Menu of Adaptation Strategies and Approaches

Developed for Outdoor Recreation

Strategy 1: Protect and sustain key infrastructure

Approach 1.1 Stabilize shorelines to reinforce vulnerable infrastructure.
Approach 1.2 Maintain, improve, and construct infrastructure using materials that can withstand a range of climate stressors.
Approach 1.3 Maintain, improve, and construct infrastructure using designs that reduce impacts from variable water levels.
Approach 1.4 Employ technological innovations to maintain the viability of developed winter recreation areas.
Approach 1.5 Employ protective measures to minimize damage from disturbance events.

Strategy 2. Enhance measures to prevent ecological damage from variable precipitation

Approach 2.1 Maintain and increase the capacity of stormwater infrastructure to accommodate variable precipitation.
Approach 2.2 Enhance the capacity of natural systems to accommodate variable precipitation.
Approach 2.3 Minimize impacts of existing roads and trails that are compromised by changing conditions.

Strategy 3. Manage impacts from shifting visitation and use trends

Approach 3.1 Reduce visitor impacts to vulnerable areas.
Approach 3.2 Optimize timing of opportunities to align with changing conditions.
Approach 3.3 Provide alternative means of access.

Strategy 4. Account for and communicate risks to human well-being

Approach 4.1 Train employees to be aware of climate-exacerbated risks to public safety.
Approach 4.2 Prevent or minimize hazards from wildland fire.
Approach 4.3 Prevent or minimize hazards from extreme heat events.
Approach 4.4 Improve public awareness regarding climate change and climate-exacerbated risks.
Approach 4.5 Communicate the reality of environmental change.

Strategy 5. Manage recreational opportunities to address impacts of expected conditions

Approach 5.1 Recondition recreation-related infrastructure located in vulnerable areas.
Approach 5.2 Use appropriate vegetation to increase resilience of recreation settings to climate-related stressors.
Approach 5.3 Alter infrastructure to better capture and use natural and man-made snow.
Approach 5.4 Employ snow-based options that are functional in low-snow conditions.

Strategy 6. Alter recreational opportunities to accommodate expected conditions

Approach 6.1 Increase four-season and non-skiing recreation opportunities at winter sports areas.
Approach 6.2 Relocate existing infrastructure and opportunities to areas with less risk of climate-exacerbated damage.
Approach 6.3 Integrate long-term siting and climate considerations into recreation management.
Approach 6.4 Use materials and designs that are impermanent.
Approach 6.5 Remove or decommission vulnerable infrastructure.

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Source: O'Toole, et al. (2019). Climate Change Adaptation Strategies and Approaches for Outdoor Recreation. Sustainability, 11(24), 7030. http://dx.doi.org/10.3390/su11247030. ***More information:*** *forestadaptation.org/recreation*

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*