegetation Plans…"

2012 Keeyask Traditional Plants Workshop Summary

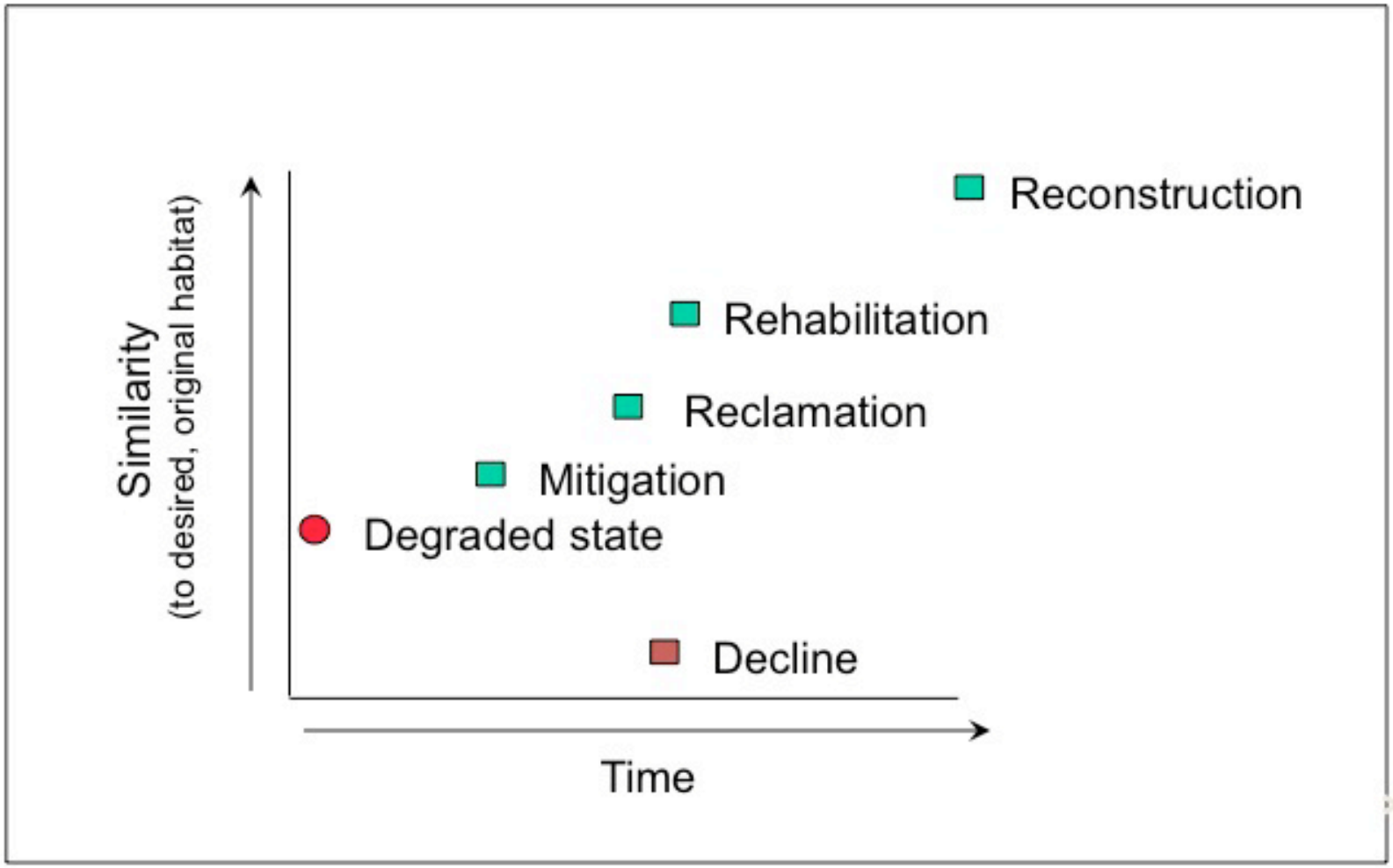
- Funded by MH, objectives and activities set and facilitated by Hydro
- YFFN not participate in mapping activities
- Communicating importance of medicines to MH

