

Subject Matter Code: E-02 Benefits Analysis

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Comment Author: SCAP

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CROSS REFERENCES

Comment: * The Economic Analysis presents a very weak analysis of potential benefits, which is based on limited information about ambient water quality conditions. Due to this weakness, combined with the paucity of information in the literature regarding the benefits from marginal improvements in water quality, the benefits analysis does a poor job of evaluating the marginal benefits that would result from the implementation of the CTR.

* The Economic Analysis suggests that reductions attributable to point source reductions may be de minimis. For instance, most of the public health benefits appear to be associated with a small number of contaminants, most of which are not discharged in significant quantities by point source dischargers. Cancer risks, for example are dominated by four contaminants, two of which - DDT and PCBs - are probably more the result of historic loadings than due to ongoing point source inputs.

Response to: CTR-034-015

Water quality improvements often involve thresholds such as action levels for fish consumption advisories. However, water quality regulations often contribute only a portion of the improvement needed to surpass a threshold. Although individuals may (or may not) have a willingness to pay for incremental steps toward crossing a threshold, when the threshold is surpassed (e.g., fish consumption advisories are lifted), every action that contributed to the effort should be allocated a portion of the benefits. This was accomplished for the CTR by allocating a portion of the total toxic-free benefits (proportional to the reduction in loadings) to the implementation of point source controls under the CTR.

EPA analyzed potential reductions for over forty toxic pollutants that may be discharged by point sources. EPA expects that reductions in these toxics will lead to a variety of benefits including ecological, health, and recreational benefits. Although certain health risks such as cancer are indeed dominated by only a few toxic contaminants that may not be greatly reduced by point source controls, reductions of these toxics are, nevertheless, expected to yield reductions in cancer cases as well as systemic health risks. EPA expects the annual reduction in cancer cases among recreational anglers after implementation of the CTR to range from 0.0 to 0.1 for San Francisco Bay and 0.0 to 0.8 for freshwater resources. EPA also analyzed the post-CTR hazard quotients (HQ) for systemic risks among recreational anglers with high consumption rates. The HQ for PCBs may be reduced from 11.31 to 5.44 for San Francisco Bay anglers and from 7.02 to 3.28 for freshwater anglers.

Comment ID: CTR-035-071

Comment Author: Tri-TAC/CASA

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CROSS REFERENCES

Comment: * As indicated in Table Two, much of the benefit estimates are based on little or no empirical data.

Table Two Benefit Areas with Little or No Empirical Foundation Variable/Issue Empirical Evidence

"Water quality conditions in many State waters have not been fully assessed, and assessments of waters that have been evaluated often do not contain monitoring data that is extensive or detailed enough to determine whether the waterbody meets all of the proposed criteria." (U.S. EPA, 1997d, page 1-5)

In many cases there is limited information about water quality conditions, and as a result the need for, and benefits associated with, pollution reductions is substantially unknown.

"EPA found no available studies of the value to California anglers of reducing toxic contamination in surface waters." (U.S. EPA, 1997a, page ES-12).

Fishing-related benefits are based on a single out of-state report which estimated "...the value of reducing toxic contaminants in a popular boat fishery that has experienced widespread and highly publicized contamination and fish consumption advisories" (U.S. EPA, 1997a, page 8-17). This analysis most likely bears little or no relation to California conditions, and should not be used as the sole basis for benefits estimation.

Assumes that the proposed rules will result in "appreciable" increases in water- and land-related recreation apart from fishing.

No evidence is presented that boaters, swimmers, hunters or others will increase their use of California's resources because of a marginal change in pollutant load.

Assumes the rule would likely engender some "passive use" benefits.

Passive use benefits estimates are based on a 13-year old analysis which may bear little relevance to the Rule. The supporting data for this benefit category is so poor as to forgo any quantification of it.

Uses effluent concentration data from the Sacramento County POTW to analyze freshwater resources.

"...may not be representative of effluent from other facilities" (U.S. EPA, 1997a, page 7-6).

Assumes San Francisco Bay discharges have not changed over the last decade.

The Analysis is based on ten-year old data which may not be representative of current conditions.

"Reductions in toxics may contribute to improved conditions for the successful recovery of federal and State threatened and endangered species..."

No evidence is provided supporting this claim.

Assumes relative point/non-point source contribution to particular contaminants based on limited data.

"None of the data sources ... definitely estimates the relative point source contribution of PCBS, dioxin, pesticides, or mercury..." (U.S. EPA, 1997d, page 7-32).

Response to: CTR-035-071

EPA defined toxic-impaired waters as waters rated medium or poor quality for at least one or more toxic pollutant or group of pollutants. EPA acknowledged that this definition may result in an overestimate of toxic-impairment (EA Chapter 8). However, the rating of these waters corresponds to EPA's categories of 'not fully supporting' and 'partially supporting' designated uses. The existence of waters not supporting and only partially supporting designated uses is indicative of the need for and benefits associated with pollution controls.

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA did not include values for water- and land-related benefits other than fishing, but noted that potential benefits may be underestimated because these benefit categories are not included. As described in the EA (Chapter 8), EPA believes that these benefits may be appreciable because such recreational activities (e.g., boating, swimming, picnicking, and related activities) have been shown in empirical research to be highly valued, and even modest changes in participation or user values could lead to sizable benefits statewide. Some of these activities can be closely associated with water quality attributes (e.g., swimming) and others might increase due to their association with fishing, swimming, or other activities in which the participants might engage.

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. Research also indicates that these values are at least half as great as recreational values, such that if they are potentially applicable to a policy action, providing a rough approximation is preferable, with proper caveats, to omitting them from the analysis of benefits and costs. EPA believes that the studies used to calculate the ratio of passive use to use value are applicable to the CTR (see also comment and response CTR-026-009). Therefore, EPA applies a ratio of 0.5 to obtain an estimate of passive use values for households with active recreational anglers. Based on a review of the literature, EPA believes that non-angling households do indeed have a passive use value. To determine a lower-bound estimate of passive use values for non-angling households, EPA assumed that the value may be 30% of the value for angling households. For analysis of the final CTR, EPA revised the upper-bound estimate assuming that the passive use value of non-angling households may be 90% of those for angling households. This revision is based on a study by Loomis et al. (1991), who estimated the benefits of improved fishery, wetland, and waterfowl resources in the San Joaquin Valley to users and nonusers residing in California.

By multiplying a ratio of passive use to use value by recreational fishing values, which EPA apportioned to reflect the relative contribution of point sources, EPA also accounted for attribution in its estimate of passive use values.

For the EA that accompanied the proposal, EPA conducted an extensive search of the literature for more recent data or information related to the relative contributions of various sources to water quality impairments. In the EA accompanying the proposal, EPA solicited additional data, however, none was received. In revising the EA for the final rulemaking, EPA conducted an additional extensive search of the literature and research efforts at California universities for relevant information. EPA has incorporated any new information into the revised EA for the final rule.

EPA provided a qualitative description of the potential impacts of toxics on ecological resources and the potential benefits from reducing toxic loadings to the state's water resources (see Chapter 6 of the EA that accompanied the proposed rule). As stated in that chapter, EPA performed a qualitative assessment of the ecologic benefits of the proposed rule (IEC, 1996), rather than a contaminant-specific quantitative

assessment of the magnitude and extent of benefits accruing for each affected aquatic system. However, without performing a complete quantitative analysis, EPA concluded that potential ecologic benefits from implementation of the CTR may include:

- * Reductions in toxics loadings are expected to contribute to improved conditions for California fish spawning and/or migration in bays/harbors and estuaries, lakes, rivers and streams, and saline lakes.
- * Reductions in bioaccumulative chemicals of concern that may currently affect fish and wildlife throughout the state, including selenium, mercury, PCBs, dioxins, and chlorinated pesticides.
- * Reductions in toxics may contribute to improved conditions for the successful recovery of federal and State threatened and endangered species, such as the delta smelt, desert pupfish, California brown pelican, bald eagle, California clapper rail, California tiger salamander, and western snowy plover.
- * Reductions in toxics may reduce adverse toxics-related impacts on aquatic and terrestrial wildlife in two important areas of California: the San Francisco Bay watershed and the Central Valley (see Case Studies in [U.S. EPA, 1997]).
- * Reductions in the concentrations of both selenium and pesticides in the waters that feed the Salton Sea may contribute to improved conditions for the restoration and maintenance of currently declining populations of wildlife, including threatened and endangered species such as the California brown pelican, peregrine falcon, bald eagle, Yuma clapper rail, and desert pupfish (see Case Studies in [U.S. EPA, 1997]).
- * Improved water quality and associated improvements in survival, growth, and reproductive capacity of aquatic and aquatic-dependent organisms may contribute to the increased stability, resilience, and overall health of numerous ecosystems throughout California, and may contribute to protecting, restoring, and maintaining California's ecological diversity.

EPA used ranges to address the uncertainty in the relative point source contribution of different contaminants. These ranges were based on toxic-weighted pollutant loads so that the results could not be driven by pollutants with little impact on the environment or public health. EPA also solicited additional or updated data and information on this issue in the EA but did not receive any. In revising the EA for the final rulemaking, EPA conducted an additional extensive search of the literature and research efforts at California universities for relevant information. EPA has incorporated any new information into the revised EA for the final rule.

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Comment: * Likewise, as indicated in Table Three, the benefits analysis is based on a number of assumptions which may act to overstate benefits.

Table Three Other Major Technical Assumptions Which Could Affect Benefits Estimates

Assumptions Potential Impact on Analysis

"The benefits estimates in this report represent the total benefits expected to occur once water quality control programs have been fully implemented by California and water quality criteria have been achieved for toxic pollutants." (U.S. EPA, 1997d, page 1-8)

Cost analysis explicitly includes exemptions (cost thresholds) to rule attainment. Likewise, non-point sources are excluded. Both of these factors indicate that water quality criteria will not be achieved, and certainly not at the estimated cost.

