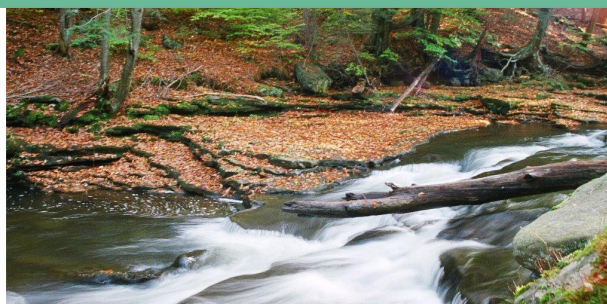
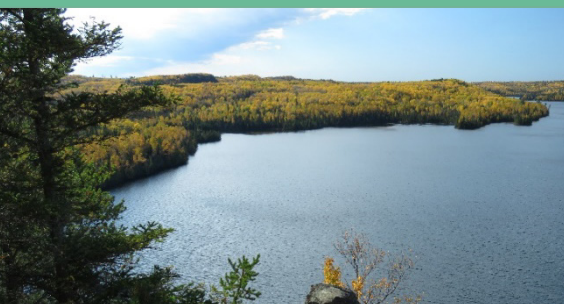


Adapting Forested Watersheds

Strategies and Approaches for Forested Watersheds



The Northern Institute of Applied Climate Science (NIACS) has developed tools to help managers adapt forested watersheds to climate change

What is it?

The Adaptation Strategies and Approaches for forested watersheds helps land managers and conservationists integrate climate uncertainty into broader watershed management goals and activities. This tool was created for use in the *Adaptation Workbook* to support planning and land management activities in the Midwest and Northeastern U.S.

Why was it created?

Intentional climate adaptation planning within ecosystem management has become a necessary part of the job for natural resource professionals in this era of change. One of the major challenges in adapting ecosystems to climate change is in the translation of broad adaptation concepts to specific, tangible actions. Using the forested watersheds menu of strategies and approaches with the Adaptation Workbook can make watershed management plans more robust to uncertainty and changing conditions.

How does it work?

The tool is a supplement to the decision-support tool created for forest and ecosystem management – Swanston et al, 2017. *Forest Adaptation Resources: Climate change tools and approaches for land managers*, 2nd edition (www.nrs.fs.fed.us/pubs/52760).

Appropriate for

- Forests
- Floodplain and riparian areas
- Forested wetlands*
- Forested lakesheds
- Accommodating hydrologic change
- Supporting hydrologic function and water quality
- Infrastructure considerations
- Recreation sites near water

**Non-forested Wetland Adaptation Strategies and Approaches Is In Development.*

forestadaptation.org/water



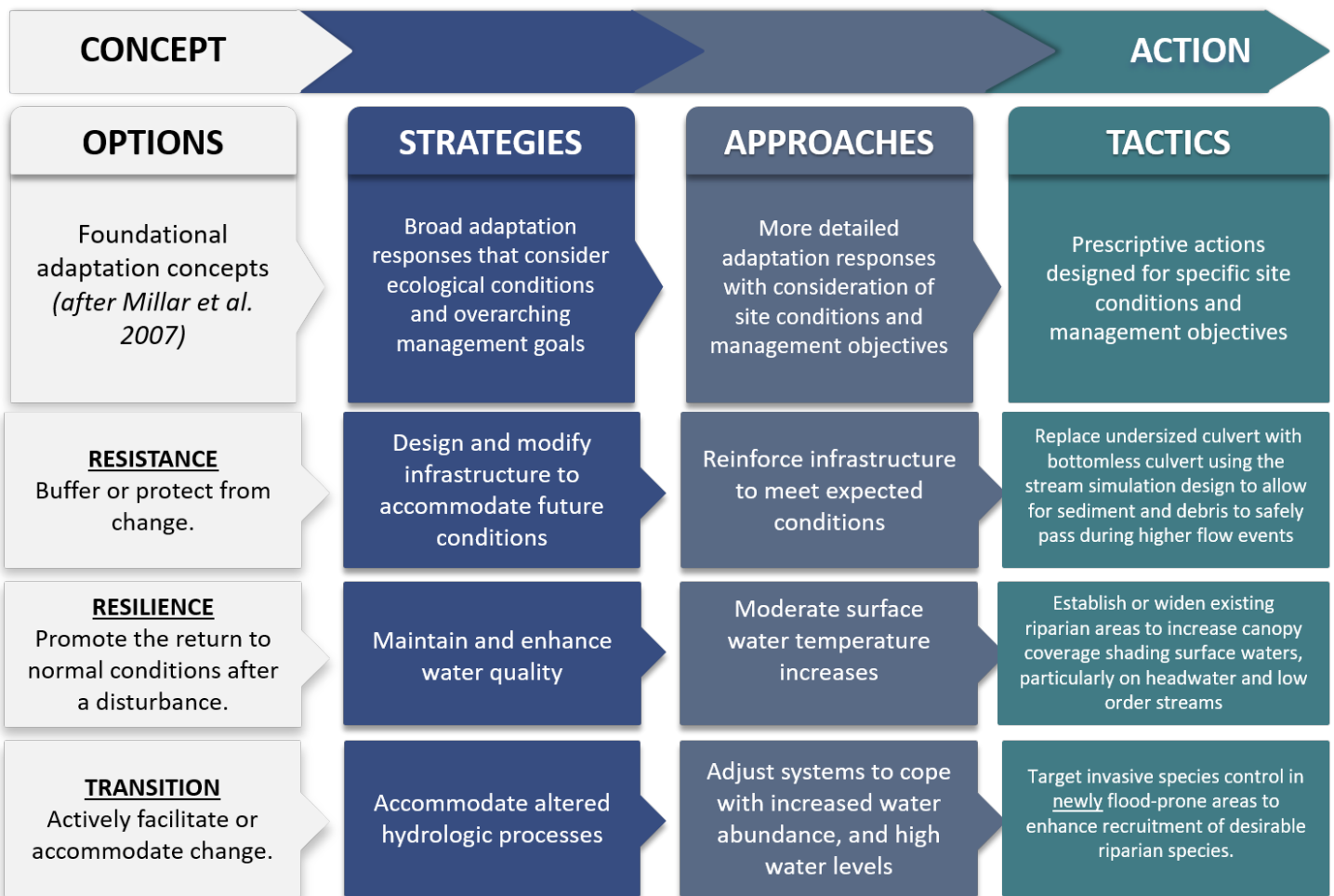
Contact Danielle Shannon for more information.
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Adapting Forested Watersheds

