

The Effects of Fire on Water in Flagstaff

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Last month, Flagstaff experienced two significant wildfires – the **Newman Fire** and the **Museum Fire**. While fire events surrounding monsoon season may not be unusual, both fires can have a direct impact on water in Flagstaff long after the last embers are extinguished.



Photo credit: InciWeb

Smoke column southwest of Lake Mary

Newman Fire: Protecting Lake Mary Watershed

On July 11, a lightning strike three miles south of Upper Lake Mary started the **Newman Fire**. Extending into Newman Canyon, this area was slated for thinning and brush removal over the coming year through Four-Forest Restoration Initiative (4FRI) the Flagstaff Watershed Protection Plan (FWPP). Newman Canyon is the largest, single tributary feeding into Lake Mary. Considerable collaborations occurred between fire managers and water operations staff to

minimize the potential effects of ash and debris flowing into Lake Mary. Closely monitoring its growth, fire crews performed back burns to contain the fire area as much as possible. This slow, low density fire minimized the negative effect fire has on soils and subsequent erosion. Aerial ignition operations employed on July 17th, allowed fire crews to continue monitoring the fire's perimeter, keeping it within the containment zone.

Another major consideration in managing the fire was protecting essential water production infrastructure and equipment. Flagstaff Water Services operates several water wells in that area, and had placed monitoring equipment, such as rain gauges and cameras, in key locations in Newman Canyon. Fire crews proactively protected the equipment with fireproof coverings and considered equipment locations into the fire burn management plan. When full containment occurred in late July, nearly 5,000 acres had burned, with no structural damage or injuries.

For Water Services staff, the hazards don't end when the embers die down. The Newman Fire has the potential to impact water quality in Upper Lake Mary, due to ash and debris inflow from intense monsoon events. Water quality sensors in the SCADA (Supervisory Control and Data Acquisition) system can alert the Lake Mary Water Treatment Plant of excess particulates (turbidity conditions) in Lake Mary, as well as monitoring drainage flows coming down Newman Canyon. The alarm system allows staff time to take preventive measures, turning on other water supplies should Lake Mary's turbidity exceed the maximum levels. Flagstaff's average summer water demand is between 8 and 12 million gallons a day, 28% of which is drawn from Upper Lake Mary. Should Lake Mary's tap need to be shut off, Flagstaff's water supply would be affected.



The Forest Service covers well equipment with fireproof materials.

Photo credit: InciWeb



Museum Fire: Post-Fire Flood Mitigation

The Museum Fire began on Sunday, July 21st in the Dry Lake Hills area, just north of town. As many residents are already aware, areas in the Dry Lake Hills have been closed due to forest thinning operations under the FWPP management plan since Fall 2018. The project includes mechanical and hand-thinning, slash removal, clean up, and helicopter logging. The thinning effects, although not completed when the fire started, did much to mitigate the severity of the burn. Only 12% of the area burned at high severity, while 60% burned at low-to-very low severity of the 1,962-acre fire perimeter.

Helicopters drew water from the North Reservoir Filtration Plant as part of the suppression efforts. The Inner Basin Pipeline delivers over a million gallons of water per day during summer months. The Inner Basin water supply was diverted from the public water system to the North Reservoir to support firefighting efforts.

While no structures were damaged during the Museum Fire, impacts to the watershed are likely to happen in coming years that the Flagstaff community should be aware of. Post-fire flooding is a serious threat. Water Services is just one of many agencies and city divisions, along with an army of volunteers, who are working diligently to mitigate the impacts. We ask you, the public, to do your part in managing the effects of flood events in your neighborhood.



What YOU Can Do:

- ❖ Check your property easements for access and free-flow in drainages. Drainages filled with trash can cause flooding to your neighborhood and **is the property-owner's responsibility**.
- ❖ Sign up for emergency notifications at coconino.az.gov/ready
- ❖ If your home is **flood impacted, call 928-213-2990**. Call 9-1-1 for flood EMERGENCIES only.
- ❖ To protect from flood damage, place sandbags around the perimeter of homes and businesses. You can obtain sandbags at these locations:
 - Aztec Street near Frances Short Pond
 - The east and west ends of East Elder Drive in Siler Homes
 - 1701 Ponderosa Parkway, past Fire Station No. 2 on the right.

The sandbag filling area is not regularly manned. Residents should bring shovels to fill sandbags, if pre-made bags are not available. Sandbags should be placed within one to two feet of your home or structure. Do not surround your entire property with sandbags, to avoid negatively impacting your neighbor's property.
- ❖ You can view forecasts, watches and warnings issued by the National Weather Service for northern Arizona at www.wrh.noaa.gov/fgz/ and know the warning signals:
 - Flood Watch: Be prepared
 - Flood Warning: Take action. Move to higher ground. Never drive through flooded streets.

- Enable emergency alerts your smartphone for National Weather Service notifications. Click on *Extreme Threats* and *Severe Threats* under Settings
- ❖ Follow rainfall and streamflow in the City in real-time through a series of radio-telemetered gauges at: www.flagstaff.az.gov/raingauges.
- ❖ Purchase flood insurance to protect your home if you are in an impacted area under threat from the Museum Fire scar and potential flooding debris. You can find more information at: www.floodsmart.gov or by contacting your insurance agent.
- ❖ Be Water Aware. It is particularly important to be aware of your water usage during this time. With precious water resources at risk, all Flagstaff residents should conserve as much as possible.



Be Safety-wise:

- Keep in mind that streets flood quickly. A car can float in as little as one foot of water, so do not attempt to cross flooded areas and respect all traffic barricades.
- Do not walk through flowing water. A current of just six inches of water can sweep people off their feet.
- In the event of a flood, seek high ground. Shelter in place, where possible.
- Know where your children are at all times, and do not let them play near channels, creeks or streams when water is rising.

Together, we can help ourselves and our community protect our environment, property and water supply.