

UC SANTA BARBARA

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## **GLOBAL WARMING THREATENS STATE'S QUALITY OF LIFE**

If California's climate becomes warmer and wetter due to global warming in the decades ahead, as many experts predict, then the state could face a future fraught with water shortages, wildfires and adverse affects on its habitat, economy and quality of life as soon as 2030.

That is the prediction of a study released today by the Ecological Society of America and the Union of Concerned Scientists which includes major contributions by three University of California, Santa Barbara scientists.

"The bottom line is that climate change is real," said Frank Davis, a geography professor at UCSB. "It will affect all Californians, and is a topic that should be discussed broadly by all citizens."

Also adding expertise to the two-year study, which calls on the public and state officials to begin to formulate mitigation measures, were John Melack, a UCSB ecology, evolution and marine biology professor; and Steve Gaines, director of the university's Marine Science Institute and also a professor of ecology, evolution and marine biology.

In all, seven scientists participated in the study.

Based on current weather data, scientists believe California's average winter temperatures will run 5 to 6 degrees warmer in the years between 2030 and 2050,

said Melack, who studied how climate change might affect water availability and quality.

That means more precipitation falling as rain and less as snow, which could lead to more winter flooding and a smaller spring mountain snow pack, he said.

And with less water stored as snow, the state will find it more difficult to maintain water supplies through summers expected to be 1 to 2 degrees hotter.

"There will be too much water at the wrong time and too little when we need it," Melack said.

Agriculture could be hard-hit in a water competition with domestic and industrial use, a battle already ongoing as the state's rapid population growth and development continue.

Particularly vulnerable would be crops such as grapes, cotton and alfalfa that require large irrigation allotments.

Hotter, dryer summers also would likely lead to an increase in wildfires that endanger citizens' lives and property, said Davis, who studied those concerns.

"There's a real chance that ... wildfires could become more frequent," he said.

The state's magnificent plant and animal populations will be affected as well.

Scientists predict a shift of wildlife, forests and grasslands to higher altitudes and more northerly locations.

The redwood forests of northern California could be endangered as well as the kelp forests of the southern part of the state. The numbers of disease-carrying rodents -- such as hantavirus carrying mice -- could go up.

Changes are already occurring in the ocean, with declines in zooplankton, sea bird populations and cold-water species of fish being matched by increases warm-water species. And scientists predict if the warming trend continues until 2100, it will be accompanied by an 8- to 10-inch rise in sea level that could inflame already existing problems with storm surge and beach erosion.

El Nino and La Nina effects would become more common.

But all is not lost, researchers say.

The state's problems might be limited with creative forethought and planning. California might even become a beacon for other governments in mitigating global warming.

"This is a quite detailed report written for policy makers," Melack said. "We want the state of California to do what it does best: be a leader.

"When California does something, people listen.

If California says it is going to put limits on automobile exhaust emissions, then people listen because it is a big market."

The report has a list of places to begin.

"We do think that there are steps which can be taken by Californians to reduce the risks," Davis said. "For example, we need to reduce our share of global carbon dioxide emissions, limit the footprint of future development and do a better job of allocating our water resources. We must better protect biodiversity by creating an expanded, well connected system of nature reserves, especially at low elevations and in coastal areas."

The report, titled "Confronting Climate Change in California," is available at the Union of Concerned Scientists' website, [www.ucsusa.org](http://www.ucsusa.org).

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