ECOLOGICAL RESTORATION

Our Story

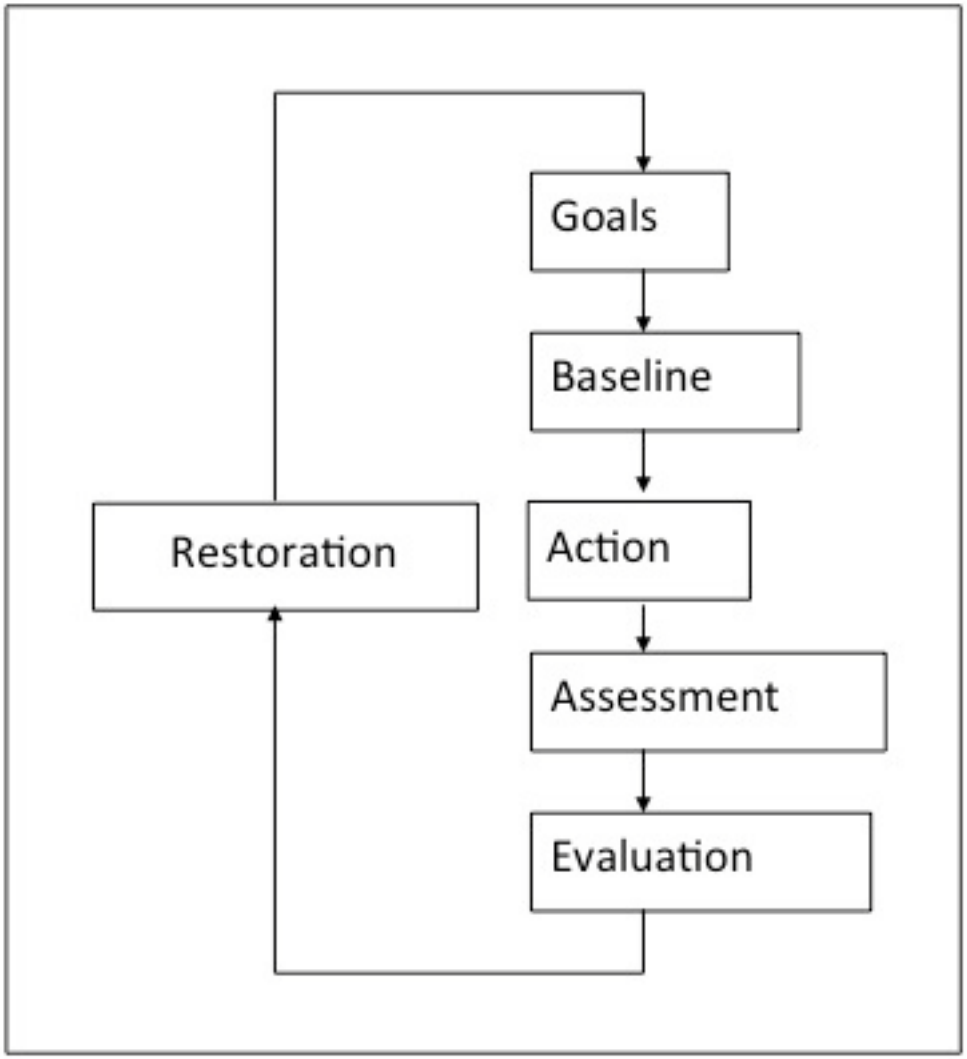
Our Story

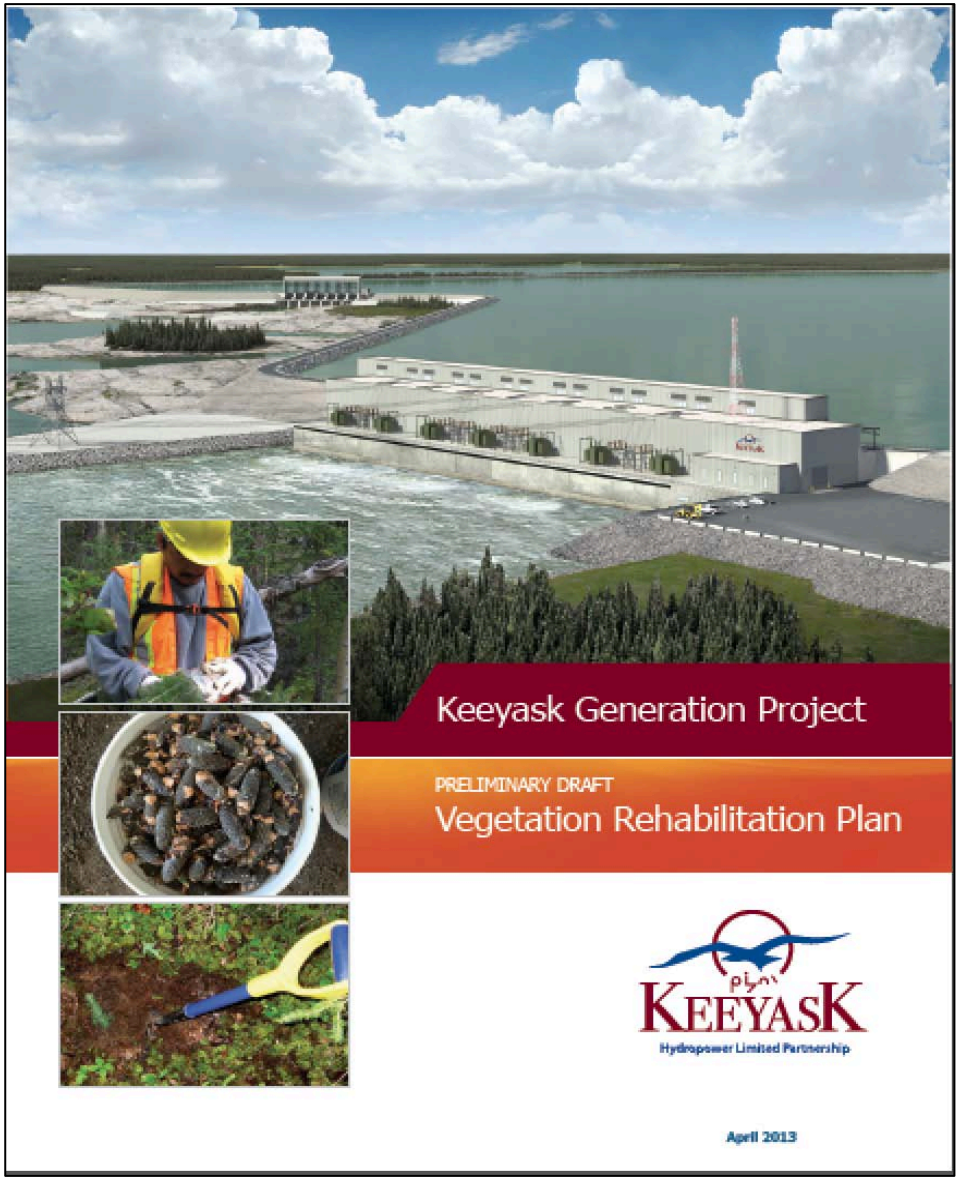
TYPES



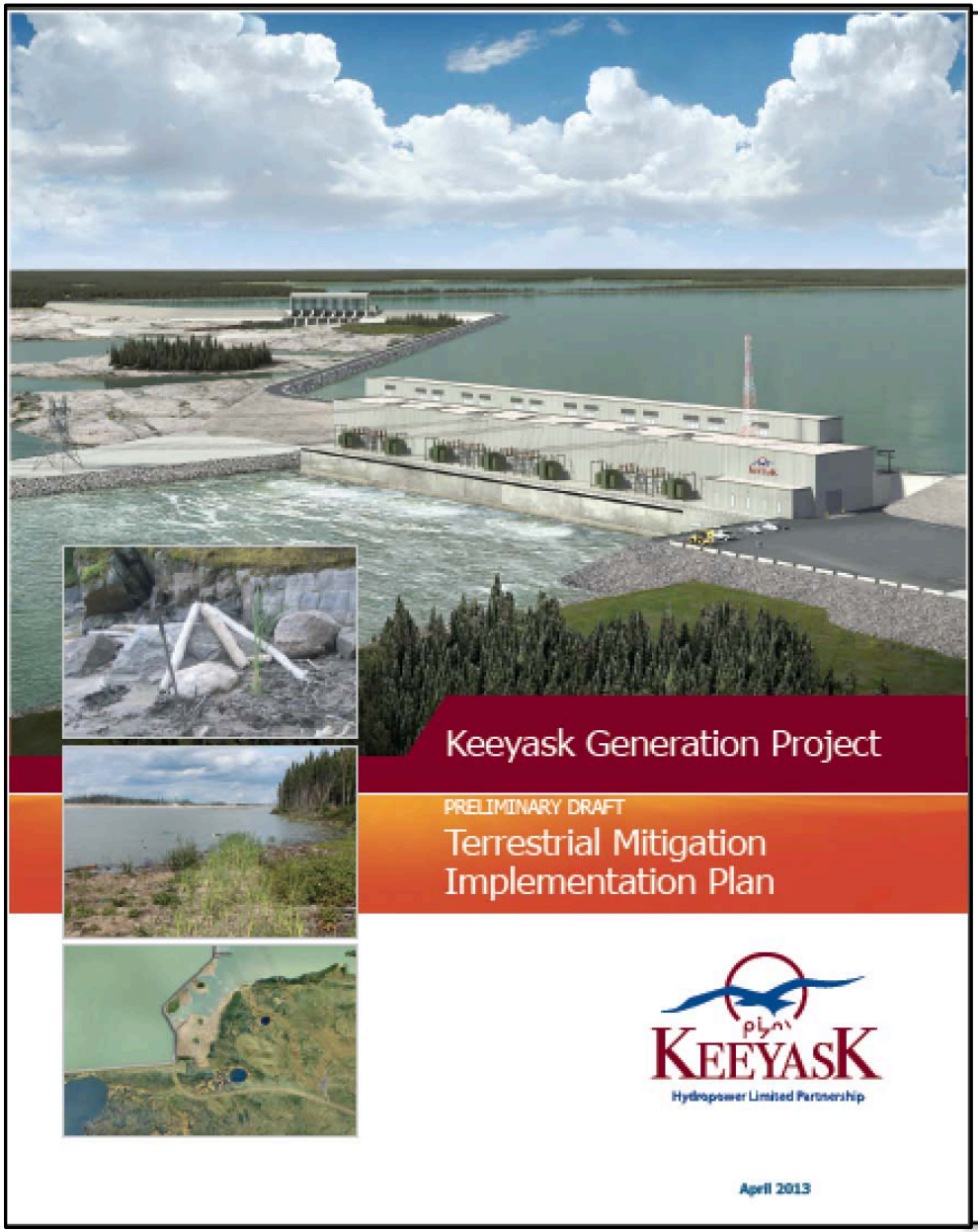
McLachlan, 1997

SCIENCE-BASED





The Vegetation Rehabilitation Plan will be developed once construction is underway, and the actual extent of disturbance caused by construction of the Keeyask Generation Project is known. Detailed design and methodology for all rehabilitation areas will be carried out at that time, and the Partnership will provide the draft plan to the regulator for review prior to finalization.



The Terrestrial Mitigation Implementation Plan will be developed once construction is underway, and the actual extent of disturbance caused by construction of the Keeyask Generation Project is known. Although some conceptual elements of the plan have been drafted, detailed design and methodology for all terrestrial mitigation areas will be carried out at this later date. The Partnership will provide the draft plan to the regulator for review prior to finalization.

"The Vegetation Rehabilitation Plan will be developed once construction is underway, and the actual extent of disturbance caused by construction of the Keeyask Generation Project is known. Detailed design and methodology for all rehabilitation areas will be carried out at that time, and the Partnership will provide the draft plan to the regulator for review prior to finalization."

