



Adapting to Change

Background

In the context of climate change, adaptation is an adjustment in natural or human systems that moderates harm or exploits beneficial opportunities in response to change. Positioning national parks to adapt to rapid directional change and scientific uncertainty is a central goal for the NPS Climate Change Response Program. NPS managers' ability to support and implement effective adaptation will influence the long-term structure, function and viability of resources and infrastructure within parks. Adaptation to ongoing climate change requires revising existing strategies to meet traditional goals and will increasingly require revising goals and developing novel strategies as conditions shift beyond the range of variability experienced in the past. Additionally, coping with large-scale effects associated with climate change will require collaborative responses across landscapes and jurisdictions. Applying the best-available science and committing to adaptive management are critical components of an effective response.

Mainstreaming Climate Change Adaptation

Adapting to climate change is necessary across virtually all NPS operations. Consequently, the adaptation approach outlined in the *NPS Climate Change Response Strategy* encompasses four major components: (1) adaptation planning, (2) promoting adaptive capacity of ecosystems, (3) preserving cultural heritage, and (4) protecting facilities and infrastructure.

Several objectives guide the NPS in achieving adaptation goals. To determine and sustain priority adaptation responses, managers need access to robust scientific assessments, policy guidance, trained personnel, and strong partnerships. Early focus has been on scenario planning and vulnerability assessments, with a growing emphasis on developing guidance to foster climate change adaptation as a "routine part of doing business" within the NPS and in work with our partners.

Status and Next Steps

The widespread nature of climate change effects amplifies ongoing resource impacts such as habitat fragmentation, water scarcity, pollution, invasive species, etc. Simultaneously, scientific uncertainty challenges efforts to determine appropriate adaptation actions. Collaboration across landscapes, partnerships, development of new tools, and planning for change will help to address these challenges.

Activities underway in the NPS include:

- Continued support for implementation of the National Fish, Wildlife, and Plants Climate Adaptation Strategy as well as participation in Department of the Interior Landscape Conservation Cooperatives (LCCs). NPS is supporting 4 full time positions associated with LCCs that include some of the parks' most vulnerable resources.



After hurricane activity destroyed the Flamingo lodge in Everglades NP, the decision was made to rebuild using canvas and mesh eco-tents in order to adapt to future storms and rising sea level; NPS photo.

- Development of guidance for including climate change in planning and decision documents, including Foundation Documents, Resource Stewardship Strategies, and General Management Plans.
- Analysis of park resource and facilities issues associated with climate change that may require policy guidance and/or development of new approaches to frame management goals and desired outcomes in the context of a rapidly changing environment.
- Advancing the tools of scenario planning to support adaptation, including applying scenarios within the context of existing planning processes.
- Evaluating risks to park infrastructure associated with climate change (such as sea level rise) and developing guidance for facility management and appropriate responses to storm damage, including response to Hurricane Sandy.
- Guiding and developing vulnerability assessments for parks in several areas, as well as collaborating with other agencies in vulnerability assessments and strategies for adaptation in several regions.

More Information

Cat Hawkins Hoffman

National Adaptation Coordinator
Climate Change Response Program

ph: (970) 225-3567
email: cat_hawkins_hoffman@nps.gov

Nick Fisichelli, Ph.D.

Ecologist
Climate Change Response Program

ph: (970) 225-3578
email: Nicholas_Fisichelli@nps.gov

Gregor Schuurman, Ph.D.

Ecologist
Climate Change Response Program

ph: (970) 267-7211
email: Gregor_Schuurman@nps.gov

<http://www.nps.gov/climatechange>