Light Snow, Early Runoff Lead to Dry-Year Operations

Federal agencies have a plan to deal with low-water year

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This year's unusually warm winter resulted in higher-than-normal winter flows in the Columbia River Basin. Those same warm temperatures also melted snow earlier than usual, leaving less to melt during the typical peak of the runoff season.

As it stands now, the Bonneville Power Administration and its federal partners at the U.S. Army Corps of Engineers and Bureau of Reclamation don't have as much water as we would like, but we are well prepared to handle the current situation. We have been through this before—as recently as 2010, when a dry year was averted by late-season rains.

We closely monitor the weather and water supply, and plan and adjust accordingly so we do not get caught flat-footed. Earlier this year, we saw the possibility of a persistently warm winter and unusually low snowpack conditions, and have been preparing for it ever since. For instance, we took advantage of the winter streamflows and sold excess energy to keep customer rates down. Now we are taking a more conservative approach to meet customer electricity demand as we look forward to this summer.

What is unusual about this year is the likelihood of a dry spring and summer stems from a critically low snowpack and not a dry winter. Between October and early May, we actually had about 86 percent of normal precipitation across the basin. That is low, but not critically so. A lack of wet weather has not been the main issue. It is above-normal temperatures resulting in more rain than snow, and lowering spring and summer river flows.

Warmer-than-average temperatures from December through March translated into higher freezing levels that limited snowpack accumulation at lower elevations. At higher elevations in Canada and a small portion of western Montana, the snowpack was still about 85 percent of normal in early May and has only begun to melt. On the U.S. side, quite a bit of the snowpack already has melted. A rather dry April and early May did not help the water-supply situation.

This year officially became a "dry year" when the April-through-August forecast issued May 8 came in under 72.2 million acre-feet. Simply put, an acre-foot of water is the volume it would take to cover 1 acre at a depth of 1 foot, which is a little more than 325,000 gallons. On May 13, conditions prompted the Northwest River Forecast Center to drop its April-to-August water forecast to 71 percent of normal, or 62.4 million acre-feet.

Despite the early runoff, there is some good news. The Canadian snow has just begun to melt, and snowpack in that part of the basin is holding up relatively well. Much like in 2010, when late-season rain helped us avert a dry year, a few large storms in May and June could help make up a little of the deficit left by the early runoff.

There are a few tools for mitigating fishery impacts in a dry year, including provisions under the biological opinion to release additional water stored in Canada, and additional summer drawdowns at Montana's Hungry Horse and Libby dams below normal limits. The biological opinion is a regulatory document outlining federal actions to avoid jeopardizing species listed under the Endangered Species Act.

All of these tools take water out of a future period when the reservoirs will need to be refilled, but they help reduce the effects on salmon and the need to buy energy at potentially high prices this summer. These tools only are used in the lowest 20 percent of water conditions to limit the effect to resident fish in those areas.

In addition, BPA, the Corps of Engineers and Reclamation are working closely with an interagency group of federal, state and tribal representatives to determine the best way to meet the needs of fish migrating in the Columbia River with a limited amount of water.

As it stands right now, we do not have as much water in the Northwest river system as we would like, but you should know that this is a situation we prepare for. ■