Taking Care of Our Land Symposium Program
Climate Change Adaptation Planning with First Nations in Ontario

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Delta Hotel

Sault Ste. Marie Ontario

This presentation delivered by:

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CAMBIUM
ABORIGINAL

About Me?

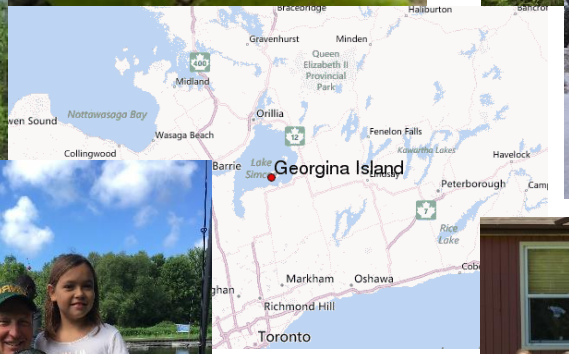
Member of the Chippewas of Georgina Island First Nation

Worked in my Community for 17+ years in various capacities – Childcare, Council, Housing, By-laws, Waste Management, Environment, Climate Change

2011 Business Diploma

Started with Cambium Aboriginal September 2017

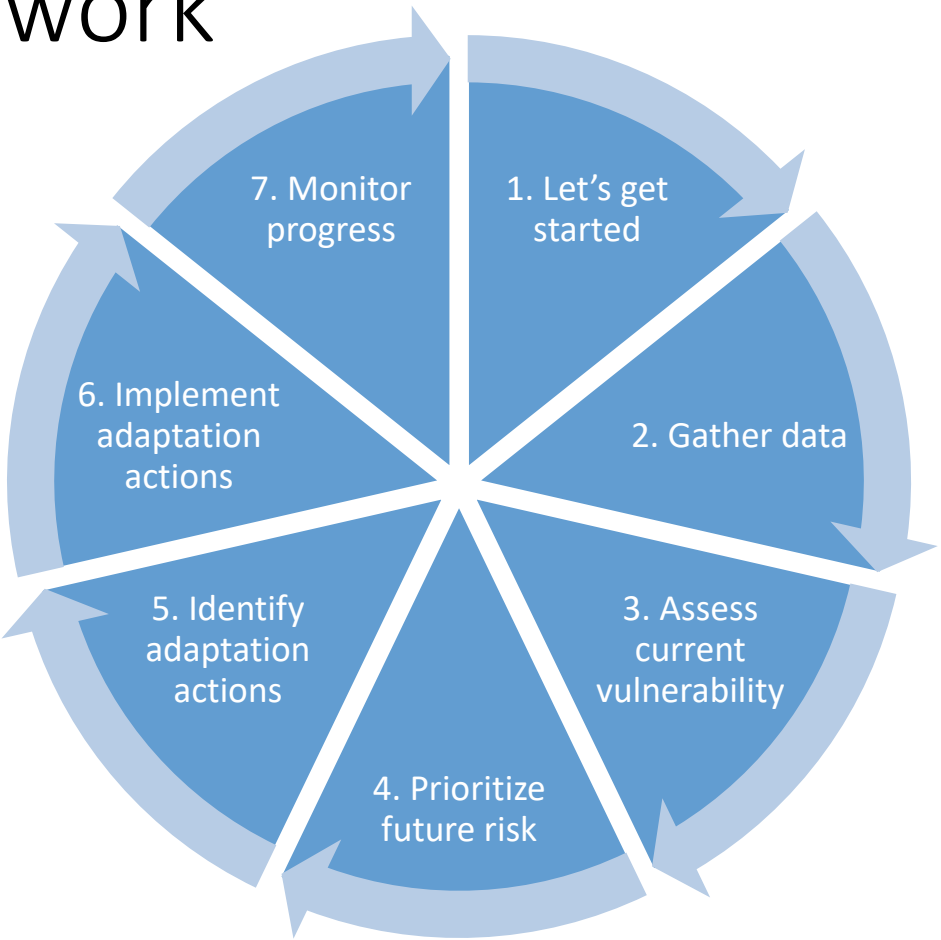
The Chippewas of Georgina Island First Nation At A Glimpse



Background and Link to Climate Change

- **Georgina Island First Nation is progressive on environmental issues and has been leaders in the implementation of such over the years with the premise that all of the work that is being undertaken is all linked in one way or another**
  - **Species at Risk Mapping**
  - **Ash Tree Monitoring and Management**
  - **Invasive Species Management**
  - **Shoreline and wetland restoration/rehabilitation**
  - **Climate Change Adaptation**
  - **Wild Rice restoration**
- **The sensitivity of the natural environment to changes in weather and climate affect the ecosystems and socioeconomic aspects of every community, especially Indigenous communities**
- **2011 INAC now CIRNAC release climate change funding**

Georgina Island First Nation Climate Change Vulnerability and Adaptation Planning Framework



Community Engagement

Very important component of process
Information sessions
Interactive workshops
Establish Advisory Committee

Photos: Information Sessions (with Bingo), Interactive Workshop, Georgina Island First Nation, Leanne Echum

Traditional and Local Knowledge

- Foundation of process
- Gathered through TEK survey
  - Elders
  - Adults
  - Youth
  - Councilors
  - Chief of Community
  - Staff

