

Poster presentation to be submitted to the St. Louis River Estuary Science Summit 2012, March 8-9, Superior, WI

Title: Incidence Rates of Fish Tumors and Deformities in the St. Louis River Area of Concern: A Preliminary Assessment

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Abstract: The goal of this study was to determine the current incidence rate of fish tumors and deformities in the St. Louis River and compare that to the rate in a relatively unimpaired waterbody on Lake Superior. These data are necessary to remove the "Fish Tumors and Deformities" Beneficial Use Impairment (BUI) in the St. Louis River Area of Concern (AOC). During the development of the Stage 1 Remedial Action Plan (RAP), the Fish Tumors and Deformities BUI was included in the St. Louis River AOC because there were recorded observations of external tumors and lesions and because there were contaminated sediments in the river. No data, however, were available to establish tumor and deformity incidence rates. Since that time, wastewater treatment has been improved dramatically and two major contaminated sediment areas known to have elevated levels of poly-aromatic hydrocarbons (PAHs; a tumor-causing class of chemicals) have been remediated. In May 2011, 50 white suckers from each of four regions across the AOC (Superior Bay, St. Louis Bay, "Middle estuary", and above Fond du Lac Dam) were collected and analyzed. Liver, kidney, spleen, gill, gonad and visible skin lesion samples were collected in the field to determine tumor incidence rates. Histopathological methods will be utilized to distinguish tumors that may be contaminant related from viral or parasitological related deformities. In addition, dorsal muscle tissue plugs were taken for carbon stable isotope analysis, a natural diet marker, to provide information on whether these fish are largely feeding in Lake Superior or in the St. Louis River. The expected outcome of the project is to obtain the first comprehensive documentation of fish tumor incidence rates in the St. Louis River estuary, on which to base future actions related to the removal of this BUI. This abstract does not necessarily reflect U.S. EPA policy.