Assumes anglers are aware of toxic contamination in waters that have no fish consumption advisories.

No empirical evidence provided on behavioral responses, if any, to actual or perceived public health concerns.

Assumes "potential benefits for all California waters affected by toxics, not just those waters under fishing consumption advisories" (U.S. EPA, 1997a, page 8-17).

May overstate benefits related to point source reductions, as most of the fishing contaminants are related to non-point sources.

Assumes little substitution among fishing sites.

Estimates of the value of increased fishing participation most likely overstates angler behavior as a result of substitution between fishing sites.

Assumes one-to-one benefit from reduction in toxics.

Other factors (e.g., habitat alteration) may pose more serious threats to the environment, and partially negate rule benefits. For example, complete reductions in point source pollution is meaningless if the water body's habitat has been substantially disturbed by development.

Response to: CTR-035-072

The commenter is referring to the estimate of total potential benefits in the analysis of benefits document. In EPA's EA for the proposed (and final) rule, only the portion of benefits expected to be achieved by implementing controls on point source dischargers are counted. EPA recognizes that the proposed standards will not be achieved in some cases by controlling point sources alone. EPA's assumptions regarding the attribution of benefits to the rule are described in the EA for the proposed rule in Chapter 7.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA Chapter 8). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to CTR-035-009a.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

Behavioral responses to public health concerns and pollution have been documented in the literature. For example, as shown in the table below, anglers in the Great Lakes region report taking fewer fishing trips, changing fishing locations, and changing cooking methods in response to fish consumption advisories. EPA revised its analysis to include this information.

References

Fiore, B.J., H.A. Anderson, L.P. Hanrahan, L.J. Olson, and W.C. Sonzogni. 1989. Sport Fish Consumption and Body Burden Levels of Chlorinated Hydrocarbons: A Study of Wisconsin Anglers.

Archives of Environmental Health. 44(2):82-88.

Knuth, B.A. and N.A. Connelly, and M.Z. Shapiro. 1993. Angler Attitudes and Behavior Associated with Ohio River Health Advisories. Prepared by the Human Dimensions Behavior Research Unit of the Department of Natural Resources of the New York State College of Agriculture and Life Sciences. HDRU Series No. 93-6. July. 163 pp.

Knuth, B.A. and N.A. Connelly. 1992. Is New York's Health Advisory on Fish Consumption Making a Difference? Coastlines. 22(4):4-5.

Silverman, W.M. 1990. Michigan's Sport Fish Consumption Advisory: A Study in Risk Communication. Thesis. University of Michigan, Ann Arbor. May. 103 pp.

Vena, J.E. 1992. Risk Perception, Reproductive Health Risk and Consumption of Contaminated Fish in a Cohort of New York State Anglers. Research Program in Occupational and Environmental Health, State University of New York at Buffalo. 67 pp.

West, P.C., J.M. Fly, R. Marans, F. Larkin, and D. Rosenblatt. 1993. 1991-92 Michigan Sport Anglers Fish Consumption Study. Executive Summary. University of Michigan, Natural Resource Sociology Lab. Technical Report #6. Ann Arbor, Michigan.

Behavioral Responses of Anglers to Fish Consumption Advisories

Study	Location	Reported Behavioral Response
Fiore et al. (1989)	Lake Michigan and Green Bay, Wisconsin	57% Reported changing fishing habits and/or fish consumption
Knuth, Connelly, and Shapiro (1993)	Ohio River	37% Took fewer trips 26% Changed fishing locations 26% Changed species sought 22% Changed cleaning methods 17% Changed size of fish consumed 13% Changed cooking methods
Vena (1992)	Lake Ontario, New York	53% Ate less fish 31% Changed preparation methods 30% Changed fishing locations 20% Changed species sought 16% No longer ate fish 16% Took fewer trips
Silverman (1990)	Lake St. Clair Detroit River Lake Erie	56% Ate less fish 56% Changed cleaning methods 41% Ate smaller fish 31% Changed fishing locations 31% Ate different species

28% Changed cooking methods
21% Fished for different
species
10% Took fewer fishing trips

Knuth and Connelly New York 70% Ate less fish
(1992) 40% Cooked fish differently
 17% No longer ate sport caught
 fish

West et al. (1993) Michigan 86% Cooked fish differently
 (Great Lakes anglers)
 80% Ate less fish (Great Lakes
 anglers)
 75% Cleaned fish differently
 46% Ate less fish (overall)
 27% Cooked fish differently
 (overall)

Although the standards established by the CTR apply to the waterbody (i.e., inland surface waters and enclosed bays and estuaries) EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA acknowledged that increased angling activity at sites experiencing reductions in toxic contaminants may reflect a shift in activity from substitute sites rather than a net increase. Because EPA could not account for substitute sites in this analysis, EPA estimated lower bound benefits of \$0 (i.e., assuming no net increases in activity; see EA, Chapter 8).

EPA believes that where appropriate habitat, species, and other conditions exist, yet waters are impaired by toxic pollutants, the standards established by the CTR will result in attaining designated uses. At sites where designated uses are also impaired by factors such as habitat alteration, exotic species, or inadequate flows, these conditions may have to be corrected to fully attain the use. Notwithstanding, even if a receiving water does not fully attain its use because of other factors, this does not justify further degrading the water body by failing to reduce loadings of toxic pollutants.

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References: Letter CTR-040 incorporates by reference letter CTR-027
Attachments? Y

CROSS REFERENCES

Comment: ATTACHMENT: 3 - 2 A Criteria Review of: "Discrete Choice Models to Value Changes in Environmental Quality: A Great Lakes Case Study"(*1)

Introduction This dissertation is primarily concerned with examining economic models of natural resource valuation. Specifically, two models were examined, the travel cost method and the contingent valuation method. The main purpose of this dissertation was to apply these probabilistic choice models to a new data set and examine their performance against one another. In this study, the main use of contingent valuation modeling is to provide alternative value estimates for comparison to the values produced by the travel cost model. The data set examined consisted of two sets of surveys completed by a total of 513 anglers in Wisconsin. One set of surveys examined Wisconsin anglers who fished for trout and salmon in the Great Lakes (274 respondents), while the second set examined those who fished for trout and salmon in inland waters other than the Great Lakes (239 respondents). The primary concern of this critique lies in the application of some of Lyke's findings to the benefits analysis of EPA's California Toxics Rule(*2). Specifically, EPA uses Lyke's results in calculating the potential benefits accrued by California fisheries attributable to the implementation of the California Toxics Rule.

The Models Two models are used in analyzing the data. The first is the travel cost model which links travel costs and fishing success to angler decisions of where to fish. The second model is from a class of questioning methods known as contingent valuation. The travel model estimates non-market value from observable behavior (e.g. distance traveled to fishing sites) while the contingent valuation method simply measures attitudes (the willingness to pay to use a fishing site) not economic behavior per se. This critique is primarily concerned with the contingent valuation questions found in the surveys. These questions measured respondents valuation of their fishing experience (a valuation of the fishery) in relation to toxic contamination. The responses to these questions provide the basis for EPA's valuation of the improved fishing experience for California anglers after implementation of the California Toxics Rule.

Sample Design Data The contingent valuation model data are taken from two mail surveys of anglers who held fishing licenses in 1988 and fished in 1989. This study only examined the behavior and views of anglers who fish for trout and salmon. Millions of trout and salmon are planted in Wisconsin waters annually and catching them is a popular pastime. However, most of these fish are hatchery raised and as such represent a major expense for the state fisheries agency. To help defray these costs, the state requires a special trout and salmon stamp on the licenses of anglers who catch these fish. This added cost might deter some anglers, who then would not be in the "angler population" examined in this study. Also, since anglers who fish primarily for trout and salmon are willing to pay more to catch these prized gamefish, they may be more conscientious in returning questionnaires than "typical" anglers. Both these factors may cause overestimates of fisheries value in this study. This critique is primarily concerned with the data provided by Wisconsin anglers who were identified as having fished the Great Lakes for trout and salmon in 1989. This set consisted of 274 useable questionnaires (out of a possible 368 anglers).

Results Contingent valuation results were generated from responses to direct questions about the value of a given resource (in this case the Great Lakes sport fisheries). The contingent valuation models are applied to value the Wisconsin Great Lakes sport fisheries under current conditions as well as for hypothetical scenarios where contaminants are removed from the fishery and where native lake trout populations are rehabilitated. There is no travel cost model alternative to measuring these values. Lyke determined that the current value (in 1989 dollars) of the Great Lakes Fishery was \$339.43/angler/year (with a standard error of \$53.17). The value of a hypothetically "contaminant free" fishery to anglers

was \$377.18/angler/year (with a standard error of \$64.60). These values can be found in Table 15 (pg. 169) of Lyke's dissertation. It appears that EPA uses these values to estimate the potential increase in value to California fisheries with the implementation of the California Toxics Rule. EPA estimates an 11.1 percent to 31.3 percent increase in value to fisheries following the application of the California Toxics Rule and the subsequent elimination of toxicants from affected waterbodies. These estimated increases appear to be drawn from the values presented by Lyke. There is an 11.1 percent increase in worth when the mean value of current conditions are compared to the mean value of the hypothetical "contaminant free" conditions. There is a 31.8 percent increase in worth when the lower end (mean value minus the standard error) of the value for current conditions is compared to the mean value of the "contaminant free" conditions.

