# An overview of sensory effects on juvenile salmonids exposed to dissolved copper: applying a benchmark concentration approach to evaluate sublethal neurobehavioral toxicity



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# Reviews

This written publication is wonderful. It is probably the most incredible publication i actually have read through. Its been written in an extremely basic way in fact it is merely following i finished reading this publication where basically transformed me, alter the way i believe.

(Adan Fritsch)

# AN OVERVIEW OF SENSORY EFFECTS ON JUVENILE SALMONIDS EXPOSED TO DISSOLVED COPPER: APPLYING A BENCHMARK CONCENTRATION APPROACH TO EVALUATE SUBLETHAL NEUROBEHAVIORAL TOXICITY



No binding. Book Condition: New. This item is printed on demand. OCLC Number: (OCoLC)729409685 Subject: Copper -- Environmental aspects. Excerpt: . . . Introduction Copper, a naturally occurring element, is an essential micronutrient for plants and animals. However, copper is also recognized as a priority pollutant under the U. S. Clean Water Act. Historical and current anthropogenic activities have mobilized significant quantities of copper. Vehicle emissions and brake pad dust ( Drapper et al. 2000 ), pesticides ( USEPA 2005 ), industrial processes, municipal discharges, mining, and rooftops ( Good 1993, Thomas and Greene 1993 ) are a few of the sources of copper in the environment. These various human activities may lead to the unintended and, in some circumstances, intended introduction of copper into aquatic ecosytems ( Sansalone and Buchberger 1997, Wheeler et al. 2005 ). Once in the aquatic environment, copper is detected in multiple forms. It can be dissolved, or bound to organic and inorganic materials either in suspension or in sediment. This so called speciation of copper is dependent on site specific abiotic and biotic factors. As an element, copper will persist and cycle through ecosystems. Copper in its dissolved state is worthy of particular scrutiny as it is highly toxic to a broad range of aquatic species including algae, macrophytes, aquatic invertebrates, and fishes. The latter include anadromous salmon and steelhead within the Oncorhynchus and Salmo genera that are, in part, managed by the National Marine Fisheries Service. Currently, anadromous salmonid populations inhabit waters of Alaska, Oregon, Washington, California, Idaho ( Oncorhynchus spp. ), and Maine ( Atlantic salmon Salmo salar ). Dissolved copper ( referred to as dCu herein ) is consistently detected in salmonid habitats including areas important for rearing, migrating, and spawning ( Alpers et al. 2000, Soller et al. 2005 )....

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