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Valuing U.S. Water Quality at Regional and National Scales

Michael Papenfus

US EPA, Office of Research and Development, Western Ecology Division, Corvallis, OR 97330

Assessing and monetizing the benefits of water quality at a regional and/or national scale is a challenging problem. One of the biggest problems is a lack of consistency in the monitoring and assessment methods used by states to assess water quality. Despite this inconsistency, most economic valuation studies examining water quality benefits at these courser scales *assume* consistency in the statewide measures. In this research, we address this issue by matching economic benefits measures estimated in the valuation literature with water quality measures that are formulated from the national aquatic resource surveys (NARS) of lakes, streams, and rivers. The NARS surveys provide a set of scientifically valid assessments of water quality conditions that are measured using standardized and consistent methodologies across the U.S. This data provides an unbiased sample that can be used to assess water quality at a scale useful for regional water management decision making. To use NARS data for economic benefits assessment at a scale useful for regional water management decision making, the largest challenge is to associate the biophysical monitoring data collected in the NARS program to measures used in the economic valuation literature.

Economists typically associate benefits with attainment of particular human uses and water quality criteria. In this paper, we report on plans and progress for using the National Lakes Assessment data from the NARS program to construct water quality measures that link biophysical measures of lakes, reservoirs, and ponds to the indicators of water quality used in the economic literature. With this bridge from physical to economic measures of water quality, it will be possible to construct improved regional and national assessments of water quality trends and economic value in the US. This problem of matching consistently measured ecosystem goods and services (such as water quality) with valid estimates of economic benefits is prevalent throughout the ecosystem services literature. Without further work to illustrate how to circumvent these mismatches, the promise of incorporating valid measures of nature's value into decision making will remain elusive.

Contact Information: Michael Papenfus, Western Ecology Division, US EPA, 200 SW 35th, Corvallis, OR 97333, USA, Tel: 541-754-4703. Email: papenfus.michael@epa.gov