CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Press Release

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Climate Change Report Documents Growing Impacts on California's Environment

Report highlights effects of increasing temperatures on state's water, vegetation and wildlife

SACRAMENTO – Climate change is having a significant and measurable impact on California's environment, according to a new state report that tracks 36 indicators of climate change and its effects.

The indicators highlighted in the report show that climate change is occurring throughout California, from the Pacific Coast to the Central Valley to the Sierra Nevada Mountains. Impacts of a warmer climate include decreasing spring snowmelt runoff, rising sea levels along the California coast, shrinking glaciers, increasing wildfires, warming lakes and ocean waters, and the gradual migration of many plants and animals to higher elevations.

"Whether you live in California, Texas or Timbuktu, climate change is real, and it's long past time for action," said Governor Edmund G. Brown Jr. The new report complements a consensus statement released in May by Governor Brown and signed by thousands of researchers and scientists identifying climate change as one of five key threats to the environment that require immediate action.

"The combined impact described by these indicators is dramatic," said California Environmental Protection Agency (Cal/EPA) Secretary Matthew Rodriquez. "This report underscores the need for California to continue to lead the fight against global warming and protect both our environment and our economy for future generations."

Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA) compiled the 36 indicators of climate change, drawing upon monitoring data from throughout the state and a wide variety of research studies carried out by state and federal agencies, universities and research institutions.

"Together, these indicators paint a disturbing picture of how climate change is affecting our state and its growing threats to our future," said OEHHA Director Dr. George Alexeeff. "This report demonstrates the value of California's extensive research and monitoring efforts in continuing to track as many of these changes as possible."

One of the report's more hopeful findings is that California's industries are becoming more energy efficient, with emissions of greenhouse gases declining per $1,000 of economic output, a sign that the state's efforts to reduce emissions are having positive effects. Yet the state's overall emissions of heat-trapping gases increased between 1990 and 2011, and atmospheric concentrations of carbon dioxide and methane continue to rise.

Key findings of the report include:

- **Temperatures:** The state's high, low and average temperatures are all rising, and extreme heat events also have increased in duration and frequency. The rate of warming has accelerated since the mid-1970s, and night time (minimum) temperatures have increased almost twice as fast as maximum (daytime) temperatures.
- **Wildfires:** The number of acres burned by wildfires has been increasing since 1950. The size, severity, duration and frequency of wildfires are greatly influenced by climate. The three largest fire years on record in California occurred in the last decade, and annual acreage burned since 2000 is almost twice that for the 1950-2000 period.
- **Water:** Spring snowmelt runoff has decreased, indicating warmer winter temperatures and more precipitation falling as rain rather than snow. Earlier and decreased runoff can reduce water supplies, even when overall rainfall remains the same. This trend could mean less water available for agriculture, the environment and a growing population.
- **Coast and Ocean:** A number of indicators reflect physical and biological changes in the ocean, impacting a range of marine species, including sea lions, seabirds and salmon. And data for Monterey Bay shows increased carbon dioxide levels in coastal waters, which can harm shell-forming organisms and have impacts throughout the marine food chain.
- **Species Migration:** Certain plants and animals have responded to habitat changes influenced by warming. For example, conifer forests in the Sierra Nevada have been moving upslope and certain small mammals in Yosemite National Park have moved to higher elevations compared to the early 1900s.

California is one of the first states in the nation to compile its own set of indicators characterizing the multiple facets of climate change. While most reports on climate change present future scenarios or projections, this report provides a retrospective account of impacts from climate change that have already occurred.

The report updates and expands on the climate change indicators report released in 2009. Most of the indicators in the current report were initially covered in the 2009 report. A related report, produced in 2010, presented indicators of the disproportionate impacts of climate change on disadvantaged California communities. Both reports serve to inform efforts by State agencies to understand and lessen the impacts of climate change in California.

The climate indicators reports are part of OEHHA's Environmental Protection Indicators for California (EPIC) Program, which was created in 2000 and established a process for selecting indicators to track the health of the state's environment. The new climate change report and previous reports are available at http://oehha.ca.gov/multimedia/epic/.

The consensus statement released in May by Gov. Brown and more than 500 researchers and scientists is available at http://mahb.stanford.edu/consensus-statement-from-global-scientists/.

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