

Climate Change Health Adaptation Project - Addressing Health Impacts and Vulnerabilities within First Nations Communities – A collaborative approach

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This presentation delivered by:

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About Us

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- 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
- Live and work in my community of Orillia
- Public Health Inspector by background
- Completed an MPH at University of Waterloo
- Currently Program Manager with SMDHU and leading our work with Climate Change & Health

Background

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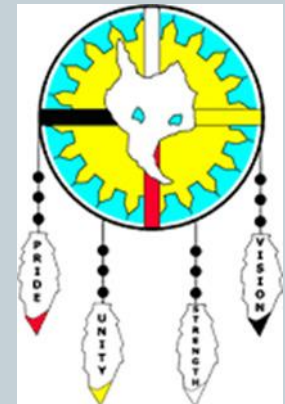
- In 2012, with Funding from INAC the Chippewas of Georgina Island First Nation (GIFN) embarked on a Climate Change Adaptation Project using Traditional Ecological Knowledge (TEK) as the foundation for their Adaptation Plans
- In 2015, building on the success of their project GIFN secured funding to assist neighbouring Indigenous communities to understand, assess and initiate climate change adaptation initiatives



Background Continued

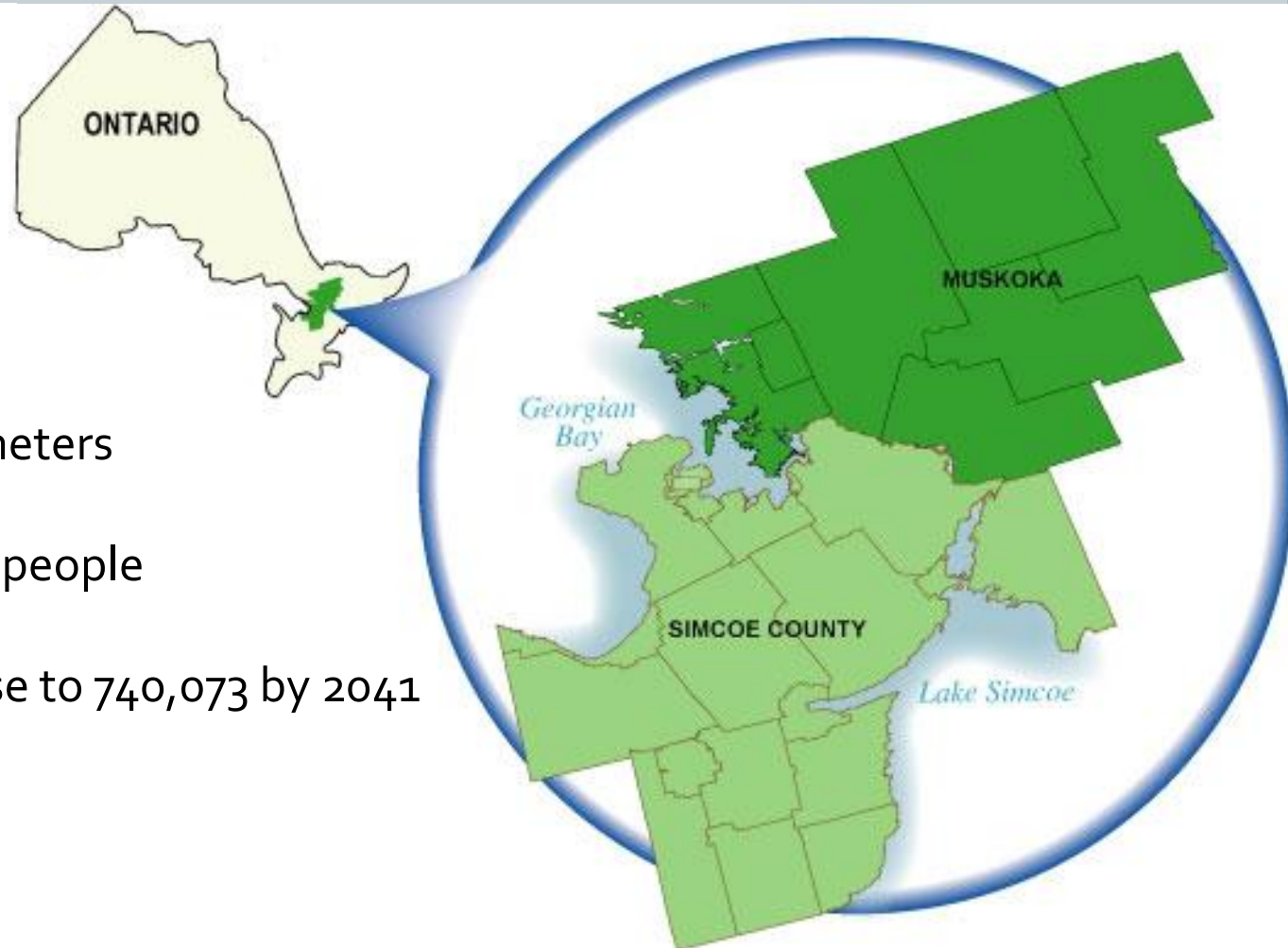
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- In 2017, stemming from the work that had been carried out with the partnering communities a joint proposal was submitted to the Climate Change and Health Adaptation Program and funding was granted to pursue the development of Climate Change Adaption Plans specifically focused on Health related climate change concerns and priorities for the participating communities