(Vegetation Rehabilitation Plan, 2013; 1)

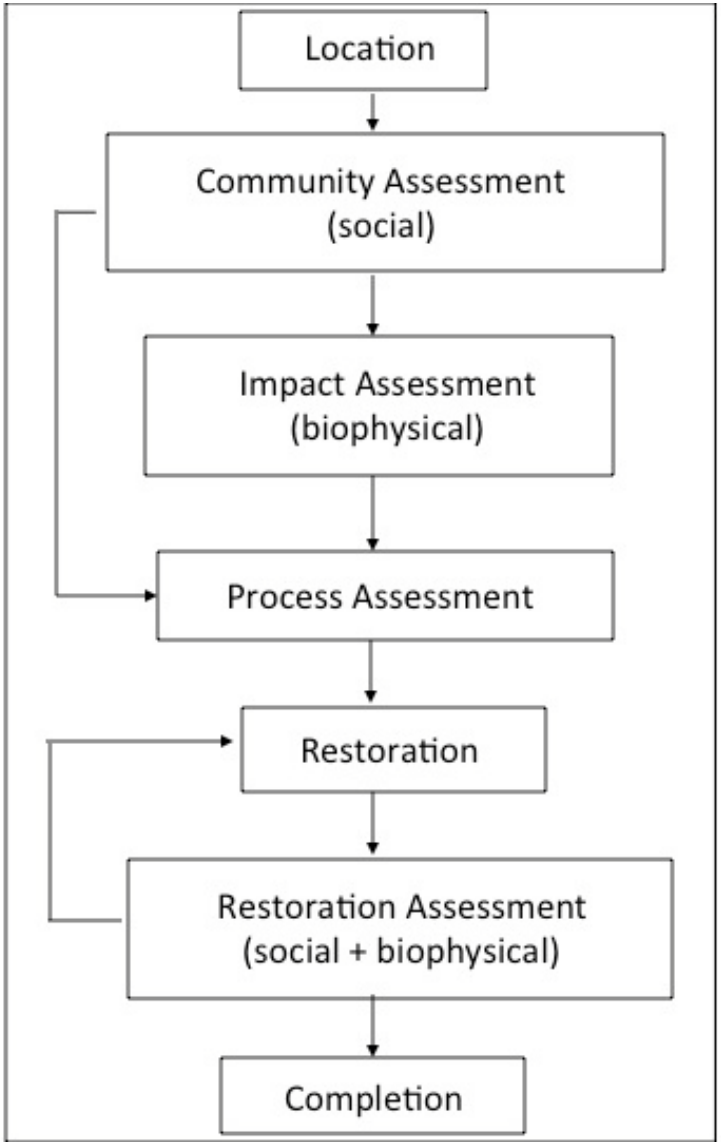
"The Vegetation Rehabilitation Plan will be developed once construction is underway, and the actual extent of disturbance caused by construction of the Keeyask Generation Project is known. Detailed design and methodology for all rehabilitation areas will be carried out at that time, and the Partnership will provide the draft plan to the regulator for review prior to finalization."

(Vegetation Rehabilitation Plan, 2013; 1)

"The Terrestrial Mitigation Implementation Plan will be developed once construction is underway, and the actual extent of disturbance caused by construction of the Keeyask Generation Project is known. Although some conceptual elements of the plan have been drafted, detailed design and methodology for all terrestrial mitigation areas will be carried out at this later date. The Partnership will provide the draft plan to the regulator for review prior to finalization".

(Terrestrial Mitigation Implementation Plan, 2013; 1)

CROSS-DISCIPLINARY



PAST PRACTICE

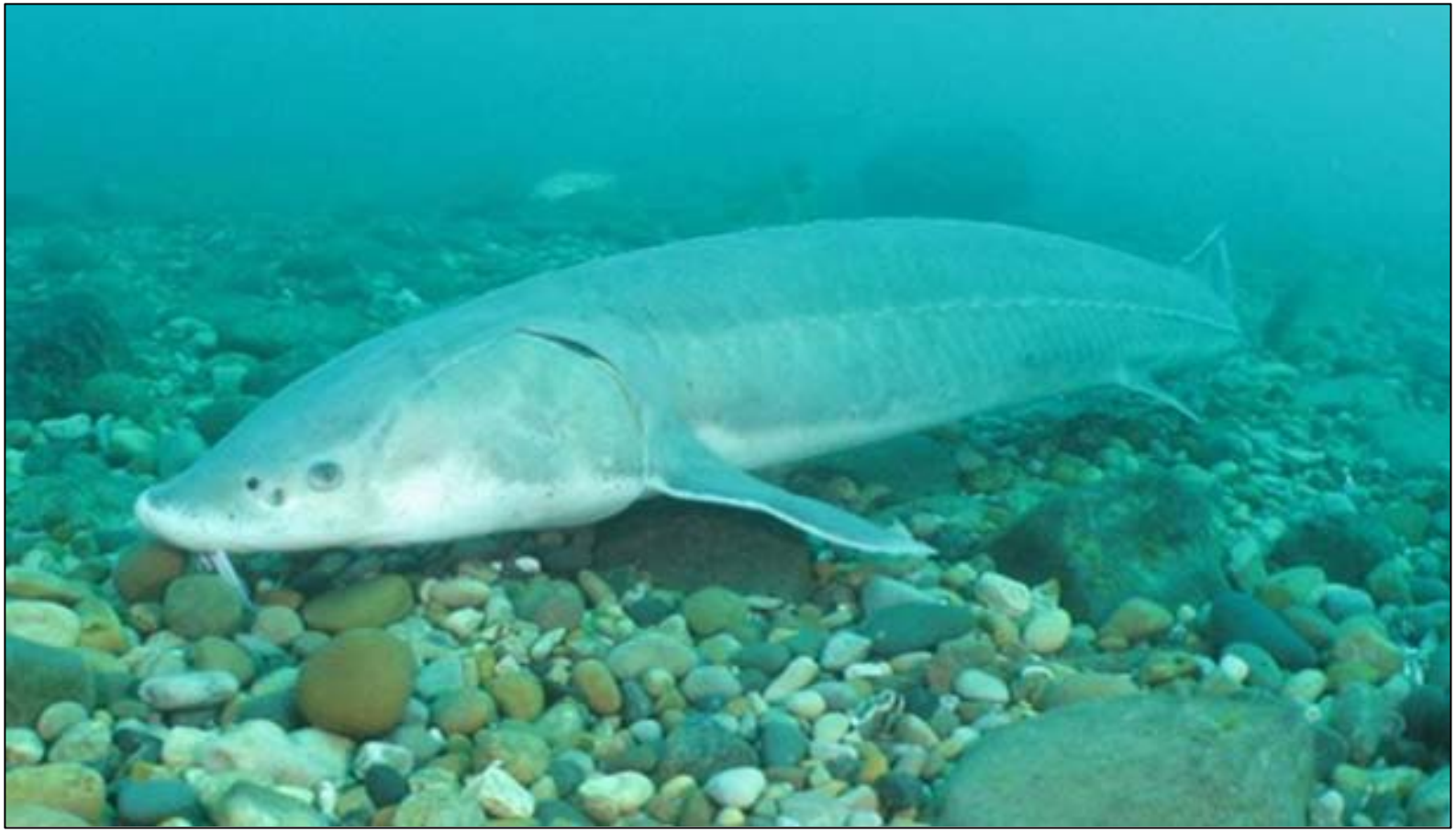
"You know, just, just leave everything, what's, how it looked before, eh. You can't, that's the best way to help the animals. Yeah, you don't just forget about all the construction that's doing, that's going on in the bush"

