

Climate report shows state still warming, despite frigid winter

By Mark Floyd
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CORVALLIS – Don't let this winter fool you. Oregon's climate continues to warm; there are impacts on the state's physical, biological and human-managed systems; and more studies are pointing to greenhouse gas emissions as the reason for these climate trends and events.

That is the conclusion of the third Oregon Climate Assessment Report, a synthesis of peer-reviewed scientific studies over the past three years. The legislatively mandated report was produced by the Oregon Climate Change Research Institute at Oregon State University and is being presented this month to key Oregon political leaders.

"Oregonians shouldn't be swayed by this winter, which is colder than any of the ones we've had since 1990," noted Philip Mote, director of the OSU center and a co-author on the report. "Overall, temperatures are still getting warmer – in Oregon, throughout the United States, and globally – and the impacts are very real.

"For Oregonians, it means warmer temperatures, lower snowpack and less water during the summer. And more and more studies are confirming greenhouse gas emissions as the cause."

Kathie Dello, associate director of the Oregon Climate Change Research Institute, points out that although December of 2016 was the 11th coldest December on record in Oregon in 122 years of monitoring, the year was still among the top 10 warmest years on record for the state.

The climate assessment report, led by Meghan Dalton, a research assistant with the institute in the College of Earth, Ocean, and Atmospheric Sciences at OSU, looked at more than 300 studies published from 2013-16 by researchers at universities, state and federal agencies, and elsewhere. Dalton led a team of researchers who synthesized the literature and developed the report.

"The year 2015 has been described as foreshadowing what we can expect as normal conditions by the mid-21st century," Dalton said. "There were warmer temperatures

that led to drought, low snowpack, and greater wildfire risk, with less water in the summer. That appears to be our future."

Snowpack in the past three years has varied greatly, according to Dello.

"In 2015, we basically had no snow to speak of," Dello said. "In 2016, we had a lot of snow, but most of it got wiped out by warm temperatures in late winter and early spring. So far this year, we have had a lot of snow, but warmer temperatures are moving in, and we still have a lot of winter left. We're cautiously optimistic. Large year-to-year changes like that are still expected, even in a warming climate."

The report notes that a warming climate and earlier spring may have a few beneficial results. Farmers, for example, may benefit from a longer growing season, though water could be an issue for some crops.

The report analyzes potential impacts of climate change for Oregon's many regions. Among the findings:

- The Oregon Coast: Sea level rise will increase the risk of erosion and flooding and higher estuary temperatures

will challenge migrating salmon and steelhead. One study estimated that warming of Yaquina Bay by 1.3 to 2.9 degrees (F) would result in 40 additional days of temperatures not meeting the criteria for protecting salmonids.

- The Willamette Valley: Heat waves are expected to become longer, more common and more intense; operating rules for reservoirs may have to change to balance flood risk and summer water supply; air quality will decline, and wildfire risk will increase. A study of fire activity concluded that there will be a three-fold to nine-fold increase in the amount of area burned in the basin by the year 2100.

- The Cascade Mountains: More precipitation will fall as rain instead of snow, with elevations between 3,000 feet and 6,000 feet being the most sensitive. In addition to potential impacts on ski resorts, there likely will be a change in when water is available. Cascades forests will probably be subject to more wildfire, drought, insect damage and disease, and some studies suggest that woodlands will shift

from predominantly conifer to mixed-conifer forests. The risk of increased incidence of respiratory illness from wildfire smoke is a top public-health risk in Jackson County.

- Eastern Oregon: Water will be a huge issue in the east with snowpack decline, and the same forest issues face the Blue Mountains as the Cascades. Increased wildfire risk may create more days of heavy smoke affecting public health, and fires will threaten the forests. Salmon in the John Day basin and other river systems will be challenged with warmer temperatures, and rangeland and sagebrush habitat is threatened by non-native weeds and grasses.

"A lot of the studies we cited focus on the physical aspects of warming, from snowpack to wildfire, but there are a lot of people who will be affected," Dello said. "We can't forget that Oregonians, their families, their jobs and their resources are at risk. There is still time to do something, but time is running short."

A copy of the report is available at <http://occri.net/>.

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