

## Annex 1 – Workshop Results

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### List of Participants

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| 1. Joshua Esau       | 12. Bradley Carpenter | 22. Sarah Kuptana    |
| 2. Katharine Ciboie  | 13. Winnie Carpenter  | 23. Roger Kuptana    |
| 3. Jock Carpenter    | 14. Margaret Lennie   | 24. Edith Haogak     |
| 4. Robin Carpenter   | 15. Aleta Esau        | 25. Manny Kudlak     |
| 5. Martha Keogak     | 16. Evelyn Wolki      | 26. Lena Wolki       |
| 6. Adella Ruben      | 17. Jean Harry        | 27. Joe Apiana       |
| 7. Ryan Lucas        | 18. Yvonne Elias      | 28. Geddes Wolki Sr. |
| 8. Joanne Eldridge   | 19. Larry Carpenter   | 29. John Lucas Jr.   |
| 9. Richard Carpenter | 20. Donna Keogak      | 30. Frank Kudlak     |
| 10. Peggy Lucas      | 21. John Keogak       | 31. Teddy Elias      |
| 11. Fred Raddi       |                       |                      |

### Workshop Results – Day One

- Agenda:**
- Welcome
  - Introduction of the project—video explanation and science component
  - Introduction of the team
  - Introduction of the day’s activities
    - a) ideas on cards
    - b) organization of cards
  - Benefit to community

After introducing the project and team, the workshop participants divided into two groups to discuss and document observations of climate and weather changes. The first group decided to have team members (Dyanna and Neil) record observations on cards. The second group wrote their observations on their own cards.



The following list is a compilation of observations and indications of environmental change from group one. Observations are reproduced exactly as originally listed by the workshop participants.

**Table 1. Group one observations.**

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|--|--|--|
| <ul style="list-style-type: none"> <li>▪ Increased land erosion</li> <li>▪ Less snow inland (probably due to more wind)</li> <li>▪ Seeing robins and barn swallows now</li> <li>▪ Tame swallows</li> <li>▪ Different birds, swallows</li> <li>▪ Different birds last year</li> <li>▪ Some little birds that stay through all winter now</li> <li>▪ More murrets</li> <li>▪ Lots more flies</li> <li>▪ Salmon being caught</li> <li>▪ Herring being caught</li> <li>▪ Deformed fish</li> <li>▪ Last year, early July, skinny young seals. Ice goes too quick and mother seals go.</li> <li>▪ More young bearded seals</li> <li>▪ Severe storm last fall</li> <li>▪ Freeze up later</li> <li>▪ Still boating November 9 in 1998</li> </ul> | <ul style="list-style-type: none"> <li>▪ Last summer no icebergs (couldn't hunt seals)</li> <li>▪ Use to be able to dogsled/skidoo on July 1<sup>st</sup></li> <li>▪ Ice is moving away</li> <li>▪ Thinner ice</li> <li>▪ Earlier break up</li> <li>▪ Pollen from white pine (southern) coming north making people sneeze</li> <li>▪ Skin rash when out on land</li> <li>▪ Warmer water/kids swimming</li> <li>▪ Freeze up later. Last year freeze up was 3-4 weeks later due to warmer water</li> <li>▪ Less caribou</li> <li>▪ Less ice fog in winter</li> <li>▪ Earlier spring break up</li> <li>▪ Deformed musk ox</li> <li>▪ Bigger kids</li> <li>▪ Deformed fish (holes in them)</li> <li>▪ Temperature changes (warmer summer)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Thunderstorms (more severe). Happen every year in last three years</li> <li>▪ Thunderstorms in August</li> <li>▪ Different insects</li> <li>▪ Arrival of ravens</li> <li>▪ Grizzly bear tracks seen</li> <li>▪ Severe wind storm last fall</li> <li>▪ All summer no ice in water</li> <li>▪ Less rock cod</li> <li>▪ Had to move sport hunting season up one month</li> <li>▪ Bigger waves</li> <li>▪ Higher water level in late July early August (sand spit disappears)</li> <li>▪ Bigger char</li> <li>▪ Summer hail</li> <li>▪ Erosion, shifting houses</li> <li>▪ Longer mosquito season</li> <li>▪ More snow geese</li> </ul> |
|--|--|--|

After recording these observations on cards, the workshop participants were then asked to put them into categories as they saw appropriate. In this group, one younger man did the grouping, with advice from the rest of the group. Cards were organized into groups of species and similar environmental phenomena.

