

## **THE ISOLATED EFFECT OF SUNLIGHT, ORGANIC MATTER, AND TURBULENCE ON THE PISCICIDES ROTENONE AND ANIMYCIN**

Peter Brown and Alexander Zale, 301 Lewis Hall, Montana State University, Bozeman, MT 59717  
pbrown@montana

Piscicide persistence in streams is perhaps the most pressing unknown factor associated with piscicide application. Sunlight, turbulence, and organic matter detoxify piscicides but their effects have not been studied in sufficient detail to recommend appropriate adjustments to application techniques. In the absence thereof, applicators commonly use higher than necessary concentrations of piscicides or overlap piscicide applications in water bodies where one or several of these environmental conditions might affect piscicide toxicity.

These practices result in wasteful use of piscicide and unnecessary invertebrate mortality. The objective of this study is to determine the isolated amount of exposure to sunlight, organic matter, and turbulence necessary for the piscicides rotenone and antimycin to become ineffective. We exposed water treated with rotenone or antimycin to a simulated environmental condition and determined the toxicity, after exposure, using a modified toxicity test. Fish were exposed to piscicide treated water for 8 hours, after which they were removed from piscicide treated water and dead fish were counted. The remaining fish were placed in fresh water and the number dead were counted every 24 hours for a period of 96 hours. Preliminary results indicated that even low levels of sunlight exposure significantly degrade piscicides.