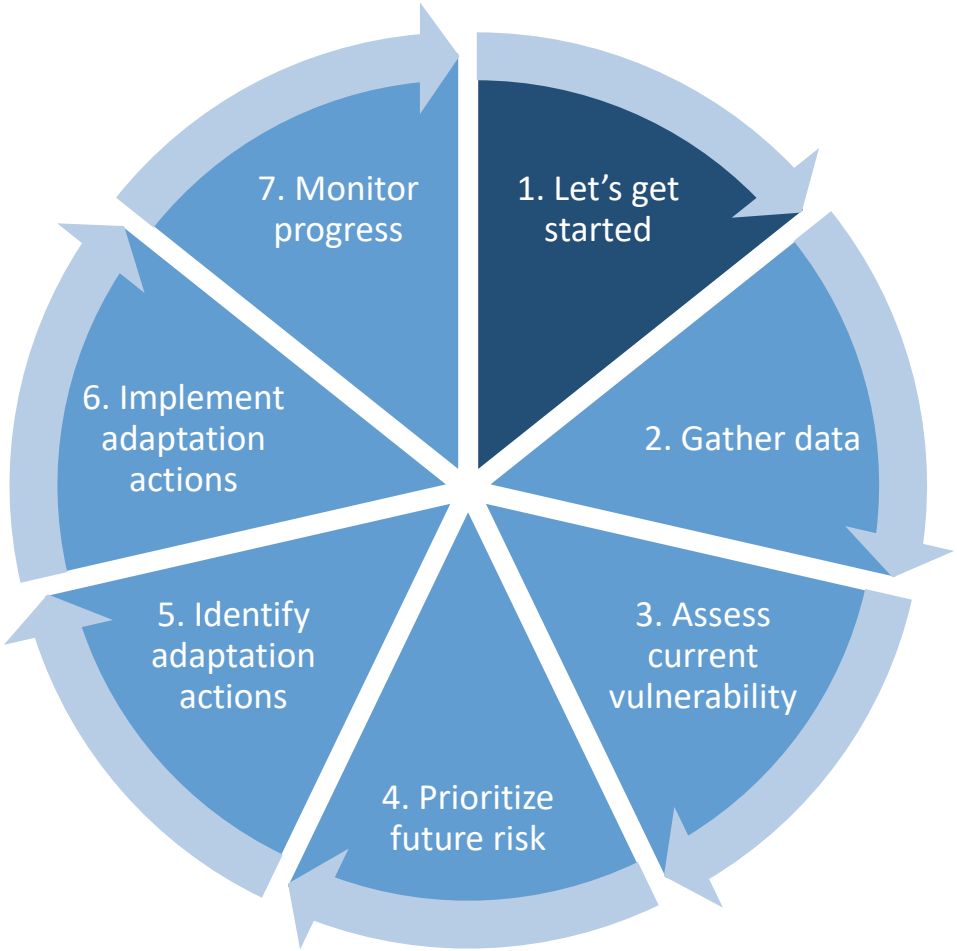
Step 1: Let’s get started

Identify why you are undertaking adaptation planning

Define project scope

Develop communication plan

Establish Community Advisory Committee

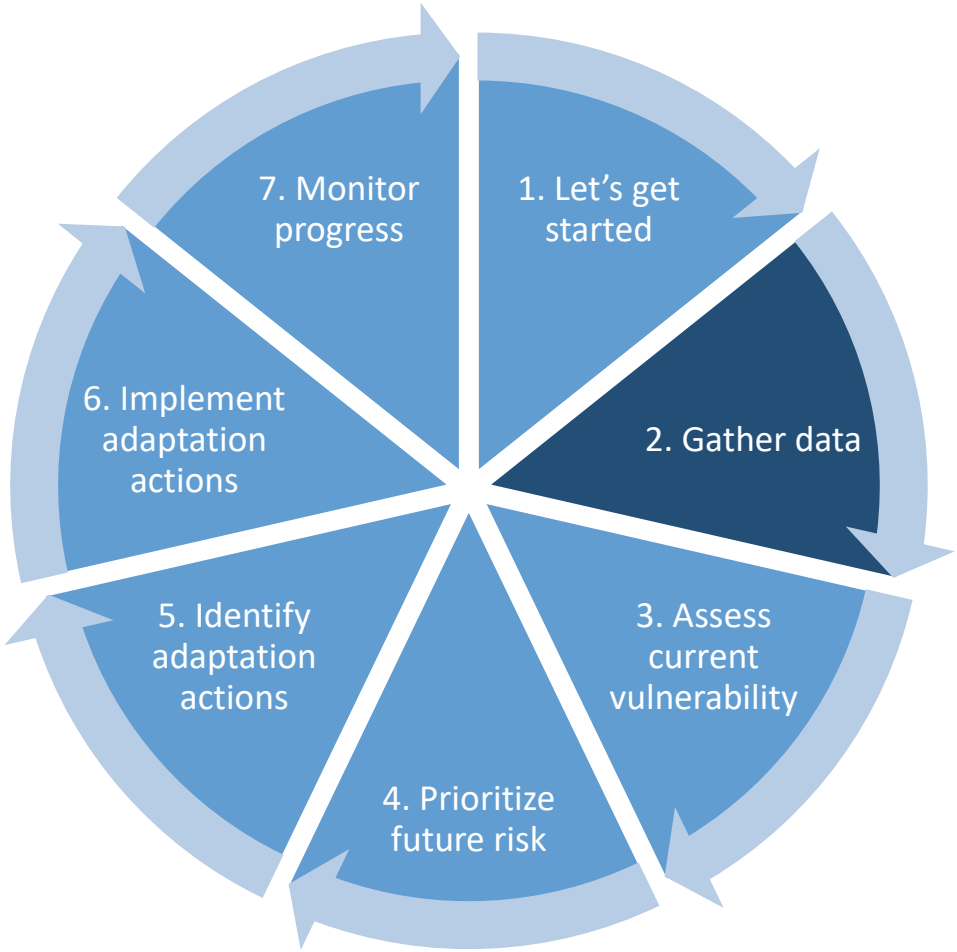


Step 2: Gather data

I. Historical climate data

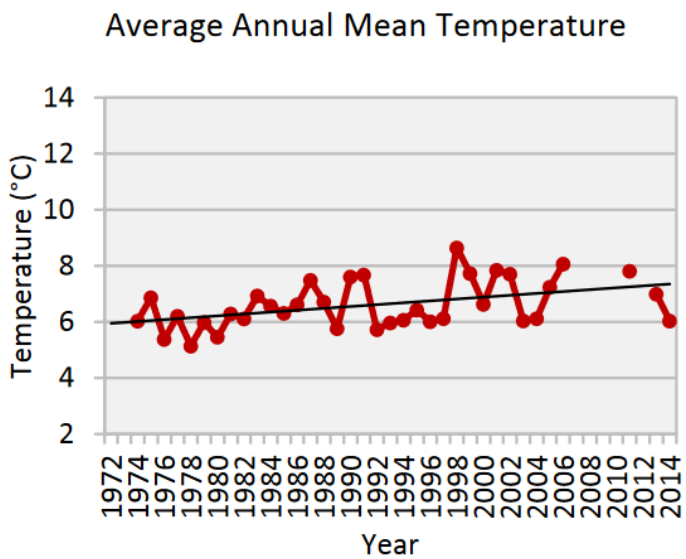
II. Future climate projections

III. Traditional Ecological Knowledge (TEK)

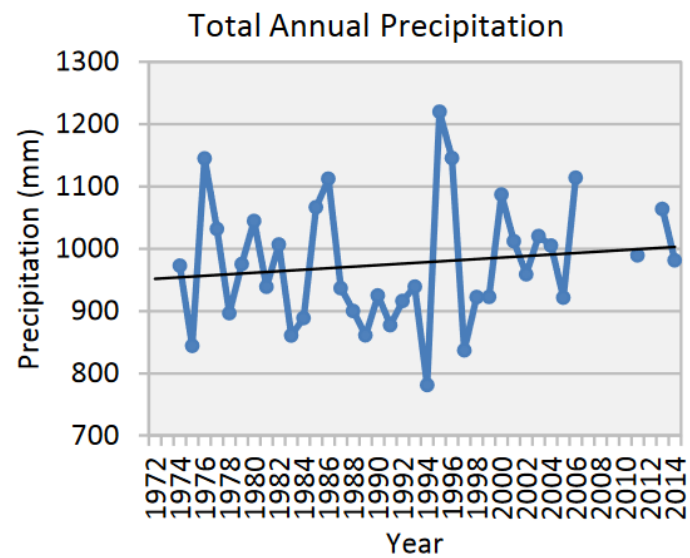


Historical Climate Data

Increase 1.3°C



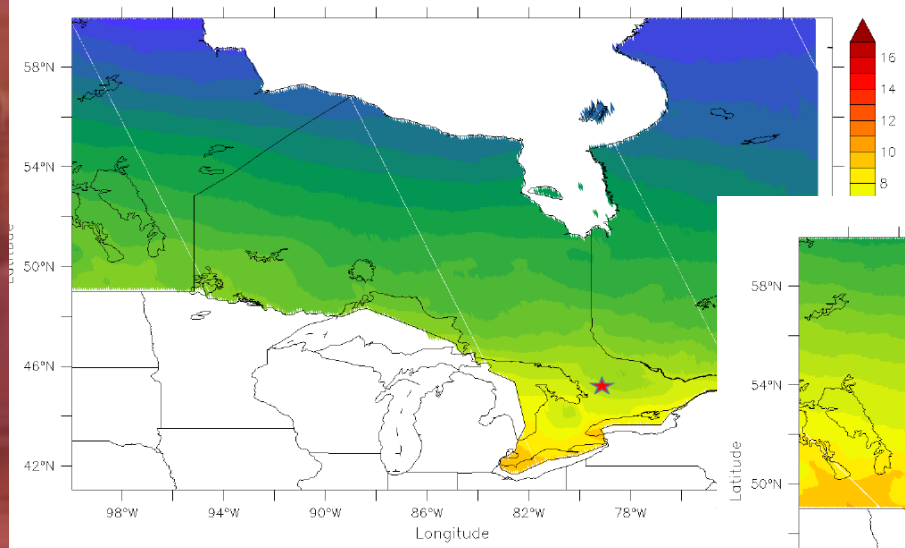
Increase 52mm



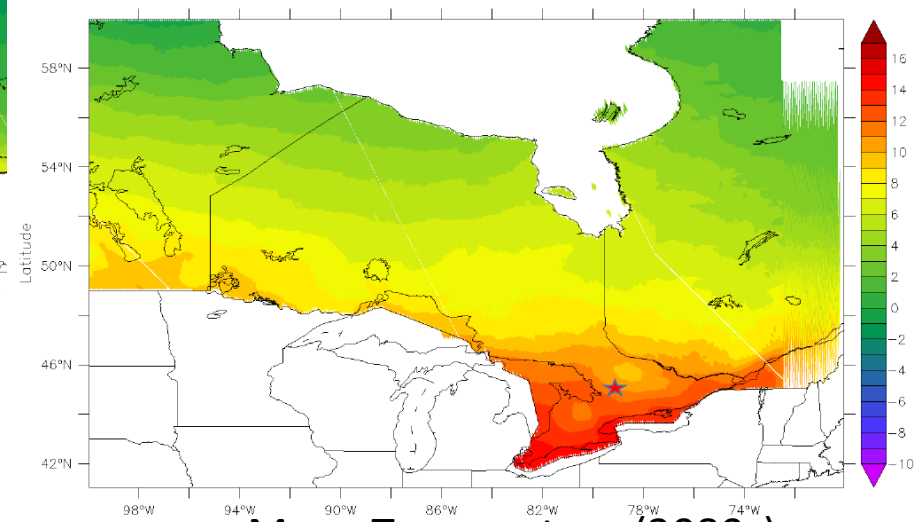
Daily climate data from the Shanty Bay weather station obtained from Environment Canada

http://climate.weather.gc.ca/historical_data/search_historic_data_e.html

Future Climate Projections



Mean Temperature (1981-2010)



Mean Temperature (2080s)

Sources of Climate Data:

1) Climate Change Hazards Information Portal (CCHIP) (Risk Sciences International) → www.cchip.ca

2) Canadian Climate Data and Scenarios (Environment Canada) → http://climate-scenarios.canada.ca/?page=main

RSI
RISK SCIENCES INTERNATIONAL

C·C·H·I·P

Example of a TEK Survey

