



GLIFWC
Understanding and Planning
For the Effects of Climate
Change in the Ceded
Territory

Bureau of Indian Affairs “Partners in Action”

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Climate Change Program Coordinator

July 20, 2016

Ceded Territories



GLIFWC's member tribes signed treaties in 1836, 1837, 1842, and 1854 with the U.S. government. In those treaties they ceded (sold) land in northern Michigan, Wisconsin and Minnesota but retained the rights to hunt, fish and gather in these ceded territories.

Treaty Reserved Rights

- A series of federal cases found that the tribes reserved the right to:
 - continue to hunt, fish and gather on off reservation lands in the Ceded Territories
 - maintain a lifeway to meet subsistence, economic, cultural, spiritual and medicinal needs
- The cases recognized that tribes utilized virtually every natural resource found in the ceded territories

What is GLIFWC?

An *intertribal* natural resource agency
exercising authority delegated to it by its 11 member tribes
to co-manage the resources

- Established to assist the 11 member tribes:
 - Conserve and manage off-reservation fish, wildlife, and other resources and their harvest
 - Develop and enhance institutions for tribal self-regulation of natural resources
 - Protect the habitats and ecosystems that support those resources
- Structured to create and facilitate *intertribal* consensus and agreement regarding the rights of the 11 tribes in the ceded territory: “one voice”
- GLIFWC is one of 5 intertribal agencies /commissions in the U.S.

What does GLIFWC do?

- Develops natural resource management plans and conservation codes
- Employs tribal fish and game wardens to regulate off-reservation fishers and hunters
- Establishes Protocols (official procedures) between Tribes and States (Minnesota, Michigan, Wisconsin) for determining harvestable surpluses and treaty harvest limits and quotas
- Develops model regulations Tribes must adopt to comply with new and existing court orders
- Conducts harvest monitoring and reporting requirements
- Gathers data to conduct research on treaty resources and assess and manage natural resources
- Establishes co-management mechanisms and processes
- Develops protections for habitat protection and ecosystem health



GLIFWC Mission Statement



GLIFWC is an agency of eleven Ojibwe tribes in Michigan, Wisconsin and Minnesota, all signatories to treaties retaining off-reservation treaty rights.

GLIFWC is committed to the implementation of its members' off-reservation treaty rights to fish, hunt and gather in the ceded territories.

GLIFWC is committed to the preservation and enhancement of the natural resources so harvest opportunities will be available for generations to come.

GLIFWC strives to infuse Ojibwe culture and values into all aspects of its work.

We, the Indian tribes of the Great Lakes Indian Fish and Wildlife Commission recognize:

- our fish, wildlife, and other renewable resources are important natural resources and are of vital concern to the Indian tribes of the GL region
- the conservation of this resource is dependent upon effective and progressive management
- the tribes have regulatory authority and a resultant duty to protect the resource
- by unity of action we can best accomplish these things

Why are we concerned about climate change?

Observed Climate Change:

- Mean, minimum, and maximum temperatures have increased over the past century
- Precipitation patterns have changed across the region
- The number of intense precipitation events and severe winter storms has increased

Source: Janowiak et al. 2014, WICCI Report (2011)

- Phenological changes: lake ice out, growing season, wildlife range shifts, migration timing, arrival of pollinators
- USDA has shifted plant hardiness zones





Climate Change is impacting tribal resources

“Climate change may disproportionately affect tribes and their lands because they are heavily dependent on their natural resources for economic and cultural identity.”

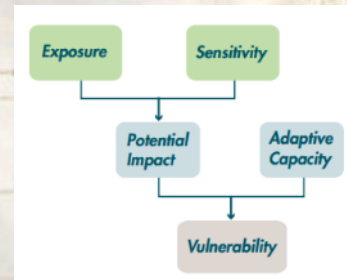
U.S. Department of the Interior (USDI 2010, Order No. 3289, 4)

- **Tribes are especially vulnerable to a changing climate because of their strong cultural relationship with natural resources**
- **Historically, tribes were able to harvest necessary resources from anywhere on the landscape.**
- **As climate change impacts entire ecosystems, various species utilized by tribes may decline or shift entirely out of treaty boundaries and reserved lands**
- **Climate change could severely impact the ability of tribes to harvest many culturally important resources within the fixed treaty boundaries**

