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DATA LABS™

Marin Municipal Water District: Using Real-Time Data to Manage Drought

Leveraging Flume Data Labs to Better Understand Real-time Water Use, Advance Customer Experience, Improve Utility Planning, and Manage Drought





BACKGROUND

Marin Municipal Water District (Marin Water) is north of San Francisco, just across the Golden Gate Bridge. Serving close to 200,000 customers, Marin Water relies exclusively on local water sources, including local watersheds, rivers, and reservoirs.

In the past two years, Marin received the lowest amount of rainfall in more than 140 years. As a result, reservoir storage capacity hit historical lows. In April of 2021, Marin Water's Board of Directors declared a water shortage emergency and adopted mandatory water use restrictions beginning in June and July to preserve remaining water supply.

To manage customer demand through this crisis, Marin Water sought a better way to provide customers with real-time information about their water use, including leaks, and put the power of conservation into customers hands. Marin Water also needed a way to monitor water use in real-time to understand if utility messaging was causing a reduction in customer water consumption, and take further action if needed.



DEPLOYING SENSORS

Key to the success of this program was the adoption and installation of thousands of sensors throughout Marin Water's service district. In May 2021, Marin Water and Flume began deploying sensors to help empower customers with real-time information to address this challenge.

Over the next few months, Flume delivered a turn-key direct distribution program to deploy over 1,600 sensors into Marin Water's service areas. Direct to consumer marketing prompted customers to purchase their sensor from the Flume website with a subsidy applied up-front. Flume conducted all eligibility verification and data-sharing approval, allowing for efficient deployment with little to no administrative burden on the utility. Upon receiving their sensor, customers quickly and easily installed the system. Customers were immediately able to see their water use in real-time on their cell phones through the Flume application.



ACCESSING REAL-TIME INFORMATION

Once the devices were in the ground, Marin Water worked with Flume Data Labs to access real-time information themselves to monitor and manage water use in their service area. Indoor gallons per capita per day (GPCD) was already low for the region, sitting at 40.5 GPCD in April of 2021. Outdoor use at the same time was 180 gallons per household per day (GPHD). Although both of these are low for the region and the state, Marin Water needed to cut use drastically and immediately to ensure sustainable water resources in the future.

In mid-April, Marin Water targeted a 40% reduction in water use across the community. Vital to the effort was real-time information on customer use. The sensor tracks water use every 5-seconds and reports this use every minute, including separating indoor and outdoor use. Flume Data Labs set up a Utility Platform for Marin Water to review real-time customer-specific information on water use. Using Flume Data Lab's data, Marin Water could track indoor and outdoor trends and watering restrictions over the next few months. This allowed them to adapt their conservation strategy and policies as a result.



RESULTS

IMPROVED CUSTOMER EXPERIENCE

Prior to the Flume sensor, most customers in Marin Water could only access their water use information once every 60 days when they received a bill in the mail. Empowering customers with real-time information about their water use was an essential first step to helping them to better manage and reduce their water use.

On average, Flume customers check their water use in the Flume App at least once every two days. With access to real-time information, Marin Water was able to empower customers to understand their water use in real-time, catch leaks, set budgets, and reduce use.