Traditional Knowledge Survey Questions

This questionnaire was created by Dr. David Pearson, Laurentian University, Sudbury for the collection of Traditional Ecological Knowledge for Adaptation Planning in the Far North

Recipient name: _____ Interview #: _____
Interviewed by: _____ Date: _____

Changes in the "bush" – Trees and plants in your

1. Have you noticed any changes in the plants or the trees in the bush such as:
   - Areas of dead or dying trees or shrubs
   - New species or
   - Anything that has disappeared or appeared

   If so, how have they changed?
2. Is finding medicinal and edible plants harder or easier than it used to be? Why/how?
3. Do you think any of the changes in the bush have caused a problem for people in your community? Or have they been good for people? **How** has these changes affected the people in the community?

Changes in lakes and rivers

4. Have you noticed any changes in the lakes, rivers and creeks in your area, such as unusual water levels, temperature or colour? (pressure cracks, water quality)
5. If there is a large river in the community, have you noticed any changes in its flow or when it freezes and breaks up? (or lake)
6. Have you noticed any changes in the water plants found in lakes, rivers and creeks? If so, how?
7. Have you noticed unusual growth of green scum (algae) in any lakes or creeks? If so, where?
8. Do you think any of the changes in lakes and rivers have been good for people in the community? Have any changes been bad for people? How?

Changes in swamps and wet areas

9. Have you noticed swamps and wet areas changing in size or looking different in any way?

Changes in fish

10. Has the fishing changed in the community? For example, have you noticed any change in the kinds of fish or their number or size or do any of them seem to be unhealthy?
11. Have you noticed any changes in the places and dates when fish spawn?
12. Do people in your family eat the same kinds of fish and as much fish as they used to?

Source: David Pearson (Laurentian University)

Step 3. Assess Current Vulnerability

Vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. It is a function of how sensitive and exposed the community is to current climate and how well the community has coped in the past.

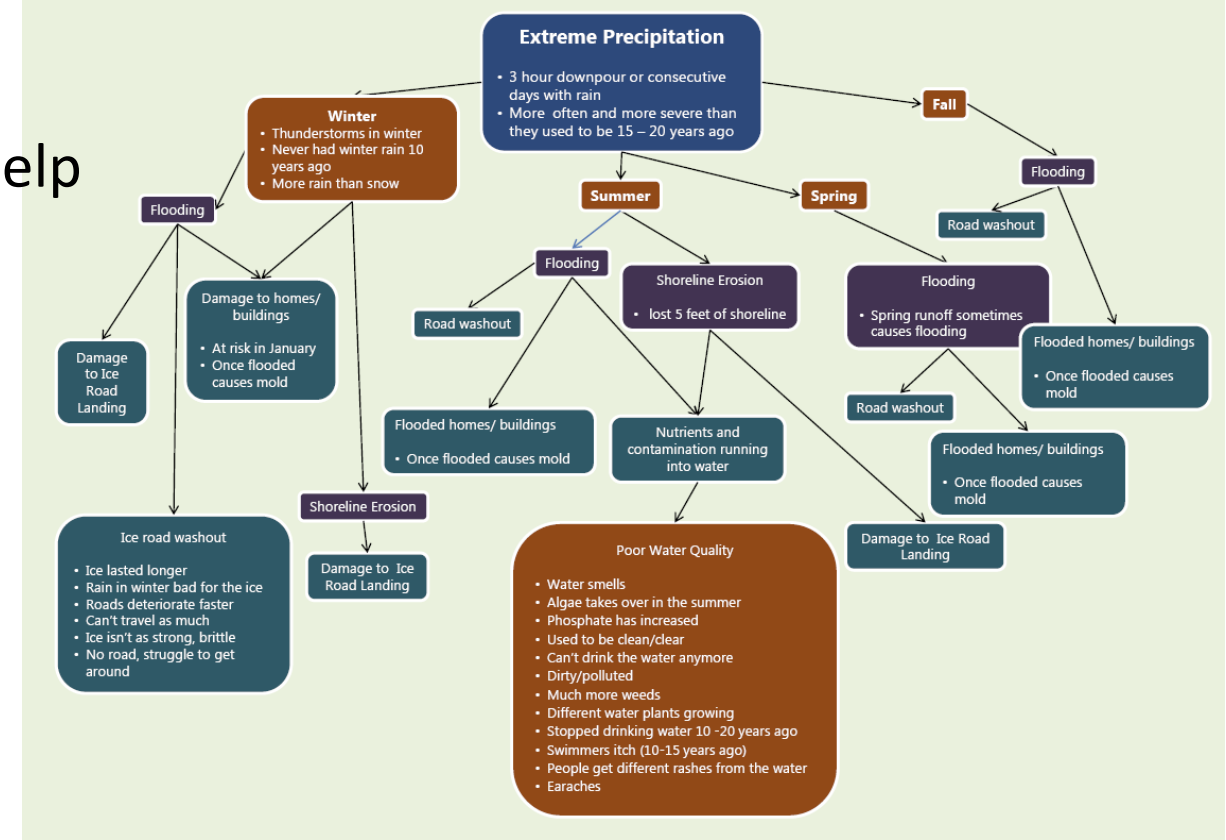
I. Using data gathered in step 2, develop list of impacts

II. Develop 'impact trees' to help with visualization

III. Prioritize the impacts with help from Advisory Committee

Example of an Impact Tree

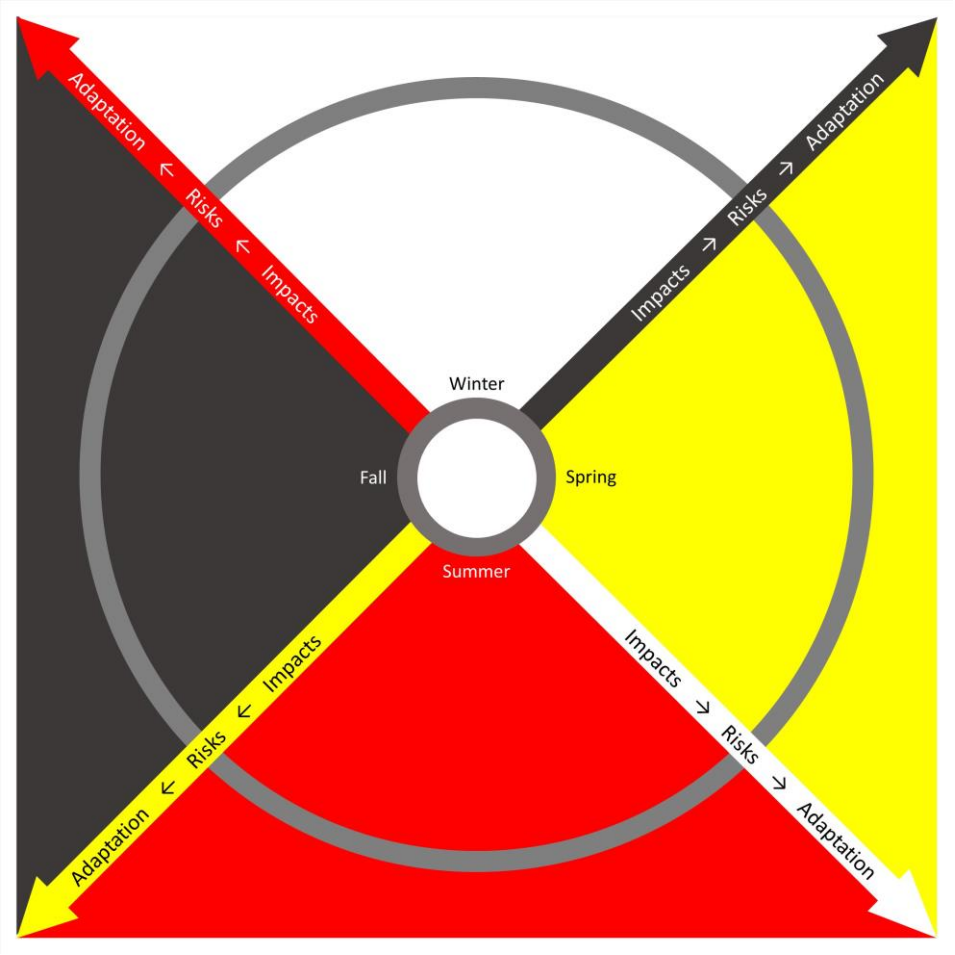
Impact trees help visualize how changes in weather and climate have impacted the community.



Source: Georgina Island First Nation

Medicine wheel impact diagram

You can develop new ways to visualize climate impacts. For example, this diagram is based on the medicine wheel and organizes the impacts by season.



Risk scenarios

Extreme Precipitation in the summer → Flooding → Washing contaminants into the water → Poor water quality

Step 4: Prioritize Future Risk

I. Research possible future weather and climate conditions

II. Determine how current vulnerabilities will be impacted by future climate

III. Create likelihood and consequence ranking scales and worksheets

IV. Fill in the worksheets with the help of the project team

RISK is the likelihood of an event happening x the consequence if it does.

