



Project Title: [Assessing the Vulnerability of Watersheds to Climate Change – Results of National Forest Watershed Vulnerability Pilot Assessments](#)

Headline Title (2-5 words): **Watershed Vulnerability Pilot Assessments**

Brief Summary (Abstract): Eleven National Forests from throughout the United States, representing each of the nine Forest Service regions, conducted assessments of potential hydrologic change due to ongoing and expected climate warming. A pilot assessment approach was developed and implemented. Each National Forest identified water resources important in that area, assessed climate change exposure and watershed sensitivity, and evaluated the relative vulnerabilities of watersheds to climate change. The assessments provided management recommendations to anticipate and respond to projected climate-hydrologic changes.

Completed assessments differed in level of detail, but all assessments identified priority areas and management actions to maintain or improve watershed resilience in response to a changing climate. The pilot efforts also identified key principles important to conducting future vulnerability assessments.

Project Location:

- Montana – Gallatin National Forest (NF); Helena NF
- Colorado – Grand Mesa, Uncompahgre, and Gunnison NFs; White River NF
- Arizona – Coconino NF
- Idaho – Sawtooth NF
- California – Shasta-Trinity NF
- Oregon – Umatilla NF
- Arkansas/Oklahoma – Ouachita NF
- Wisconsin – Chequamegon-Nicolet NF;
- Alaska – Chugach NF

Partners: Forest Service Research and Development (two research stations) and National Forest System (all nine regions)

Background: Existing models and predictions project serious changes to worldwide hydrologic processes as a result of global climate change. Projections indicate that significant change may threaten National Forest System watersheds that are an important source of water used to support people, economies, and ecosystems.

Wildland managers are expected to anticipate and respond to these threats, adjusting management priorities and actions. Because watersheds differ greatly in: (1) the values they support; (2) their exposure to climatic changes; and (3) their sensitivity to climatic changes, understanding these differences will help inform the setting of priorities and selection of management approaches. Drawing distinctions in climate change vulnerability among watersheds on a National Forest or Grassland allows more efficient and effective allocation of resources and better land and watershed stewardship.



NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION STRATEGY

Project Goals: To determine if watershed-focused climate change assessments could be prepared by National Forest staff, using existing data sources. The goal of the pilot project was to provide land managers with assessments of the relative vulnerability of watersheds to climate change.

Strategy Goals Implemented: Chapter 4.5 - Water Resources. (cross-sectoral efforts). Implemented Recommendation 3, Supporting Action 12 of the *National Action Plan – Priorities for Managing Freshwater Resources in a Changing Climate*. Recommendation 3 - *Strengthen assessment of vulnerability of water resources to climate change*.

Climate Impacts Addressed: Extreme weather events, sea level rise, shifting precipitation and runoff patterns, temperature changes, and resulting changes in water quality and availability.

Status of Project Implementation: Completed 11 watershed vulnerability pilot assessments in 2012.

Project Outcomes: The U.S. Department of Agriculture's (USDA) Forest Service assessed the condition of watersheds on each of the national forests. These condition assessments will be used as one of the sets of data in the assessments of the vulnerability of watersheds and aquatic systems to climate and non-climate stresses in multiple future scenarios.

Funding Sources: USDA Forest Service

Photos/Attachments:

Photo/Figure Credits (do we have permission to print):

Suggested Photo Caption: