



**Gikinoow'wizhiwe Onji Waaban**  
*(Guiding for Tomorrow)*  
or "G-WOW"

**Changing Climate, Changing Culture Initiative**  
**A New Model for Climate Change Literacy & Action**

[www.g-wow.org](http://www.g-wow.org)

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**on behalf of G-WOW Team**

# G-WOW Project Partners



## Additional support





"...local, place-based evidence of climate change gained through experiential learning is as, or more effective than, simply studying analytical climate change data to increasing climate change literacy."

*"The Psychology of Climate Change Communication", Columbia University 2009*

# How is Wisconsin's **CLIMATE CHANGING?**



## Place-based Evidence of a Changing Climate

Unprecedented cancellation/disruption of tribal wild rice harvests



Ice cover on Lake Superior at Bayfield, Wisconsin has decreased approximately 3 days/decade or 45 days over the past 150 years



Flooding in southern Wisconsin, northern WI lakes were at their lowest level in 70 years. Lake Superior : near record low (2012-2013), extreme flooding events 2014



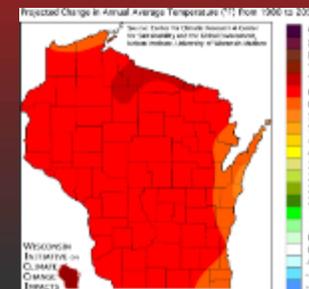
# How is Wisconsin's CLIMATE CHANGING?

(1980-2055)

*Based on A1B scenario*

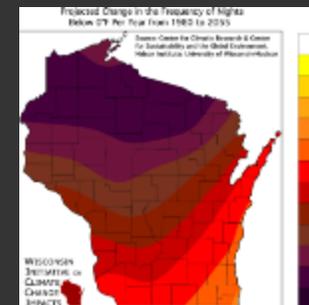
## OVERALL WARMING

Change in Average Annual Temps +4-9°F



## WARMER WINTERS

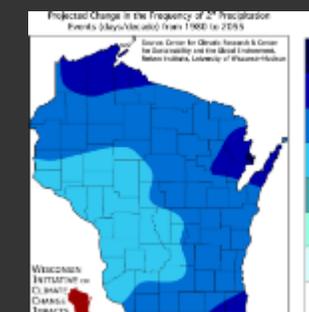
Decrease in Frequency of Cold Nights  
esp. Northern Wisconsin



## WETTER & MORE EXTREME WEATHER

Up to 4.5 inch annual mean increase in precip.

25% increase in the frequency of 2-inch or greater "gusher" rainfall events



## G-WOW Roots (2007)



- Increasing evidence that climate change is affecting the sustainability of Lake Superior coastal resources, communities, and cultures.
- Concern about climate change impacts to Ojibwe treaty rights and traditional cultural practices within the Ceded Territory.
- “Traditional” climate literacy models were not resonating with audiences.

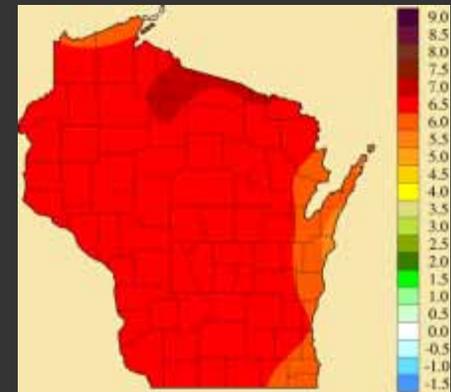
**Diverse project partners came together as the G-WOW Team to develop a new climate change educational outreach strategy**

## G-WOW Key Principles

- Climate change is real
- We contribute to climate change
- Weather and climate are different
- Climate affects culture & things we value
- We can make a difference



*Harvesting birch bark-  
a boreal species that  
relies on a cool climate*



*Projected change in Wisconsin's  
annual average temperatures in °F,  
1980-2055*

# Why Is the G-WOW Model Unique?

Based on understanding how climate change affects species or conditions that support cultural practices we value.

Creates a culturally relevant climate change perspective

Links local, place-based evidence with scientific climate research

Makes the model transferrable across different cultures

Promotes action through individual & community level response

*G-WOW uses impacts on Ojibwe cultural practices as an indicator of a changing climate for all cultures*

The Lake Superior Ojibwe have relied on the sustainability of key plant and animal species for generations to support subsistence, cultural, and spiritual practices or “lifeways.”

Tribes have traditional ecological knowledge (TEK) of natural systems that provides place-based indicators of climate change impacts for people of all cultures.



# Applying G-WOW model: Wild Ricing

Manoomin (wild rice) is an important species to the Ojibwe for subsistence, spiritual, and ceremonial purposes.



The Ojibwe cultural lifeway of wild rice harvesting depends on the sustainability of manoomin.



