

## **Are Downstream Fish Under the Influence of Drugs?**

**Abstract:** Perhaps the pollutants of greatest concern in the aquatic environment are those that mimic or interfere with natural hormones and have the potential to disrupt the endocrine system of aquatic organisms. The most potent of these endocrine disrupting compounds (EDCs) may be the natural and synthetic forms of estrogen that have been shown to induce measurable effects in fish at environmentally relevant concentrations. Reported effects include vitellogenin synthesis in males, intersex characteristics at the cellular level in gonad tissues, and population level effects such as skewed ratios of female to male fish. Pharmaceuticals and personal care products (PPCPs) are also introduced to the environment through wastewater; impacts to fish and the environment are not well known. Snyderville Basin Water Reclamation District (SBWRD) in Park City, Utah, has investigated the estrogenic effects of their effluent on Brown Trout (*Salmo trutta*) and Bonneville Cutthroat (*Oncorhynchus clarki*) in East Canyon Creek, and has recently conducted a study looking at degradation of PPCPs in downstream reaches along with potential impacts to fish.

Drinking Water and Wastewater Professional CEUs are available from Idaho Bureau of Occupational Licensing for this session.

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Professional Background: Mike has over thirty years of experience in the wastewater field and has worked on many water quality/quantity issues. He holds the position of General Manager of the Snyderville Basin Water Reclamation District. The Reclamation District provides wastewater services to the Park City and Snyderville Basin area in Utah and operates the first tertiary reclamation facility in the state.

As a result of dwindling stream flows, the Reclamation District started to look into the potential impacts of trace organic compounds on native trout species.

Mike holds a Bachelor's Degree in Fisheries and Wildlife Management, a Master Degree in Environmental Biology and a Master of Business Administration.