

Evaluating Risks from Fish Consumption in the Housatonic River: Exposure Parameters

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We conducted point and probabilistic risk assessments for the consumption of fish in the portion of the Housatonic River from Pittsfield, MA, to Lake Zoar in CT, a distance of approximately 120 miles. Much of the area surrounding the river is rural, but the dam-formed lakes in Connecticut are readily accessible to urban populations that include Asian immigrants. A Native American reservation whose members would like to resume traditional tribal fish consumption practices also borders the river. The exposure assessment used site-specific data where available, and regional information when site-specific data were determined to be inadequate. Fish consumption rates for adults were based on data in the Maine Angler Survey, although the data were reanalyzed for use in this assessment and differed from the published consumption rate estimates. The EPCs were based on individual fish data combined in a manner that reflected fish consumption patterns, such as the species and the parts of fish consumed for the mostly white, rural population neighboring the river. The impact of consumption of different species and parts of fish, which more typically characterizes practices of an Asian immigrant or Native American population, was also quantified. The exposure duration was based on a survey of the population in the vicinity of the Housatonic River in Massachusetts conducted by the MA Department of Health. The exposure duration was substantially longer than national averages based on responses to several questions. The probabilistic analyses consisted of Monte Carlo simulation (with both one-dimensional and microexposure event analyses) and probability bounds analysis. A comparison of the results of the point estimate and probabilistic analyses yields insights into the impact of model assumptions, such as the correlation of consumption rate and exposure duration.