The sustainability of manoomin depends on habitats with:

- ✓ shallow water
- ✓ moderate water level fluctuations
- ✓ cool growing season temperatures



# Do culture and science agree that climate change is affecting the sustainability of manoomin ?

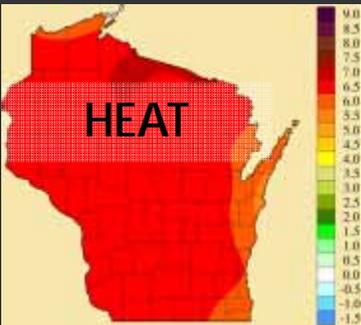
## PLACE-BASED EVIDENCE

Historic cancellations/disruptions in wild rice harvests (2007-2012)  
Causes: drought, fungal disease, flooding, invasives

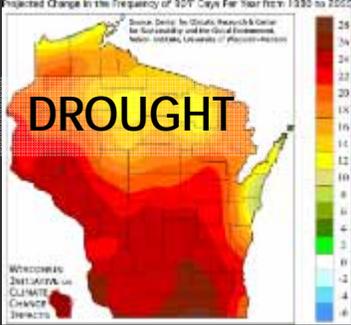


## SCIENCE-BASED EVIDENCE:

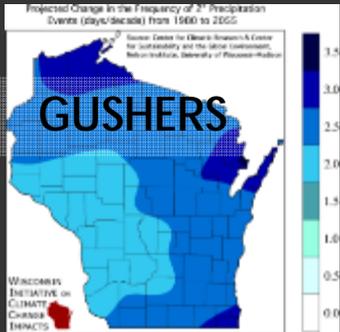
Projected change in climate variables affecting habitat conditions for wild rice survival



Annual average temperatures in °F,



Frequency of 90-degree days



Change in frequency of 2" + precip

Projected changes in climate variables 1980-2055 (A1B scenario)

# Examples of applying the G-WOW model

## Cultural Practice



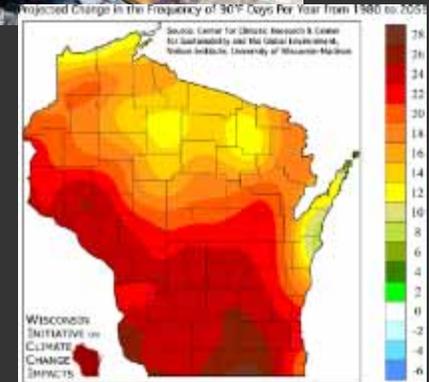
## Key Species



## Place-based & Scientific Evidence



*Requires cool moist forest habitats,  
cold winters for sugar production*



*Projected change in 90 °F days  
1980-2055*

What does this mean for sustainability of sugar maple trees,  
the future of businesses the rely on sugar maple?

# Another example of a G-WOW model

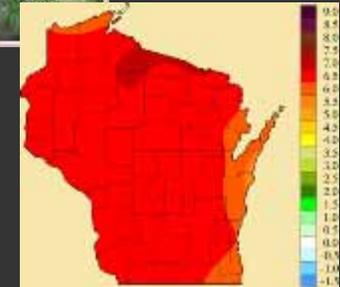
## Cultural Practice



## Key Species



## Place-based and Scientific Evidence



*Requires cold water habitats with high oxygen levels*

*Projected change in Wisconsin's annual average temperatures in °F, 1980-2055*

Climate models predict up to 95% of brook trout habitat across Wisconsin could be lost if the average annual summer air temperature increased just over 5 ° F.

# Example: G-WOW application, South Milwaukee HS, WI

## Cultural Practice



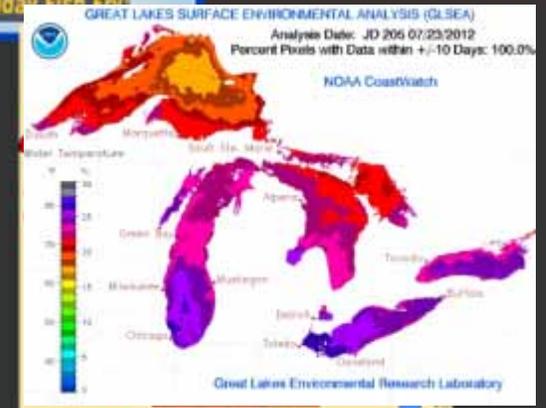
*Perch fish fry*

## Key Species



*Requires cool water.  
Warmer water also favors  
invasives that compete with  
Yellow Perch*

## Place-based & Scientific Evidence



Credit: GLERL.