Estimating Likelihood

Vulnerability:

Time Horizon (planning period):

Future Climate Event	Very Unlikely to happen	Occasional Occurrence	Moderately Frequent	Occurs Often	Virtually Certain to Occur
(e.g. Extreme precipitation)	Not likely to occur during the planning period	May occur sometime but not often during the planning period	Likely to occur at least once during the planning period	Likely to occur several times during the planning period	Happens often and will happen again during the planning period
Poor water quality				x	

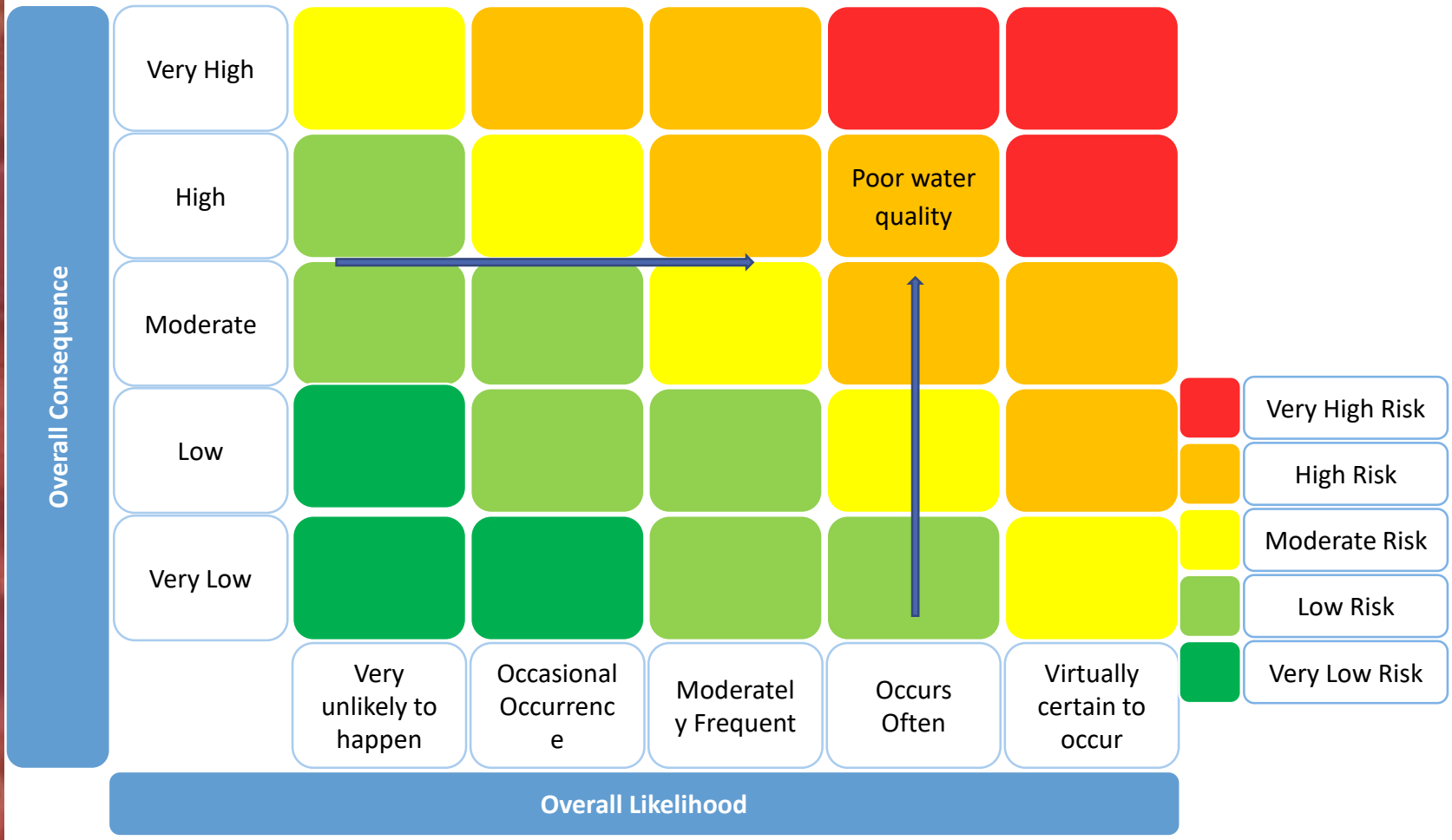
Estimating Consequence

Vulnerability:

Time Horizon (planning period):

Consequence	Social	Economic	Environmental	Cultural
Very Low (1)	x			
Low (2)				
Moderate (3)				
High (4)		x		
Very High (5)			x	x

