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New Study: Yosemite Could Get Hotter Than Sacramento California's National Parks, Economy Face Climate-Change Threats

Denver and San Francisco – Human-caused climate disruption could make Yosemite National Park hotter this century than Sacramento has been, according to a new report from the Rocky Mountain Climate Organization (RMCO) and the Natural Resources Defense Council (NRDC).

The report includes new local climate projections for ten national parks in California. With what the California Climate Change Center calls “medium-high” future emissions of heat-trapping gases, the average of six climate models is for Yosemite National Park to get 7.5°F hotter by 2070-2099 than it was in 1961-1990. That would be enough to make the national park 0.3° hotter than Sacramento historically has been.

Average results from other, park-specific projections include that Sequoia and Kings Canyon national parks could get 7.6° hotter, making them 0.6° hotter than the Sonoma County coast has been. Point Reyes National Seashore could get 6.0° hotter, making it as hot as Santa Barbara has been. Death Valley National Park, already the hottest place in North America, could get 8.1° hotter. Average temperatures in Joshua Tree National Park could go up 7.4° and in Mojave National Preserve by 8.0°, making each hotter than Death Valley's historic average temperature.

These higher temperatures would drive widespread changes in the national parks. Also threatened would be the contribution the parks make to California's economy. National parks in the state draw over 34 million visitors a year. Their spending contributes \$1.24 billion to the state's economy and supports over 19,000 jobs.

Among a broad range of threats to the ten national parks identified in the report are:

- Joshua trees, which need freezing temperatures to set seeds, are projected to disappear entirely from the national park named after them, and from most of Death Valley National Park and Mojave National Preserve.
- In Redwood National Park and Muir Woods National Monument, higher temperatures already have reduced by 30 percent the coastal fog that redwoods depend on for nearly half their water supply. A continued decrease in the fog could keep the coast redwoods from growing to the astonishing heights that make them the world's tallest trees.

- In Sequoia, Kings Canyon, and Yosemite, giant sequoias may not be resilient to the water stress and increased wildfire expected with rapid climate change, according to National Park Service and U.S. Geological Survey scientists.
- Yosemite Falls, mostly fed by snowmelt, could dry up more often and earlier in summers, depriving many park visitors of one of the world's greatest sights.
- As Yosemite, Sequoia, and Kings Canyon have gotten hotter and drier, pine and fir trees are dying more quickly. The death rate of trees has nearly doubled over just the past two decades.
- Sea-level rise of 2.0 to 4.7 feet in this century, as projected by the California Climate Change Center, would lead to flooding by storm surges and the permanent inundation of low-lying areas in Point Reyes National Seashore, Golden Gate National Recreation Area, and Redwood National Park. At risk are beaches, wetlands, other wildlife habitat, historic structures, highways and roads, campgrounds, picnic areas, and a visitor center.
- In Yosemite, mammals already are moving upslope to stay ahead of rising temperatures. About half of small mammal species in Yosemite now live at elevations different from where they were found nearly a century ago. Most have moved to higher elevations, by an average of about 500 yards higher. Along the coast, seals and shorebirds could lose habitat to a higher sea, and many may abandon the coastal national parks as suitable areas disappear.

The report's lead author Stephen Saunders, RMCO president and a former Deputy Assistant Secretary of the Interior over the National Park Service, said, "We need to reduce heat-trapping pollution to keep these national parks the special places that Americans know and love. If we keep changing the climate the way we are, it will hurt tourism and the state's economy. In California, climate disruption is a jobs-killer."

Theo Spencer, a senior advocate in NRDC's Climate Center, said, "The natural and cultural resources of California's national parks are directly linked to over one billion dollars in economic activity and 19,000 jobs. By acting now to reduce the pollution that causes global warming we will preserve these jobs and create new ones while continuing America's long-standing position of technological leadership."

The new locally-focused climate projections for the national parks considered two sets of future emissions – the medium-high scenario and one with lower (but still fairly high) emissions. With lower emissions, Yosemite would get 4.5° hotter rather than 7.5° hotter – still enough for widespread, severe impacts. "To really protect these special places, we need to get serious about sharply cutting heat-trapping pollution, and doing it now," said Saunders. Heat-trapping gases have long-lasting effects in the atmosphere, and emission reductions made sooner will have greater effect than those made later. "The good news is that the actions that protect the climate also save energy costs and create clean-energy jobs," he continued.

The new RMCO/NRDC report is available online at <http://www.rockymountainclimate.org>.

The Rocky Mountain Climate Organization works to keep the American West special by reducing climate disruption and its impacts in the region. The Natural Resources Defense

Council is a national nonprofit organization with more than 1.3 million members and online activists.