Simcoe Muskoka District Health Unit

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8,736 square kilometers

Servicing 540,249 people

Population increase to 740,073 by 2041

Why Climate Change and Health?

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*“For public health, climate change is the **defining issue for the 21st century.**”*



Dr. Margaret Chan,
Former Director-General of the
World Health Organization

Strategic Plan to Action Plan

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Goal

Communities in Simcoe Muskoka are resilient to, and have reduced negative health outcomes and inequities associated with climate change

Analysis of
current
environment

Health
promotion
and
stakeholder
engagement

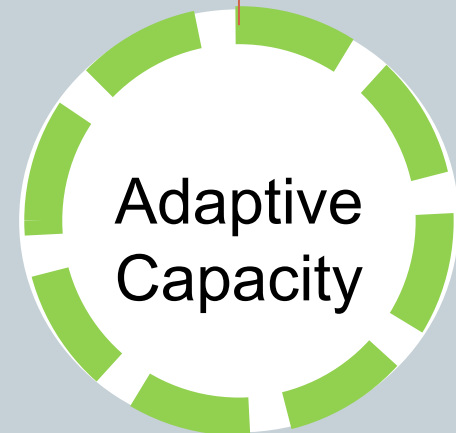
Integration
into agency
programs

Framing the Vulnerability Assessment

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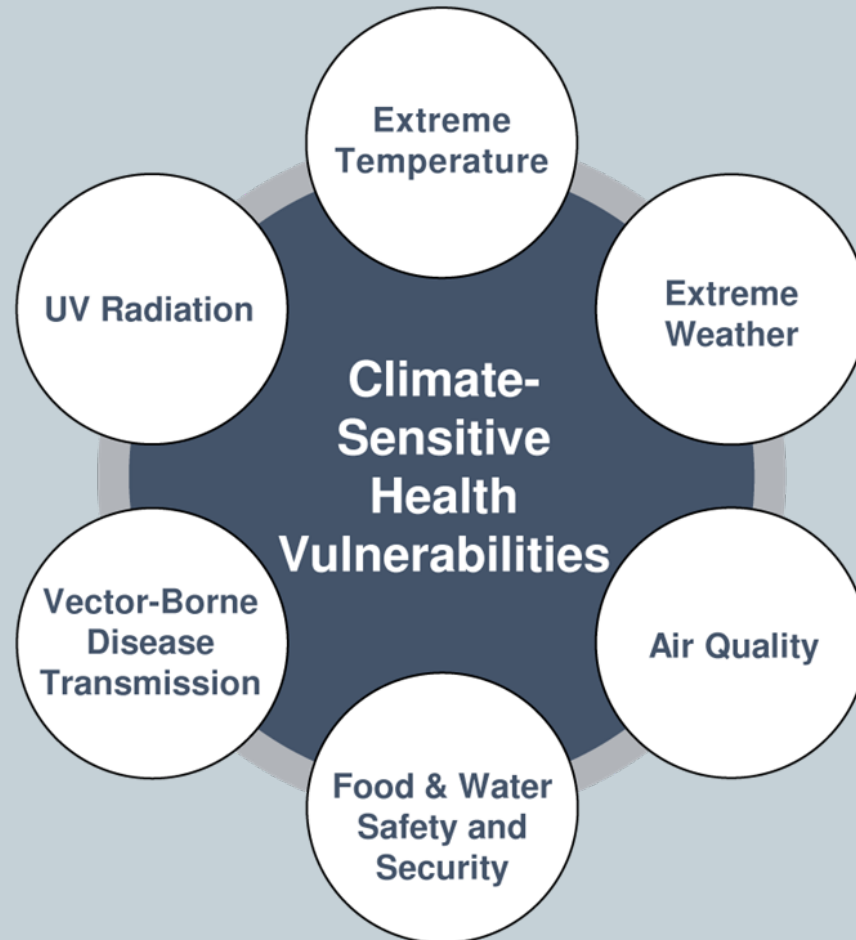
**Increase
Understanding**

**Support
Resilience**



Vulnerability Assessment

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WHO IS MOST VULNERABLE?

