Hydrographers Feel Sense of History

Season's Snowpack Weighs In at Second Wettest in Five Years

By Jessica Johnson

Record rains across the state and plenty of snow in the mountains helped boost the Eastern Sierra snowpack to reach LADWP's final measurement on April 1, 2019 to 171 percent – an astounding number when you consider at this same time last year, it was a registering 66 percent, and in 2017, 203 percent of normal.

Being the second wettest year in the last five years, LADWP water operations are better prepared to deal with the influx in water than in 2017, such as preparing the spreading grounds for snow melt as early as possible.

In order to obtain the snowpack amounts and level of preparation needed, LADWP hydrographers conduct snow surveys from January to April. Each spring the final snowpack and Mono Lake water elevations are measured and analyzed to help determine runoff and water supply projections for the LA Aqueduct System.

This past winter Intake joined one of the Rock Creek Basin snow surveys with LADWP hydrographers. LADWP has measured the same 12 courses located in four major watershed basins since the 1920s. The courses are located at varying elevations between 8,000 and 11,000 feet, and include the Cottonwood Lakes Basin, Big Pine Canyon, Rock Creek Canyon, and the Mammoth Lakes Basin. The sites were selected because they accurately represent overall snowpack and precipitation conditions at specific areas and elevations.

Starting just above Rock Creek Lake at the highest point of approximately 10,700 feet, we worked our way down the canyon, stopping at snow courses that were each around 1,000 feet long and included up to 10 measuring points.

Senior Hydrographer Bruce Peterson holds aluminum tube used for taking snow core samples.

As LADWP Senior Hydrographer Bruce Peterson recorded the weight of water content from one sample, he said, “this work is way different than other positions at the Department. There is a sense of history and tradition; we are still doing surveys using the same standardized methods, equipment, and at very similar locations as hydrographers 100 years ago did,” said Peterson, who has been working for the Department for 12 years.

Unlike years ago, hydrographers no longer need to rely on dog teams or pack mules to enter the back country of the Eastern Sierra. But they do utilize snow cats, snowmobiles, snowshoes, and even skis to traverse the remote areas where the snowpack surveys are conducted.

One of the most famous LADWP hydrographers was Dave McCoy, who founded and ran Mammoth Mountain Ski Area. A hydrographer in the 1940s and an avid skier, McCoy figured out that Mammoth Mountain received the most reliable amount of snowfall. In 1945, McCoy obtained the rights from the U.S. Forest Service to build a permanent rope tow on Mammoth Mountain. Armed with his knowledge of snowpack and snowfall patterns, McCoy developed the mountain as a major ski resort.

“As a kid growing up in the Eastern Sierra the hydrographer job is kind of a dream job. To actually have the job now is pretty cool,” reflected LADWP Hydrogapher Chad Galvin as he shook a snow core sample from the aluminum tube used to measure water content.

Many important decisions depend upon accurate water supply forecasting. Determining how much water to purchase to augment the Eastern Sierra supply as well as make decisions about customer needs, water supply irrigation, reservoir storage, environmental obligations, and hydroelectric generation in the Owens Valley all rely on the data from snowpack surveys.

Once back at the office, the hydrographers input data collected from each snow survey, combine it with

rainfall and stream flow measurements into a computer model that helps forecast the next year's water supply from Eastern Sierra snowmelt, explained Steve Rich, a senior hydrographer who has worked on close to 30 snow surveys for the Department.

Dave McCoy, founder of Mammoth Mountain, was one of LADWP's most famous hydrographers.

Based on the 2019 final snowpack survey, approximately 114 billion gallons of water will be used in the Mono Basin and Inyo County to meet environmental commitments and operational needs. LADWP has taken active measures to prepare for the arrival of the anticipated high water runoff resulting from this year's very wet winter, and the LA Aqueduct system will flow at or near full capacity.

This means in the following 12-month period, the LA Aqueduct is expected to provide approximately 119 billion gallons of water, that meet an estimated 70 percent of L.A.'s overall water demand supplying more than 1 million single family homes. To put things into perspective, in an average snowpack year, the LA Aqueduct provides about half of LA's total water supply.

A recent announcement by Mayor Eric Garcetti that LA will recycle 100 percent of its wastewater by 2035 offers the potential for LADWP to reliably source up to 70 percent of its water sustainably and locally instead of depending significantly on imported water. Having a lucrative water year is a positive for LADWP's ability to secure a sustainable water future for L.A.

As winter gives way to spring and summer, the melting snow supplies vital water flows that fill the many creeks and lakes in the area.

"With the above-normal precipitation after April 1st leading to a higher-than forecasted runoff, we will be very busy in northern district water operations charting and reporting water flows, measuring water levels at reservoirs, creeks, wells, checking weather patterns, and preparing the aqueduct system for the runoff," said Rich.

Visit www.ladwp.com/aqueduct to learn more about LADWP's water policies and projects in the Eastern Sierra.

Watch Snowpack Survey Video

Snow Pillow Data