Conclusions:

- 1.) There is a lack of data on the value anglers in California place upon reducing toxic contamination to fisheries, so EPA used the increase in values produced by Lyke's model. However, the increases in value which Lyke shows are based on the responses of 274 individual anglers to only two contingent valuation questions in a mail survey containing a total of 64 questions. This is clearly a very small sample of the population of Wisconsin anglers and may have caused some bias in the analysis. This was probably a representative sample of anglers but not a random sample of anglers.
- 2.) Only anglers who fished for trout and salmon in the Wisconsin Great Lakes were surveyed. These anglers may not be representative of the typical Wisconsin Great Lakes angler, and this data does not show any valuation for any fishery other than trout and salmon.
- 3.) It is not clear how EPA derived the upper limit of their potential increase in fisheries value (31.3 percent). It is possible that EPA used the "contaminant free" mean (\$377.18/angler/year) and compared that to the low end value (mean minus the standard error) of the value of the fishery under current conditions (\$286.26/angler/year), yielding an increase in value of 31.8 percent. Another portion of Lyke's analysis actually shows "contaminant free" fisheries to be valued lower than the current "contaminated" fishery. Inland fishing anglers who fish for trout and salmon were less willing to pay for a contaminant free fishery. The mean value of the inland fishery under current conditions (\$720.12/angler/year) compared to the mean value of a "contaminant free" inland fishery (\$597.42/angler/year) yields a loss in value of 17 percent.
- 4.) There is no evidence that any portion of Lyke's dissertation has undergone peer review outside the University of Wisconsin-Madison. An extensive literature search found no peer reviewed journal publications by the author. Without proper peer review, its methods and conclusions must remain in doubt.
- 5.) The degree and extent to which individual Great Lakes fishing sites and fisheries are contaminated by toxicants was not considered in this study. Therefore, it is unclear how well the study's findings can be applied to "contaminated" fisheries in California.
- 6.) Contingent valuation measures the attitudes of anglers, not their behavior. More specifically, it measures an anglers stated willingness to pay or compensate, not the actual behavior of paying or compensating.

(*1) Lyke, Audrey J., Dissertation submitted to the Graduate School of the University of Wisconsin-Madison, 1993.

(*2) U.S. EPA Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule. June 1997.

Response to: CTR-040-052

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA p. 8-17). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to Issue 3.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA agrees that the contingent valuation method (CVM) elicits an individual's stated willingness to pay or accept compensation. The benefit-cost comparisons in EAs are prepared to inform the public and policy makers. Thus, the strengths and weaknesses of all aspects of the EA, including methodologies for estimating benefits, need to be made clear so that readers are aware of the limits and uncertainties. However, a 1993 Blue Ribbon Panel convened by the National Oceanic and Atmospheric Administration (NOAA) evaluated CVM and found it to be an appropriate methodology for measuring values. It is also the only method accepted by the U.S. Department of the Interior (DOI) to estimate nonuse values and has withstood Federal Court review for its use in litigation contexts.

Additionally, much of the criticism of CVM is conceptual rather than based on empirical research. Where CVM can be compared to other research techniques (e.g., use values estimated by the travel cost methodology or the hedonic price method), CVM is shown to yield similar values (see Brookshire et al., 1982 and Smith et al., 1986). Additionally, in several field experiments, actual purchase decisions were compared to hypothetical purchase decisions (Bishop and Heberlein, 1978 and Dickie et al., 1987). In all of these studies, hypothetical behavior was sufficiently predictive of actual behavior that researchers concluded meaningful values could be obtained for benefit-cost analysis or damage assessment.

Bishop, R.C. and T.A. Heberlein. 1978. Measuring values of extra-market goods: Are indirect measures biased? *American Journal of Agricultural Economics* 61(5): 926-930.

Brookshire, D., M. Thayer, W.D. Schulze, and R. d'Arge. 1982. Valuing public goods: A comparison of the survey and hedonic approaches. *American Economic Review* 72(1): 165-177.

Comment ID: CTR-041-048
Comment Author: Sacramento Reg Cnty Sanit Dist
Document Type: Sewer Authority
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: E-02 Benefits Analysis
References:

Attachments? N

CROSS REFERENCES

Comment: ATTACHMENT: B - 2 A Criteria Review of: "Discrete Choice Models to Value Changes in Environmental Quality: A Great Lakes Case Study"(*1)

Introduction This dissertation is primarily concerned with examining economic models of natural resource valuation. Specifically, two models were examined, the travel cost method and the contingent valuation method. The main purpose of this dissertation was to apply these probabilistic choice models to a new data set and examine their performance against one another. In this study, the main use of contingent valuation modeling is to provide alternative value estimates for comparison to the values produced by the travel cost model. The data set examined consisted of two sets of surveys completed by a total of 513 anglers in Wisconsin. One set of surveys examined Wisconsin anglers who fished for trout and salmon in the Great Lakes (274 respondents), while the second set examined those who fished for trout and salmon in inland waters other than the great lakes (239 respondents). The primary concern of this critique lies in the application of some of Lyke's findings to the benefits analysis of EPA's California Toxics Rule(*2). Specifically, EPA uses Lyke's results in calculating the potential benefits accrued by California fisheries attributable to the implementation of the California Toxics Rule.

The Models Two models are used in analyzing the data. The first is the travel cost model which links travel costs and fishing success to angler decisions of where to fish. The second model is from a class of questioning methods known as contingent valuation. The travel model estimates non-market value from observable behavior (e.g. distance traveled to fishing sites) while the contingent valuation method simply measures attitudes (the willingness to pay to use a fishing site) not economic behavior per se. This critique is primarily concerned with the contingent valuation questions found in the surveys. These questions measured respondents valuation of their fishing experience (a valuation of the fishery) in relation to toxic contamination. The responses to these questions provide the basis for EPA's valuation of the improved fishing experience for California anglers after implementation of the California Toxics Rule.

Sample Design Data The contingent valuation model data are taken from two mail surveys of anglers who held fishing licenses in 1988 and fished in 1989. This study only examined the behavior and views of anglers who fish for trout and salmon. Millions of trout and salmon are planted in Wisconsin waters annually and catching them is a popular pastime. However, most of these fish are hatchery raised and as such represent a major expense for the state fees agency. To help defray these costs, the state requires a special trout and salmon stamp on the licenses of anglers who catch these fish. This added cost might deter some anglers, who then would not be in the "angler population" examined in this study. Also, since anglers who fish primarily for trout and salmon are willing to pay more to catch these prized gamefish, they may be more conscientious in returning questionnaires than "typical" anglers. Both these factors may cause overestimates of fisheries value in this study. This critique is primarily concerned with the data provided by Wisconsin anglers who were identified as having fished the Great Lakes for trout and salmon in 1989. This set consisted of 274 useable questionnaires (out of a possible 368 anglers).

Results Contingent valuation results were generated from responses to direct questions about the value of a given resource (in this case the Great Lakes sport fisheries). The contingent valuation models are applied to value the Wisconsin Great Lakes sport fisheries under current conditions as well as for hypothetical scenarios where contaminants are removed from the fishery and where native lake trout populations are rehabilitated. There is no travel cost model alternative to measuring these values. Lyke determined that the current value (in 1989 dollars) of the Great Lakes Fishery was \$339.43/angler/year

(with a standard error of \$53.17). The value of a hypothetically "contaminant free" fishery to anglers was \$377.18/angler/year (with a standard error of \$64.60). These values can be found in Table 15 (pg. 169) of Lyke's dissertation. It appears that EPA uses these values to estimate the potential increase in value to California fisheries with the implementation of the California Toxics Rule. EPA estimates an 11.1 percent to 31.3 percent increase in value to fisheries following the application of the California Toxics Rule and the subsequent elimination of toxicants from affected waterbodies. These estimated increases appear to be drawn from the values presented by Lyke. There is an 11.1 percent increase in worth when the mean value of current conditions are compared to the mean value of the hypothetical "contaminant free" conditions. There is a 31.8 percent increase in worth when the lower end (mean value minus the standard error) of the value for current conditions is compared to the mean value of the "contaminant free" conditions.

Conclusions:

- 1.) There is a lack of data on the value anglers in California place upon reducing toxic contamination to fisheries, so EPA used the increase in values produced by Lyke's model. However, the increases in value which Lyke shows are based on the responses of 274 individual anglers to only two contingent valuation questions in a mail survey containing a total of 64 questions. This is clearly a very small sample of the population of Wisconsin anglers and may have caused some bias in the analysis. This was probably a representative sample of anglers but not a random sample of anglers.
- 2.) Only anglers who fished for trout and salmon in the Wisconsin Great Lakes were surveyed. These anglers may not be representative of the typical Wisconsin Great Lakes angler, and this data does not show any valuation for any fishery other than trout and salmon.
- 3.) It is not clear how EPA derived the upper limit of their potential increase in fisheries value (31.3 percent). It is possible that EPA used the "contaminant free" mean (\$377.18/angler/year) and compared that to the low end value (mean minus the standard error) of the value of the fishery under current conditions (\$286.26/angler/year), yielding an increase in value of 31.8 percent. Another portion of Lyke's analysis actually shows "contaminant free" fisheries to be valued lower than the current "contaminated" fishery. Inland fishing anglers who fish for trout and salmon were less willing to pay for a contaminant free fishery. The mean value of the inland fishery under current conditions (\$720.12/angler/year) compared to the mean value of a "contaminant free" inland fishery (\$597.42/angler/year) yields a loss in value of 17 percent.
- 4.) There is no evidence that any portion of Lyke's dissertation has undergone peer review outside the University of Wisconsin-Madison. An extensive literature search found no peer reviewed journal publications by the author. Without proper peer review, its methods and conclusions must remain in doubt.
- 5.) The degree and extent to which individual Great Lakes fishing sites and fisheries are contaminated by toxicants was not considered in this study. Therefore, it is unclear how well the study's findings can be applied to "contaminated" fisheries in California.
- 6.) Contingent valuation measures the attitudes of anglers, not their behavior. More specifically, it measures an anglers stated willingness to pay or compensate, not the actual behavior of paying or compensating.

(*1) Lyke, Audrey J., Dissertation submitted to the Graduate School of the University of

Wisconsin-Madison, 1993.

(*2) U.S. EPA Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule. June 1997.

Response to: CTR-041-048

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA Chapter 8). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to CTR-035-009a.)

