How Do Forest Fires Affect Our Fisheries?

Fish habitat can be affected either beneficially or adversely by wildfire. The effects are often related to fire intensity. Historic fire regimes in this area involved fire events that occurred more often and therefore less intensely.

When a low level fire burns through an area, it removes everything but the hardy mature trees that tower above the level of the flames. It prepares a seed bed for these survivors to reproduce and thereby contributes to a diverse multi-aged forest. Fire acts to promote health and vigor and generally cleans pests and diseases from a forest ecosystem.
Even in riparian areas some mortality from fire has been known to benefit fish. Trees and shrubs fall or roll into a stream or river providing cover and structure in fish habitat. Reduced vegetation means reduced evapo-transpiration, which can sometimes lead to increased ground water and stream flows. Streams also often benefit from increased nutrients released by ash and the woody debris as it decomposes. Soon after this type of fire, a stream ecosystem will see increases in insect and aquatic life of all kinds. In many cases fire actually invigorates a watershed with one of natures keys to health—complexity.

When an intense lethal fire burns through an area, it is often a whole different story. The heat actually changes the characteristics of the soil (hydrophobic soil) so that water does not readily soak in, but runs off instead. The removal of vegetation so that soil is exposed to erosion and raindrops are not intercepted before they hit the ground compounds the problem of sediment delivery to streams. Fine sediment and ash in a stream fill spaces between gravel, ruining spawning habitat and harming aquatic insect production. In some cases, the high heat and post-fire debris flows have reduced fish numbers dramatically. In other cases, so many trees have fallen that fish passage to miles of spawning habitat has been completely blocked.

The Somes Fire this summer was patchy. In places ground fire crept in slow fingers down through the forest, burning brush and singeing the big trees, nature's own fuels reduction and cleaning project. In other spots intense flare-ups and torching into the crowns destroyed whole stands of trees and bared the ground.

Besides what is clearly visible, we won't really know what the overall damages are from this summer's fires until well into the future. Some trees that appear alive now may die before next growing season. Others that have been weakened and stressed will be more vulnerable to insects and other pests and will die in the coming years. Woody debris recruitment into the streams may continue intermittently for years. Fisheries may suffer temporarily from initial runoff but later be invigorated by an enriched aquatic life. Right now it's hard to know.

The Forest Service will soon be sending out their team of experts called the Burned Area Emergency Rehabilitation (BAER) team to evaluate the damages and begin the planning process for restoration. With the BAER team's analysis, and the passage of time, we will start to see the whole picture of this season's fires.

What we do know is that salmonid species have evolved over many thousands of years with fire. Fisheries biologists agree that fish are resilient when it comes to fire. However, fish are much less resilient to land management as a result from fire, including salvage logging, which has been shown to greatly increase sedimentation in an already disturbed landscape.