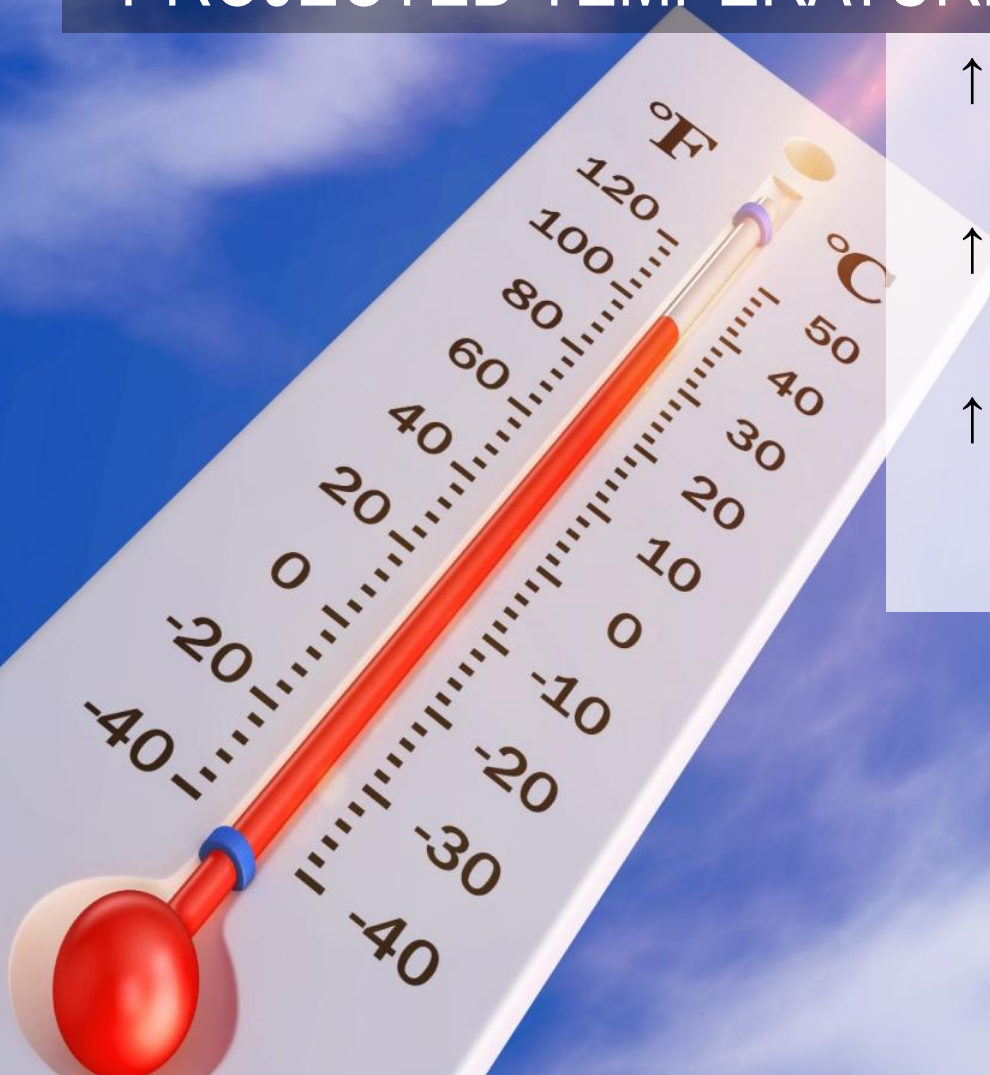
- Elderly
- Children
- Individuals with pre-existing illnesses
- Individuals living on low income
- Homeless and underhoused
- Women
- Indigenous Peoples
- Individuals without social networks