Strategies and Approaches for Forested Watersheds

Although a variety of broad concepts and considerations are available to natural resource professionals to manage forested watersheds in the face of climate change, tools that move from generalities to tangible, practical, on-the-ground ways which increase watershed resilience are needed.

Example of the concept to action framework that tiers adaptation concepts to strategies and more specific approaches for action:



Citation: Shannon, P. Danielle, Christopher W. Swanston, Maria K. Janowiak, Stephen D. Handler, Kristen M. Schmitt, Leslie A. Brandt, Patricia R. Butler-Leopold, and Todd Ontl. 2019. "Adaptation strategies and approaches for forested watersheds." *Climate Services* <https://doi.org/10.1016/j.cliser.2019.01.005>

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Adaptation Workbook

A Climate Change Tool For Natural Resource Management and Conservation

The Workbook consists of 5 basic steps:

1. Define goals and objectives
2. Assess climate impacts and vulnerabilities
3. Evaluate objectives considering climate impacts
4. Identify adaptation approaches and tactics for implementation
5. Monitor effectiveness of implemented actions

The Workbook complements and supports existing land management planning activities.

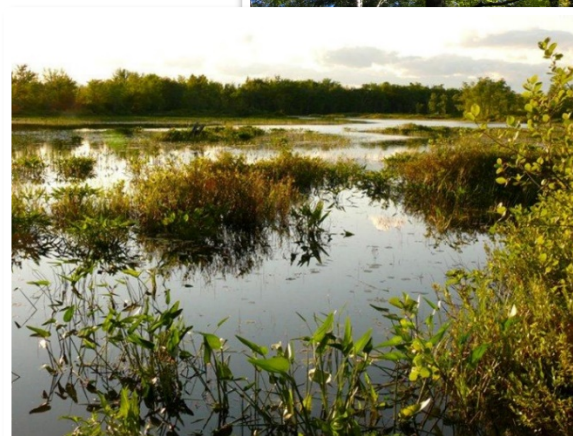
What is it?

The Adaptation Workbook is a practical framework for land managers to customize management actions that reduce risks associated to climate change; and helps managers increase the success of their management goals given changing conditions. The process is completely flexible to accommodate a wide variety of geographic locations, scales, management goals, and ownership types. The Workbook does not provide specific recommendations, but rather serves as a decision-support tool for incorporating adaptation considerations into current management objectives. Learn more at forestadaptation.org/far.



Who's it for?

The Adaptation Workbook is designed for **natural resource professionals**, but it's also a useful tool for motivated woodland owners.



Climate information

The Adaptation Workbook incorporates regionally specific climate change impacts to help users interpret, evaluate, and comment on how regional impacts will affect their local area and management objectives.

Management choices

Land managers will respond to climate change in different ways, based on their judgement of the associated risks and opportunities. A range of adaptation actions can be taken but are often selected based upon management goals and objectives for the land. **The Adaptation Workbook includes 'Adaptation Strategies and Approaches' relevant to various topics in natural resources management (forests, urban forests, forested watersheds, non-forested wetlands, forest-carbon).** Users select guiding ideas from a menu of strategies and approaches to generate custom site-specific tactics appropriate to their work. The menu helps users generate ideas and drives the selection of on-the-ground practices. Not all items on the menu will work together, although they can be applied in various combinations across the landscape or project area.