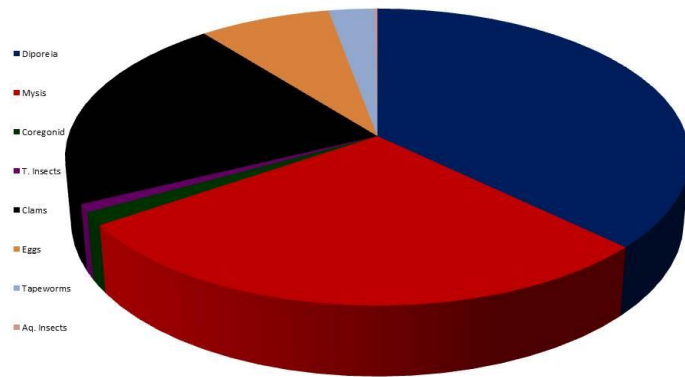
GLIFWC Climate Change Program

- Lake Superior fish diet study 
- Lake Superior lake trout depth/temperature study 
- Phenology study 
- Walleye study 
- Vulnerability assessment

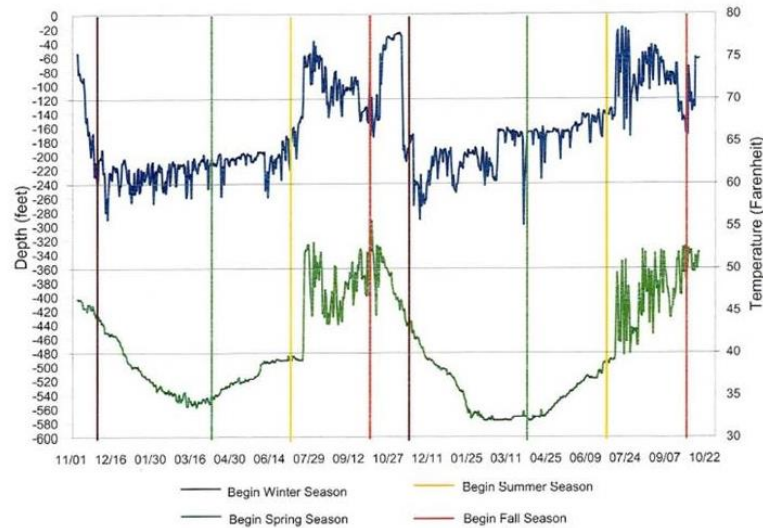
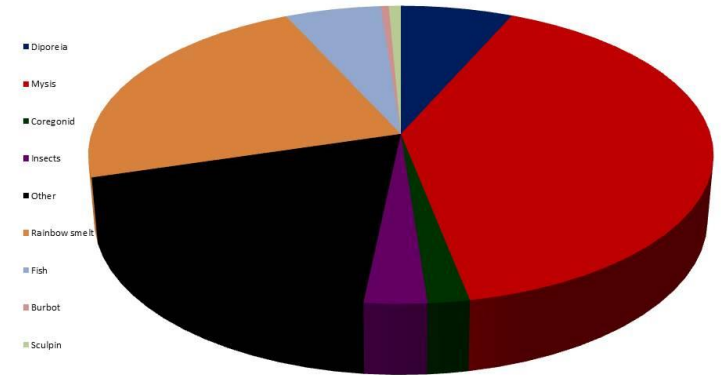
Climate
adaptation
plan



Whitefish Diet (Number of items)



Lake trout Diet (Number of Items)

