Menu of Adaptation Strategies and Approaches

Developed for the Management of Great Lakes Coastal Ecosystems

Strategy 1: Maintain and enhance fundamental hydrologic processes and sediment dynamics.
Approach 1.1: Maintain and restore natural sediment transport processes.
Approach 1.2: Maintain and restore hydrological connectivity between hydrological features.
Approach 1.3: Maintain and enhance infiltration and water storage capacity of soils.

Strategy 2: Maintain and enhance water quality.
Approach 2.1: Moderate water temperature increases.
Approach 2.2: Reduce sediment deposition.
Approach 2.3: Reduce loading and export of nutrients and other pollutants.

Strategy 3: Maintain, restore, and manage coastal vegetation.
Approach 3.1: Maintain the integrity of unique plant communities, coastal wetlands and estuaries, and their integral
landforms.
Approach 3.2: Minimize non-climate physical damage to coastal ecosystems and habitats.
Approach 3.3: Establish living shorelines by maintaining and restoring coastal vegetation.
Approach 3.4: Maintain and enhance species and structural diversity in coastal ecosystems.
Approach 3.5: Prevent invasive plant and animal species establishment and minimize their impacts where they occur.
Approach 3.6: Maintain and establish refugia for plants and animals.
Approach 3.7: Maintain and increase connectivity of coastal habitats.

Strategy 4: Alter coastal ecosystems to accommodate changing hydrology, storm events, and shoreline erosion.
Approach 4.1: Manage coastal ecosystems to accommodate increased frequency and duration of low water levels.
Approach 4.2: Manage coastal ecosystems to accommodate increased frequency and duration of high water levels.
Approach 4.3: Promote features that reduce the impacts of wind and wave energy or damage from coastal erosion.
Approach 4.4: Manage sediment to respond to fluctuating water levels.
Approach 4.5: Reduce or manage surface water runoff.
Approach 4.6: Maintain and create conditions for inland and waterward movement of plants and animals.
Approach 4.7: Manage impounded wetlands to accommodate changes in hydrologic variability.

Strategy 5: Facilitate transformation of coastal ecosystems by adjusting plant species composition.
Approach 5.1: Favor or restore native species and genotypes with wide moisture and temperature tolerances.
Approach 5.2: Increase genetic diversity of seed and plant mixes.
Approach 5.3: Disfavor species that are distinctly maladapted.
Approach 5.4: Introduce species that are expected to be adapted to future conditions.
Approach 5.5: Move at-risk species to locations that are expected to provide more suitable habitat.

Strategy 6: Design and modify infrastructure to accommodate future conditions.
Approach 6.1: Reinforce infrastructure to meet expected conditions.
Approach 6.2: Design infrastructure with low-impact or ecologically friendly features.
Approach 6.3: Adjust the placement, design, and planned lifespan of infrastructure.
Approach 6.4: Remove infrastructure and readjust systems.

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**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.*
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