Wildfires and Drinking Water Quality

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Wildfires in California have become more frequent and more severe with climate change, historical forestry management practices which have led to increased fuel loads, and population growth near forested areas. The San Francisco Public Utilities Commission (SFPUC) operates a Regional Water System that relies on surface water supplies located in three watersheds. Surface water is water that comes from rainfall or snowmelt. Wildfires within any of these watersheds have the potential to impact the quality of these surface waters and the facilities that are critical to our operations.

SFPUC's surface water sources are located in three watersheds:

1) **Hetch Hetchy Watershed in Yosemite National Park,**
2) **Alameda Watershed near Sunol, and**
3) **The Peninsula Watershed, south of San Francisco.**

Like all forested and open land, these watersheds are vulnerable to wildfires. One of the most significant fires near the SFPUC's Hetch Hetchy Watershed was the Rim Fire in 2013. The Rim Fire started in Stanislaus National Forest and burned 402 square miles (257,000 acres) of the area. The Rim Fire came within a mile of Hetch Hetchy Reservoir but did not cause significant impacts to the SFPUC drainage area.

In 2020, the SCU Lightning Complex Fire in the Alameda Watershed burned land surrounding San Antonio and Calaveras Reservoirs. The fire resulted in low soil burn severity because of low fuel loading. The effect on the burned areas is described as similar to a prescribed burn. Winter rains that come after fires such as these could cause increased erosion into the reservoir. This could increase the turbidity, or the number of small particles, of the reservoir's water. SFPUC staff regularly monitor for these conditions.

After the SCU Lightning Complex Fire, the SFPUC developed an East Bay Fire Response sampling plan. The plan included special monitoring over 6 months to assess water quality impacts from the wildfire. Monitoring showed that the SCU Lightning Complex Fire mostly did not impact SFPUC reservoirs even after rain.

Summary

The San Francisco Public Utilities Commission (SFPUC) is a public agency. We run a regional water system. This system delivers drinking water to over 2.7 million residents in the Bay Area. Part of the system includes reservoirs. Wildfires can happen on the lands around these reservoirs. Wildfires near reservoirs can impact water quality and the SFPUC's infrastructure.

Here's how the SFPUC works with Cal Fire to lessen potential impacts of wildfires:

- Post-fire analysis
- Goat grazing to reduce overgrown vegetation
- Prescribed burns, or a controlled fire set on purpose to lessen the risk of wildfires

The SFPUC is always tracking the quality of our drinking water. If there is a wildfire, we can see if it is affecting water quality. Our treatment plants can adjust to treat water even during a wildfire. The water we deliver meets all federal and state water quality standards.

If there is a wildfire, you can visit the homepage of our website, sfpuc.gov, or sfpuc.gov/service-alerts. We will post any updates, including any water quality notices, on these pages.

Prescribed burn by SFPUC and CalFire in 2022

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All water from our East Bay and Peninsula reservoirs is treated at SFPUC water treatment plants before delivery to customers. The SFPUC closely tracks water quality conditions to ensure treatment adjustments are implemented, if needed.

Our operators can make adjustments at the treatment plants in response to changing water conditions as they occur. The goal is to ensure that our customers' water supply remains unaffected by these fires.

The SFPUC also works with Cal Fire and others in the watershed on post-fire assessments and annual prescribed burns to minimize potential water quality impacts of fires. Prescribed burning is the controlled application of fire. This can reduce wildfire hazards, clear downed trees, and manage habitats and ecosystems.

Watershed Impacts

When wildfires burn watersheds that contain drinking water reservoirs, there are several potential impacts. Water utilities monitor and mitigate these impacts. These potential impacts include:

- Increase in erosion, causing increase in sediment and turbidity at treatment plants.
- Increase in nutrients, leading to an increase in algal blooms and algal byproducts in reservoirs. For example, taste and odor contaminants like geosmin and 2-Methylisoborneol may increase during certain algal blooms.
- Increase in metals, such as, iron, manganese and other heavy metals from ash washing into the reservoir.
- Increase in organic concentrations from erosion and/or ash deposition. This is typically measured as total organic carbon or dissolved organic carbon. These can increase disinfection byproducts, like trihalomethanes and haloacetic acids.
- Modification to the type of organics composing the total organic carbon which can increase disinfection byproducts. Organic carbon resulting from fire is more humic and aromatic than pre-fire organic carbon and thus more likely to produce disinfection byproducts.
- Short-term effects from fire-fighting retardants used by aircraft (these potential impacts are typically from nutrients, such as nitrogen and phosphorus).

Water System Infrastructure Impacts

In addition to watershed impacts, wildfires can directly impact drinking water systems. Wildfires can impact areas that house treatment plants, storage tanks, and/or the distribution system. The Sunol Valley Water Treatment Plant and the Harry Tracy Water Treatment Plan are both located within watersheds that are vulnerable to wildfires. These facilities would be thoroughly investigated to ensure the highest level of quality in operations and water treatment after any wildfire impact.

SCU complex fire from August 2020

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Consumer Resources: Regulation/Health

CAL FIRE Map
fire.ca.gov/incidents

EPA: Air Quality Map
airnow.gov

SWRCB: Wildfire and Water Quality
waterboards.ca.gov/centralvalley/water_issues/wildfire_and_water_quality/

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We're Committed to Quality

Our highly trained chemists, microbiologists, technicians and inspectors consistently monitor the water we serve—throughout our system, every day of the year. For additional information and materials, please visit **sfpuc.gov/waterquality**.

For questions about YOUR water, please call 311. You can also visit sf311.org.

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