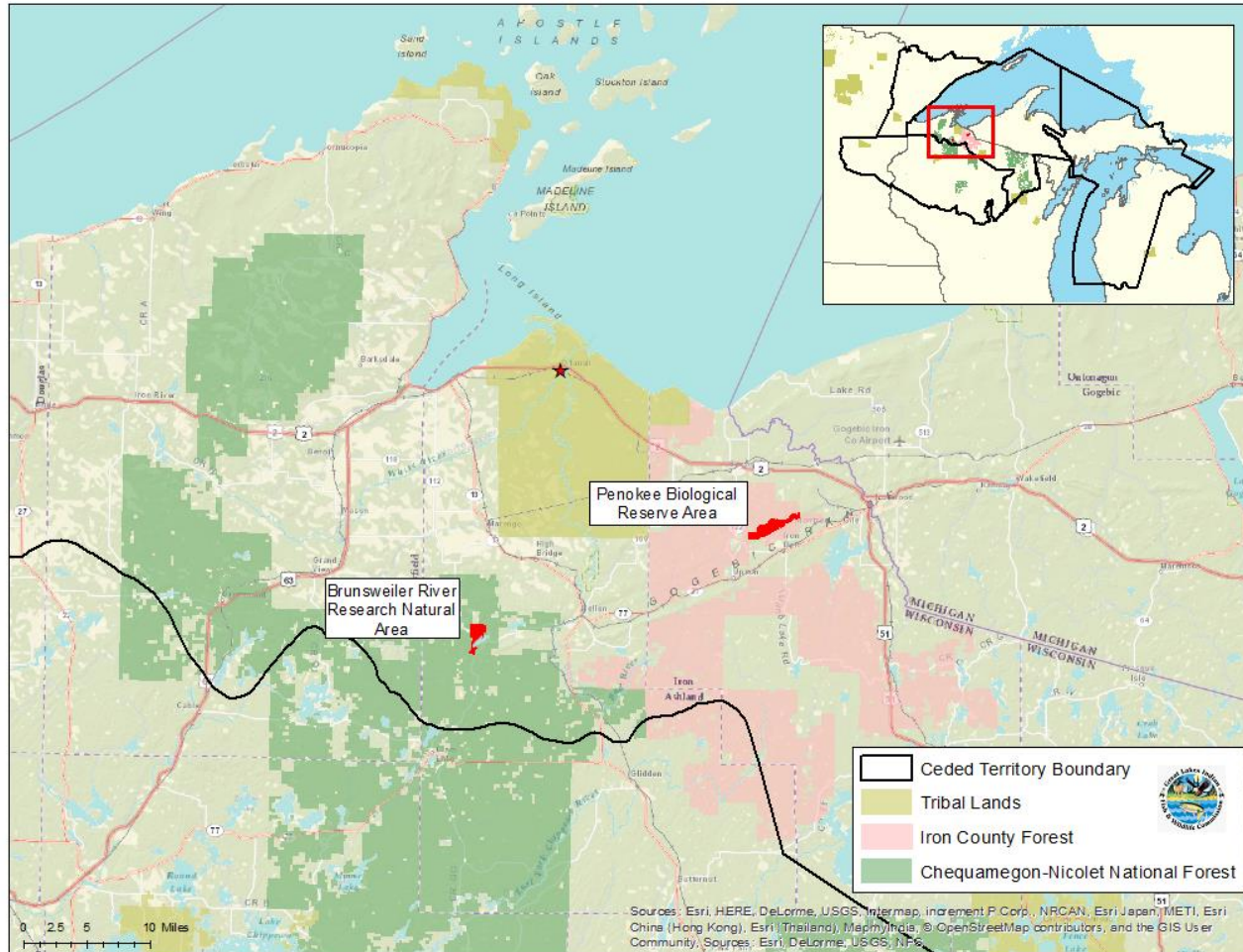




**GLIFWC interns lifting a gill net on Gichigami
(Lake Superior)**

(tagging lake trout for depth/temperature study)

Phenology Study



Phenology: the study of cyclic natural phenomena, such as the flowering of trees, the migration of birds, the emergence of insects, etc.

Phenology Project

- Phenology is one of the most sensitive biological responses to variation in the local environment
- We have established 2 long-term study sites within the ceded territories
- **Objectives:**
 - Collect baseline phenological data on several food and utilitarian plant species
 - Collect and integrate TEK into the project to focus on the potential impacts climate change might have on future harvesting efforts



