

approach used at proposal applies values to water quality index changes that are more consistent with expected levels of use as predicted by NWPCAM results and the threshold criteria in the ladder. The valuation function from the Mitchell and Carson work also demonstrates consistency with economic theory in that it exhibits a declining marginal willingness to pay for water quality. However, the ladder approach captures the discrete changes in uses presented to respondents in the survey instrument used to collect the underlying valuation data. While EPA recognizes that caution must be used in manipulating valuations derived from stated preference surveys, EPA believes the WQI-6 and the Mitchell-Carson valuation function may help address some concerns associated with the NWPCAM monetization of benefits at proposal. Both of these enhancements were incorporated in NWPCAM version 1.6 used to analyze benefits for the final CAFO rulemaking (DCN 350510).

Since willingness-to-pay (WTP) for water quality improvements was assessed by Mitchell-Carson only at a national level (*i.e.*, "How much would you pay to bring all freshwaters in the U.S. from boatable up to swimmable?"), NWPCAM needs a methodology for assigning a share of this WTP to individual water bodies that may benefit from the rule. Generally, EPA assigns this share proportioned based on the ratio of affected stream miles to total stream miles. In doing this EPA allocates two thirds of willingness to pay to water quality improvements that occur in state. It is reasonable to assume that individuals will have greater marginal values for water quality improvements that occur in state, and Carson and Mitchell results appear to support this assumption. The consequences of alternative assumptions, such as equal marginal willingness to pay for in state and out of state water quality improvements, on final benefit estimates is a function of relative populations and ratios of population to total stream miles for states with and without stream reaches affected by this rule. For the final rule, EPA is considering conducting a sensitivity analysis to determine the impacts of these assumptions on the monetized benefits estimates.

EPA solicits comment on the use of Mitchell and Carson's valuation function for estimating the monetized benefit for the MPP industry. If more site-specific valuation information becomes available, EPA may decide to incorporate those site-specific values for estimating the monetized benefit.

C. Toxicity Assessment: What Changes and Information Are Being Considered?

Commenters also raised concerns over pollutants of concern (POCs) that were not addressed in the proposal. Based on these comments, EPA has performed exploratory analysis employing stream dilution modeling techniques, which do not take into account fate processes other than complete immediate mixing, to assess the potential impacts of releases of ten pollutants (ammonia, barium, chromium, copper, manganese, molybdenum, nickel, titanium, vanadium, and zinc) from the 53 detailed survey MPP facilities for which sufficient data were available to model. These 53 facilities directly discharge wastewaters to 53 receiving streams. These simplified stream dilution techniques have been used in other promulgated effluent guidelines such as Iron and Steel, Metal Products and Machinery, and Transportation Equipment Cleaning.

Using this approach, EPA assessed the potential impacts in terms of effects on aquatic life and human health. The impacts to aquatic life are projected by comparing the modeled instream pollutant concentrations under current (baseline) treatment levels, to published EPA aquatic life criteria guidance³ or, for pollutants for which no water quality criteria have been developed, to toxic effect levels (*i.e.*, lowest reported or estimated concentration that is toxic to aquatic life).

Impacts to human health are projected by (1) comparing estimated instream pollutant concentrations to health-based toxic effect values or criteria, and (2) estimating the potential reductions of noncarcinogenic (systemic adverse effects such as reproductive toxicity) hazard from consuming contaminated fish and drinking water. Systemic hazards are evaluated for the general population (drinking water only), sport anglers and their families, and subsistence anglers and their families. Potential carcinogenic risks are not evaluated since none of the pollutants

³ In performing this analysis, EPA uses guidance documents published by EPA that recommend numeric human health and aquatic life water quality criteria for numerous pollutants. States often consult these guidance documents when adopting water quality criteria as part of their water quality standards. The simplified stream dilution techniques are used as a screening analysis for priority pollutants and hence EPA uses the national criteria values in lieu of more site specific values. It is not intended as a comprehensive analysis, but rather as a trigger for potential impacts in terms of effects on aquatic life and human health. A more site-specific analysis could be undertaken if the simplified stream dilution technique projected in-stream exceedences of national aquatic life and human health criteria.

modeled are classified by EPA as known or probable carcinogens.

EPA projects that modeled instream pollutant concentrations of one pollutant (copper) will slightly exceed (1.03 ratio) chronic aquatic life criteria or toxic effects levels in only 1 of the 53 receiving streams at current discharge levels. No exceedences of acute aquatic life criteria or toxic effect levels are projected. In addition, EPA projects that one pollutant (manganese) will marginally exceed (1.2 ratio) human health criteria or toxic effect levels in 1 of the receiving streams. No systemic toxicant effects are projected for anglers consuming fish caught from any of the receiving streams at current discharge levels. Based on these results, EPA projects that there are no meaningful health or aquatic life benefits to be obtained as a result of the selected BPT or BAT options and no further analyses of these types of impacts are being considered.

D. Other Benefits Categories Being Considered

1. Drinking Water Treatment

Suspended solids can interfere with effective drinking water treatment. Specifically, high sediment concentrations that interfere with coagulation, filtration, and disinfection increase treatment costs. With more than 11,000 public drinking water systems throughout the United States relying on surface waters as a primary source, these costs can be substantial, though at most only a small fraction of these systems could be impacted by MPP facilities.

For the final rule, EPA is considering estimating the monetary value associated with the estimated reductions in TSS stream concentrations in terms of reduced drinking water treatment costs. This is done by relating the changes in TSS concentrations predicted by NWPCAM with the operational and maintenance (O&M) costs associated with the conventional treatment technique of gravity filtration at the drinking water treatment facility. These estimated cost reductions may be subject to a number of uncertainties, such as the use of average input values and default treatment design values, resulting in a rough approximation of estimated benefits.

The analytic approach being considered includes: (1) Identifying public drinking water systems and their water supplies that are potentially impacted by the discharge from MPP facilities; (2) linking the water supplies to the TSS concentrations predicted by NWPCAM at baseline and the various