PROJECTED TEMPERATURES

↑ 1°C (2020s) feels like Ohio

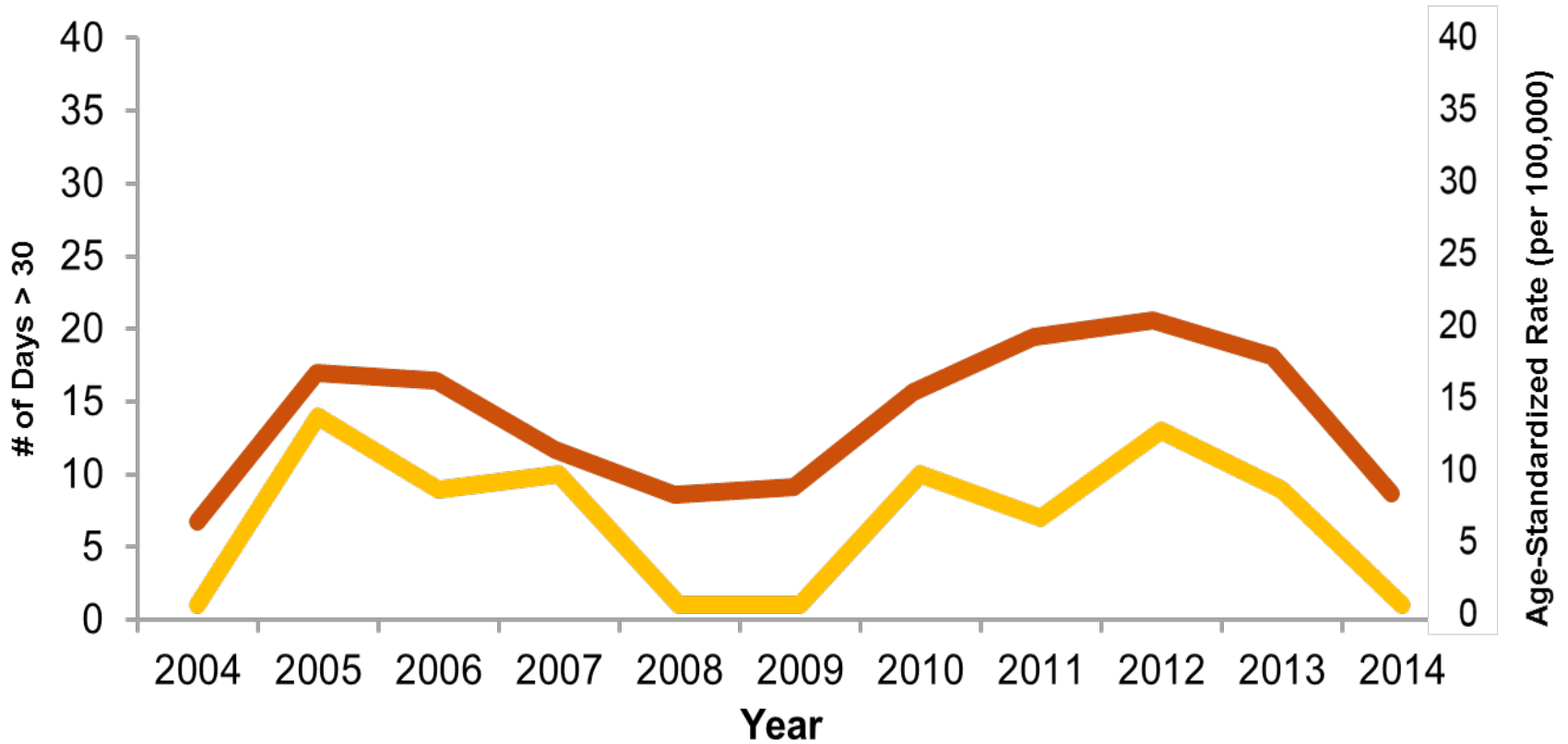
↑ 3.5°C (2050s) feels like Kentucky

↑ 5.7°C (2080s) feels like Mississippi



Heat-Related Illness

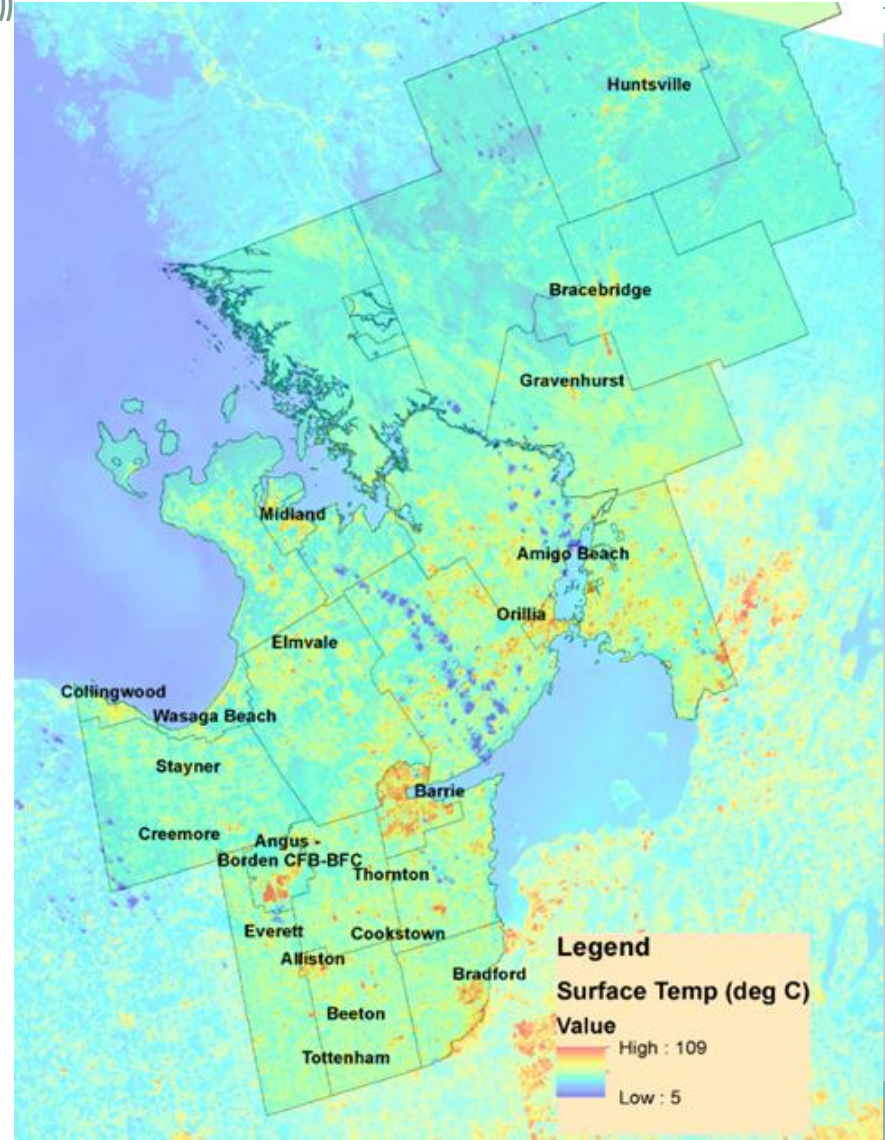
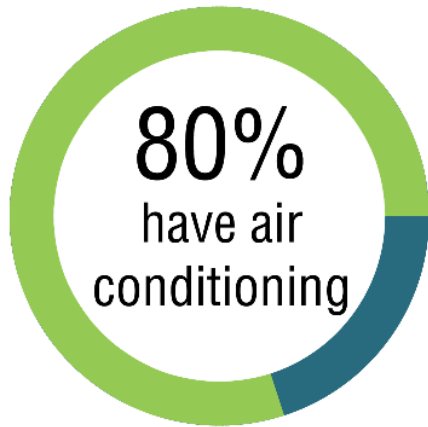
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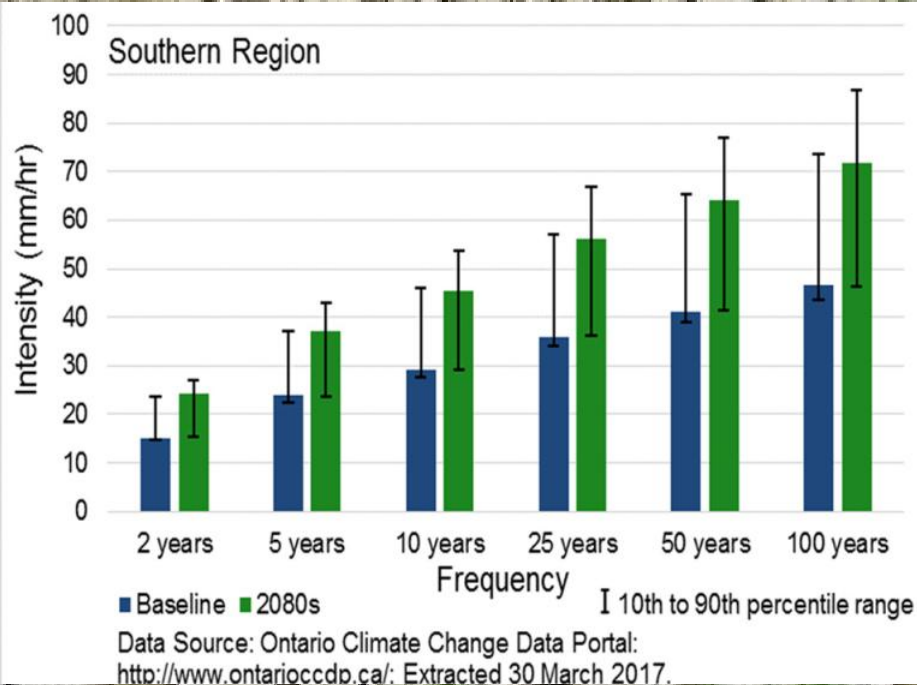
Data Source: Ambulatory Visits & Population Estimates, 2004-2014, IntelliHealth Ontario. Extracted: May 26, 2016; Heat-Related Illness (HRI) defined as any distinct visit using ICD-10 code of X30 or T67.; Temperature data from Barrie-Oro weather station via Environment Canada (climate.weather.gc.ca).

