

PARKScience

Integrating Research and Resource Management in the National Parks

National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science
Office of Education and Outreach



SPECIAL ISSUE: CLIMATE CHANGE ADAPTATION & COMMUNICATION

The first of two editions on climate change, this issue explores adaptation and communication strategies, along with public engagement, to address this global phenomenon

- Scenario planning
- Policy considerations
- Training needs
- Carbon sequestration and air quality
- Landscape-scale conservation
- Citizen scientist involvement
- Innovative educational programming

ON THE COVER

Earth's vast oceans and atmosphere are warming, with consequences for landscapes and national parks. The National Park Service is exploring solutions to this global problem through adaptation strategies, such as those that promote ecological resilience, and by how its staff communicates this complex issue with the public.

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From the Editor

The water's fine ... (but it's getting deeper)

I felt apprehensive while planning this special edition of *Park Science*. Climate change is such an all-encompassing and complex topic and has so many implications for the future of the national parks that I wondered how we could do it justice in one issue. Short of reducing our carbon footprint what can we really do about climate change? This grand force has decades of inertia behind it, ensuring it will persist for a long time to come, and it operates at global-to-local scales. Its effects are likely to compound the many isolated resource conservation issues we deal with on a daily basis in ways we are not yet prepared or can even possibly imagine. Hence the need for this special issue, but how to get it right? For me the answer was to take the plunge and start my in-depth education on the subject. So, with this issue, we begin our foray into park management in the age of climate change—the “Anthropocene,” as some have suggested it be called.

Climate change is not new, and even our response to it in the National Park Service goes back to the early 1990s, as John Dennis illustrates in his article on the NPS Global Change Research Program. That initiative was never fully funded, but now we enjoy the benefits of having a Climate Change Response Program to help develop and integrate climate change coping strategies into our science and management operations. Herein, program manager Leigh Welling shares her understanding of heritage conservation as a landscape-level role for the National Park Service in conjunction with other partners. Through the work of this relatively new program, the National Park Service has illuminated many park management issues related to climate change and has adopted a response framework that emphasizes (1) adaptation, (2) mitigation, (3) science, and (4) communication. We largely follow this approach in organizing the following climate change-related features, case studies, and research reports in order to illustrate these management applications.

As I mentioned indirectly, one issue of *Park Science* is not adequate to cover this huge topic, so we will have two. In this edition we explore the concepts of *adaptation* and *communication*, along with the latter's corollary, *public engagement*. We have one feature article that explicitly addresses *Mitigation*, in the department “Park Operations,” in this issue. Other articles touch on mitigation, for example forest carbon sequestration, but are presented under other headings. In fact, the articles under any category may relate to multiple facets of the NPS climate change response strategy. Finally, in a few months we will follow up with our summer issue devoted to the *science* of climate change in national parks.

“Uncertainty” describes one of the primary problems associated with climate change, and this can lead to discouragement and inaction. How can we maintain a healthy, productive perspective in light of this immense challenge? I believe this issue of *Park Science* can help by demonstrating progress and sharing some of the best work to date in the National Park Service on the subject of climate change. We need to feel a sense of mastery over what we do, and having good information helps. So, pick an area of interest, test the waters, and dive in.

—Jeff Selleck