

## The Effect of Whole-Lake Nutrient Enrichment on Mercury Concentration in Age-1 Yellow Perch

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*Abstract.*—We evaluated the effect of whole-lake nutrient enrichment on Hg concentration in age-age-1 yellow perch *Perca flavescens* and assessed whether reduced Hg concentration in fish from enriched lakes could be attributed solely to enhanced fish growth (i.e., growth dilution). A survey of yellow perch in eight reference lakes and two experimentally enriched lakes (P input = 2–6 mg · m<sup>-2</sup> · d<sup>-1</sup>; N : P > 25 : 1 by atoms) indicated that yellow perch Hg concentration was highly correlated with lake pH and nutrient enrichment ( $R^2 = 0.87$ ). Age-1 yellow perch were four to five times larger and had 50% lower Hg concentrations in enriched lakes than in reference lakes of an equivalent pH (reference lakes = 0.24 µg Hg/g wet mass; enriched lakes = 0.11 µg Hg/g). A mass balance model of Hg dynamics indicated that growth dilution could only account for 30–40% of the reduction in yellow perch Hg concentration, suggesting that lake enrichment produced effects on fish Hg concentration that were not explained by differences in growth rate. A change in yellow perch diet likely explains the remainder of the difference in yellow perch Hg concentration between reference and enriched lakes.