

Menu of Adaptation Strategies and Approaches

Developed for forested watersheds

Strategy 1: Sustain fundamental hydrologic processes

Approach 1.1: Maintain and enhance infiltration and water storage capacity of forest soils

Approach 1.2: Maintain and restore hydrologic connectivity

Approach 1.3: Maintain and restore stream channel form and function

Approach 1.4: Maintain and restore floodplain connectivity

Approach 1.5: Maintain and restore forested wetlands and lowland areas

Strategy 2: Maintain and enhance water quality

Approach 2.1: Moderate surface water temperature increases

Approach 2.2: Reduce export and loading of nutrients and other pollutants

Approach 2.3: Reduce soil erosion and sediment deposition

Strategy 3: Maintain or restore forests and vegetative cover

Approach 3.1: Maintain or restore forest and vegetative cover in riparian areas

Approach 3.2: Promptly revegetate areas after disturbance

Approach 3.3: Maintain or improve the ability of forests to resist pests and pathogens

Approach 3.4: Prevent invasive species establishment and remove existing invasive species

Approach 3.5: Prioritize and maintain unique habitats for refugia

Approach 3.6: Enhance species age classes and structural diversity in forests

Approach 3.7: Identify, maintain, and enhance important habitats for fish and wildlife

Strategy 4: Facilitate forest ecosystem adjustments through species transitions

Approach 4.1: Favor or restore native species that are expected to be adapted to future conditions

Approach 4.2: Establish or encourage new mixes of native species

Approach 4.3: Disfavor species that are distinctly maladapted

Approach 4.4: Introduce species that are expected to be adapted to future conditions

Approach 4.5: Move at-risk species to locations that are expected to provide habitat

Strategy 5: Accommodate altered hydrologic processes

Approach 5.1: Manage systems to cope with decreased water levels and limited water availability

Approach 5.2: Enhance the ability of systems to retain water

Approach 5.3: Adjust systems to cope with increased water abundance, and high water levels

Approach 5.4: Respond to or prepare for excessive overland flows (surface runoff)

Strategy 6: Design and modify infrastructure to accommodate future conditions

Approach 6.1: Reinforce infrastructure to meet expected conditions

Approach 6.2: Reroute or relocate infrastructure, or use temporary structures

Approach 6.3: Incorporate natural or low impact development into designs

Approach 6.4: Remove infrastructure and readjust system



Shannon et al, 2019. *Adaptation Strategies and Approaches for Forested Watersheds*. Climate Services. <https://doi.org/10.1016/j.cliser.2019.01.005>.

A supplemental topic to be used in the decision-making framework – Swanston et al, 2016. *Forest Adaptation Resources: climate change tools and approaches for land managers*, 2nd edition - <http://www.treesearch.fs.fed.us/pubs/52760> **More information can be found at** www.forestadaptation.org/adapt/adaptation-strategies