(Jack Massan, FLCN; interview)

"You know, they're supposed to put everything back the way it's supposed, it was, when they leave us. Like in Sundance, where they had the Hydro camp, they didn't put it back the way it was. It was the most beautiful place we ever lived and everybody just loved it. We were like one big happy family there. But when we all had to move out they said they were going to put everything back the way it was. They never…they didn't even take the pipes out of the ground."

(Christine Massan, FLCN; interview)

REHABILITATION: STURGEON



"Oh yeah. They can't tell you they won't interfere with that. They're also going to affect the Birthday Rapids spawning area too. Oh yeah, it's going to be higher water. Sturgeon is a migrating fish, ok? It goes all over. It's going to have to find different routes now. If you look at the north and south…At those, at the mouth of those rivers you'll see sturgeon there…That's going to be destroyed."

(Thomas Nepetaypo, FLCN; interview)

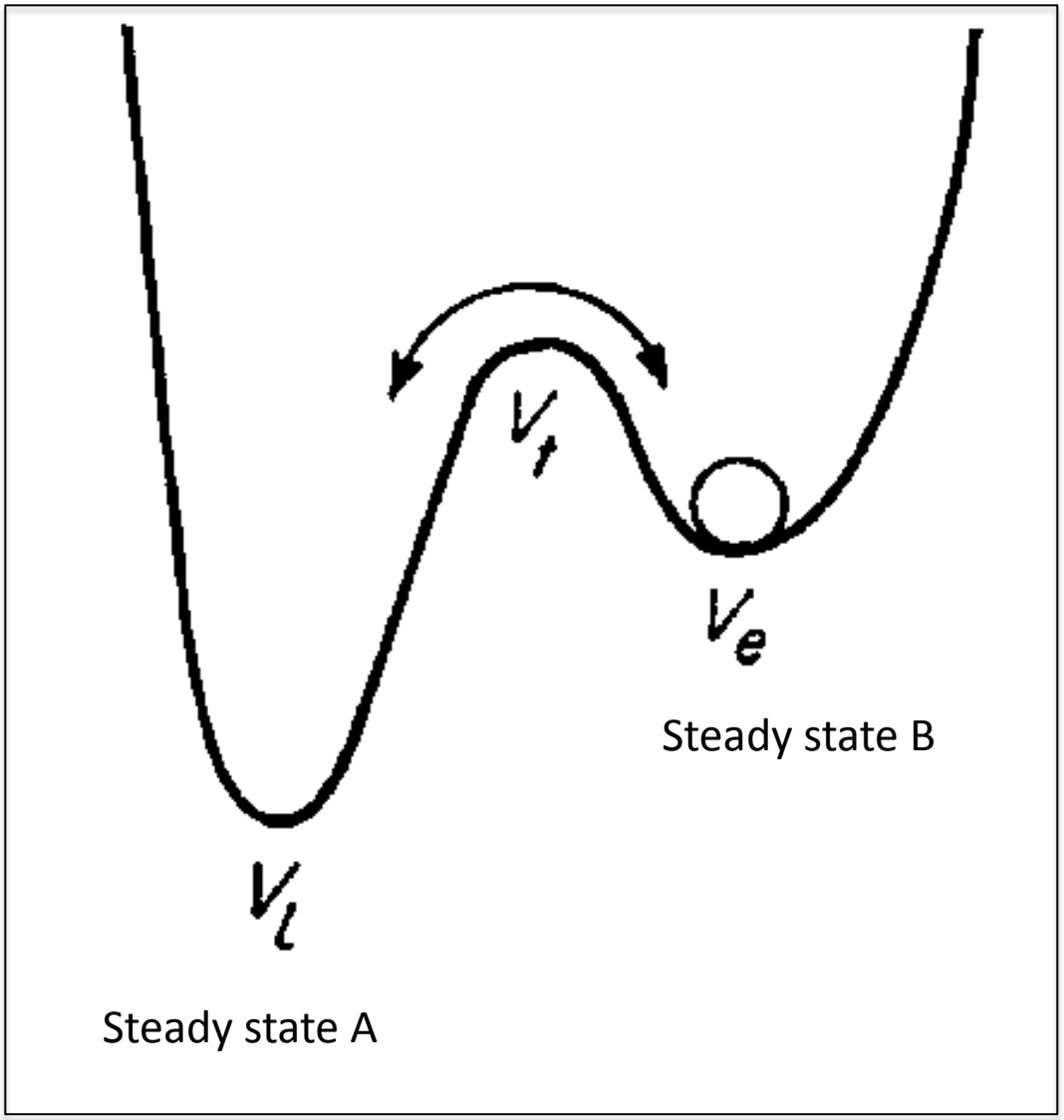
Our Story

"In the long-term, no adverse effects to lake sturgeon numbers in the area directly affected by the Project are expected due to mitigation measures to provide habitat for all life history stages and the implementation of an extensive stocking program. An overall increase in the number of sturgeon in the Kelsey GS to Kettle GS reach of the Nelson River is expected in the long-term as a result of population augmentation due to stocking"

