BC Regional Adaptation Collaborative
Climate Change Adaptation Case Study

Xat'sūll First Nation
(Soda Creek)

March 2012

Fraser Basin Council

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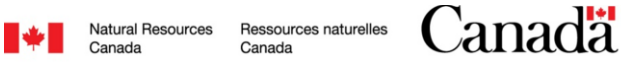

EXECUTIVE SUMMARY

In March 2012, two Climate Change Adaptation workshops were held in the community of Xat'sūll First Nation, also known as Soda Creek Indian Band. These workshops were one of three projects conducted in the British Columbia Interior by the BC Regional Adaptation Collaborative (RAC), a two year initiative funded by Natural Resources Canada and managed through a partnership of Fraser Basin Council and the BC Ministry of Environment – Climate Action Secretariat.

The purpose of the workshops was to gather information for a case study on how an Interior First Nations could incorporate climate change adaptation into community planning processes and decision-making. Xat'sūll was selected, in part, because it has recently embarked on a Comprehensive Community Planning process (CCP) [1] to undertake long range sustainability planning, and would benefit from including climate change adaptation considerations into that process.

The March 6 workshop was attend by elders and community members. The March 21 workshop was attend by Band Councillors and Administration staff. Participants were asked for anecdotal stories of climate in the past, and to contrast it to what they are seeing today. This oral information was then compared to recent research on climate change trend in the BC Interior. A list of services provided to the community was compiled and discussed in the context of impact or vulnerabilities due to a changing climate.

The workshops were facilitated by staff of the Fraser Basin Council, Cariboo Chilcotin Region. This summary report will be provided to the BC Regional Adaptation Collaborative and to the community itself. The final recommendations found in Section 5 include that a further partnership with Fraser Basin Council be developed to assist in next steps.

[1] http://www.aadnc-aandc.gc.ca/eng/1100100021901/1100100021902

1. INTRODUCTION

BC Regional Adaptation Collaborative (RAC) consists of 21 collaborative projects across the province to support decision-making on water allocation and use, forest and watershed management, flood protection and floodplain management and community planning. The Fraser Basin Council and BC Ministry of Environment - Climate Action Secretariat are managing the initiative which began in September 2009 and runs through 2012, and is funded by Natural Resources Canada.

BC's Regional Adaptation Collaborative is one of a number of similar collaborations underway across Canada. To find out more about RAC initiatives in other parts of Canada, visit http://adaptation.nrcan.gc.ca/collab/index_e.php.

In the BC Interior, three case studies were undertaken to focus on building knowledge and tools to help municipalities, regional districts and First Nations incorporate climate change adaptation into community planning processes and decision-making: the City of Prince George, the Cariboo Regional District and Soda Creek (Xat'sūll)First Nation.

The purpose of this report is to summarize the results of two one-day workshops held at Soda Creek on March 6 and March 22, 2012. A total of 26 community members and staff took part in the workshops, which were held at the Band administration complex at Deep Creek. What follows is a summary of the discussions, followed by recommendations for future action.

2. BACKGROUND

2.1. Soda Creek First Nations

Soda Creek Indian Band is the legal name of Soda Creek First Nation also known as Xat'sūll First Nation. Xat'sūll First Nation has two IR's, the first being Soda Creek IR1, which is located along the Fraser River, with a great climate for gardens, berries, hunting and salmon fishing. IR2 is Deep Creek located about 10 kms south of Soda Creek IR1 at the end of a valley corridor. Deep Creek has hay fields, creeks with trout, berries, hunting and some gardening.

Xat'sūll (pronounced "Hat'sull") is the northern most Shuswap tribe of the Secwepemc Nation, which is the largest Nation within the interior of BC. The Xat'sūll have stewarded territory ranging from the Coast Mountains to the west, east to the Rocky Mountains. As with many other First Nations, the Xat'sūll Nation followed a hunting and gathering lifestyle centered in family groups and focused on the Fraser River and the salmon. Patterns of land use were at harmony with the natural processes.

Today, Xat'sūll has 397 members, is in stage 4 of the Treaty process, is working on a comprehensive community plan, and has a number of agreements with third party organizations that have interests on their traditional territory. Xat'sūll has developed community economic development ventures, joint ventures, and continues to explore how they can generate more of own-source revenues to assist in ensuring that their community can provide for their future generations.

2.2. Fraser Basin Council

The Fraser Basin Council (FBC) is a not-for-profit organization with a mandate to advance sustainability in the Fraser Basin and across BC. Though its work FBC helps decision-makers, organizations and residents make responsible, collaborative decisions. The Council does not take a position on issues, but remains an advocate for sustainability in the Basin and BC. FBC often works as a facilitator and sustainability educator and is known for bringing together different interests to discuss and work on today's sustainability challenges. FBC focuses its work on three strategic

priorities: Healthy Watersheds and Water Resources, Climate Change and Air Quality and Sustainable, Resilient Regions and Communities.

The Vision Statement of FBC is *social well-being supported by a vibrant economy and sustained by a healthy environment.*

FBC maintains staff in five regions around the basin, and two offices elsewhere is BC:

- Upper Fraser Region - Prince George
- Cariboo Chilcotin Region - Williams Lake
- Thompson Region – Kamloops
- Fraser Valley Region – Mission
- Greater Vancouver Sea to Sky Region – Vancouver
- Kootenays – Cranbrook
- Vancouver Island - Victoria

3. PAST AND FUTURE CLIMATE

3.1. Cariboo Region Trends [i]

Past climate data for the Cariboo indicate that both winter and summer temperatures have risen, with the greater warming trend occurring in winter. For example, in Quesnel the weather station has measured + 0.70 °C/decade (3.5 °C in 50 years) in winter and + 0.21 °C/decade (1 °C in 50 years) in summer, from 1950 to 2001. Overall, Northern BC has warmed by 1.7° C and the interior region temperatures have risen by 1.1° Celsius over this time period.

Projected changes in Cariboo summer mean temperature in the 2050s, expressed in °C per decade predict a 2 – 2.5 degree increase, while projected changes in winter mean temperature in the 2050s, expressed °C per decade predict an increase of up to 2.5 – 3.5 degrees.

Over the 20th Century, records reveal that Central BC has undergone significant changes in its precipitation regime. Change in mean precipitation from 1900 to 2004, expressed in % per decade show the Cariboo region has changed 2-3 % per decade.These changes are far less consistent then the changes that have occurred in temperature.

Projected changes in both summer and winter mean precipitation in the 2050s, expressed in % per decade predict a 15 – 20% change.

3.2. Local Knowledge

When asked what was the weather like many years ago participants responded that in the winter months it used to snow much more and the temperatures were significantly colder, for longer, sustained periods of time:

- The winters were months on end, the snow was crusted and deep.
- We used to be able to walk across the Fraser River in winters; they were so cold the river would freeze in areas.
- It was so cold -40 to -60 degrees - that if you had to walk outside you would have to walk backwards in it.
- There was so much snow there were times we couldn't get out to go shopping or work. The kids would be outside digging tunnels under the snow for their forts. The snow would be so deep that when you would have to clean your roofs off, you would be able to jump from them on to the snow piles.

- From November to February a deep cold would set in. During these long cold spells it would be so quiet that you could hear the trees popping from being frozen for so long

The summers were hot and long, full of sunshine and warm evenings:

- There would be easy two crops of hay every summer, if not three
- The berries were plentiful, the deer, moose and bear were fat with shining coats
- There was so many salmon coming up the river that a person could walk across them
- The salmon were healthy, the meat was solid and they were big

The spring and fall seasons were short and distinct:

- Spring brought the rains to wash the earth and prepare her for the summer to come
- The creeks would fill up with rains and melting snow to cleanse the creek bottoms for the upcoming spawning season
- The fall would bring the turning of the leaves, to cover mother earth for the winter months to come
- Now, spring and fall are much longer and less distinct

Today, the community is seeing many changes in the weather; the seasons are not as distinct as they were in the past. The summers are cooler, and the true summer is much shorter. The creeks are drying up, there is less water by mid-summer then there ever was. With the true summers being much shorter the berries are becoming smaller and not as sweet. The salmon are soft and smaller. There are more animals being infested with bugs [parasites] year-round, because the winters have become so mild. Winters bring much less snow and cold than in the past.

The weather during the summer, winter, fall and spring are different then even three decades ago, when there were distinct seasons. Wetter springs and summers, lower snow packs and glaciers receding, lake levels and river peaks changing. Lots of local variability – road conditions and ability to grow from different zones, harvesting and growing season changing, and logging season shortened.

Cultural activities are also being affected. With the true summers shorter the berries are not ready when traditionally they would be, they are smaller and not as sweet. The zoning for planting gardens is changing. Participants talked about being able to plant different types of fruits and vegetables then the past. Harvesting of roots and berries is changing, there are areas where members used to harvest that today do not produce any longer or will produce at a different time then in the past.

The creeks and rivers are steadily warming; this continues to affect the salmon and trout that the community depends on. Salmon have both internal and external parasites more than in the past; they [salmon] continue to be smaller, and of poorer quality. Spring freshet – the creeks and fields don't flood like they use to, also the fishing in local creeks have changed.

The Mountain Pine Beetles that has infected the forests also have begun to make changes in the community. For example, the members are seeing more cougars and wolves in their community due to such drastic changes in forest practises, with the clear cutting of large tracks of forest.

Elder comment, "I really don't think there's too much we can do: The climate change is so unpredictable now. We just have to go with how the seasons go now and the changes of temperature".

Trends that will carry on will be more rain in summer, less snow in winter, earlier springs, less distinct seasons. There will be a continuation of the freeze and thaw affects, during winter months. We will see more flooding and mud slides with increased precipitation. With the over uses of water and lack of protection of watersheds the groundwater levels will go down, rivers and creeks will continue to become lower, and the wells are going to take longer to recharge. Forest fires are becoming more frequent and larger. The warmer winters are not killing the forest pests and will continue to affect the trees, plants and animals throughout the year. This will leave behind a stressed habitat for wildlife.

Disruptions of community activities include, gardening; traditional dates for planting and harvesting are not reliable anymore. The berries are changing in quality and quantity. There are changes in the sky colour, it used to be a dark blue in the summers and now with the cooler weather the sky is becoming pale/lighter blues.

Community Member Comment that an Elder shared: When Frogs are not reproducing or are becoming deformed, you know there are changes happening.

4. SODA CREEK COMMUNITY SERVICES AND RELEVANCY TO CLIMATE CHANGE ADAPTATION

Participants review the following list of services, and discussed whether they were applicable to a First Nations community. After discussion, it was concluded that while a number of these services are not directly provided by the Band Administration through individual programs, they are intertwined with services provided by the Band through external agreements or shared resources.

Of particular relevancy to climate change adaptation is water and its availability for domestic purposes and human consumption. Water quantity and quality is particularly vulnerable to a changing climate, especially when reliant on a surface source as well as the aquifer for Deep Creek (IR2).

Planning	Storm water
Housing	Protective/emergency services
Snow clearing	Police
Roads/streets	Parks and recreation
Invasive Plant Management	Solid waste management
Economic Development	Communications
Water	Health Services
Sewer	Education

Participants were then asked to consider these services and what the impacts of or vulnerability to climate change might be. Discussion then focused on possible recommended actions to address impacts and vulnerability.

