Glaciers: Going, going, gone

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YAKIMA, Wash. (AP) — Spectacular on a clear, sunny day, Mount Adams rises a scant 53 miles from Yakima.

But the mountain holds what until now has been pretty much a secret.

In the first comprehensive study of its kind, a Portland State University study has found Mount Adams' 12 glaciers have shrunk by nearly half since 1904 and are receding faster than those of nearby sister volcanoes Mount Hood and Mount Rainier.

It's another sign of gradually warming temperatures that - if continued as expected by researchers - will mean significant problems for the water-dependent Yakima Valley.

The study lends urgency to an earlier federal report that shows the water content of Cascade Mountain snowpacks could dwindle by as much as 50 percent by the 2070s.

More rain and smaller snowpacks will result in water shortages because less water is projected to be available to support the Valley's agriculture in the hot summer months, according to that congressionally ordered report by the Bureau of Reclamation, Army Corps of Engineers and the Bonneville Power Administration.

The Yakima Valley already has had five economically damaging droughts since 1992. And while the Valley's water supplies don't come from the flanks of Mount Adams, the study carries implications for other parts of the south Cascades that do provide water for the Valley.

The latest work on glaciers on the 12,276-foot Mount Adams by a Portland State University geology professor and a student team was based on aerial photography, geographic information system mapping, buttressed by historic photos taken by hikers.

The results show Adams' glaciers have melted away 49 percent of their coverage area since 1904.

Over generally the same time period Mount Rainier's glaciers lost 24 percent of coverage area and on Mount Hood the decline has been some 32 percent.

Geologist and team leader Andrew Fountain, who has a total of 30 years of experience with the university and before that with the U.S. Geological Survey, isn't sure why.

"My educated guess is Adams is just over the east side of the crest of the Cascades. It doesn't get quite as much moisture," Fountain said during a recent telephone interview.
Overall moisture patterns on the mountain have remained fairly steady over the past century, with only minor variations from normal.

Fountain said air temperatures in the Cascades are warmer than in other, higher-elevation mountain ranges, making snow amounts more susceptible to gradually warming temperatures.

"When temperatures are close to melting temperatures, a slight warming can shift from snow to rain. That is what has been happening. The precipitation hasn't changed much, but it is switching from snow to rain."

"The key issue is that (snowpack) provides the most water when the landscape needs it the most, in the late summer," Fountain said. "Much of the plant community is stressed except those near the glaciers. They are a nice natural reservoir of water that provides habitat for some of these high-alpine animals and plants."

Fountain presented his findings during an inaugural conference in Trout Lake late last year entitled "Mount Adams in a Warming Climate."

The event was co-sponsored by the Yakama Indian Nation, the U.S. Forest Service and private groups.

The implications posed by warming temperatures and less snow overall prompted the congressionally mandated studies to project what the effects would be and how federal agencies should respond.

The federal studies looked at conditions across the West, but also included reviews for specific basins like the Columbia River Basin. Among its tributaries is the Yakima River.

"Our main obligation is to make sure people get their water," said Toni Turner, a hydrologic engineer with the bureau's Pacific Northwest Region Office in Boise, Idaho. "We are trying to understand more about what the report says to identify potential problem areas."

One response could be to encourage additional water conservation to make the more limited supply meet the needs. Another more controversial potential is adding more storage.

Projections also draw on work done by the Climate Impacts Group at the University of Washington.

Ingrid Tohver, a research scientist with the Seattle-based team, said the team's work suggests the total amount of precipitation may not change very much.

It's how that precipitation will occur - more rain and less snow - that could cause the impacts. She said mid-elevation basins like the Yakima and Skagit valleys are at greater risk from the effects of climate change.

"With any small bump in temperature, those basins are susceptible to these changes," she said. "With less
snow, the summertime might look a lot drier."