(SV Aquatic Environment, 2012; 6-48)

- Input dependence (hatcheries, stocking)
- Juvenile habitat
- Restoration harm
- Arrogance of humanism

ECOLOGICAL THRESHOLDS



(from Noy-Meier, 1975)

HEALTH IMPACTS

http://ourfoodhealthculture.com

http://questgarden.com

"Those Hydro lines cause a lot of destruction, a lot of electricity Coming out of there. And has Hydro ever provided anybody to do a study on our health? We have so many of our people that have cancer. Different illnesses because of the water, because of those Hydro lines."

(E.Beardy, 2013, SLPH; p 43)

http://not-so-great-northern-transmission-line.org/

"We already see the impacts. Hydro says minimum impact. It is easy for them to say that they don't live here, and yet, we are 125 percent affected by Kelsey, Limestone, Kettle, Long Spruce, Wuskwatim
As a child we used to walk run down to the lake and swim.
Today we tell our kids not to swim due to the contamination of our river"

(Janet McIvor, SLPH, 2013; p 20)

"And, that, that is affecting our, our culture in another way. It if it wasn't the fur trade, if it wasn't the Indian residential schools, now it is Hydro development projects…"

(Aubergine Spence, SLPH, 2013; p 76)

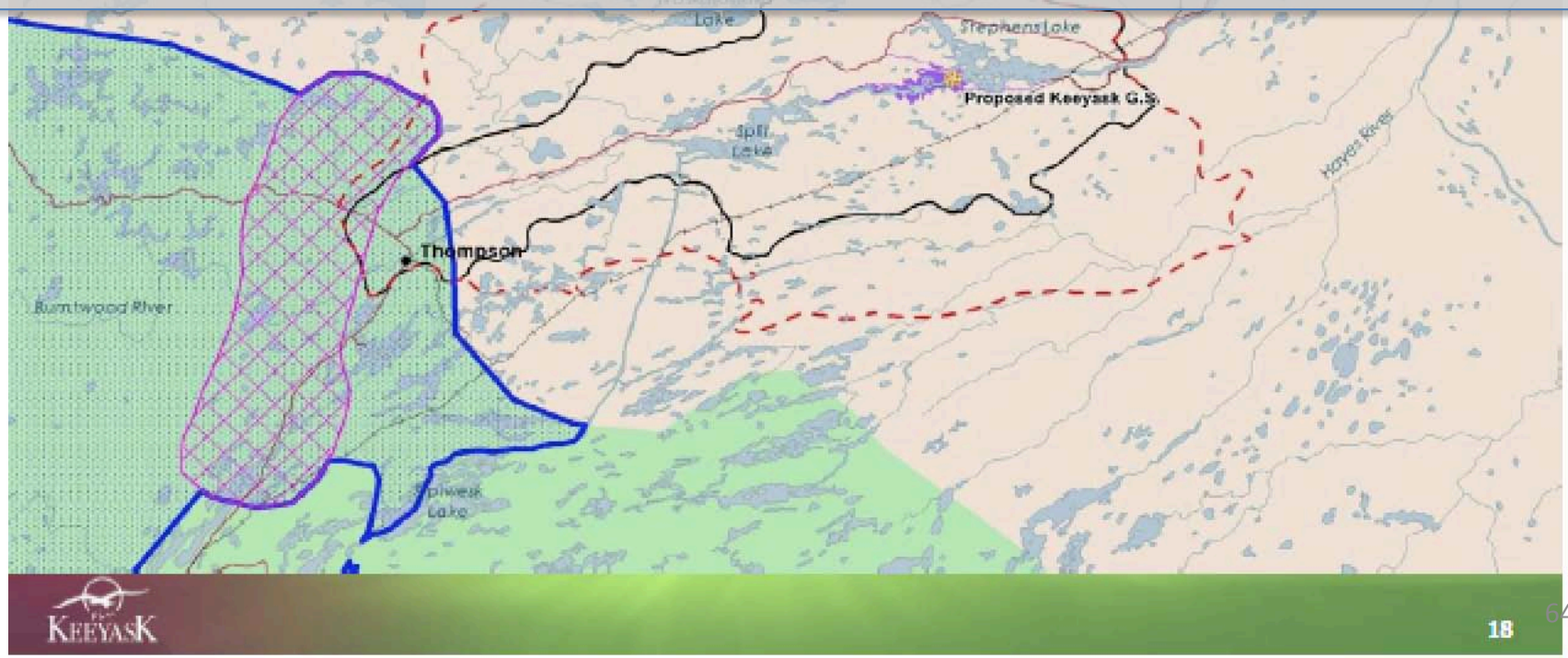
FOOD INSECURITY AND SOVEREIGNTY

- Upwards of 90%
- Country food important
- Risk (mercury)
  - Real vs. Perceived
  - Extreme change in environment
  - Inadequate monitoring
  - Inadequate responses
    - Alternative Resource Use Program (ARUP)
  - Inadequate communication
  - Processed food alternative
- Threshold response

CARIBOU

"The current range of boreal woodland caribou (Map 7-23) extends into the southwest corner of the Regional Study Area near Thompson, but threatened boreal woodland caribou are not recognized by Manitoba Conservation and Environment Canada as occurring in the Gull and Stephens lakes area (Manitoba Conservation 2005a; Environment Canada 2011)."