Urban Heat Island

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PROJECTED PRECIPITATION



↑ Annual precipitation levels
↓ Summer precipitation levels

Less frequent, more extreme precipitation events



OTHER EXTREME WEATHER IMPACTS

- ↑ Thunderstorms
- ↑ Forest fire risk
- ↑ Winter storms

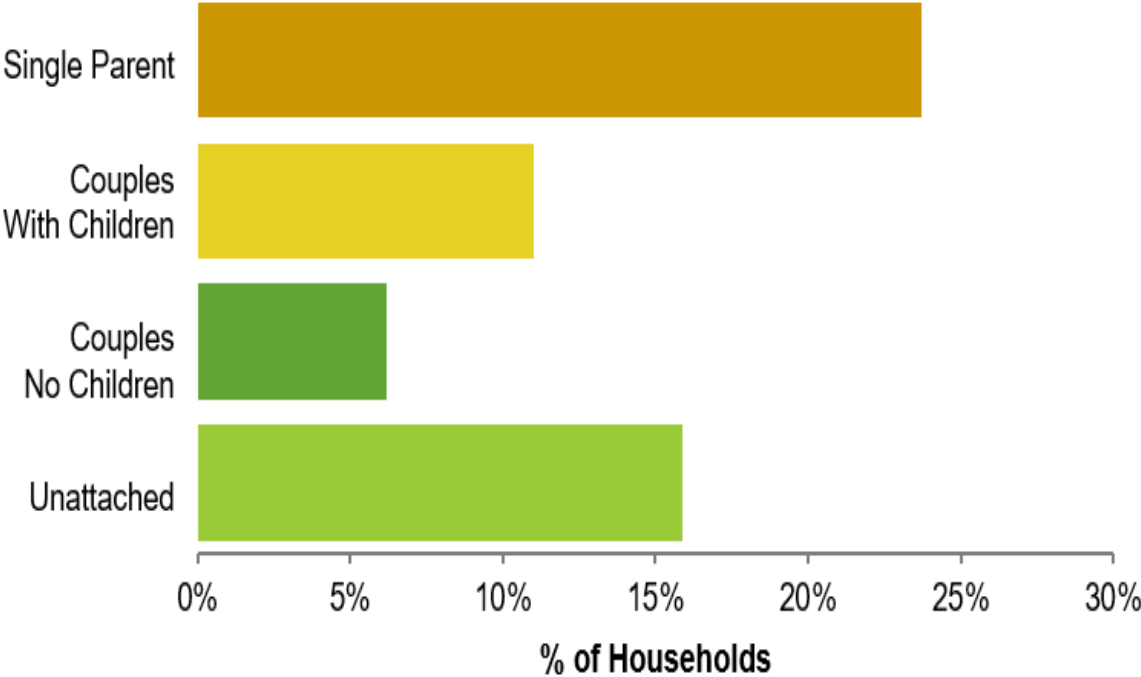
FOOD AND WATERBORNE ILLNESS

- Pathogen survival increases as temperatures rise
- Bacteria better able to colonize
- Overland flows leading to surface water contamination
- Changing human behaviours

Food Insecurity


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Marginal, moderate, or severe household food insecurity by family type, Simcoe Muskoka, 2007–2014.



Data Source: Canadian Community Health Survey (CCHS) 2007-2014, Statistics Canada, Ontario Share File, Distributed by the Ontario Ministry of Health and Long-Term Care

AIR QUALITY



- Climate change has the potential to increase ground-level ozone
- Changes in the volume, timing, and distribution of pollens and moulds within the environment
- Future air quality related health outcomes linked to extreme weather issues (forest fires and drought)
- Individuals who smoke (22% of adults 20+) at higher risk

VECTOR-BORNE DISEASE

Increased risk of Lyme Disease

- Warmer temperatures supports an increased range of blacklegged ticks

Increased risk of West Nile virus due to:

- Enhanced breeding conditions
- Better conditions for viral proliferation



UV RADIATION

- levels of ultraviolet radiation exposure



Non-Melanoma skin cancer rates



Type of Cancer	% Increase (2050)	% Increase (2080)
Basal Cell Carcinoma	7.8%	13.1%
Squamous Cell Carcinoma	14.8%	24.8%

Project

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In 2018/2019, each First Nation (FN) undertook the research and development of area specific climate change health adaptation plan

- *Beausoleil FN– Air Quality*
- *Curve Lake FN – Water Quality/Quantity*
- *Georgina Island FN – Vector Borne Diseases*
- *Rama FN - Extreme Temperatures*

