Wyo. water vulnerable to climate change

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CHEYENNE: The mountain snows that replenish most surface water in Wyoming, the fifth-driest state, are vulnerable to climate change and likely to be affected by rising temperatures, a new report says.

The report released this week by the Ruckelshaus Institute of Environment and Natural Resources at the University of Wyoming also says downstream water demand is expected to increase in the decades ahead because of regional population growth.

The Ruckelshaus Institute is a think tank for environmental issues. A variety of interests are represented on the institute's board of directors, including environmental groups, industry, academia and government.

Most of Wyoming's surface water originates as mountain snowpack. Climate change can cause snowpack to melt earlier during the springtime, making runoff more challenging to manage as a water source, the report says.

Reservoir managers have the task of striking a balance between flood control and water storage.

"Moreover, an early runoff leads to diminished late-season flows," the report says, "which are crucial to a wide variety of municipal, agricultural, industrial and environmental uses."

The report also points out that Wyoming is located at the headwaters of several river systems, making the state more vulnerable to drought because not much water flows into the state.

Yet higher temperatures intensify drought.

"The amount of temperature increase that we're expecting in and of itself would have some pretty dramatic effects in Wyoming and the West," said Steve Gray, state climatologist and director of the Water Resources Data System.

The report shows that Wyoming needs to take a "realistic view" of climate change in managing its water, Gray said. That means planning for extremes, not just the average amount of water available.

"We just plan around that number rather than asking tougher questions in some ways," he said. "What's our worst case?"

More than 70 percent of Wyoming receives less than 16 inches of precipitation a year. That's not dry enough to qualify as desert, the report said, but still plenty dry.

Compared to precipitation patterns over the past millennium, the 20th century was unusually wet. Long droughts — some lasting 50 years or more — have been fairly common in the region over the long run.

With or without climate change, Gray said, Wyoming should expect such patterns to continue.

One way to do that is to build reservoirs. Another, he said, is to conserve water.

Ruckelshaus board members were struck by a variety of studies about how climate change could affect Wyoming, said Indy Burke, a professor and director of the institute.

"They said, 'My god, the citizens need to know this. We need to get this out," she said.

She said more science is needed to find out what else in Wyoming is sensitive to climate change.