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters.

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EPA agrees that the contingent valuation method (CVM) elicits an individual's stated willingness to pay or accept compensation. The benefit-cost comparisons in EAs are prepared to inform the public and policy makers. Thus, the strengths and weaknesses of all aspects of the EA, including methodologies for estimating benefits, need to be made clear so that readers are aware of the limits and uncertainties. However, a 1993 Blue Ribbon Panel convened by the National Oceanic and Atmospheric Administration (NOAA) evaluated CVM and found it to be an appropriate methodology for measuring values. It is also the only method accepted by the U.S. Department of the Interior (DOI) to estimate nonuse values and has withstood Federal Court review for its use in litigation contexts.

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U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

Comment ID: CTR-044-043
Comment Author: City of Woodland
Document Type: Local Government
State of Origin: CA
Represented Org:
Document Date: 09/26/97
Subject Matter Code: E-02 Benefits Analysis
References:
Attachments? N
CROSS REFERENCES

Comment: ATTACHMENT: 3 - 2 A Criteria Review of: "Discrete Choice Models to Value Changes in Environmental Quality: A Great Lakes Case Study"(*1)

Introduction This dissertation is primarily concerned with examining economic models of natural

resource valuation. Specifically, two models were examined, the travel cost method and the contingent valuation method. The main purpose of this dissertation was to apply these probabilistic choice models to a new data set and examine their performance against one another. In this study, the main use of contingent valuation modeling is to provide alternative value estimates for comparison to the values produced by the travel cost model. The data set examined consisted of two sets of surveys completed by a total of 513 anglers in Wisconsin. One set of surveys examined Wisconsin anglers who fished for trout and salmon in the Great Lakes (274 respondents), while the second set examined those who fished for trout and salmon in inland waters other than the great lakes (239 respondents). The primary concern of this critique lies in the application of some of Lyke's findings to the benefits analysis of EPA's California Toxics Rule(*2). Specifically, EPA uses Lyke's results in calculating the potential benefits accrued by California fisheries attributable to the implementation of the California Toxics Rule.

The Models Two models are used in analyzing the data. The first is the travel cost model which links travel costs and fishing success to angler decisions of where to fish. The second model is from a class of questioning methods known as contingent valuation. The travel model estimates non-market value from observable behavior (e.g. distance traveled to fishing sites) while the contingent valuation method simply measures attitudes (the willingness to pay to use a fishing site) not economic behavior per se. This critique is primarily concerned with the contingent valuation questions found in the surveys. These questions measured respondents valuation of their fishing experience (a valuation of the fishery) in relation to toxic contamination. The responses to these questions provide the basis for EPA's valuation of the improved fishing experience for California anglers after implementation of the California Toxics Rule.

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(*1) Lyke, Audrey J., Dissertation submitted to the Graduate School of the University of Wisconsin-Madison, 1993.

(*2) U.S. EPA Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule. June 1997.

Response to: CTR-044-043

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she

obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA p. 8-17). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

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EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to Issue 3.)

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Brookshire, D., M. Thayer, W.D. Schulze, and R. d'Arge. 1982. Valuing public goods: A comparison of the survey and hedonic approaches. *American Economic Review* 72(1): 165-177.

Comment ID: CTR-052-003c

Comment Author: East Bay Dischargers Authority

Document Type: Sewer Authority

State of Origin: SC

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02 Benefits Analysis

References: Letter CTR-052 incorporates by reference letters CTR-035 and CTR-054

Attachments? Y

CROSS REFERENCES C-13

E-01

Comment: However, the Authority is greatly disappointed that EPA chose not to follow the consensus recommendations for many of the most significant issues, including the methodology used for the EA and the choice of using the most conservative carcinogenicity factor for organic pollutants.

Response to: CTR-052-003c

While EPA agrees that the methodology recommended by the State Task Force on Economic Considerations may be one adequate method for the State to calculate the costs and benefits of State adoption and implementation of water quality standards, EPA never agreed that it would use this method for its own Economic Analysis (EA) for the following reasons:

- * EPA's primary responsibility in developing the EA is that it meets the requirements of Executive Order 12866. For program consistency, EPA chose to model the methodology of the EA after the Regulatory Impact Analysis of the Great Lakes Water Quality Guidance which successfully underwent the full Executive Order 12866 process.
- * EPA had already established its own methodology and began work on the EA nearly one year before the Task Force began meeting. EPA could not abruptly switch the methodology in the middle of the project due to the limited resources that could be spent on the EA. In addition, many task force members acknowledged that the consensus recommendation was a very resource intensive method and it was uncertain whether adequate data currently existed to bring this methodology to completion. EPA did not have the resources nor the data to perform this type of analysis in the time available.
- * The State Task Force recommended a methodology, for future analysis by the State, that would gather ambient data to determine waters that were impaired by toxics, and then determine what actions needed to be taken by point and non-point sources to meet new water quality criteria. EPA determined that this methodology may be appropriate for future State analysis, but was not appropriate for EPA's Economic Analysis since EAs under the CWA typically estimate only costs that EPA can enforce under the Clean Water Act. Therefore, EPA's EA only calculates potential costs and benefits due to controls on NPDES point sources (excluding wet-weather discharges). EPA believes it may be more appropriate for the State to estimate potential impacts on non-point sources since it has the sole authority for enforcing any controls required by non-point sources.

EPA does not agree that its decision to use a 10⁻⁶ risk level for carcinogenic pollutants conflicts with any of the State Task Force consensus recommendations. EPA does not observe in the Final Task Force Report, an explicit consensus recommendation of any specific risk level for carcinogenic pollutants.

Comment ID: CTR-052-007

Comment Author: East Bay Dischargers Authority

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02 Benefits Analysis

References: Letter CTR-052 incorporates by reference letters CTR-035 and CTR-054

Attachments? Y

CROSS REFERENCES

Comment: EPA has greatly overstated the cost to benefit ratio. The EA concludes that the costs and benefits are nearly equal, which implies a cost to benefit ratio approaching unity, i.e. costs divided by benefits is about 1. The critique prepared by M.Cubed indicates that this is quite faulty, in that costs range from two to nine times the benefits as developed by EPA. Others have noted that the benefits are

also very questionable. Using the costs from No. 3, above, and EPA's high-end benefits, results in costs that are anywhere from 4.6 to 11 times the benefits. No rational person would ever spend that kind of money for such little benefit.

Response to: CTR-052-007

EPA believes that the potential benefits of the rule are reasonably similar to the potential costs. EPA also notes that, as described in the EA, the estimate of benefits may be underestimated as a result of omitted benefit categories while the estimate of costs was based on assumptions that tend to overstate costs. For example, reductions in noncancer health effects are omitted because there are currently few means of linking consumption of toxic contaminants by humans with cases of systemic effects (as opposed to cancer effects, for which dose-response curves have been estimated). Other omitted benefit categories include instream and near stream recreational activities other than fishing (e.g., boating, swimming, picnicking, and related activities). EPA believes other recreation benefits may be appreciable because these activities have been shown in empirical research to be highly valued, and even modest changes in participation or user values could lead to sizable benefits statewide. Some of these activities can be closely associated with water quality attributes (e.g., swimming) and others might increase due to their association with fishing, swimming, or other activities in which the participants might engage.

Comment ID: CTR-054-047

Comment Author: Bay Area Dischargers Associati

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02 Benefits Analysis

References:

Attachments? N

CROSS REFERENCES

Comment: ATTACHMENT: 3 - 2 A Criteria Review of: "Discrete Choice Models to Value Changes in Environmental Quality: A Great Lakes Case Study"(*1)

Introduction This dissertation is primarily concerned with examining economic models of natural resource valuation. Specifically, two models were examined, the travel cost method and the contingent valuation method. The main purpose of this dissertation was to apply these probabilistic choice models to a new data set and examine their performance against one another. In this study, the main use of contingent valuation modeling is to provide alternative value estimates for comparison to the values produced by the travel cost model. The data set examined consisted of two sets of surveys completed by a total of 513 anglers in Wisconsin. One set of surveys examined Wisconsin anglers who fished for trout and salmon in the Great Lakes (274 respondents), while the second set examined those who fished for trout and salmon in inland waters other than the great lakes (239 respondents). The primary concern of this critique lies in the application of some of Lyke's findings to the benefits analysis of EPA's California Toxics Rule(*2). Specifically, EPA uses Lyke's results in calculating the potential benefits accrued by California fisheries attributable to the implementation of the California Toxics Rule.

The Models Two models are used in analyzing the data. The first is the travel cost model which links travel costs and fishing success to angler decisions of where to fish. The second model is from a class of

questioning methods known as contingent valuation. The travel model estimates non-market value from observable behavior (e.g. distance traveled to fishing sites) while the contingent valuation method simply measures attitudes (the willingness to pay to use a fishing site) not economic behavior per se. This critique is primarily concerned with the contingent valuation questions found in the surveys. These questions measured respondents valuation of their fishing experience (a valuation of the fishery) in relation to toxic contamination. The responses to these questions provide the basis for EPA's valuation of the improved fishing experience for California anglers after implementation of the California Toxics Rule.

Sample Design Data The contingent valuation model data are taken from two mail surveys of anglers who held fishing licenses in 1988 and fished in 1989. This study only examined the behavior and views of anglers who fish for trout and salmon. Millions of trout and salmon are planted in Wisconsin waters annually and catching them is a popular pastime. However, most of these fish are hatchery raised and as such represent a major expense for the state fees agency. To help defray these costs, the state requires a special trout and salmon stamp on the licenses of anglers who catch these fish. This added cost might deter some anglers, who then would not be in the "angler population" examined in this study. Also, since anglers who fish primarily for trout and salmon are willing to pay more to catch these prized gamefish, they may be more conscientious in returning questionnaires than "typical" anglers. Both these factors may cause overestimates of fisheries value in this study. This critique is primarily concerned with the data provided by Wisconsin anglers who were identified as having fished the Great Lakes for trout and salmon in 1989. This set consisted of 274 useable questionnaires (out of a possible 368 anglers).