Risk Matrix

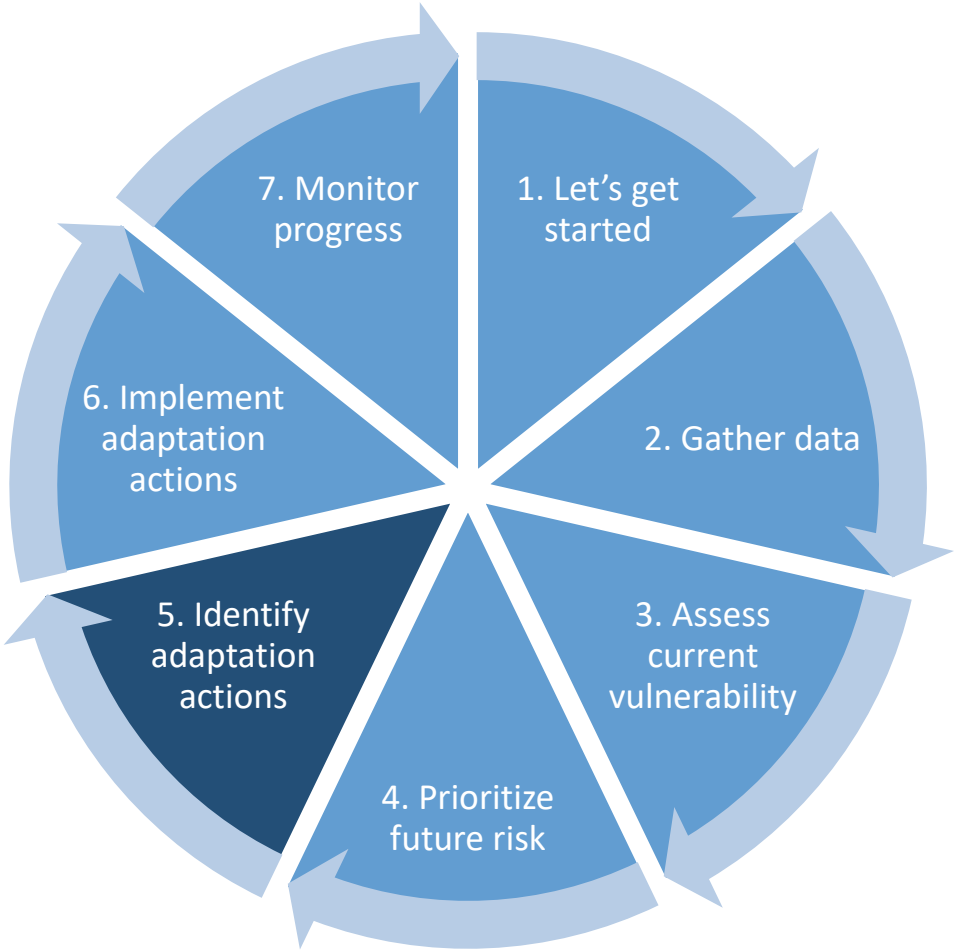

Overall Consequence
Very High
High
Moderate
Low
Very Low
Poor water quality
Very unlikely to happen
Occasional Occurrence
Moderately Frequent
Occurs Often
Virtually certain to occur
Overall Likelihood
Very High Risk
High Risk
Moderate Risk
Low Risk
Very Low Risk