# Example: G-WOW application, Southern Florida

## Cultural Practice



*Hiking in the Everglades*

## Key Species

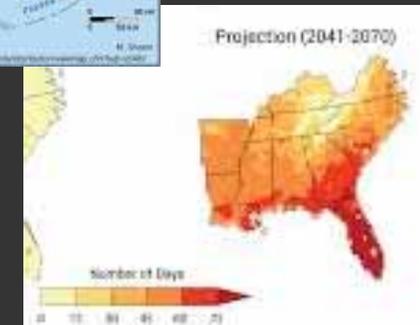


*Invasive Burmese python:  
requires very warm, moist  
"tropical" habitats*

## Place-based & Scientific Evidence



Large circles  
= 50 or more  
pythons  
captured



Increase in 95+  
degree day/year,  
2041-2070.

What does a changing climate mean for the sustainability of this invasive species? How could this affect recreation, nature-based tourism economies?

# Examples: A “non-species” dependent cultural practice

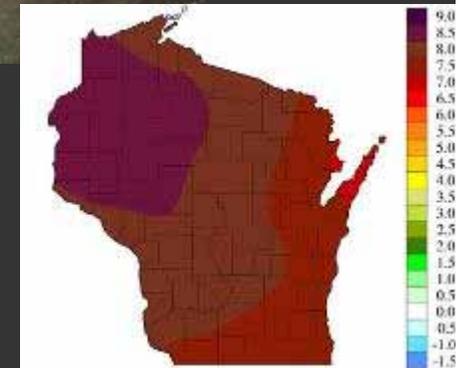
Cultural Practice



Key “condition”



Place-based and Scientific Evidence



What do these changes mean for species and cultural practices that depend on cold and snow?

*Projected change in Wisconsin's winter average temperatures in °F, 1980-2055*

# Create Your Own G-WOW model

## Cultural Practice

What cultural practice do you value?



## Key Species

What species or conditions are needed to support this practice or affect this practice?



## Place-based & Scientific Evidence

What changes are you seeing in the key species or in the habitats it needs?

How are habitat conditions projected to change based on climate science? Variables may include: temperature, precipitation, drought, intense rain/ storms, humidity, etc.



*What habitat conditions does the species need to survive and thrive?*

How could a changing climate affect this cultural practice?

# MOVING FROM KNOWLEDGE TO ACTION WHAT CAN WE DO?

## 4 Tips for Crafting Effective Climate Change Communication



## 1. Keep It Close to Home...

- Get personal....know your audience
- Connect climate change with what people value, what matters most to them
- The G-WOW model offers a framework



## 2. We Can Make A Difference

- Offer e-z to implement actions relevant to your audience
- Reinforce the impact of individual impacts & responses
- Pair climate impacts with local, place-based solutions
- Encourage action-- no matter how small the step--and the benefits
- “Be a Scout”– preparedness & prevention as meaningful responses



### 3. Emphasize a variety of benefits that resonate

*"People are more likely to act when they perceive local & personal climate change impacts and concrete steps they can take prevent them"- Columbia University, 2014*

#### The BIG "SO WHAT" ...

- Maintaining or enhancing the valued cultural practice for now (for future generations)
- Energy or cost savings
- Greater good for the community
- Supporting environmental sustainability
- Supporting economic opportunity or development



## 4. Use the power and values of the "group"

(ie) your lake association

- Make climate friendly choices the "default behavior", the group "norm"
- Less is better than more climate friendly options
- Social, non-monetary rewards are the most effective
- Celebrate efforts and successes



## Dealing With Climate Skepticism



It's OK-- skepticism is part of the scientific methods

Uncertainty  $\neq$  climate change is too difficult, flawed, or no action is needed.

Focus on opportunities or a new and better future, multiple benefits of action

"Better safe, than sorry"

63% of Americans think that global warming is happening, 18% do not  
52% believe it is mostly human caused, 32% say mostly natural caused

*"Climate Change in the American Mind", Yale Project on Climate Change Communication,  
March, 2015*

**97% of climate experts agree humans are causing climate change (2011)**

## -Your Turn-

# Communicating & Connecting With Complex Issues

1. What existing or emerging issues concern your audience?
2. What cultural practices or values might be affected by this issue?  
What values would resonate with them?
3. How can you incorporate place-based, local evidence & impacts into communicating about this issue to this audience?
4. What type of scientific evidence could be integrated to the evaluation of this issue for this audience?
5. What small changes could your audience make to lessen the impacts of this issue?



Miigwech !  
(T hank you)

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## G-WOW Changing Climate, Changing Culture Institutes

4-day experiential professional development based on the G-WOW model

Dates: July 13-16, 2015. Northern Great Lakes Visitor Center-Ashland, WI and the Apostle Island National Lakeshore, and Ojibwe tribal communities

Bonus Day, July 17: NASA climate tools training at Fond du Lac Tribal College

*"When I saw that we would be teaching about climate change..., I thought Ugghhh!!!  
Now I see that the cultural impact of climate change is how to approach middle school  
kids with this topic."*

*- G-WOW Institute Teacher*