

Title: Progress Estimating Incidence Rates of Tumors and Deformities in St. Louis River White Sucker

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Abstract:

The St. Louis River Area of Concern (AOC) was listed for the Beneficial Use Impairment (BUI) of Fish Tumors and Other Deformities without the benefit of histological information. Information on the fish tumor incidence rate is important for the future removal of the BUI. Two years of sampling have been conducted to assess tumors and deformities of white sucker (*Catostomus commersonii*) in the St. Louis River AOC. The objectives of our assessment are to determine the prevalence of microscopically-verified skin and liver tumors throughout the AOC, and to evaluate fish tumor risk with respect to demographics (age, sex) and habitat usage as indicated by carbon (C) nitrogen (N) stable isotope ratios. Based on sampling from 2011, both skin and liver neoplasms were present in 4.5% of breeding, adult white sucker. The stable isotope data revealed that most white sucker were resident in the river and only a few were migrating to Lake Superior. Based on logistic regression, age and habitat usage were common predictors of biological abnormalities. Controlling for age, fish that obtained more than half their diet from the portion of the AOC with the greatest area of contaminated sediments had a risk of skin tumor incidence about twice as high as fish that fed elsewhere. A similar habitat use pattern was observed in fish with liver tumors. Sampling from 2013 will help to verify whether these patterns are robust.