Photos: TD Bartnick

Phenology Study Species

Black Ash



Balsam Fir



Northern White Cedar



Wild Leek



Sugar Maple



Paper Birch



Ostrich Fern



Blueberry



Raspberry

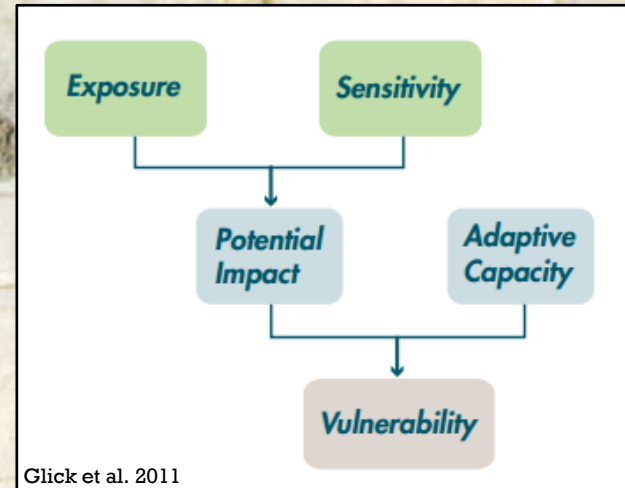


Basswood



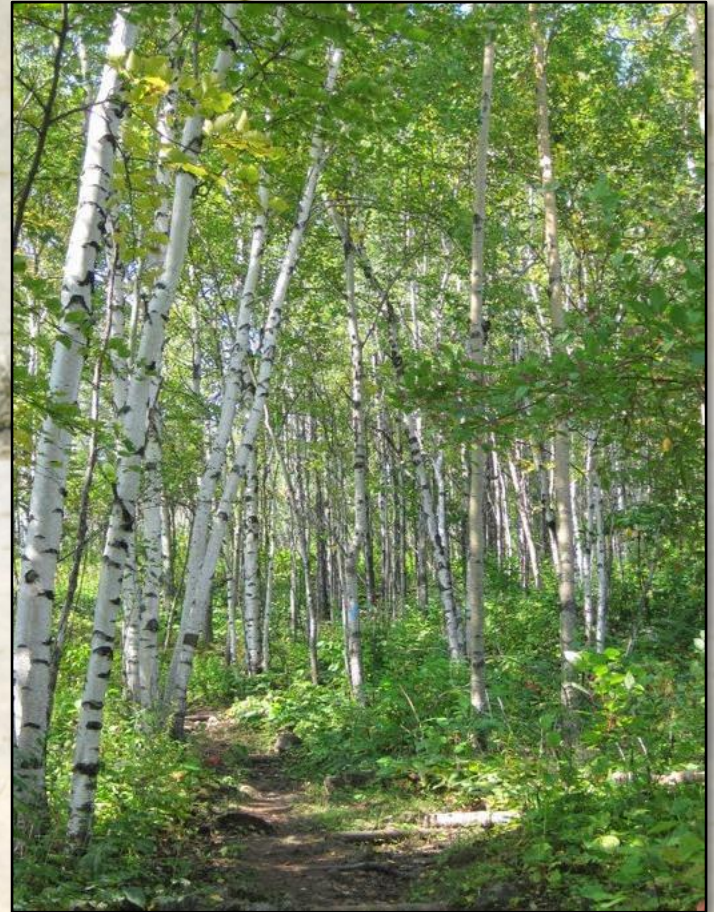
Climate Vulnerability Assessment

- **Which** treaty resources will be most strongly affected by climate change?
- **Why** are these resources vulnerable?



Climate Vulnerability Assessment Methods

- Integrate Traditional Ecological Knowledge (TEK)
- Climate Change Vulnerability Index: NatureServe
- Additional analyses for certain species/habitats
- Use climate data



Climate Vulnerability Assessment



Fish

Walleye
Muskellunge
Sturgeon
Northern pike
Smallmouth bass
Largemouth bass
Lake trout
Whitefish



Birds

Wild turkey
Ruffed grouse
Canada goose
American woodcock
Mallard
Greater and lesser scaup
Wood duck
Blue-winged teal



Mammals

White-tailed deer
Black bear
Fisher
River otter
Bobcat
American marten



Plants

Paper birch
Sugar maple
Northern white cedar
Black ash
Wild rice

Walleye



Special Notice

Walleye fishing on Mille Lacs Lake will close at 10 p.m. on Monday, Aug. 3, 2015, because walleye harvest by anglers has exceeded the state's allotment for 2015 by more than 2,000 pounds. The closure will continue through Monday, Nov. 30.

Climate change is a culprit in decline of Minnesota walleye

As state's lakes warm, walleye's cold water prey fish lose ground, and resort owners pay price.