Step 5: Identify Adaptation Actions

I. Start with the highest priority risks and develop a list of adaption actions.

II. Look for win-win or no regrets options.

III. Evaluate the adaptation actions.

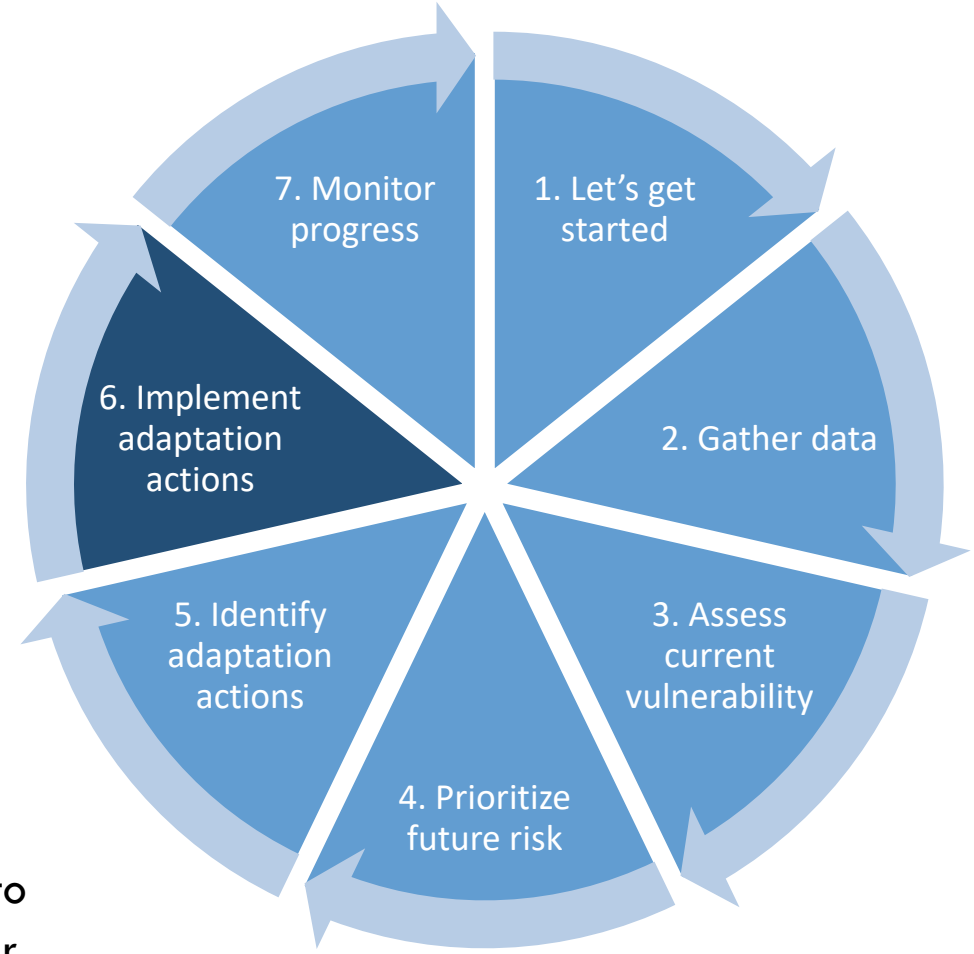


Step 6: Implement Adaptation Actions

I. Develop an implementation plan/matrix (i.e. who, what where, how and when).

II. Present the list of adaptation actions and implementation plan to Chief and Council.

III. Hold a community event to present results and gather feedback.



Implementation of Adaptation Actions

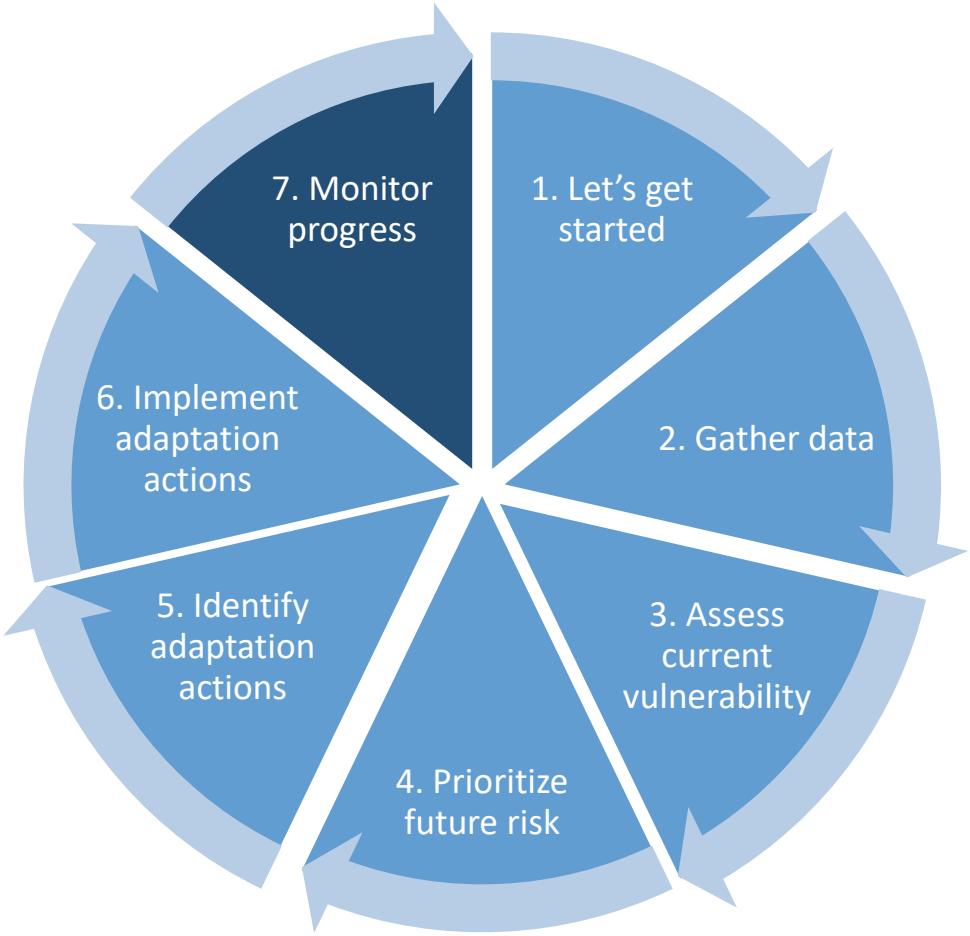
	Adaptation Action	Adaptation Action	Adaptation Action
Description of Adaptation Action	e.g. Invasive species monitoring program		
Who will implement?	Band staff/consultant		
Cost ($, $$, $$$)	$$		
Timeframe (Short, Medium, Long)	Medium term		
Community Support (Y/N)	Yes, could get community involved (citizen science)		
Political Support (Y/N)	Yes		
Supporting Band Polices/Plans	Species at risk projects?		

Step 7: Monitor Progress

I. Develop a monitoring and evaluation plan.

II. Include requirements on reporting on progress and evaluating success.

III. Revisit the adaptation actions if they are not achieving the intended result.



The importance of Community Engagement

- Keep community informed of progress.
- Organize various workshops/events to gather feedback from community.

- Georgina Island First Nation workshop to present/discuss results of risk assessment.

Gerties Creek Restoration

OTHER PROJECTS

Climate Change Health Adaptation Project (CCHAP)- Health Canada

Infectious Disease and Climate Change Fund

Community Based Climate Monitoring

Food Sustainability/Security Project –OMFARA

Floodplain Mapping and Integrated Watershed Management

ADAPT

IESO

OTHERS

Our Past/Present Community Partners

PRIDE UNITY STRENGTH VISION

ALDERVILLE FIRST NATION

Chippewas of RAMA First Nation

GEORGINA ISLAND

ONEIDA OF THE THAMES

SIX NATIONS of the GRAND RIVER

Wahnapitae First Nation

AANIIN ~ WELCOME ~ CURVE LAKE FIRST NATION TERRITORY

Our Past/Present Organizational Partners

- CEC
- INECC
- US EPA
- OCCIAR
- Indigenous and Northern Affairs Canada
- MOECC
- Georgian College
- MNRF
- Turtle Island Conservation
- Lake Simcoe Region Conservation Authority

Chi Miigwetch

"Everything is connected in someway or another so everything we do today effects tomorrow. "

Kerry-Ann Charles
Lands and Climate Change Co-ordinator
Cambium Aboriginal Inc
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