(SV Terrestrial Environment, 2012; 7-65)



Noah: *“You know where my trapline is?”*
Peter: *“Yeah, right here.”*
Noah*: “My helper, my brother’s step-son, he shot these caribou, woodlands caribou.*
Peter: *Woodland caribou.”…*
Peter: *“So you yourself saw them?”*
Noah: *“Yeah.”*
(Noah Massan, FLCN and Peter Kulchyski, interview)

- “Summer residents”

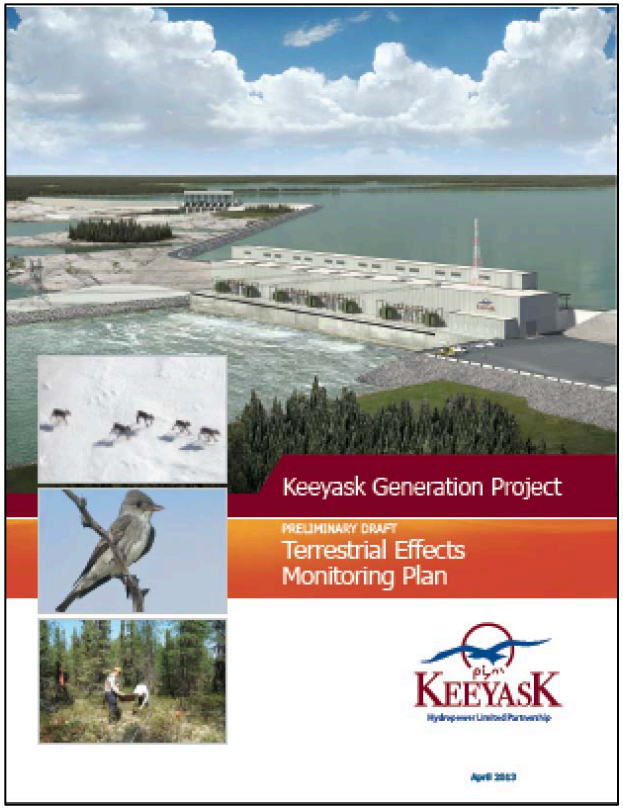
"There's lots of Woodland Caribou, but not like long time ago.

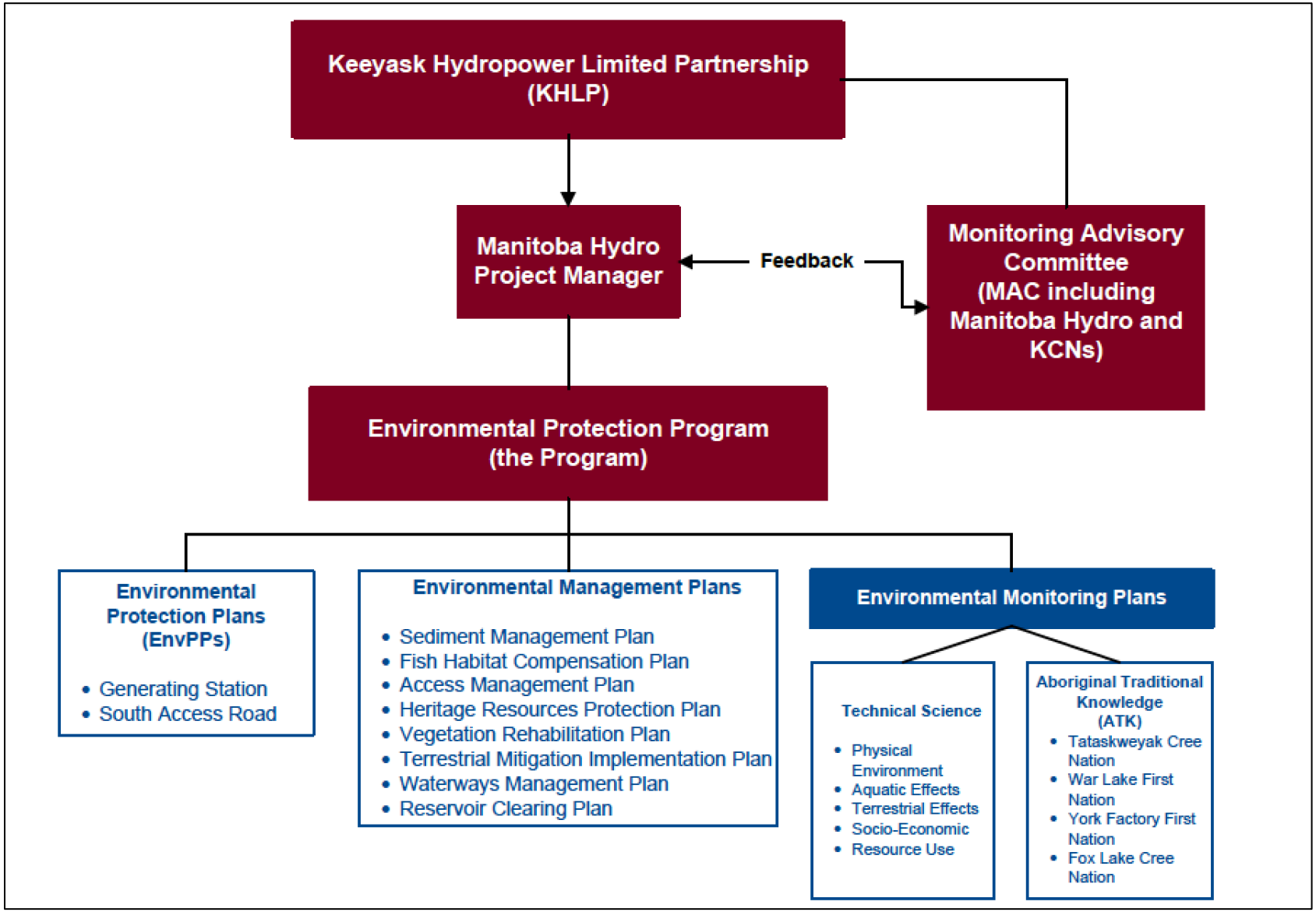
(Thomas Nepetaypo, FLCN; interview)

