



## **USDA-CSREES 2006 National Water Quality Conference**

### **BENEFITS FROM IMPROVED WATER QUALITY: AN ECONOMIC VALUATION STUDY ON THE OPEQUON WATERSHED IN WEST VIRGINIA AND VIRGINIA**

The objective of the study is to estimate monetary benefits from anticipated water quality improvements from implementation of Total Maximum Daily Load Implementation Plan (TMDL IP). Although the study is focused on the Opequon watershed, benefit estimation procedures and results are relevant for other regions.

Opequon Creek begins in northern Virginia and flows through West Virginia into the Potomac River. The creek is used for recreation, especially the West Virginia section. In both states, the creek is impaired due to violation of bacteria and general water quality standards. Urban and agricultural point and nonpoint sources contribute to impairments.

Monetary benefits were estimated using contingent valuation (CV) survey. Respondents were asked how much they would be willing to pay for improved water quality described in terms of increased game fish populations and enhanced swimmers safety. Additional questions included: (a) use and knowledge of the Opequon; (b) opinions about local environmental quality and improvements to the Opequon; and (c) socio-economic characteristics.

The CV survey was developed by consulting with stakeholders in both states. Separate surveys were developed for Virginia and West Virginia residents to account for differences in recreational use and TMDL development in each state. After pre-testing, 4,800 surveys were mailed in September 2005 to a random sample of households within the watershed.

Final results of the survey will be available in December 2005 for incorporation into the Opequon Creek TMDL IP in Virginia. Hypotheses to be tested include: (1) survey respondents have a positive willingness-to-pay (WTP) for improved water quality, which varies depending upon their income, educational status, and opinion of local environmental problems; (2) respondents who engage in stream-based recreation have a higher WTP than those who do not; (3) WTP is higher for own state water quality improvements; and (4) average WTP is higher for water quality improvements in West Virginia because there are more recreational opportunities compared to Virginia.

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