



Antagonistic effect of selenium on mercury assimilation by fish populations near Sudbury metal smelters?

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Limnol. Oceanogr., 46(7), 2001, 1814-1818 | DOI: 10.4319/lo.2001.46.7.1814

ABSTRACT: In this study, the concentrations of Se and Hg were determined in perch (*Perca flavescens*) and walleye (*Stizosedion vitreum*) muscle from nine lakes that varied in distance (4-204 km) from the metal smelters of Sudbury, Canada. Significant inverse relationships between Se and Hg in perch ($r^2 = 0.79$, $P < 0.05$) and walleye tissue ($r^2 = 0.97$, $P < 0.01$) were detected, which suggests a strong antagonistic effect of Se on Hg assimilation by these fish species. Concentration of Hg decreased exponentially with an increase of Se in fish muscle. Total dissolved Se concentrations of lake water declined with distance from smelters and were correlated to Se in perch ($r^2 = 0.75$, $P < 0.05$) and walleye ($r^2 = 0.95$, $P < 0.01$). Hg concentrations in the fish from lakes near the smelter were well below average values in fish in boreal shield lakes of this region.

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