Framework

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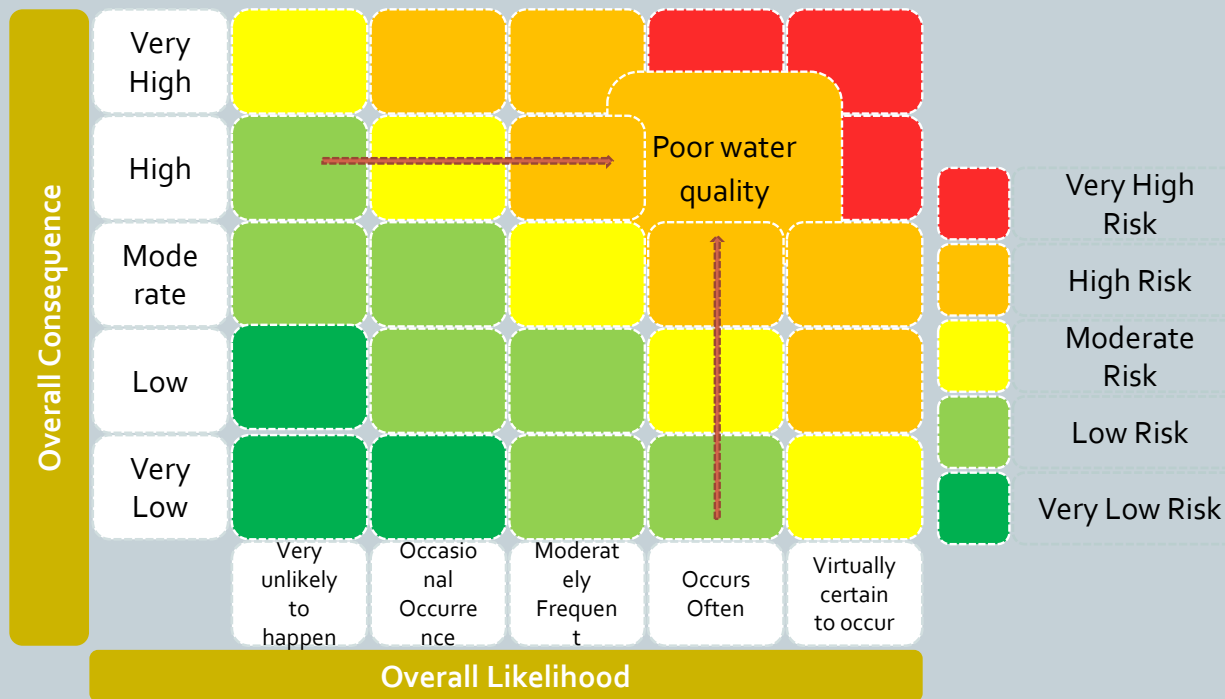
- Step 1: Let's get started
- Step 2: Gather data
- Step 3: Current vulnerability
- Step 4: Prioritize future risk
- Step 5: Identify adaptation options
- Step 6: Implement adaptation actions
- Step 7: Monitor progress



Prioritise Risks

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Risk Matrix



Level of Risk	Climate Hazard	Impacted Area	Impact
Very High Risk	Changes in Winter	Transportation	Road deteriorating faster (can't travel as much, no road, struggle to get around, using scoots more)
			Damage to ice road landings
	Changes in Summer	Impacts to Water Quality	Pressure cracks
Stress on ferry due to heaving through ice			
High Risk	Changes in Winter	Ice Quality	Health issues
			Water samples used to be clean and clear, dirty/polluted
	Changes in Summer	Impacts to Water Quality	Algae taking over in summer
Drinking water (stopped drinking water 10-20 years ago, can't drink water anymore)			
Moderate Risk	Changes in Winter	Transportation	Much more weeds
			Stress on ferry due to heaving through the ice
	Changes in Summer	Impacts to Water Quality	Algae taking over in summer
Drinking water (stopped drinking water 10-20 years ago, can't drink water anymore)			
Low Risk	Changes in Winter	Ice Quality	Health issues
			Water samples used to be clean and clear, dirty/polluted
	Changes in Summer	Impacts to Water Quality	Algae taking over in summer
Drinking water (stopped drinking water 10-20 years ago, can't drink water anymore)			
Very Low Risk	Changes in Winter	Ice Quality	Health issues
			Water samples used to be clean and clear, dirty/polluted
	Changes in Summer	Impacts to Water Quality	Algae taking over in summer
Drinking water (stopped drinking water 10-20 years ago, can't drink water anymore)			

Develop Adaptation Plans

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- I. Start with the highest priority risks and develop a list of adaption actions.
- II. Develop actions around
 - I. Engaging People
 - II. Reducing Threats
 - III. Enhancing Capacity
 - IV. Improve Knowledge
- III. Look for win-win or no regrets options.
- IV. Evaluate the adaptation actions.