Results Contingent valuation results were generated from responses to direct questions about the value of a given resource (in this case the Great Lakes sport fisheries). The contingent valuation models are applied to value the Wisconsin Great Lakes sport fisheries under current conditions as well as for hypothetical scenarios where contaminants are removed from the fishery and where native lake trout populations are rehabilitated. There is no travel cost model alternative to measuring these values. Lyke determined that the current value (in 1989 dollars) of the Great Lakes Fishery was \$339.43/angler/year (with a standard error of \$53.17). The value of a hypothetically "contaminant free" fishery to anglers was \$377.18/angler/year (with a standard error of \$64.60). These values can be found in Table 15 (pg. 169) of Lyke's dissertation. It appears that EPA uses these values to estimate the potential increase in value to California fisheries with the implementation of the California Toxics Rule. EPA estimates an 11.1 percent to 31.3 percent increase in value to fisheries following the application of the California Toxics Rule and the subsequent elimination of toxicants from affected waterbodies. These estimated increases appear to be drawn from the values presented by Lyke. There is an 11.1 percent increase in worth when the mean value of current conditions are compared to the mean value of the hypothetical "contaminant free" conditions. There is a 31.8 percent increase in worth when the lower end (mean value minus the standard error) of the value for current conditions is compared to the mean value of the "contaminant free" conditions.

Conclusions:

- 1.) There is a lack of data on the value anglers in California place upon reducing toxic contamination to fisheries, so EPA used the increase in values produced by Lyke's model. However, the increases in value which Lyke shows are based on the responses of 274 individual anglers to only two contingent valuation questions in a mail survey containing a total of 64 questions. This is clearly a very small sample of the population of Wisconsin anglers and may have caused some bias in the analysis. This was probably a representative sample of anglers but not a random sample of anglers.
- 2.) Only anglers who fished for trout and salmon in the Wisconsin Great Lakes were surveyed. These

anglers may not be representative of the typical Wisconsin Great Lakes angler, and this data does not show any valuation for any fishery other than trout and salmon.

3.) It is not clear how EPA derived the upper limit of their potential increase in fisheries value (31.3 percent). It is possible that EPA used the "contaminant free" mean (\$377.18/angler/year) and compared that to the low end value (mean minus the standard error) of the value of the fishery under current conditions (\$286.26/angler/year), yielding an increase in value of 31.8 percent. Another portion of Lyke's analysis actually shows "contaminant free" fisheries to be valued lower than the current "contaminated" fishery. Inland fishing anglers who fish for trout and salmon were less willing to pay for a contaminant free fishery. The mean value of the inland fishery under current conditions (\$720.12/angler/year) compared to the mean value of a "contaminant free" inland fishery (\$597.42/angler/year) yields a loss in value of 17 percent.

4.) There is no evidence than any portion of Lyke's dissertation has undergone peer review outside the University of Wisconsin-Madison. An extensive literature search found no peer reviewed journal publications by the author. Without proper peer review, its methods and conclusions must remain in doubt.

5.) The degree and extent to which individual Great Lakes fishing sites and fisheries are contaminated by toxicants was not considered in this study. Therefore, it is unclear how well the study's findings can be applied to "contaminated" fisheries in California.

6.) Contingent valuation measures the attitudes of anglers, not their behavior. More specifically, it measures an anglers stated willingness to pay or compensate, not the actual behavior of paying or compensating.

(*1) Lyke, Audrey J., Dissertation submitted to the Graduate School of the University of Wisconsin-Madison, 1993.

(*2) U.S. EPA Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule. June 1997.

Response to: CTR-054-047

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA p. 8-17). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish

populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to Issue 3.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA agrees that the contingent valuation method (CVM) elicits an individual's stated willingness to pay or accept compensation. The benefit-cost comparisons in EAs are prepared to inform the public and policy makers. Thus, the strengths and weaknesses of all aspects of the EA, including methodologies for estimating benefits, need to be made clear so that readers are aware of the limits and uncertainties.

However, a 1993 Blue Ribbon Panel convened by the National Oceanic and Atmospheric Administration (NOAA) evaluated CVM and found it to be an appropriate methodology for measuring values. It is also the only method accepted by the U.S. Department of the Interior (DOI) to estimate nonuse values and has withstood Federal Court review for its use in litigation contexts.

Additionally, much of the criticism of CVM is conceptual rather than based on empirical research. Where CVM can be compared to other research techniques (e.g., use values estimated by the travel cost methodology or the hedonic price method), CVM is shown to yield similar values (see Brookshire et al., 1982 and Smith et al., 1986). Additionally, in several field experiments, actual purchase decisions were compared to hypothetical purchase decisions (Bishop and Heberlein, 1978 and Dickie et al., 1987). In all of these studies, hypothetical behavior was sufficiently predictive of actual behavior that researchers concluded meaningful values could be obtained for benefit-cost analysis or damage assessment.

Bishop, R.C. and T.A. Heberlein. 1978. Measuring values of extra-market goods: Are indirect measures biased? *American Journal of Agricultural Economics* 61(5): 926-930.

Brookshire, D., M. Thayer, W.D. Schulze, and R. d'Arge. 1982. Valuing public goods: A comparison of the survey and hedonic approaches. *American Economic Review* 72(1): 165-177.

Comment ID: CTR-090-008

Comment Author: C&C of SF, Public Util. Commis.

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02 Benefits Analysis

References: Letter CTR-090 incorporates by reference letters CTR-035 and CTR-054

Attachments? Y

CROSS REFERENCES

Comment: Major Concerns About the Proposed Criteria and Rule

1. The Proposal is Based on Poor Data and Will Not Result in Better Water Quality for California. We stated that our own attainability analysis and that of BADA show that San Francisco, will be impacted by this rule. Unfortunately, due to the short time for review, the poor quality of data and basis for statements and assumptions in the proposal and the problem with detection limits we cannot specifically say what will be the cost to Sari Francisco. One analysis tell us it could be \$2.3 million per year annualized costs and another analysis tells us it could be much more. We strongly recommend major revision to the proposal and the economic analysis before final promulgation for the following reasons:

The propose rule will cost more than EPA estimates, will not be applicable to those discharges that are of most concern and which interfere with the designated uses and therefore the rule will produce less benefits than EPA estimates.

Response to: CTR-090-008

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source

share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

Comment ID: CTR-091-002b
Comment Author: Abu-Saba, Ganguli, Flegal
Document Type: Environmental Group
State of Origin: CA
Represented Org: Coastal Advocates
Document Date: 09/25/97
Subject Matter Code: E-02 Benefits Analysis
References:
Attachments? N
CROSS REFERENCES E-01

Comment: This comment addresses the mercury criteria for continuous concentration (CCC) proposed in 40 CFR, part 131(*1). The proposed aquatic health and human health criteria do not protect aquatic life or humans from mercury contamination. This is demonstrated by the scientific data presented herein. That information includes published and unpublished results from scientists with established reputations in environmental research.

The aquatic life mercury CCC is proposed to be raised sixty-fold, from the National Toxics Rule standard of 0.012 micrograms per liter (ppb) to 0.770 ppb. The human health criteria is proposed to be raised four-fold, from 0.012 ppb to 0.050 ppb. These proposed changes have potentially devastating economic and environmental costs that must be included in the EPA's cost-benefit analysis. Water treatment costs for the metals mercury, silver, and chromium account for 30% of costs projected in the, California Toxics Rule (CTR) economic analysis. However, the long term environmental and economic cost of mercury contamination may far exceed the short term economic savings resulting from an increase in the mercury CCC. This is especially true in California, a mining state that has devoted hundreds of millions of dollars to restoration and enhancement of commercial and sport fisheries by enactment of Proposition 204.

The potential long-term economic and environmental costs of this proposed legislation far exceed any short-term benefits gained by raising the mandatory action level for mercury contamination. A stated goal of the recently passed Proposition 204 legislation is the protection and enhancement of commercial and sport fishing in the State of California. To that end, hundreds of millions of dollars have been committed to water quality improvement and fish habitat restoration. Increasing the permissible mercury limits will not only hinder those goals, but will likely cause irreversible damage to the environment well into the foreseeable future.

(*1) Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Proposed Rule. U.S. Environmental Protection Agency, Region Nine; U.S. Government Printing Office: Washington D.C., 1997; Federal Register, 62, 42159-42207.

Response to: CTR-091-002b

The aquatic life criteria have been updated using EPA's peer-reviewed and accepted aquatic life

methodology. The previous 304(a) criteria guidance value was based on an FDA action level for humans, not on aquatic life protection. As such, the previous criteria are not as appropriate to use as the updated criteria proposed in the CTR. The revised criteria are less stringent than the previous criteria.

The human health criteria proposed in the CTR have also been updated using the risk reference dose for methylmercury. The previous 304(a) criteria guidance values were based on the risk reference does for mercury. The revised human health criteria in the CTR are more stringent than the previous human health criteria guidance.

All water quality standards are comprised of three parts: a designated use, and criterion, and an antidegradation policy. The CTR only proposes criteria. The State of California has adopted designated uses for its water bodies (called beneficial uses) in the Regional Water Board Basin Plans. The State has also adopted antidegradation provisions in each of the Regional Board Basin Plans. These provisions require that water quality in a waterbody cannot be degraded (with narrow exceptions as discussed at 40 CFR 131.12(a) (2) which allow a lowering of water quality if the State finds that it is necessary to accommodate important economic or social development). Thus, if a waterbody has achieved a certain level of cleanliness or is in a pristine condition, discharges are not allowed to degrade the water quality. Therefore, no environmental "cost" or degradation will be incurred as a result of any new or revised water quality criteria in the CTR that may be less stringent than a previously adopted objective or a criteria guidance value. Environmental benefits that have been gained in California fisheries or anywhere else cannot be destroyed.

See response to CTR-002-007b.

Subject Matter Code: E-02c Overstated Benefits

Comment ID: CTR-009-008b
Comment Author: City of Thousand Oaks
Document Type: Local Government
State of Origin: CA
Represented Org:
Document Date: 09/22/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? Y
CROSS REFERENCES E-02o
E-01s

Comment: The City does not agree with the economic analysis. It is incomplete and misrepresents the actual costs and benefits. The analysis does not include costs of expensive AWT to meet more stringent limits based upon the proposed criteria. It does not include the first second, and third order costs to the community, individuals and businesses, of the economic dislocations resulting from huge capital costs, especially for small and economically distressed communities, that divert scarce resources from other priorities or out of the area. It does not include cost impact assessments to low and fixed-income households - ignoring the economic aspects of environmental justice. The benefits assessments make vast unsupported assumptions about the benefits of reductions in constituent concentrations that are barely, if even, measurable, and assigns unrealistic contingent valuations to these assumed benefits. The cost analyses does not follow EPA's own economic assessment guidance (which, itself, is fatally flawed). These points were brought up during the Task Force meetings in 1995 and 1996, but were dismissed outright by EPA. The City hereby raises these issues for the formal record.

The City of Thousand Oaks appreciates the opportunity to comment on the proposed California Toxics Rule.

Sincerely,

Donald H. Nelson Public Works Director

Response to: CTR-009-008b

EPA's own economic assessment guidance (Interim Economic Guidance for Water Quality Standards, EPA-823-B-95-002, March 1995) is intended to assist States and applicants in understanding the economic factors that may be considered, and the types of tests that can be used to determine if a designated use cannot be attained, if a variance can be granted, or if degradation of high-quality water is warranted. In order to remove a designated use or obtain a variance, or if degradation of high-quality water is warranted, the state or discharger must demonstrate that attaining the designated use would result in substantial and widespread economic and social impacts. Although EPA is responsible for approving a State's water quality standards, the State is responsible for interpreting the circumstances of each case and determining where there are substantial and widespread economic and social impacts, or where important social and economic development would be precluded.

Estimating the economic impact of the CTR in California requires a detailed econometric model of the region's economy. EPA did not conduct such an analysis of the rule. However, for a similar toxics rule in

the Great Lakes Basin, an econometric analysis was performed independent of the regulatory impact analysis for the Council of Great Lakes Governors (The Great Lakes Water Quality Initiative: Cost Effective Measures to Enhance Environmental Quality and Regional Competitiveness. DRI/McGraw-Hill, San Francisco, California, July 1993). This analysis showed a minimal impact of the rule on the region's economy for a worst case scenario, a scenario with costs far exceeding those estimated by EPA. Manufacturing output was estimated to fall by between 0.008% and 0.337% over a range of four scenarios evaluated, while personal income loss was estimated at between 0.002% and 0.094% for these scenarios. As a result, the study authors concluded that the impact of the rule on the region's economy would be "nearly imperceptible." Thus, similar controls on toxic pollutants have been shown to be affordable in other regions of the country.

Comment ID: CTR-035-009b
Comment Author: Tri-TAC/CASA
Document Type: Trade Org./Assoc.
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? N
CROSS REFERENCES E-02f

Comment: We also question the estimates of the benefits derived in the draft Economic Analysis, and believe that more recent information specific to California should be collected and used. In particular, for most of the benefits, estimates are based on a comparison with waters which are completely free of contaminants or unimpaired, which is unrealistic. There is also little evaluation of the marginal benefits of the proposed rule (i.e. the benefits that would be realized as a result of marginal changes in contamination levels). While presumably achievement of the full reductions necessary to meet the CTR criteria in ambient waters is EPA's goal, EPA itself acknowledges that few of the benefits of the CTR are likely to be realized through point source controls, and the Agency fails to demonstrate how the water quality criteria promulgated by the CTR will be achieved.

Response to: CTR-035-009b

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

Water quality improvements often involve thresholds such as action levels for fish consumption advisories. However, water quality regulations often contribute only a portion of the improvement needed to surpass a threshold. Although individuals may (or may not) have a willingness to pay for incremental steps toward crossing a threshold, when the threshold is surpassed (e.g., fish consumption advisories are lifted), every action that contributed to the effort should be allocated a portion of the benefits. This was accomplished for the CTR by allocating a portion of the total toxic-free benefits (proportional to the reduction in loadings) to the implementation of point source controls under the CTR.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-035-065b
Comment Author: Tri-TAC/CASA
Document Type: Trade Org./Assoc.
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? N
CROSS REFERENCES E-02k

Comment: Weaknesses in Benefits Analysis

USEPA's benefits analysis is even weaker than its cost evaluation. For example:

* Although there is evidence that the Rule could result in no benefits in the near-term due to long-term environmental persistence of existing contamination, the Analysis does a poor job of highlighting this potential outcome. For example, there is some likelihood that benefits could truly be zero, while under no circumstances will Rule implementation be costless. Likewise, USEPA's use of ranges to express potential benefit values may mislead readers into believing that the estimated high benefits are as likely to be achieved as the low benefits, when in fact the probability that different benefit levels will actually be achieved varies greatly from low to high.

Response to: CTR-035-065b

The range of estimated benefits in part reflects the range in loadings reductions that may result from point source controls given the flexibility in State implementation procedures. The decision as to which

implementation procedures will be employed, and therefore what costs and benefits will result, will be made by state and local entities for specific locations.

Comment ID: CTR-035-068
Comment Author: Tri-TAC/CASA
Document Type: Trade Org./Assoc.
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? N
CROSS REFERENCES

Comment: * Most of the benefits estimates are based on a comparison with waters which are "completely unimpaired", "contaminant free," or "completely free of pollutants that may threaten human health." Even if point source reductions are fully obtained, California's waters will remain polluted from non-point sources and contaminants already in the environment for the foreseeable future. In fact, it is unlikely that most state waters will ever be completely unimpaired, and the use and non-use values associated with complete purity may be considerably higher than the more likely outcome of long-term small-scale contamination.

Response to: CTR-035-068

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-040-008c
Comment Author: County of Sacramento Water Div
Document Type: Storm Water Auth.
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: E-02c Overstated Benefits
References: Letter CTR-040 incorporates by reference letter CTR-027
Attachments? Y
CROSS REFERENCES E-01c02
E-01m

Comment: MAJOR CONCERNS

We do, however, have fundamental concerns with the Rule as it is presently proposed and its supporting economic analysis. We believe the Rule can be modified in a manner that will be responsive to our concerns while at the same time being consistent with applicable Federal law and regulations. Our major concerns are presented here and are followed by our recommended modifications.

II. Concern: The economic analysis upon which the Rule is based is seriously flawed.

- * Estimates of potential costs are severely constrained due to certain assumptions including the assumption that regulatory relief from the Rule will be granted if costs are in excess of certain thresholds.
- * Estimates of potential benefits are exaggerated by assuming, that the proposed water quality criteria will actually be achieved in receiving water bodies. This will not result from the implementation of the Rule because the Rule is only addressing permitted discharges to the receiving water bodies.
- * The result of these flaws is that potential costs are greatly understated and potential benefits are greatly overstated.

Response to: CTR-040-008c

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

EPA does not believe that estimates of potential costs are constrained due to assumptions regarding regulatory relief from the Rule. Although EPA considered an industry category cost threshold under the low cost scenario, beyond which a facility was assumed to pursue regulatory relief, no such assumption was used for the high cost scenario. That is, under the high scenario all necessary pollutant reductions were assumed to be achieved through either treatment or a waste control program (e.g. waste minimization pollution prevention).

Comment ID: CTR-040-043

Comment Author: County of Sacramento Water Div

Document Type: Storm Water Auth.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02c Overstated Benefits

References: Letter CTR-040 incorporates by reference letter CTR-027

Attachments? Y

CROSS REFERENCES

Comment: Review of EPA's Analysis of Potential Benefits

The benefits analysis overstates benefits by assuming an end (i.e., achievement of the water quality criteria) that will not result from the CTR. The CTR will impact point sources, which EPA acknowledges are only a small portion of the toxic pollutant load (3% of the load to freshwater and 1%-11% of the load

to San Francisco Bay). The major sources of toxic pollutants, nonpoint sources, are not regulated under the Clean Water Act or the CTR.

Response to: CTR-040-043

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Although the standards established by the CTR apply to the waterbody (i.e., inland surface waters and enclosed bays and estuaries), EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

Comment ID: CTR-041-039

Comment Author: Sacramento Reg Cnty Sanit Dist

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02c Overstated Benefits

References:

Attachments? N

CROSS REFERENCES

Comment: Review of EPA's Analysis of Potential Benefits

The benefits analysis overstates benefits by assuming an end (i.e., achievement of the water quality criteria) that will not result from the CTR. The CTR will impact point sources, which EPA acknowledges are only a small portion of the toxic pollutant load (3% of the load to freshwater and 1 %-11% of the load to San Francisco Bay). The major sources of toxic pollutants, nonpoint sources, are not regulated under the Clean Water Act or the CTR.

Response to: CTR-041-039

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-043-004d
Comment Author: City of Vacaville
Document Type: Local Government
State of Origin: CA
Represented Org:
Document Date: 09/26/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? Y
CROSS REFERENCES E-01g
E-01h
E-01m
E-01c02

Comment: 4. EPA's Economic Analysis is seriously flawed. The major flaws include:

- (1) failing to do an appropriate sampling of small dischargers having little or no dilution;
- (2) assuming in the high-end cost scenario that a 25% reduction could be achieved through source control and an additional 25% achieved through treatment plant optimization without capital improvements;
- (3) constraining estimates of potential costs through key assumptions, including the assumption that regulatory relief from the rule would be granted if costs were in excess of certain thresholds; and
- (4) exaggerating estimates of potential benefits by assuming an end (i.e., achievement of the proposed water quality criteria) that will not result from the rule.

The result of these flaws is that potential costs are greatly understated and potential benefits are greatly overstated. Moreover, the flawed economic analysis has led to the erroneous conclusion that the CTR is not a "significant regulatory action" or major rule subject to Presidential Executive Order 12866 and the Unfunded Mandates Reform Act or a rule that affects small entities protected under the Regulatory Flexibility Act.

Response to: CTR-043-004d

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

EPA does not believe that estimates of potential costs are constrained due to assumptions regarding regulatory relief from the Rule. Although EPA considered an industry category cost threshold under the low cost scenario, beyond which a facility was assumed to pursue regulatory relief, no such assumption was used for the high cost scenario. That is, under the high scenario all necessary pollutant reductions were assumed to be achieved through either treatment or a waste control program (e.g. waste minimization pollution prevention).

EPA's EA, which uses many conservative costing assumptions, indicates that the cost of the State implementing water quality standards based on the proposed criteria in the CTR is likely to be below

\$100 million per year. Benefits are also estimated to be below \$100 million per year. These estimates indicate that the action is not "significant" under E.O. 12866, under the provision concerning annual effects on the economy.

Criteria, by themselves, do not directly impose economic impacts. Criteria are one of three parts of a water quality standard. A water quality standard is comprised of: a criterion, a designated use, and an antidegradation policy. California currently has a narrative criterion stating that there shall be no toxic in toxic amounts. Pursuant to this narrative criterion, which are the basis for this rule. Under this scenario, the rule would have no costs. Under the second scenario, assumes that without this rule, the current permit conditions for point sources would continue in the future. Under this second scenario, EPA assessed a range of potential costs that would be incurred for point sources to meet these criteria - the low end being based on current effluent concentrations, the high end being based on current permit limits. [Pursuant to this analysis, it has been determined that this is not a significant regulatory action subject to OMB review.] See the preamble for the final rule.

The Unfunded Mandates Reform Act of 1995 (UMRA) in general requires federal agencies to assess the effects of their regulatory actions on State and local governments, and on the private sector. The agency must prepare a written statement including a cost-benefit analysis for actions with a "federal mandate" that may result in expenditures to State and local governments, in the aggregate, or to the private sector of \$100 million or more in any one year. The CTR does not contain any federal mandate that may result in expenditures by State and local governments, or the private sector, of \$100 million or more in any one year. The CTR imposes no direct enforceable duties on the State, local or private sector; rather the rule promulgates water quality criteria which, when combined with State-adopted designated uses and antidegradation requirements, will create water quality standards. The CTR does not directly regulate or affect any entity and therefore is not subject to the requirements of UMRA. See the preamble to the final rule.

See also response to CTR-050-007a.

Comment ID: CTR-044-005d
Comment Author: City of Woodland
Document Type: Local Government
State of Origin: CA
Represented Org:
Document Date: 09/26/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? Y
CROSS REFERENCES E-01g08
E-01h01
E-01m
E-01c02
R
S

Comment: We have reviewed the proposed CTR and offer the following comments:

4. EPA's Economic Analysis is seriously flawed. The major flaws include:

(1) failing to do an appropriate sampling of small dischargers having little or no dilution; (2) assuming in the high-end cost scenario that a 25% reduction could be achieved through source control and an additional 25% achieved through treatment plant optimization without capital improvements; (3) constraining estimates of potential costs through key assumptions, including the assumption that regulatory relief from the rule would be granted if costs were in excess of certain thresholds; and (4) exaggerating estimates of potential benefits by assuming an end (i.e., achievement of the proposed water quality criteria) that will not result from the rule. Additional concerns with the economic analysis are presented in Exhibit F. The result of these flaws is that potential costs are greatly understated and potential benefits are greatly overstated. Moreover, the flawed economic analysis has led to the erroneous conclusion that the CTR is not a "significant regulatory action" or major rule subject to Presidential Executive Order 12866 and the Unfunded Mandates Reform Act or a rule that affects small entities protected under the Regulatory Flexibility Act. The City, for example, is a small community having a population of under 50,000 and would be greatly impacted by the proposed rule.

Response to: CTR-044-005d

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

EPA does not believe that estimates of potential costs are constrained due to assumptions regarding regulatory relief from the Rule. Although EPA considered an industry category cost threshold under the low cost scenario, beyond which a facility was assumed to pursue regulatory relief, no such assumption was used for the high cost scenario. That is, under the high scenario all necessary pollutant reductions were assumed to be achieved through either treatment or a waste control program (e.g. waste minimization pollution prevention).

EPA's EA, which uses many conservative costing assumptions, indicates that the cost of the State implementing water quality standards based on the proposed criteria in the CTR is likely to be below \$100 million per year. Benefits are also estimated to be below \$100 million per year. These estimates indicate that the action is not "significant" under E.O. 12866, under the provision concerning annual effects on the economy.

California currently has a narrative criterion stating that there shall be no toxic in toxic amounts. Pursuant to this narrative criterion, which are the basis for this rule. Under this scenario, the rule would have no costs. Under the second scenario, assumes that without this rule, the current permit conditions for point sources would continue in the future. Under this second scenario, EPA assessed a range of potential costs that would be incurred for point sources to meet these criteria - the low end being based on current effluent concentrations, the high end being based on current permit limits. [Pursuant to this analysis, it has been determined that this is not a significant regulatory action subject to OMB review.] See the preamble for the final rule.

The Unfunded Mandates Reform Act of 1995 (UMRA) in general requires federal agencies to assess the effects of their regulatory actions on State and local governments, and on the private sector. The agency must prepare a written statement including a cost-benefit analysis for actions with a "federal mandate" that may result in expenditures to State and local governments, in the aggregate, or to the private sector of \$100 million or more in any one year. The CTR does not contain any federal mandate that may result in expenditures by State and local governments, or the private sector, of \$100 million or more in any one year. The CTR imposes no direct enforceable duties on the State, local or private sector; rather the rule

promulgates water quality criteria which, when combined with State-adopted designated uses and antidegradation requirements, will create water quality standards. The CTR does not directly regulate or affect any entity and therefore is not subject to the requirements of UMRA. See preamble to the final rule.

See also the response to CTR-050-007a.

Comment ID: CTR-044-034
Comment Author: City of Woodland
Document Type: Local Government
State of Origin: CA
Represented Org:
Document Date: 09/26/97
Subject Matter Code: E-02c Overstated Benefits
References:
Attachments? N
CROSS REFERENCES

Comment: Review of EPA's Analysis of Potential Benefits

The benefits analysis overstates benefits by assuming an end (i.e., achievement of the water quality criteria) that will not result from the CTR. The CTR will impact point sources, which EPA acknowledges are only a small portion of the toxic pollutant load (3% of the load to freshwater and 1 %-11% of the load to San Francisco Bay). The major sources of toxic pollutants, nonpoint sources, are not regulated under the Clean Water Act or the CTR.

Response to: CTR-044-034

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-054-038
Comment Author: Bay Area Dischargers Associati
Document Type: Sewer Authority
State of Origin: CA
Represented Org:
Document Date: 09/25/97
Subject Matter Code: E-02c Overstated Benefits
References:

Attachments? N

CROSS REFERENCES

Comment: Review of EPA's Analysis of Potential Benefits

The benefits analysis overstates benefits by assuming an end (i.e., achievement of the water quality criteria) that will not result from the CTR. The CTR will impact point sources, which EPA acknowledges are only a small portion of the toxic pollutant load (3% of the load to freshwater and 1 %-11% of the load to San Francisco Bay). The major sources of toxic pollutants, nonpoint sources, are not regulated under the Clean Water Act or the CTR.

Response to: CTR-054-038

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-061-018

Comment Author: G. Fred Lee & Associates

Document Type: Academia

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02c Overstated Benefits

References:

Attachments? Y

CROSS REFERENCES

Comment: Page 42190, bottom of the first and all of the second and third columns, discuss benefits. This discussion on the benefits of achieving these criteria is superficial, at best. There is no way to reliably estimate the improvement in the real water quality - beneficial uses arising from the adoption of these criteria since the database needed to relate the exceedances of the criteria to real water quality use-impairments does not exist. Many of the exceedances that are now occurring are "administrative" exceedances related to overly protective approaches dictated by the US EPA that have been and will likely continue to be used in implementing the criteria into discharge limits.

Response to: CTR-061-018

EPA defined toxic-impaired waters as waters rated medium or poor quality for at least one or more toxic pollutant or group of pollutants. EPA acknowledged that this definition may result in an overestimate of toxic-impairment (EA Chapter 8). However, the rating of these waters corresponds to EPA's categories of

'not fully supporting' and 'partially supporting' designated uses. The existence of waters not supporting and only partially supporting designated uses is indicative of the need for and benefits associated with pollution controls.

Subject Matter Code: E-02d Passive Use Value

Comment ID: CTR-026-009

Comment Author: Cal. Department of Fish & Game

Document Type: State Government

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02d Passive Use Value

References:

Attachments? N

CROSS REFERENCES

Comment: 9. ECONOMIC ANALYSIS

The document entitled "Economic Analysis of the Proposed California Water Quality Toxics Rule" examines in large part the benefits and costs of changes in water quality due to point source dischargers implementation actions using the CTR-based water quality standards. This comment addresses the approach to quantifying benefits known as "passive use values" held by the public. We believe that a "rule of thumb" ratio of 50% or 0.5 for passive use values to active use values is overly conservative and leads to a significant understatement of the potential benefits of water quality improvements.

