

Menu of Adaptation Strategies and Approaches

Developed for Forested Watersheds

Strategy 1: Sustain fundamental hydrological processes.

- 1.1. Maintain and enhance infiltration and water storage capacity of forest soils.
- 1.2. Maintain and restore hydrologic connectivity.
- 1.3. Maintain and restore stream channel form and function.
- 1.4. Maintain and restore floodplain connectivity.
- 1.5. Maintain and restore forested wetlands and lowland areas.

Strategy 2: Maintain and enhance water quality.

- 2.1. Moderate surface water temperature increases.
- 2.2. Reduce export and loading of nutrients and other pollutants.
- 2.3. Reduce soil erosion and sediment deposition.

Strategy 3: Maintain or restore forests and vegetative cover.

- 3.1. Maintain or restore forest and vegetative cover in riparian areas.
- 3.2. Promptly revegetate areas after disturbance.
- 3.3. Maintain or improve the ability of forests to resist pests and pathogens.
- 3.4. Prevent invasive species establishment and remove existing invasive species.
- 3.5. Prioritize and maintain unique habitats for refugia.
- 3.6. Enhance species age classes and structural diversity in forests.
- 3.7. Identify, maintain, and enhance important habitats for fish and wildlife.

Strategy 4: Facilitate forest ecosystem adjustments through species transitions.

- 4.1. Favor or restore native species that are expected to be adapted to future conditions.
- 4.2. Establish or encourage new mixes of native species.
- 4.3. Disfavor species that are distinctly maladapted.
- 4.4. Introduce species that are expected to be adapted to future conditions.
- 4.5. Move at-risk species to locations that are expected to provide habitat.

Strategy 5: Accommodate altered hydrologic processes.

- 5.1. Manage systems to cope with decreased water levels and limited water availability.
- 5.2. Enhance the ability of systems to retain water.
- 5.3. Adjust systems to cope with increased water abundance, and high water levels.
- 5.4. Respond to or prepare for excessive overland flows (surface runoff).

Strategy 6: Design and modify infrastructure to accommodate future conditions.

- 6.1. Reinforce infrastructure to meet expected conditions.
- 6.2. Reroute or relocate infrastructure, or use temporary structures.
- 6.3. Incorporate natural or low impact development into designs.
- 6.4. Remove infrastructure and readjust system.

MORE INFORMATION: *This menu of adaptation strategies and approaches can be used 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.*

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