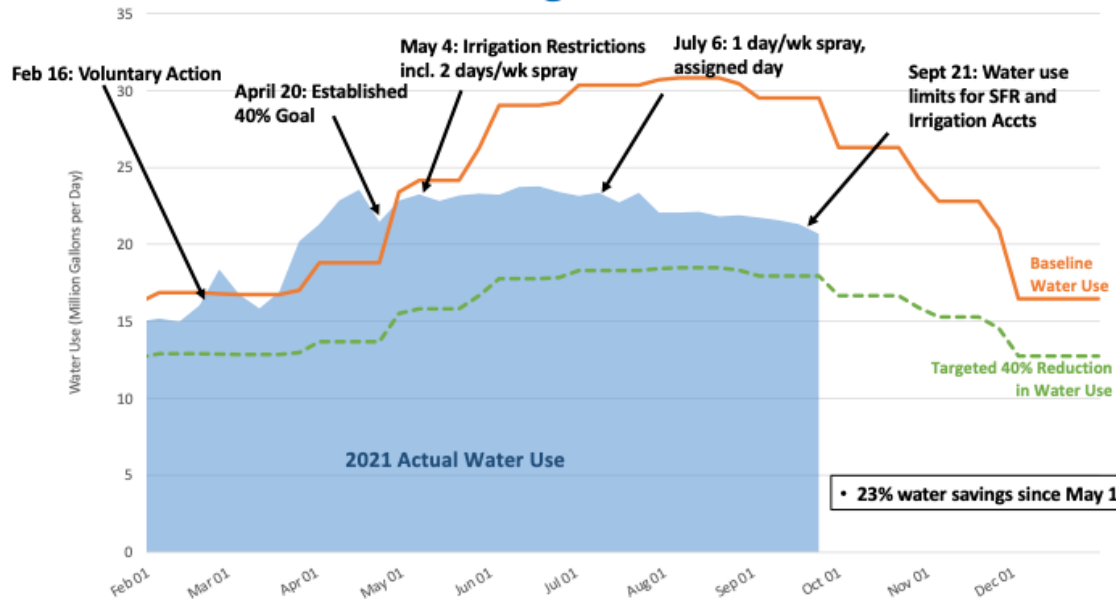
RESULTS

TRACKING DROUGHT RESPONSE IN REAL-TIME

Historically, utilities have tracked drought response using water production and consumption data, but with very little understanding of actual customer level demand. Marin Water had a number of assumptions about how their customers were using water, but without real-time information or data, they had no way to verify the effectiveness of most of their drought response programming and policies.

Flume Data Labs was key in helping Marin Water to analyze policy effectiveness and program development and to make informed strategic decisions. As the drought became more severe over the summer, Marin Water was able to assess how much water was going to indoor and outdoor use and see if their restrictions were having the desired impact. The figure shows historic/baseline water use, the targeted 40% demand reduction, and actual use across the Marin Water service area. Outdoor water use among all Marin Water customers was tracking at or above baseline levels before the 40% demand reduction was called for on April 20. By the end of September, a 23% savings reduction vs baseline water was measured, presumably as a direct result of the drought response imposed by Marin Water.

Actual vs. Targeted Water Use



Source: Marin Municipal Water District, 2021

Data provided by Flume Data Labs helped Marin Water realize that many customers were not responding as hoped to utility messages. Starting in May 2021, Marin Water introduced irrigation restrictions allowing people to only water outdoors twice a week. However, by June, a Flume Data Labs analysis showed that many customers were still watering outdoors 3 days a week or more. As a result, Marin Water took action to develop and implement new restrictions reducing outdoor watering to just one day a week.

Flume Data Labs enabled the dynamic development of essential policies and programs to understand and manage water demand under the changing conditions brought by the drought.

LONG TERM PLANNING

Looking towards the future, Marin Water plans to use the Flume Data Labs analytics and data for future water demand management planning. Utilizing the sensors already deployed, Flume Data Labs can leverage data that is disaggregated by end-use of appliance and fixture, digging deep into the efficiency level of toilets and showers present in homes throughout the service area. Historically, the majority of data that Marin Water uses to inform their water efficiency programs was based on bi-monthly metering data.

Flume Data Labs' detailed, real-time analytics will help Marin Water better justify programming decisions, whether they are developing new programs or ending programs that are no longer serving their community.

ABOUT FLUME DATA LABS

For communities interested in understanding real-time water use and end-use disaggregation in their community, Flume Data Labs can collect and analyze water use from single-family residences in the agreed-upon service area. Flume Data Labs' devices will be used to collect water consumption flow data. Each study can be specified as needed to fit individual utility data needs from the list below:

INDOOR/OUTDOOR ANALYSIS:

Includes GPCD, GPHD, weekly and monthly trends, the impact of weather, evapotranspiration, and more.

HOME CHARACTERISTICS:

Analysis of the relationship between water use and the value, age, size, and lot size of the home.

PEER COMPARISON:

Water use trends compared to other neighboring geographic regions.

LEAKAGE ANALYSIS:

Includes water loss trends and community-leak statics.

END-USE:

Includes Fixture and Volumetric Analysis of toilets, showers, clothes washers, dishwashers, faucets, leaks, water softeners, and others.

CONTACT US

Learn more about how Flume Data Labs can help your utility achieve similar results today.

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