

Measuring water

How much is an acre-foot? And how do they determine the snow melt from a snow pack?

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A projected water shortage in the Klamath Basin has federal officials saying they'll only be able to provide about 150,000 acre-feet of water to irrigators on the Klamath Reclamation Project, roughly one third of what the Project would usually receive.

That means irrigators have tough choices ahead, including whether to plant crops or not this year. Many have said the shortage threatens their livelihood, especially after the water crisis of 2001.

But exactly how much water is 150,000 acre-feet? And how does that compare with how much water is flowing down the Link River for endangered fish species?

Here are explanations of the various ways water is measured in the Klamath Basin.

Acre-foot

An acre-foot of water is the volume needed to cover one acre of land with water one foot in depth. That measure is equal to 325,851 gallons of water, according to the U.S. Bureau of Reclamation.

By comparison, that's 15,851 gallons more than what the Ella Redkey Pool contains. It's also about half the volume of an Olympic-sized swimming pool.

This year, because of record low water levels in Upper Klamath Lake and below average snowpack and inflows to the lake, the Project will receive 150,000 acre-feet of water from the lake, less than 49 billion gallons of water, and not enough to cover every acre of the Project with water one foot in depth.

In previous years, the maximum amount of water irrigators on the Klamath Reclamation Project, which covers 210,000 acres, could receive was 428,000 acre-feet from the lake, according to the Klamath Water Users Association. That's nearly 139.5 billion gallons of water, or technically more than enough water to cover every acre of the Project to depth of two feet.

If the Klamath Basin Restoration Agreement was in effect, the Project could receive as much as 380,000 acre-feet of water — about 124 billion gallons — enough to cover every acre of the Project to a depth of more than a foot.

Cubic-foot-per-second

Physically, a cubic-foot-per-second of water is just what it sounds like — it's a measure of water leaving a culvert, dam or canal in one second. A cubic-foot-per second is equal to nearly 7.5 gallons per second; nearly 449 gallons per minute; 26,929 gallons per hour and more than 646,000 gallons per day.

Between March 16 and March 23 of this year, between 800 cfs to 900 cfs was exiting Link River Dam, or 6,000 to 6,750 gallons of water per second. By comparison, the A Canal has a maximum capacity of 1,150 cfs, or 8,625 gallons per second.

Snow pack measurements

According to documents from the Natural Resources Conservation Service, which is part of the U.S. Department of Agriculture, as much as 70 percent of the water supply throughout the West is derived from snow melting in the mountains.

NRCS maintains hundreds of monitoring stations throughout the West that measure and relay snowpack information to their data information system called SNOTEL (Snow Telemetry).

The monitoring stations collect information on basic weather conditions such as temperature, wind, rainfall and soil moisture. Additionally, special weighing platforms on the ground measure the weight of accumulated snow and also have technology to measure the amount of water in the snow.

This information helps the agency put out forecasts on how much water will be available from snowmelt in the warmer months.

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