Expression of Metallothionein in Yellow Perch Exposed to Arsenic

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Accumulation of arsenic in sediments of freshwater lakes in the south and central Puget Sound region originate from the byproducts of the American Smelting and Refining Company (ASARCO) copper smelter in Ruston, WA operating from 1890-1985. *Perca flavescens* (yellow perch) is a species of fish found in freshwater lakes surrounding the Puget Sound and is commonly fished recreationally. *P. flavescens* was collected from three lakes in summer 2021. Pine lake is located outside the ASARCO plume zone, while Steel lake and Lake Killarney are located within the plume zone. Liver tissue from *P. flavescens* was used to evaluate the expression of the metallothionein gene (MT) exposed to low, moderate and high levels of arsenic contamination in natural lake water. MT gene expression in fish collected from lakes contaminated with arsenic (Steel, Killarney) were compared to the reference lake (Pine) to determine if there was an alteration of gene expression. Fish from Lake Killarney had a fold ratio of about 1.1 while the fold ratio of Steel and Pine lakes was 1. No statistical significance was found for MT gene expression in *P. flavescens* exposed to different levels of arsenic contamination. These results suggest that *P. flavescens* may have adapted to the presence of arsenic and other contaminants. Future research examining MT gene expression in demersal fish and snails may be a promising avenue for the development of arsenic biomarkers for monitoring in these lakes.