"Residual effects on caribou are expected to be adverse, small to medium in extent, long-term in duration, and small in magnitude. There is a moderate to high degree of certainty in the assessment because of some unpredictability regarding the long-term frequency and variability of habitat use and movements, but high confidence in habitat availability, existing core areas, and regional intactness estimates, and in the ability to mitigate and manage potential Project effects."

(SV Terrestrial Environment, 2012; 7-124)

MONITORING


Keeyask Generation Project
PRELIMINARY DRAFT
Terrestrial Effects
Monitoring Plan
KEEYASK
April 2013



Terrestrial Effects Monitoring Program (Draft), 2013; p ii

Table 3-8: Monitoring and Follow-Up Program for Terrestrial Plants

Supporting Topic/ VEC	Issue/Rationale	Monitoring	Timelines
Priority Plants (VEC)	• To verify that the priority plant patches that are to be avoided are not disturbed. • To verify predicted effects on priority plant species.	• Monitor to confirm avoidance of priority plant patches. • Monitor effects on priority plants and their habitat using terrestrial habitat monitoring data.	Regularly during clearing activities. See Terrestrial Habitat Monitoring Section.
Invasive Plants (Supporting Topic)	• To verify that mitigation measures limit the further introduction and spreading of invasive non-native plants.	• Conduct invasive plant surveys within and near to the Project Footprint.	Periodically during construction and first five years of operation.

"From a scientific standpoint of significance, the EIS predicted that effects on priority plants would be low because the Project is expected to affect low percentages of their known locations or available habitat. From the Cree worldview, KCNs have noted the value they place on non-priority plant species as well as those priority plants traditionally used, and the value of the places associated with those plants that will be affected by the Project."

(Preliminary Terrestrial Effects Monitoring Plan , 2013; 3-5)

BUT

"conduct ground surveys at the known priority plant locations not already affected by Project construction to document the degree of plant loss and disturbance"

(Preliminary Terrestrial Effects Monitoring Plan , 2013; 3-5

METHYLMERCURY, WILDLIFE, AND HUMANS

"…fish as indicators of mercury in birds that share similar feeding habits (Table 8-1) and foraging habitat (e.g., Gull Lake) is one of the methods used to establish background estimates for mercury in birds using the Local Study Area…existing mercury levels in fish using the area of interest can function as better predictors of mercury levels in birds (Schetagne pers. comm. 2009)."

(SV Terrestrial Environment, 2012; 8-7)

- Fort Chipewyan monitoring
- waterfowl, particularly mallards, exhibit levels of mercury.
- Women (child-bearing age): 0.6 kg of duck kidney and 0.5 kg of duck liver per day,
- older children (8-14 years of age) eat 0.2 kg of duck kidney and 0.2 kg of duck liver per day
- young children (≤7 years of age) could eat 0.1 kg of duck kidney and 0.1 kg of duck liver per day (McLachlan and Miller, 2012)."

COMMUNITY BASED MONITORING

- three-track
- best practices
- Fort Chipewyan
- ACFN and MCFN staff, scientists
- harvests, some analysis
- necropsies + contaminant testing (metals, PAHs)
- report back

One River, Many Relations

HEAVY HEARTS

"It is very difficult to move forward with this project…The consultation itself was difficult. The ratification of the JKDA was a tough process for everybody to swallow. And throughout the whole process, you know, we sat down and we talked about what was important and how this project might be beneficial to us, though we also had to look at the harmful impacts of what could possibly happen. And that was difficult…Keeyask is our opportunity to do something, become independent…. I will get cross-examined, but that's fine. If I speak from my heart, I know I will be right."

(Ted Bland, YFPH, 2013; p 50-51)

" I support any kind of -- anything that will help, that would benefit our people. But I, also, my heart is heavy because of what these developments do to our environment."

(Charolotte Wastesicoot, BRPH, 2013; p 13-14)

“Traditional knowledge, there are principles that are in the JKDA, and one of them, one of those principles is equal weight of that traditional knowledge in the JKDA, or I should say the EIS. I have read through a lot of that material along with some of our negotiators, and I agree there wasn't equal weight given to that…”

(Wayne Redhead, YFPH, 2013; p 84-85)

RECOMMENDATIONS

1) Process underlying the consultation and outreach with community members as it relates to the Keeyask EIS should be investigated;

2) A three-track process should be established, even at this late date and certainly for future projects;

3) Mandatory cultural sensitivity workshops should be conducted employees of Hydro employees and consulting firms;

4) More effective mitigation and rehabilitation plans should be developed before the project proceeds, should it occur at all;

5) More effective, culturally appropriate and inclusive monitoring programs should be explored that build on three-track approach;

6) These monitoring and restoration initiatives should be supported by culturally appropriate capacity building regarding science;

7) An independent and multi-stakeholder committee should be established to conduct relevant environmental research;

8) A more inclusive, culturally sensitive and cross cultural approach to risk communication and outreach regarding positive and negative impacts.