Minnesota Environmental Congress

Adapting to climate change: innovative strategies from around Minnesota

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1854 Treaty Authority
December 3, 2019
Climate change significantly impacts tribal air, water and food. It has resulted in rising coastal water levels; more frequent forest and grass fires; increased pests and vector-borne disease; extreme weather conditions; decreased food availability; lower inland water and underground aquifer levels and non-native plant encroachment.

Tribal Public and Environmental Health Think Tank, a work group convened by the American Public Health Association (APHA) with the support of the Centers for Disease Control to increase awareness of the unique public and environmental health challenges faced by American Indian/Alaska Native communities.
Climate Change Vulnerability Assessment and Adaptation Plan

1854 Ceded Territory Including the Bois Forte, Fond du Lac, and Grand Portage Reservations

<table>
<thead>
<tr>
<th>Adaptive Capacity: High → Low</th>
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<td>AC4</td>
<td>Black Crappie</td>
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<td>AC3</td>
<td>Bald Eagles</td>
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<td>Culturally Significant Plants</td>
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<td>AC1</td>
<td>Culturally Significant Places</td>
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<td>AC0</td>
<td>Paper Birch</td>
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Sensitivity: Low → High

- Sturgeon
- Eastern White Pine
- Farwell
- Beaver, black bear, bobcat, coyote, fisher, fox, mink, muskrat, river otter
- Northern Red Oak, Basswood, and Chokecherry
- Wild Rice
- Labrador Tea
- Berries (dog species)
- Moose
- Brook Trout
- Vernal Pools
- Water Quality and Quantity
- Birds and Waterfowl (safety, waterfowl, graziers, birds, swans)
- Coast
- Farwell
- Grey wolf, American martens, snowshoe hare
- Lake Trout
- Whitefish
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- Northern Red Oak, Basswood, and Chokecherry
- Alder, aspen, birch, maple, pine, willow
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Moose (MOOZ)

- Important subsistence/cultural resource
  - Central to the identity of the boreal forest
  - Consuming shrubs/trees
  - Serving as food for predators such as wolves
- Mooz Decline
  - Land use changes
  - Habitat shifts
  - Emergence of new disease vectors
  - Pressure from predators
  - Increasing number of parasites
  - Climate change
- High Vulnerability
Wild rice (manoomin)

- Cultural/spiritual tie to wild rice
  - Harvested for food
  - Significant role in cultural practices
  - Economic resource
- Serves as a source of food and shelter for fish and wildlife
- Climate Impacts
  - Susceptible to changes in temperatures and precipitation
    - Cool waters less than 35°C are required during the dormancy stage that is needed for wild rice germination
    - Heavy precipitation events have increased in the 1854 Ceded Territory
- Medium Vulnerability
Water quality & quantity

- Water is a vital element for the Bands in the Ceded Territory
  - Tied to all aspects of life, food, economy, recreation and traditional/cultural history
- Important for plant/animals
  - Wild rice (manoomin)
  - Wildlife
  - Natural ecology of the forests and wetlands in the region
- Medium-High Vulnerability
Current Implementation Projects

- Wild Rice (Manoomin) Phenology
- Sugar Maple Phenology
- Moose Breeding Activity
- Acoustic Monitoring for Amphibians
- Temp Loggers
- Temp and DO Logger Chain
- Rain Barrels
- Ice Monitoring
- Walleye and Sturgeon Assessments
- Climate Summary
Next Steps

- Share strategies with identified partners
- Identify other potential partners
- Collaborate on strategy implementation
Miigwech! (Thank you)

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More information:
http://www.1854treatyauthority.org/environment/climate-change.html