



## Building a management response capacity for coping with climate change

Climate change presents immediate and significant risks to NPS natural and cultural resources and challenges managers' ability to protect our nation's heritage for future generations. Examples of climate change impacting NPS resources and visitor experience are:

- Mountain parks have lost 75% of their glaciers
- Snowpack in western parks is down 30%; spring runoff peaks 2 weeks earlier; and high elevation streams are drier
- Sea level rise and storm surges impact coastal and estuarine ecosystems, cultural resources, indigenous neighbors, and park facilities
- Lower lake levels occur in the Great Lakes and Southwest regions
- Frequency of large fires (>400 ha) is higher and fire season is 2 weeks longer
- Thawing permafrost in Alaskan parks is damaging roads and infrastructure and causing slope instability and accelerated erosion, including mass wasting.
- Some species have shifted their ranges and some species are vulnerable to extirpation, and possible extinction, within parks (e.g., Joshua tree, pika, glacier lily)

To effectively cope with the complexities of this issue, the NPS has recently established a permanent full-time Climate Change Coordinator to be housed within the Natural Resource Program Center in Ft. Collins, CO (Contact: [leigh\\_welling@nps.gov](mailto:leigh_welling@nps.gov)). In addition, the NPS has begun to expand its capacity to respond to climate change in the following six key areas:

- 1) Identify and summarize current and potential impacts to park habitats and species, cultural resources, park facilities, and visitor experience; identify gaps and priorities for future monitoring of key resources as risk.
- 2) Assess management response options – per current management policies; where policies are not clear, establish process for coordination/consultation.
- 3) Implement initiatives to reduce greenhouse gas emissions – support transportation alternatives, wind or solar power options, energy efficient operations and facilities, recycling, options for purchasing carbon credits, and other sustainable practices.
- 4) Support adaptation strategies and actions – engage parks in scenario planning, development of triage lists, and adaptive management approaches; encourage resource management decisions that enhance ecosystem resilience.
- 5) Educate and communicate with park partners, staff, and the public – develop products and tools to prepare people for change in park experience; offer ideas for personal action; highlight efforts the parks are undertaking to mitigate and adapt to climate change; promote leadership by example.
- 6) Coordinate landscape scale issues with adjacent agencies and land owners; promote conservation plans to facilitate biome shifts, species migration, and other transboundary issues (e.g., fragmentation /connectivity, invasive species, range shifts/migrations, altered hydrologic and disturbance regimes, etc.).