Current Service – Soda Creek Band	Impact or vulnerability due to a changing climate	Possible Actions
Budgeting and Planning	- Building design and materials - Travel and fuel costs - Aging structures	- Look at alternative energies and the different possibilities they could bring to the community - Develop an Adaptation

		Checklist to use in all planning processes - Develop an energy and water conservation initiative for the community - Continue to build on the Adaptation workshops and flesh out the recommendations and strategy for future planning
Cultural Activities	- More fire bans may affect when we can have sweats - Creating awareness of the changes that are coming - Drying of meat and fish also affected	- Provide more /food security /gardening/composting workshops, etc.
Emergency planning	Increased need for emergency training related to: - Flooding - Fires - Pandemics	- Develop a Strategic Plan on Evacuation procedures for Community members, and ensure each household has a copy
Employment, Economic development	- Fisheries; catch monitoring has been affected because there is less fishing time - Fire fighters - Tourism - Forestry - Mining - Garbage pickup, and recycling	- No specific recommended actions at this time
Garbage pickup	- Need to look at recycling	- No specific recommended actions at this time
Health	- Hot weather; stress and skin cancers - Air quality - Vitamin D deficiencies due to lack of sun in winter - Darker in winter can lead to anxiety/depression	- No specific recommended actions at this time
Housing	- Population growth - Design - Appliances - Heating and energy consumption	- Continue to negotiate the upgrades for existing houses to bring them up to the building code, and have them retrofitted to be energy efficient. - Ensure existing housing stock is brought up to code before enacting treaty - Ensure any further housing development should be

		energy efficient as possible - Have an assessment done on the community expansion lands and existing lands to see what are the best alternative energies or existing energies for that area
Programming and education	The larger community needs to be made aware of the impacts of climate change, both challenged for the community and opportunities	- Deliver "Green" programming, recycling, Food security, gardening & preserving, Water Wise. -
Roads	- less snowploughing - more potholes - erosion of driveways	- No specific recommended actions at this time
Transportation	- Bus services needed between IR 1 & IR 2, and to Williams Lake - Need to look at carpooling (mitigation)	- No specific recommended actions at this time
Water	- Quantity, quality - Community system, if water levels decrease: Possibly metering of water - Use of grey water - Population is growing	- Continue negotiations to ensure that the watersheds around Soda Creek communities are protected under Aboriginal rights, and other Natural Resource agreements ie water licensing, forestry, and mining - Identify other water sources for in a backup plan

5. RECOMMENDATIONS

I. Develop an Adaptation Checklist to use in all planning processes.

II. Develop a Strategic Plan on evacuation procedures for Community members, and ensure each household has a copy.

III. Continue to negotiate for the upgrades for existing houses to bring them up to the building code, and have them retrofitted to be energy efficient. Any further housing development should be as energy and water efficient as possible.

IV. Conduct an assessment on the community expansion lands and existing lands to determine what the best alternative energies or existing energies are for that area.

V. Continue negotiations to ensure that the watersheds around Soda Creek communities are protected under Aboriginal rights, and other Natural Resource agreements ie water licensing, forestry, and mining

VI. Continue to build on the RAC workshops. Develop an action plan and timelines for the recommendations. Consider a further partnership with Fraser Basin Council to assist in next steps.

6. COMMUNITY STRATEGY

The final question posed to the participants was: "What are the opportunities to address climate change adaptation in the Comprehensive Community Plan (CCP) or Treaty?"

The following strategic priorities can and should be addressed in the CCP process or the Treaty negotiations - in some cases in both:

- Transportation
- Protection of water sources, regulation of groundwater
- Education
- Regulatory issues, community capacity, law-making and standards e.g. housing

Ensure that the broader understanding of Climate Change and the community's vulnerabilities gained by staff and community members in these workshops are considered in both of these processes.

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[i] Dawson, R.J., A.T. Werner, T.Q. Murdock. 8 Sept 2008. Preliminary analysis of climate change in the Cariboo-Chilcotin area of British Columbia. Pacific Climate Impacts Consortium. Downloaded 9 September 2008 from http://pacificclimate.org/sites/default/files/publications/Werner.ClimateChangeCaribooChilcotin.Sep2008.pdf