The cards were then condensed into *summary cards*, which were used to illustrate observations and effects of environmental changes on the community. The summary category was written in the middle of a flip chart, with causes below and potential effects above. The following summary illustrates the results of this exercise.<sup>1</sup>



<sup>1</sup> The results of this portion of the workshop, as with the lists of observations, are documented in this report as they were recorded during the workshop. It is important to note that many of the causes and effects appear more as observations. This most likely reflects the uncertainty associated with the causes of climate change. This part of the workshop often resulted in more specific observations than obtained in the earlier exercise, as

**Table 2. Summary categories – Group one.**

Changes in birds  
Fish and sea life  
Weather patterns  
Insects  
Harvesting problems

**1. Changes in birds**

Causes for changes in birds were suggested to be warmer weather and the increased numbers of insects as a food source. It was indicated that changes observed in bird species are fairly recent, within the last five years.

Two points identified effects of these changes. First, it was indicated that increased populations of species such as snow geese were going to lead to the population eventually eating itself out of food and declining. Second, the potential for ecotourism was identified with the availability of new and different types of birds (Note: Banks Island has a large migratory bird sanctuary.)

**2. Fish and sea life**

Causes for changes in fish and sea life were suggested to be a result of warmer water—warmer currents were seen to bring new species. It was also suggested that there was increased plant life in the water. Observations of fewer mature seals was attributed to less ice flow.

Effects of changes in fish and sea life were summarized as concern over less ice and young bearded seals being separated from their mothers and starving. It also meant that it was harder to hunt mature seals.

**3. Weather patterns**

Causes for change and variability of weather were summarized as being attributed to warmer weather, intense weather and sudden changes, as well as more wind and freezing rain. It was also attributed to shorter winters, early thaws and deeper permafrost.

Effects of these changes were identified as damage to buildings and impacts on houses and windows with the problem of softer ground, shifting ground, as well as health problems such as skin rashes. Changes in weather patterns were seen to represent a need to adopt new hunting strategies, and also a threat to animal populations through starvation.

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well as *linked* observations—those observations offering a perspective of how one indication of change affects another, which in turn affects another.

#### 4. Insects

Causes for changes in insects were attributed to shorter winters, longer summers and more water.

Effects of more insects were summarized as resulting in more birds and different birds, which was seen to represent a possible tourism option. More insects were also seen as a potential source of disease in both animals and humans.

#### 5. Harvesting problems

Difficulties with harvesting was not identified as a summary card in the previous component of the workshop; however, it was identified in this portion of the workshop as being an important summary of observations.

Causes of harvesting problems were summarized as the lack of snow in spring, the lack of ice in summer, increased freezing rain, increased summer rain, later freeze-ups, thinner ice and increased open water in winter.

Effects of harvesting problems were identified as forcing changes to harvesting dates and times, as well as difficulties getting to and from hunting areas. Specifically, it was suggested that the polar bear hunt might decline. Further impacts were summarized as effects on animal populations such as population collapses from overpopulation and disease. Further declines in fur prices were also identified.

