

## Global Climate Change: Leadership in the Pacific West Region

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For my entire 31 years of service in the National Park Service, I have been a reader. I like to go back and forth between some trashy escapism novels, usually supplied by my brother, to a solid book on some aspect of science. I like all kinds of science: string theory, the big bang, quantum theory, genetics, geology, astronomy, anthropology, psychology, climatology, and of course anything biological. For me and the many other people in the National Park Service, the science of climate change has been in the literature for years and is nothing new.

Twenty years ago, I became the first chief of resource management at North Cascades National Park Complex. One of the first things I did was to bring in a team of scientists who sat around with me and my staff and we talked about the future of the park. I asked each one to suggest what we should do to better understand the challenges before us. Jim Agee, then with the Cooperative Park Study Unit at the University of Washington, suggested that we deploy remote weather stations every one thousand feet from the lowest to the highest range in the Cascades. He actually suggested that the climate could be changing and we should be documenting it. We all thought he was nuts, of course, and ignored his idea. But ever since then, I have tried to stay up on the science and the politics of climate change.

A few weeks ago, I was watching the former Vice President Al Gore on CSPAN testifying before congress on global climate change. Let me make sure you all understand that Congress and particularly the Senate is an exclusive club and they treat members, especially former members, with a certain respect. That comes with the knowledge that membership in the club can be fleeting and they never know when they themselves might be sitting up there testifying before the body. Al Gore was answering questions when one senator called him a movie star. Gore responded, "No, senator, Rin Tin Tin was a movie star and all I did was put on a slide show." I want you to remember that quick retort as I will come back to it.

Soon after I became the regional director of the Pacific West Region (PWR), I turned to our team of PWR science advisors to tell me what are the major issues facing our parks in the future. One of the issues they identified was global climate change.

We in the Pacific West pride ourselves with at least trying to think strategically and moving forward on major issues facing our parks. An employee of our Washington Office recently told me that she has a note above her desk that says if you want to get something done, give it to the Pacific West. We are also smart enough to not try and tackle them all at the same time. So in January of 2006, at the PWR Directorate Retreat, we decided that it was time to take on the issue of global climate change and the national park system. The first goal was to bring scientists, resource managers, and park superintendents together to build a baseline of understanding of the issue. Assuming that everyone had a working knowledge of the issues and implications would have been a mistake.

Over 2006, we held three workshops: one in Oakland, California, one in Seattle, Washington, and one in Honolulu, Hawaii, with a full day devoted to the topic of global climate change. The morning was devoted to presentations by invited scientists with special expert-

ise in climatology and public lands. We had three very different presentations and they were all excellent. At each workshop we had a breakout session to address the following questions:

- What changes have you seen or do you expect to see in your park?
- How can we manage the parks to be “unimpaired for future generations”?
- How can we adapt to an issue that is outside of our control?

We had a second set of breakout sessions to address the following questions:

- What role should NPS have in engaging the topic?
- What should NPS messages be?
- What specific actions should we take?

Here are a few examples of what our managers are observing in the parks:

- Receding glaciers at Mount Rainier, Olympic, and North Cascades.
- More rain-on-snow events at North Cascades and Mount Rainier, which resulted in major flooding.
- Less snow pack in the Sierras, and, particularly, lower water content in the snow.
- Lake Mead is at 54% of capacity, resulting in the need to move marinas, while Las Vegas continues to pressure for more water.
- A record year for wildland fire in the West.
- Species shifting upward at Yosemite, well documented by the Grinnell Resurvey.
- Coral die-off in Pacific Island parks.

There was a lot of great conversation in these workshops, much more than I can articulate here, but I want to focus on four component conclusions regarding the role of the NPS in global climate change:

- That this is the defining issue for our future, potentially throwing into disarray the standard of impairment. Based on the predictive models, the future of Joshua Tree National Park is that it will have no Joshua trees. That my friends, is the essence of impairment. The NPS, by the Organic Act, is legally compelled to engage in this issue so that future generation may enjoy their parks unimpaired.
- That we must first and foremost get our own house in order in terms of sustainability, energy conservation, green building and design, and alternative energy. We must lead by example. In the PWR we have started but we have a long way to go. The PWR has some parks that are over 50% solar and we are purchasing green power throughout the region. We are currently investigating carbon credits for our travel miles. When we are planning a project, sustainability must be the first consideration and the last thing to cut, rather than the traditional opposite. As a member of the Development Advisory Board, I was amazed that NASA had decided years ago to meet LEED (Leadership in Energy and Environmental Design) standards with all new construction but the NPS had it as an option.
- That the NPS must open its arms to scientists and to the long-term monitoring that will become so essential to understanding the changes we are facing. The overused

metaphor of the canary in the mine needs to be expanded. The value of our parks as centers for excellent science and long-term datasets cannot be overstated. The monitoring programs we have all initiated during the Natural Resource Challenge must become institutionalized and made available to the world.

- That the NPS engage the public in understanding this issue at a personal level. We must be the translators of the dry and often obtuse scientific reports into something that evokes the power of the places we protect. So we want to connect youth to this issue and the Goral references to Rin Tin Tin and a slide show. If he wanted to connect to youth, he should have said “SpongeBob SquarePants and a podcast.”

Let me read you two examples of what I mean: the first from a scientific journal, the second from literature:

The larger glaciers are now approximately one-third their size in 1850 (range: 23–38%) and numerous smaller glaciers have disappeared. There has been a 73% reduction in the area of Glacier National Park covered by glaciers from 1850–1993. Only 27 km<sup>2</sup> of glaciers remain from the 99 km<sup>2</sup> which previously existed. Out of 84 watersheds, only 18 have 1% glacier cover, 8 have 2% and 4 have 3%. Average glacier area in the accumulation zone for September 1993 was 35%, indicating negative mass balances for most glaciers and continued shrinkage.

—*USGS-BRD Glacier National Park Science Center*

As long as I live, I'll hear waterfalls and birds sing, I'll interpret the rocks; learn the language of the flood, storm, and avalanche. I'll acquaint myself with the glaciers and wild gardens and get as near the heart of the world as I can.

—*John Muir*

John Muir took Teddy Roosevelt to Yosemite National Park and he was struck with its awesome beauty. There in 1903, Teddy spoke:

There can be nothing in the world more beautiful than the Yosemite, the groves of giant Sequoias and redwoods, the canyon of the Colorado, the Canyon of the Yellowstone, the three Tetons; and our people should see to it that they are preserved for their children and their children's children forever, with their majestic beauty all unmarred.

—*Theodore Roosevelt, Yosemite National Park, 1903*

“... their children's children forever, with their majestic beauty all unmarred.” I would say that Joshua Tree National Park without Joshua trees is not “unmarred.”

I read with interest that the Christian Right and the Evangelicals are beginning to take global climate change as a serious platform issue. Perhaps they are finally hearing the old adage that there is a special place in hell for those uncommitted in times of crisis.

We who manage the most spectacular protected areas in the world have the power of the place, and those places are threatened by global climate change. It is our job to help understand those changes and communicate them to the public. In doing so, we must be optimistic, not harbingers of doom. We must be rational interpreters of an inconvenient truth that

these special places, so revered by the American people and the people of the world that they have been set aside for future generations, are changing as a result of global climate change.

That is our challenge, that is our responsibility, and it is our job.