

# Menu of Adaptation Strategies and Approaches

## *Dibaginjigaadeg Anishinaabe Ezhitwaad*

### *A Tribal Climate Adaptation Menu*

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#### **Strategy 1: Consider cultural practices and seek spiritual guidance.**

- 1.1. Consult cultural leaders, key community members, and elders.
- 1.2. Consider mindful practices of reciprocity.
- 1.3. Understand the human and landscape history of the community.
- 1.4. Hold respect for all of our relations, both tangible and intangible.
- 1.5. Maintain dynamic relationships in a changing landscape.

#### **Strategy 2: Learn through careful and respectful observation (gikinawaabi).**

- 2.1. Learn from beings and natural communities as they respond to changing conditions over time.

#### **Strategy 3: Support tribal engagement in the environment.**

- 3.1. Maintain and revitalize traditional relationships and uses.
- 3.2. Establish and support language revitalization programs.
- 3.3. Establish, maintain, and identify existing inventory and monitoring programs.
- 3.4. Establish and maintain cultural, environmental education, and youth programs.
- 3.5. Communicate opportunities for use of tribal and public lands.
- 3.6. Participate in local- and landscape-level management decisions with partner agencies.

#### **Strategy 4: Sustain fundamental ecological and cultural functions.**

- 4.1. Maintain or restore hydrology and soils.
- 4.2. Maintain or restore riparian areas.
- 4.3. Maintain or restore nibi (water) quality.
- 4.4. Support specific plants or plant communities with essential requirements.
- 4.5. Revitalize and maintain Anishinaabe/cultural use of ishkode (fire) as a stewardship tool.
- 4.6. Maintain and revitalize cultural approaches to harvesting and caretaking.

#### **Strategy 5: Reduce the impact of biological and anthropogenic stressors.**

- 5.1. Maintain or improve the ability of communities to balance the effects of manidoonsag (little spirits).
- 5.2. Maintain or improve the ability of communities to balance the effects of bakaan ingoji ga-ondaadag (non-local beings).
- 5.3. Manage herbivory to promote regeneration of impacted beings.
- 5.4. Reduce negative impacts from anthropogenic disturbances.
- 5.5. Monitor and reduce ambient air pollution.

#### **Strategy 6: Reduce the risk and long-term impacts of disturbances.**

- 6.1. Alter community structure or composition to reduce risk or severity of major disturbances.
- 6.2. Promptly revegetate sites after natural disturbance.
- 6.3. Care for cultural sites after a severe disturbance.
- 6.4. Plan harvesting, gathering, and collecting opportunities to reduce the risk and impacts of disturbances.

#### **Strategy 7: Establish, support, and recognize opportunities for beings or sites of concern to the community to withstand climate change.**

- 7.1. Identify, prioritize, and maintain cultural sites and/or culturally sensitive areas.
- 7.2. Identify, prioritize, and maintain at-risk and/or culturally important beings or communities.
- 7.3. Establish places for at-risk or displaced beings outside of their normal environments (biological nests/refugia).
- 7.4. Seek out or share traditional and/or cultural knowledge to inform management of sensitive or at-risk beings or communities.
- 7.5. Create and/or maintain access routes to traditional gathering and harvesting sites.
- 7.6. Work across treaty or tribal areas with partners and other tribes to manage at-risk beings.

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*This menu was developed by a diverse group of collaborators representing tribal, academic, intertribal and government entities in Minnesota, Wisconsin and Michigan and provides a framework to integrate indigenous and traditional knowledge, culture, language and history into the climate adaptation planning process. Learn more about this menu and others at [climatehubs.usda.gov/hubs/northern-forests/topic/adaptation-menus-strategies-and-approaches](https://climatehubs.usda.gov/hubs/northern-forests/topic/adaptation-menus-strategies-and-approaches).*

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## Strategy 8: Maintain and enhance community and structural diversity.

- 8.1. Maintain and restore diversity of native beings.
- 8.2. Promote diverse generations (both elder and younger beings).
- 8.3. Retain biological and cultural legacies.
- 8.4. Establish protected areas to maintain ecosystem and cultural diversity.

## Strategy 9: Increase ecosystem redundancy and promote connectivity across the landscape.

- 9.1. Manage habitats and access opportunities over a range of sites and conditions.
- 9.2. Identify additional lands for acquisition to expand the tribal land base, maintain diversity, and improve connectivity.
- 9.3. Reduce fragmentation to promote continuous natural ecosystems.
- 9.4. Maintain and create habitat corridors through restoration.

## Strategy 10: Maintain and enhance genetic diversity.

- 10.1. Use seeds and other biological material from relatives of beings from across a greater geographic range.
- 10.2. Favor local beings whose traits are better adapted to future conditions.
- 10.3. Collect and preserve seeds from beings that are at-risk or of concern to the community.

## Strategy 11: Encourage community adjustments and transition while maintaining reciprocity and balance.

- 11.1. Favor or restore native beings that are expected to do well under future conditions and that can help meet future needs.
- 11.2. Establish or encourage new mixes of local beings and/or bakaan ingoji ga-ondaadag (non-local beings) expected to do well under future conditions to meet future needs.
- 11.3. Guide changes in composition of beings at early stages of development.
- 11.4. Seek out and share traditional and cultural knowledge of potential new beings from tribal communities where these beings are native.

## Strategy 12: Support a new ecosystem balance after a major disturbance.

- 12.1. Promptly prepare and revegetate sites after disturbance.
- 12.2. Allow for areas of natural regeneration to observe which beings naturally appear on the site.
- 12.3. Adapt significantly disrupted ecosystems to meet expected future conditions and needs.
- 12.4. Relocate ecosystems, beings, or cultural sites.

## Strategy 13: Design and modify infrastructure and access to match future conditions and community needs.

- 13.1. Reinforce infrastructure to meet expected conditions.
- 13.2. Incorporate natural or low impact development into designs.
- 13.3. Reroute, relocate, or remove infrastructure to increase access efficiency and minimize harmful impacts.

## Strategy 14: Accommodate altered hydrologic processes.

- 14.1. Reinforce infrastructure to meet expected conditions.
- 14.2. Incorporate natural or low impact development into designs.
- 14.3. Reroute, relocate, or remove infrastructure to increase access efficiency and minimize harmful impacts.

**MORE INFORMATION:** This menu of adaptation strategies and approaches can be as a stand-alone resource or within the Adaptation Workbook decision-support framework found in Swanston, C.W.; Janowiak, M.K.; Brandt, L. A.; Butler, P.R.; Handler, S. D.; Shannon, P.D.; Derby Lewis, A.; Hall, K.; Fahey, R.T.; Scott, L.; Kerber, A.; Miesbauer, J.W.; Darling, L.; Parker, L.; St. Pierre, M. 2016. **Forest adaptation resources: climate change tools and approaches for land managers, 2nd ed.** Gen. Tech. Rep. NRS-GTR-87-2. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 161 p. [doi.org/10.2737/NRS-GTR-87-2](https://doi.org/10.2737/NRS-GTR-87-2).

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