**Table 3. Group two observations.**

- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>▪ Too warm in the summers</li> <li>▪ Lots of different insects</li> <li>▪ Sandflies and beetles</li> <li>▪ Lots of flies</li> <li>▪ Bigger rockcod and char</li> <li>▪ Seeing more walrus</li> <li>▪ More seals</li> <li>▪ More whales (bowhead)</li> <li>▪ Fluctuations in seasons</li> <li>▪ Warmer, milder winters</li> <li>▪ More rain with lightning &amp; thunder</li> <li>▪ Hotter in summer</li> <li>▪ Wind bursts</li> <li>▪ Flowers are bigger</li> <li>▪ Smaller ice pack in the summer</li> </ul> | <ul style="list-style-type: none"> <li>▪ Too much open water in winter, too hard to hunt polar bear</li> <li>▪ Shorter fall and slow freeze-up</li> <li>▪ More foxes and no one is trapping (Greenpeace)</li> <li>▪ Different types of foxes (black and red)</li> <li>▪ Young muskox – some are bigger, born earlier</li> <li>▪ Polar bears not coming around as much</li> <li>▪ Polar bears coming out of dens quicker because of heat and melting</li> <li>▪ No more larger caribou bulls</li> <li>▪ Disappearance of rabbits</li> <li>▪ More wolves</li> <li>▪ Smaller caribou herd (not as many cows)</li> </ul> | <ul style="list-style-type: none"> <li>▪ Thinner ice, no more pressure ridges</li> <li>▪ Ocean water, warmer</li> <li>▪ Thinner ice in lakes</li> <li>▪ Smaller pieces of ice, more melting from heat</li> <li>▪ Summer of 97 lots of rain</li> <li>▪ Landslides on hills</li> <li>▪ Earlier flowering</li> <li>▪ Larger water puddles in spring</li> <li>▪ Polar ice pack moving farther away</li> <li>▪ Don't see ice floes in summer anymore</li> <li>▪ Less multi-year ice</li> <li>▪ Long ago, dog races on ice July 1, 1967, last year ice was melted by mid-June. Able to travel by boat to Massik Pass</li> <li>▪ Geese eggs are developing faster</li> </ul> |
|--|--|---|

- Different birds come in summer which never used to come in the springtime
- Too warm spring— overpopulation of geese in south as well as north
- Different birds each summer: robins, barn swallows, raven; more pintails and mallards
- Geese eggs deformed, smaller
- Geese eggs earlier
- Geese stay shorter in spring hunt
- Different types of fish— salmon, herring, white fish, crooked backs
- Lots of rain
- Flowers are bigger
- Very hard to travel in fall due to permafrost melting. Very hard to hunt
- More erosion, roads sinking
- Bigger lakes
- Ground movement is shifting buildings every summer
- Permafrost is melting faster
- Ridget (rigid?) weather patterns each season
- Disruption in radio frequencies
- Early spring ridget warm and cold
- Permafrost showing on hills and banks
- Skin problems due to sun and wind
- Each spring it melts faster than the other years
- Sun is more intense (heat)
- Spring comes earlier
- Land in some places is going down because of permafrost
- Warm wind come in faster
- Stronger winds in winter

The above observations were organized into groups and the following list of summary cards was produced, along with causes and effects of change.

**Table 4. Summary categories – Group two.**

Insects	Land animals
Fish	Ice conditions
Seasons	
Birds	

### 1. Insects

Causes for changes observed in insects were summarized as attributable to warmer weather and earlier springs. It was also suggested that some of the different species observed may be arriving on barges.

Effects of different insects and changes in numbers of insects were identified as a nuisance to the community, and as increasing the potential for illness in people and animals.

### 2. Fish

Changes in fish populations and species composition were described as possibly attributed to larger fish sizes and the presence of more bowhead and walrus, as well as warmer water.

Potential effects of change in fish were identified as representing possible increases in variety of food for human consumption.

### **3. Seasons**

Changes and fluctuations in seasons were suggested to be a result of a thinner ozone layer, warmer winters, early springs, late falls and hotter summers. Discussion of causes also brought out more discussion of more humid weather, permafrost melt, wind bursts, erosion, more thunderstorms, bigger vegetation and disruption of radio frequencies.

Effects of changes in seasons were identified as disruptions in land travel, cutbacks to sport hunting season and buildings being shifted, as well as skin problems.

### **4. Land animals**

Changes in land animals were suggested to be a result of shortages of food and short length of seasons. It is also observed that this may also be causing animals to be deformed. Additionally, change in populations (growth and decline) and animals being born earlier are attributed to changes in weather patterns.

Effects of changes to land animals are identified as overgrazing and as overpopulation of musk oxen and a resulting decrease in caribou.

### **5. Ice conditions**

Changes to ice conditions are suggested to be caused by warmer weather, especially in summer. Under causes of changes, participants also listed observations of thinner ice in lakes, polar icepack movement farther away, no ice flows in summer and less multi-year ice.

