

Hood River Basin Study: Climate Change Impacts to Streamflow and Opportunities for a Sustainable Future

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The Hood River Basin Study was a collaborative project between Hood River County and the Bureau of Reclamation, which incorporated review and input from local irrigation districts, Confederated Tribes of the Warm Springs, Hood River Watershed Group, ODFW, OWRD, and DEQ. The study evaluated the basin's future water supply and identified strategies for improving future water availability for irrigation, drinking water, and local fish populations. The study evaluated or quantified:

- Existing & future water demands for irrigation, drinking water, and hydropower
- Climate change impacts to glaciers, snowpack, & stream flow
- New or expanded reservoir sites to meet water demand
- Water conservation potential and cost-effectiveness of each water conservation measure
- Impacts to fish habitat from climate change
- Impacts of water management alternatives on future streamflow

The Bureau of Reclamation developed three climate scenarios, which included the worst-case (hot and dry), most likely (median), and best case (warm and wet). In all three scenarios temperatures are warmer than historical, which will lead to more precipitation falling as rain instead of snow, higher winter streamflows, and lower summer streamflows.

Instream Flow Incremental Methodology (IFIM) studies were conducted at five sites in the Basin to determine optimal flows for rearing, adult holding, and spawning habitat for spring Chinook, steelhead, coho, and bull trout. IFIM results showed that existing summer stream flows are well below optimal flows needed for summer rearing and spawning habitat. Future summer stream flows are predicted to be even lower, further decreasing available habitat. However, an analysis of water management alternatives showed that aggressive water conservation and additional water storage have the potential to maintain stream flows at or above current levels.