Climate Change Impacts on Arctic Char and the Implications for Inuit Subsistence

Jessica Smart¹, Tristan Pearce¹,²

¹²Natural Resources & Environmental Studies, University of Northern British Columbia
²Global & International Studies, University of Northern British Columbia
Objectives

1. Document Inuit knowledge and observations of Arctic char.

2. Identify current exposure-sensitivities affecting Inuit-Arctic char interactions.

3. Characterize the adaptive strategies employed to manage these conditions.
Research Approach

(The external stress placed on a system (e.g., a community) and the degree to which the system is susceptible to harm by that external stress).

(The necessary adjustments in a system's behaviour required to manage external stress).

(Ford & Smit, 2004; Smit & Wandel, 2006)
Methods: Data Collection

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Demographics</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>12</td>
</tr>
<tr>
<td>Age</td>
<td>Young Adult (18-34)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Adult (35-49)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Elder (50-74)</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Oldest Elder (75+)</td>
<td>3</td>
</tr>
<tr>
<td>Occupation</td>
<td>Casual Worker</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Full Time Harvester</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Full Time Worker</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Retired</td>
<td>10</td>
</tr>
</tbody>
</table>

- February 16th – March 11th, 2021
- 19 semi-structured interviews over the phone
- Participants identified by local Hunters & Trappers Committee
  - Key knowledge holders
  - Avid fishers
  - Equal gender representation
Objective 1

Document Inuit knowledge and observations of Arctic char.
Knowledge & Observations

• Arctic char and fishing

“I grew up with it. I grew up with Arctic char all the time.” - JH
Knowledge & Observations

• Arctic char and fishing
  “I grew up with it. I grew up with Arctic char all the time.” - JH

• Uses of Arctic Char
Objective 2

Identify current exposure-sensitivities affecting Inuit-Arctic char interactions.
Shifting environmental conditions

- Fluctuating water levels
- Rivers drying
- Char struggle migrating to/from the ocean
- People do not catch as much char

Environmental Change
Impact on Arctic Char
Impact on Residents
Fluctuating water levels

Rivers drying

Char struggle migrating to/from the ocean

People do not catch as much char

Warming ocean temperatures

Ice thaws sooner

Ice freezes later

Southern species migrate North

Increasing prevalence of salmon

Tunicates

Less char around

Catching less char

Environmental Change

Impact on Arctic Char

Impact on Residents

Shifting environmental conditions
Shifting environmental conditions

- Fluctuating water levels
- Warming ocean temperatures
  - Ice freezes later
  - Ice thaws sooner
- Southern species migrate North
- Increasing prevalence of salmon
- Tunicates

Changes observed in Arctic char
- Abundance
- Movement patterns
- Health
- Taste
- Size
- Appearance

Impact on Arctic Char
- Less char around
- Catching less char

Impact on Residents
- Char struggle migrating to/from the ocean
- People do not catch as much char
- Rivers drying
- Fluctuating water levels
- People do not catch as much char
Objective 3

Characterize the adaptive strategies employed to manage these conditions.
Responding to Change

Individual Level Responses:
Fishing behaviour
- Travel further away
- More frequent trips, stay out longer
- Harvest other species

Community Level Responses:
Adaptive co-management
- Ulukhaktok Char Working Group
Conclusion
References


THANK YOU!

Contact: jsmart@unbc.ca