Effects of changing ice conditions were primarily associated with impacts on traditional harvesting. Increased difficulty of spring travel from ice conditions was viewed to disturb the community harvesting ability.

### **6. Birds**

In identifying possible causes of changes in bird life, participants discussed warmer weather leading to overpopulation and overgrazing. Observations of different bird species were said to have been primarily in the last five years (same as Group one).

Effects of changes in bird life were described in terms of a shorter hunting season, as well as deformities and disease in birds.



The timeline exercise, as with earlier exercises, illustrated that the Inuvialuit of Banks Island have been experiencing environmental and weather-related change most noticeably since the mid-1980s.

## Workshop Results – Day Two

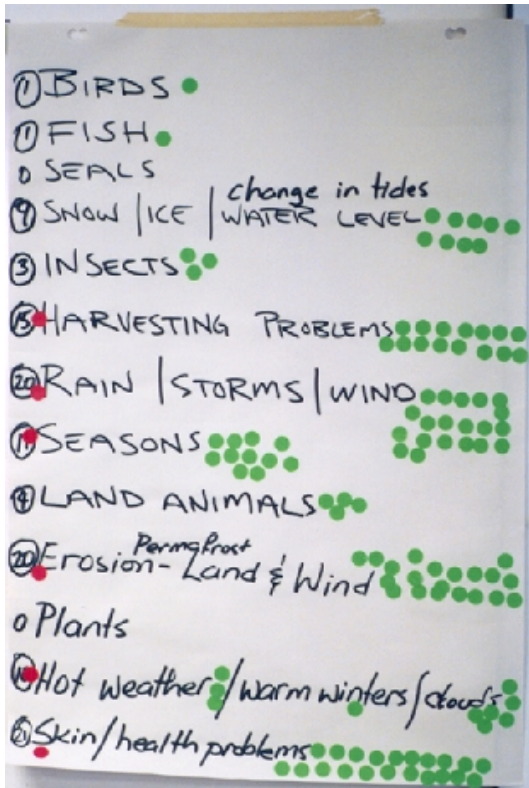
- Agenda:**
- Ranking
  - Annual activity calendar
  - Trip planning
  - Community representative
  - Dyanna staying in community
  - Thank you payments
  - Payment to Hamlet for using office

The first workshop exercise of day two was designed to rank the categories of change, as determined by the participants, in order of concern to the community. A list of indicator categories was compiled from the group work the day before. Each community member participating was given five dots to stick on the list of indicators. Dots represented importance. It was explained that you could stick all dots on one indicator or spread them out. The results of the exercise are as follows:



**Table 5. Results of ranking exercise.**

Birds	1	Seasons	11
Fish	1	Land animals	4
Seals	0	Permafrost/erosion—land and wind	20
Snow/ice/water level	9	Plants	0
Insects	3	Hot weather/warm winters/clouds	10
Harvesting problems	15	Skin/health problems	21
Rain/storm/wind	20		



As evidenced by the table, harvesting problems, rain/storms/wind, permafrost and erosion problems, and skin and health problems were viewed as the most serious concerns by the community.

The final exercise was to create an annual calendar of traditional activity in the community. This annual calendar identified times and dates of seasonal activities and significant events. The calendar was used by the community and the team to identify the best times to capture changes experienced by the Inuvialuit and, therefore, the key times for the team to return the community.

The exercise identified key times as the weeks when the seasons are changing as well as times of significant traditional activity. The period from late July to early August, when the community is summer gill-net fishing and seal hunting, was identified as a significant time to return to the community, as well as the period

from the end of October to the second week of November, during the annual musk ox harvest, ice fishing time, caribou hunting, male-only polar bear hunt and the fall freeze-up. The third time identified was the beginning to end of May, for the spring goose hunt.

*In the 1960s it used to be  $-70^{\circ}\text{C}$  with the wind. Last winter, it never got under  $-35^{\circ}\text{C}$ . At  $-40^{\circ}\text{C}$  we close the school. We used to close the school lots—now only once this winter because of snow not cold.*

—community member, Sachs Harbour