

Menu of Adaptation Strategies and Approaches

Developed for non-forested wetland ecosystems

Strategy 1: Maintain and enhance hydrologic processes and water quantity.

Approach 1.1: Maintain and facilitate infiltration and water storage within wetlands, adjacent uplands, and groundwater recharge areas.

Approach 1.2: Maintain and restore a natural hydrologic regime.

Approach 1.3: Restore stream channel processes and restore hydrologic function of waterways connected to wetlands.

Strategy 2: Maintain and enhance water quality of wetland habitats.

Approach 2.1: Moderate surface water temperature increases.

Approach 2.2: Reduce soil erosion and sediment deposition.

Approach 2.3: Reduce loading and export of nutrients and other pollutants.

Strategy 3: Maintain and restore wetland vegetation.

Approach 3.1: Maintain and restore wetland structure.

Approach 3.2: Maintain and enhance diversity of plant species and their life histories, ecological niches, morphologies, and phenologies.

Approach 3.3: Promote prescribed fire in fire-adapted wetlands.

Approach 3.4: Prevent invasive species establishment and limit their impacts where they already occur.

Strategy 4: Facilitate transformation of wetland communities by adjusting species composition.

Approach 4.1: Favor and restore native species and genotypes that are expected to be adapted to future conditions.

Approach 4.2: Increase genetic diversity of seed mixes within appropriate seed transfer zones.

Approach 4.3: Move at-risk species to locations that are expected to provide more suitable habitat.

Approach 4.4: Adjust wetland and composition to meet functional values.

Strategy 5: Adjust wetland systems to cope with altered hydrology.

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

Approach 5.2: Manage systems to cope with increased water abundance and higher water levels.

Approach 5.3: Design and manage enhanced and created wetlands to accommodate changes in hydrologic variability.

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.



Source: Staffen et al, 2019. *Climate Adaptation Strategies and Approaches for Conservation and Management of Non-Forested Wetlands*. **More information**; forestadaptation.org/wetlands

A supplemental topic to be used in the *Adaptation Workbook decision-support 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/strategies