By Josephine Marcotty Star Tribune | MAY 2, 2015 — 9:50PM



GLIFWC

Scientists Investigate How Walleye Are Faring in Wisconsin Lakes

By NATALIE JABLONSKI • OCT 22, 2014

Walleye decline a big issue, mystery

By Frank Zufall APG STAFF REPORTER Jun 18, 2015 0



GLIFWC

**Vulnerability
assessment**



Adaptation plan



**Continuing research
Adaptive
management**



“Climate change is expected to bring an increase in extreme precipitation events”



**Denomie Creek Bridge just east of GLIFWC
July 13, 2016**



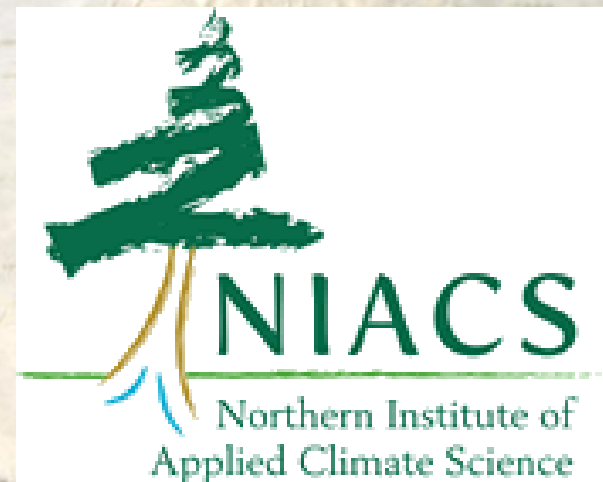
**Near hatchery ponds, just west of GLIFWC
July 13, 2016**

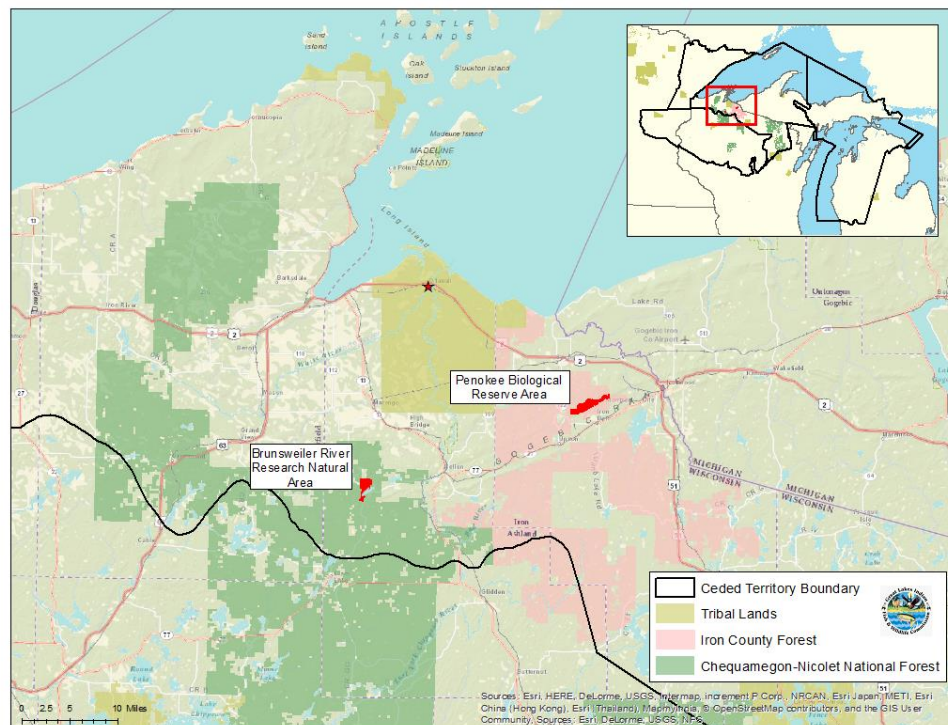


Some of GLIFWC's *Partners in Action*:



WISCONSIN
INITIATIVE ON
CLIMATE
CHANGE
IMPACTS







Lac du Flambeau Tribe

Lac du Flambeau Band of Lake Superior Chippewa Indians



*St. Croix Chippewa
Indians of Wisconsin*



Sokaogon Chippewa Community



**Bad River Band of the Lake Superior
Tribe of Chippewa Indians**



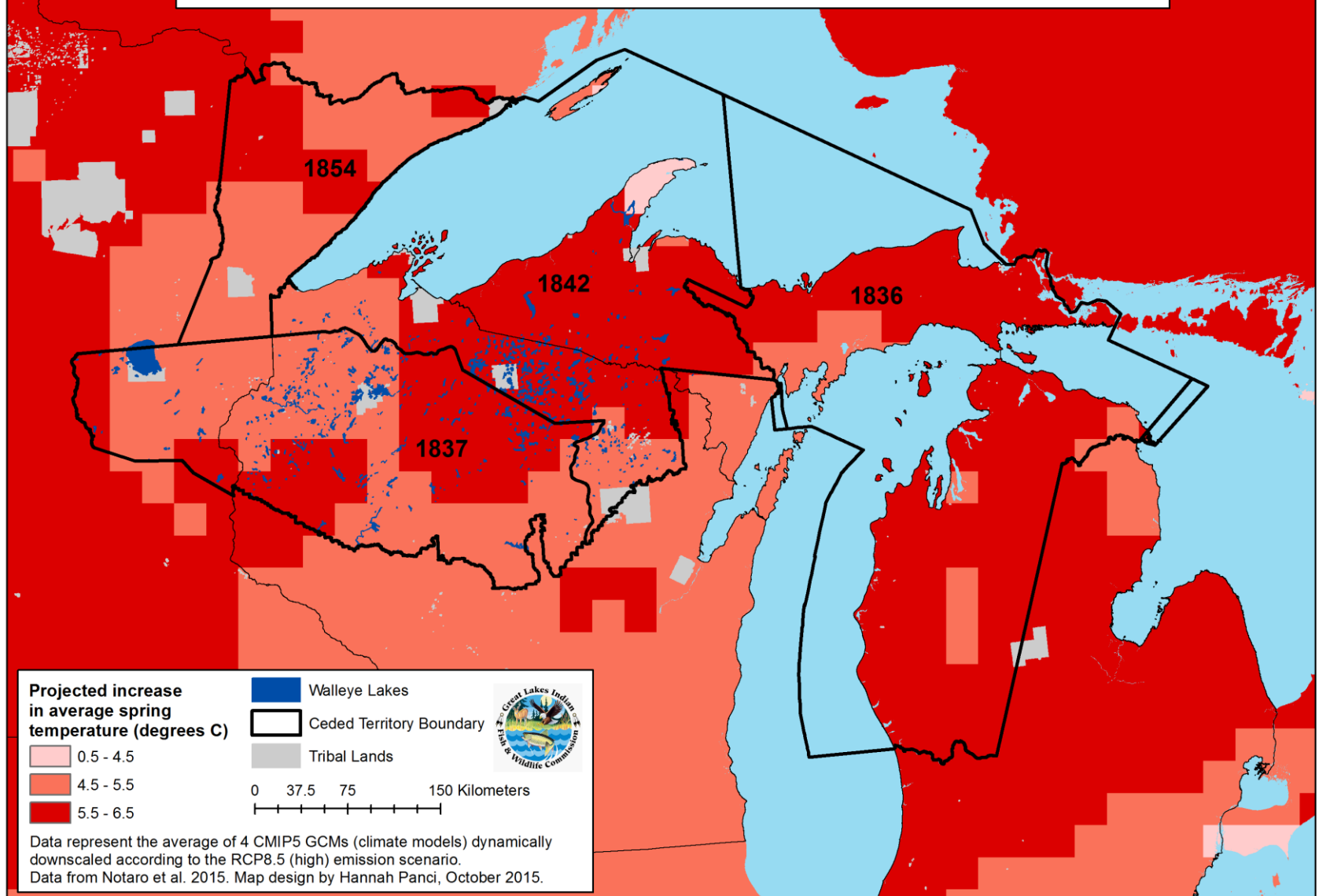
**Lac Vieux Desert Band of Lake
Superior Chippewa Indians**



**Keweenaw Bay
Indian Community**

Projected Change in Average Spring Temperature

Late 20th century (1980-1999) to the Late 21st century (2080-2099)





**Intergovernmental
Affairs**



**Melonee
Montano**

**Traditional
Ecological
Knowledge
(TEK)
Outreach
Specialist**

**Biological Services
Environmental**



**Hannah
Panci**

**Climate
Scientist**

**Biological Services
Environmental**



**Travis
Bartnick**

**Climate
Ecologist**

**Intergovernmental
Affairs**



**Kim
Stone**

**Policy
Analyst /
Program
Coordinat
or**

**Biological
Services
Great Lakes**



**Ronnie
Parisien Jr.**

**Fisheries
Technician**

**Biological
Services
Inland Fisheries**



*Coming
soon!*

**Inland
Fisheries
Biologist**



Miigwech!

Thank you.

**Gigawaabaminim
minawaa**

I will see you again.

Kim Stone

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<http://www.glifwc.org/>

<http://www.glifwc.org/ClimateChange/ClimateChange.html>