

# U.S. study says rising temperatures put Western water supplies at risk

Michael Doyle, Sacramento Bee, 4-26-11

WASHINGTON – Global warming in California's Central Valley could increase flooding, shrink salmon habitat and invite more invasive species, scientists conclude in a sobering report released Monday.

Snow will melt sooner in the Sierra Nevada, the report predicts. Rain will replace snow altogether in some places. Fisheries will stress out. Surface water will be harder to come by, and groundwater will be drained, as average temperatures rise.

"These changes pose a significant challenge and risk to adequate water supplies," Mike Connor, head of the U.S. Bureau of Reclamation, declared Monday.

Connor said the predicted hydrologic changes "reaffirm the urgency of planning" for California's water future. "You can see the trend that it's harder to assure water supply reliability south of the Delta," he said.

The congressionally ordered study of global warming and Western water resources is being called the first of its kind by Interior Department officials because it examines eight Western water basins, including the Central Valley and those served by the Colorado, Missouri and Columbia rivers, among others.

The study anticipates average temperatures rising between 5 and 6 degrees Fahrenheit through the 21st century. The federal scientists do not, however, wade into the political thicket of assessing blame for why the Earth is warming.

Some consequences are easier to predict than others, including "more frequent rainfall events (and) less frequent snowfall events." Even within regions, though, the changes will vary. Rainfall, for instance, is expected to increase slightly in the northern part of the Central Valley. In the Valley's southern part, it's expected to decrease slightly.

Similarly, the region's future snowpack will shrink more in some places than in others. Snow will melt readily in the northern Sierra Nevada and in the lower to middle elevations of the southern Sierra range, where winter temperatures already hover on the edge of freezing.

"However, even in the highest elevations of the southern Sierra Nevada, (snowpack) losses are projected to be significant by the late 21st century," the report states.

While avoiding firm predictions about future California flooding, scientists say their studies "raise questions ... (about) potentially greater flood risk during the 21st century." These dangers include "more winter runoff" and "more extreme runoff events," the report says.

In the Sacramento-San Joaquin Delta, higher water temperatures are expected to lead to more Delta smelt dying while invasive species such as the quagga mussel will become more plentiful.

Salmon populations will likely suffer as streams and estuaries warm up and seasonal water flows change.