The CDFG has recently hired Dr. John Loomis (Colorado State University, Fort Collins) to establish such a passive use to active use value ratio, for small scale changes in the quality and/or quantity of natural resources and the services they provide to the public. Dr. Loomis conducts a comprehensive review of the resource economics literature and provided a conservative estimate of 1.43 versus the 0.50 used in the Economic Analysis performed for the CTR. We believe that should the US EPA attempt to quantify passive use benefits of the CTR, that a more appropriate use value ratio (or rule of thumb) is 1.43 rather than the 0.5 currently used in the analysis.

Response to: CTR-026-009

EPA reviewed the recent review by Dr. John Loomis referenced by the commenter (Loomis, 1997). Dr. Loomis conducted this review for application to the California Type A Model for simplified damage assessments under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

Dr. Loomis compiled studies from several previous reviews, including Fisher and Raucher (1984), Bishop et al. (1993), and Brown (1993). Each study used different approaches for calculating the ratio of passive use to use values, including comparison of use and passive use values, relying on respondents to prorate their willingness to pay between use and passive use components, and obtaining values when respondents are asked to assume active use is zero. Dr. Loomis notes that the prorating approach can yield higher estimates of the ratio than other approaches. He calculated his ratio of 1.43 by averaging across ratios calculated by all methods employed, after excluding outliers (three studies showing ratios of greater than 6) and studies involving unique resources or endangered species (studies involving bald eagles, grizzly bears, whooping cranes, and Mono Lake were not deemed appropriate for application to small oil spills).

As described in the EA accompanying the proposed CTR, in applying a rule of thumb such as the ratio of

passive use to use values, it is important to consider the extent to which the primary research efforts have evaluated resources and changes in resource conditions that are reasonably comparable to the CTR (see Chapter 8 EA). EPA considered the studies evaluated by Fisher and Raucher (1984) and which indicated a ratio of 0.5 more applicable to the CTR than studies indicating potentially higher ratios. For example, a study by Sanders et al. (1990) indicated a ratio of approximately 1.8 or 1.9, however, the results are based on the value of preserving several free-flowing river segments in Colorado from the development of dams and other major, irreversible hydrological modifications.

Dr. Loomis' review also includes studies that value environmental changes substantially different from those expected under the CTR. For example, a study by Haefele, et al (1992) estimates the total value of forest quality in high elevation spruce forests. This study contributes ratios of 10.74 and 6.7 to Dr. Loomis' review. A study by King et al (1988) , which contributed a ratio of 7.57, estimated the value of a herd of desert bighorn sheep. In addition, Dr. Loomis excluded studies of unique resources and endangered species (e.g., bald eagles) because of a lack of applicability to small oil spills; unique resources and endangered species are of relevance to the CTR.

Dr. Loomis' review of the ratio EPA applied to estimate passive use benefits for the CTR indicates that this ratio may be conservatively estimated. However, for the CTR, EPA used a less conservative application of the ratio compared to previous applications. That is, the selected ratio is typically multiplied by use values (e.g., recreational angling values for the CTR, nonconsumptive use values for the CERCLA Type A Model) to estimate passive use values. This application may be conservative because, in effect, passive use values are only being counted for resource users. To include passive use values for nonusers in its analysis of benefits for the CTR, EPA estimated passive use values for nonangling California households.

References

Bishop, R. M. Welsh, and S. Press. 1993. The CERCLA Type-A Natural Resource Damage Assessment Model for the Great Lakes Environment. Vol. 1, Draft.

Brown, T. 1993. Measuring Non-use Values: A Comparison of Recent Contingent Valuation Studies, in Benefits and Cost Transfers in Natural Resource Planning, Sixth Interim Report, J.C. Bergstrom, Compiler. Department of Agricultural and Applied Economics, University of Georgia, Athens, Georgia.

Fisher, A. and R. Raucher. 1984. Intrinsic Benefits of Improved Water Quality: Conceptual and Empirical Perspectives, Advances in Micro-Economics, V.K. Smith and A.D. Witte, eds. Vol. 3, JAI Press, Greenwich, CT.

Haefele, M., R.Kramer, and T. Holmes. 1992. Estimating the Total Value of Forest Quality in High Elevation Spruce Forests, in The Economic Value of Wilderness: Proceedings of the conference. GTR SE-78, Southern Forest Experiment Station. U.S. Forest Service, Asheville, NC.

King, D.A. , D.J. Flynn, and W.W. Shaw. 1988. Total and Existence Values of a Herd of Desert Bighorn Sheep. Benefits and Costs in Natural Resource Planning, Interim Report. Western Regional Research Publication W-133.

Loomis, J. 1997. Calculation of Nonuse Value Ratios and Documentation for the California Type A Model. Department of Agricultural and Resource Economics, Colorado State University, Fort Collins, CO.

Sanders, L.D., R.G. Walsh, and J.B. Loomis. 1990. "Toward Empirical Estimation of the Total Value of Protecting Rivers." *Water Resources Research*. 26(7):1345-1357.

Comment ID: CTR-035-055

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02d Passive Use Value

References:

Attachments? N

CROSS REFERENCES

Comment: pp. 8-24 - 8-27 (U.S. EPA, 1997a) -- Passive Use Benefits The Economic Analysis assumes that a substantial portion of the benefits would accrue from passive use benefits (about 60% for the low end estimate and 70% for the high end estimate). We believe that, based on the number and type of assumptions required, and the reliance on studies of other types of passive use benefits (e.g. avoidance of mining activities or building a dam), these estimates are extremely tenuous. None of the studies cited examined the marginal benefits of incremental improvements in concentrations of toxic pollutants, nor were any of the studies based in California. Furthermore, it does not appear that EPA apportioned the passive use benefits attributable to improvements in water quality that will occur as a result of the CTR, as was done for other benefit categories. We recommend that the inclusion of quantitative estimates be reconsidered for passive use benefits, and, at most, only that portion representing the benefits attributable to the CTR be included.

Response to: CTR-035-055

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. Research also indicates that these values are at least half as great as recreational values, such that if they are potentially applicable to a policy action, providing a rough approximation is preferable, with proper caveats, to omitting them from the analysis of benefits and costs. EPA believes that the studies used to calculate the ratio of passive use to use value are applicable to the CTR (see also comment and response CTR-026-009).

Therefore, EPA applies a ratio of .5 to obtain an estimate of passive use values for those households that have active recreational anglers. Based on a review of the literature, EPA believes that non-angling household do indeed have a passive use value. To determine a lower-bound estimate of passive use values for non-angling households, EPA assumed that the value may be 30% of the value for angling households. For analysis of the final CTR, EPA revised the upper-bound estimate assuming that the passive use value of non-angling households may be 90% of those for angling households. This revision is based on a study by Loomis et al. (1991), who estimated the benefits of improved fishery, wetland, and waterfowl resources in the San Joaquin Valley to users and nonusers residing in California.

By multiplying a ratio of passive use to use value by recreational fishing values, which EPA apportioned to reflect the relative contribution of point sources, EPA also accounted for attribution in its estimate of passive use values.

Comment ID: CTR-040-047

Comment Author: County of Sacramento Water Div

Document Type: Storm Water Auth.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02d Passive Use Value

References: Letter CTR-040 incorporates by reference letter CTR-027

Attachments? Y

CROSS REFERENCES

Comment: EPA's estimate of passive use benefits (\$36.3 million annually under the high-end scenario and 70% of the total estimated benefits) is erroneous. First, it is based on an unsupported assumption that non-use values (e.g., property values) are depressed in California because of pollution. Second, it is based on the assumption that the water quality criteria will be achieved as a result of the CTR, which as previously stated, is not the case.

Response to: CTR-040-047

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. EPA believes that these studies are applicable to the CTR. EPA also believes that its assessment of toxic impairment of California, based on data and information compiled by the State Water Resource Control Boards, is reasonably accurate.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of the State's actions that may control other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-041-043

Comment Author: Sacramento Reg Cnty Sanit Dist

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02d Passive Use Value

References:

Attachments? N

CROSS REFERENCES

Comment: EPA's estimate of passive use benefits (\$36.3 million annually under the high-end scenario and 70% of the total estimated benefits) is erroneous. First, it is based on an unsupported assumption that non-use values (e.g., property values) are depressed in California because of pollution. Second, it is based on the assumption that the water quality criteria will be achieved as a result of the CTR, which as previously stated, is not the case.

Response to: CTR-041-043

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. EPA believes that these studies are applicable to the CTR. EPA also believes that its assessment of toxic impairment of California, based on data and information compiled by the State Water Resource Control Boards, is reasonably accurate.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of the State's actions that may control other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-044-038

Comment Author: City of Woodland

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02d Passive Use Value

References:

Attachments? N

CROSS REFERENCES

Comment: EPA's estimate of passive use benefits (\$36.3 million annually under the high-end scenario and 70% of the total estimated benefits) is erroneous. First, it is based on an unsupported assumption that non-use values (e.g., property values) are depressed in California because of pollution. Second, it is based on the assumption that the water quality criteria will be achieved as a result of the CTR, which as previously stated, is not the case.

Response to: CTR-044-038

As described in the EA (p. 8-22), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. EPA believes that these studies are applicable to the CTR. EPA also believes that its assessment of toxic impairment of California, based on data and information compiled by the State Water Resource Control Boards, is reasonably accurate.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

Comment ID: CTR-054-042

Comment Author: Bay Area Dischargers Associati

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02d Passive Use Value

References:

Attachments? N

CROSS REFERENCES

Comment: EPA's estimate of passive use benefits (\$36.3 million annually under the high-end scenario and 70% of the total estimated benefits) is erroneous. First, it is based on an unsupported assumption that non-use values (e.g., property values) are depressed in California because of pollution. Second, it is based on the assumption that the water quality criteria will be achieved as a result of the CTR, which as previously stated, is not the case.

Response to: CTR-054-042

As described in the EA (p. 8-22), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. EPA believes that these studies are applicable to the CTR. EPA also believes that its assessment of toxic impairment of California, based on data and information compiled by the State Water Resource Control Boards, is reasonably accurate.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.