Risk Scenario	Adaptation Action
With warmer weather and less precipitation in the summer the vernal pools are drying up and they are not staying long enough for frogs and turtles and other insect species to complete their growth cycle. This is leading to the loss of predators which eat vectors and help control their populations.	(EP) <ul style="list-style-type: none"> • Engagement around each category-develop posters and brochures, flyers, info, articles, community info sessions. • Tourism opportunities – information along with boardwalks and information kiosks etc., educating people • Citizen Science • Conservation /tourist/education
	(RT) <ul style="list-style-type: none"> • Creating wetlands, planning restoration • Assisted Migration • Damming of areas to re-direct water • Invasive species removal programs • Adding vegetation around identified areas • Citizen Science
	(EAC) <ul style="list-style-type: none"> • Development of a biodiversity strategy toward vector borne diseases and/or reviewing any existing strategies to ensure that they account for climate change • Education and awareness • Citizen Science
	(IK) <ul style="list-style-type: none"> • Education and awareness • Monitoring & Mapping • Communication
Heatwaves are causing the loss of Traditional Medicines. They are	(EP) <ul style="list-style-type: none"> • Community info sessions on what medicinal plants were traditionally harvested locally • Community harvesting and making of medicines

Develop Implementation Plans

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Adaptation Action	Implementation Action
<p>Engage People</p> <p>Engagement around each category-Posters and brochures, flyers, info, articles, community info sessions.</p> <p>Tourism opportunities – information along boardwalks and information kiosks etc., educating people</p> <p>Education, Awareness and Citizen Science</p> <p>Put flyers / info on the boat, walking trails, band building etc. use high traffic areas to educate people</p>	<ol style="list-style-type: none"> 1. Identifying other programs that are already developed and use them for engagement – example is there an engagement strategy for the community. 2. Identification of organizations Local Conservation Authority, MNRF and others for information pamphlets, education sessions, that can be resourced and modified to share with community 3. Collaborate to improve successes in receiving funding for campaigns and other opportunities or partnership opportunities. 4. Identify existing policies that maybe developed already like Biodiversity, Forest Management that can be built on to make it more robust. 5. Speak with people about existing policies that may have barriers and are actually detrimental and how to change them. <ol style="list-style-type: none"> 1. Hosting events that encourage people to become involved and aware of the beauty and our efforts within our community 2. Make people aware of current partnerships and resources we have through various communication venues. 3. Get the community involved and participate in outdoor events, such as community clean up, invasive species removals, stream rehabilitations and plant identifications 4. Get the youth involved (school, youth group, daycare) in messaging

- Identify short, medium and long term strategies
- Identify people inside and outside of the community that could assist
 - Staff
 - Volunteers
 - Conservation Authorities
- Identify possible funding sources
 - Own source revenues
 - Government
 - Non Governmental Organizations

Outcomes

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- Each Community has built capacity/expertise in a specific Climate Change Health area
- Each Community has adaptation plans for reference for four different Climate Change Health areas
- New projects have been identified
- New projects have been pursued
- New partnerships have been developed

Climate Change Vulnerability and Adaptation Planning
Framework

Addressing Health Impacts and Vulnerabilities within First Nation Communities - A
Collaborative Approach

2019

New Projects and Partnerships

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Projects

- Beausoleil Island First Nation – Wind and Water Monitoring Community Based Climate Monitoring Project
- Georgina Island -Addressing Health Impacts and Vulnerabilities within Chippewas of Georgina Island First Nation: Vector Borne Diseases in a Warming Climate Infectious Disease in collaboration with Climate Risk Institute (CRI)
- Infectious Disease and Climate Change – Creating Awareness Through Meaningful Collaboration and Reconciliation

Partnerships

- Health Units and First Nations
- Health Units and Health Units
- Health Units and others (Climate Risk Institute/Cambium Aboriginal)

Lessons Learned

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- Obtained knowledge regarding the benefits of collaborating with First Nations Communities and Public Health Units
- Method of collaboration is not typical of public health units
- Created opportunities to further advance the partnership
- Strengthen the communication pathways and collaboration between Public Health Units
- Created pathways to collaborate on other/future projects with First Nation Communities
- Deepened understanding regarding how valuable communication and knowledge exchange is among municipal organizations and First Nations Communities.
- Welcoming of knowledge exchange from both parties, which led to the exchange of information surrounding culture, Traditional Ecological Knowledge, Public Health Services and Programs

“The sensitivity of the natural environment to changes in weather and climate affect the ecosystems and socioeconomic aspects of every community, especially Indigenous communities”

**Chi Miigwetch!
Thank you!**

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