

MERCATUS CENTER  
GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

**Public Interest Comment on**

The Environmental Protection Agency's  
Proposed Information Collection on  
Willingness to Pay Survey: Phase III Cooling Water Intake Structures<sup>1</sup>

**Docket ID: OW-2004-0020**

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The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of the impact of regulation on society. As part of its mission, RSP conducts careful and independent analyses employing contemporary economic scholarship to assess rulemaking proposals from the perspective of the public interest. Thus, this comment on the Environmental Protection Agency's (EPA) proposed Information Collection Request (ICR) on a willingness to pay (WTP) survey to evaluate the non-use benefits of its proposed Phase III Cooling Water Intake Structures rule does not represent the views of any particular affected party or special interest group, but is designed to evaluate the effect of the Agency's proposals on overall consumer welfare.

## **I. Introduction**

EPA has issued two regulations governing impacts from cooling water intake structures at (1) new facilities, and (2) large power producers. It is in the process of developing a third regulation governing "Phase III" facilities.<sup>2</sup> In the Phase II regulation, issued in July 2004 (69 FR 41576), EPA suggested that "non-use" values attributable to reducing

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<sup>1</sup> Prepared by Susan Dudley, Director, and Daniel Simmons, Research Fellow, Regulatory Studies Program, Mercatus Center at George Mason University. This comment is one in a series of Public Interest Comments from Mercatus Center's Regulatory Studies Program and does not represent an official position of George Mason University.

<sup>2</sup> According to EPA's Federal Register notice, "The facilities considered Phase III facilities under Clean Water Act section 316(b) regulations include existing electrical generators with cooling water intake structures that are designed to withdraw 50 million gallons of water per day or less, as well as existing manufacturing and industrial facilities with cooling water intake structures, that withdraw water from rivers, streams, lakes, reservoirs, estuaries, oceans, or other waters of the United States for cooling purposes. The regulation also establishes section 316(b) requirements for new offshore oil and gas extraction facilities." 69 FR 68141.

the impingement and entrainment of fish at cooling water intake structures are significant,<sup>3</sup> but with available data and methods it was unable to quantify those values.<sup>4</sup> The Phase II rule expressed concern that “ignoring non-use values could result in serious misallocation of resources.”<sup>5</sup>

In response to this concern, EPA would like to gather data on the non-use benefits of protecting fish from being impinged or entrained in cooling water intake structures. The current notice states:

Developing comprehensive quantified benefit estimates for the section 316(b) regulation requires consideration of non-use values because nearly all (96 percent) of impingement and entrainment losses at CWIS [cooling water intake structures] consist of either forage species, or non-landed recreational and commercial species that do not have direct uses or, as a result, direct use values.<sup>6</sup>

Therefore, EPA proposes to develop and conduct a stated preference survey to measure non-use benefits of reduced fish losses at Phase III cooling water intake structures due to proposed new regulations. The current notice proposes to conduct a series of focus groups to assist in the design of this stated preference survey.

As required by the Paperwork Reduction Act,<sup>7</sup> EPA solicits comment to:

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<sup>3</sup> In the Phase II Final Rule, EPA stated, “It is clear that reducing impingement and entrainment losses of fish and shellfish may result in both use and non-use benefits. Of the organisms which are anticipated to be protected by the section 316(b) Phase II rule, it is projected that approximately 1.8 percent will eventually be harvested by commercial and recreational fishers and therefore can be valued with direct use valuation techniques. The Agency’s direct use valuation does not account for the benefits from the remaining 98.2% of the age 1 equivalent aquatic organisms estimated to be protected nationally under today’s rule.” 69 FR 41660–41661. While EPA did not develop estimates of non-use values in the Phase II Final Rule, it did produce estimates in a Notice of Data Availability (NODA) (68 FR 13522) for the Proposed Rule. The problem with the non-use estimates EPA produce in the NODA is that they were implausibly large (EPA’s estimates of the nonuse value of fish were 54 to 100 times greater than their commercial value). See: Daniel R. Simmons & Susan Dudley, *The Environmental Protection Agency’s “Proposed National Pollutant Discharge Elimination System Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities”* 6, Mercatus Center, available at <http://www.mercatus.org/pdf/materials/329.pdf>.

<sup>4</sup> EPA states in the Final Phase II Rule that, “EPA has determined that none of the methods it considered for assessing non-use benefits provided results that were appropriate to include in this final rule, and has thus decided to rely on a qualitative discussion of non-use benefits. The uncertainties and methodological issues raised in the approaches considered could not be resolved in time for inclusion in the rule. 69 FR 41625.

<sup>5</sup> 69 FR 41660.

<sup>6</sup> 69 FR 68141.

<sup>7</sup> 44 U.S.C. 3501 *et seq.*

- Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Agency, including whether the information will have practical utility; and
- Enhance the quality, utility, and clarity of the information to be collected.<sup>8</sup>

This comment addresses these two issues. Section II examines the role of non-use values in public policy, whether the proposed focus groups and subsequent survey are necessary for the proper performance of EPA's Phase III regulatory analysis, and whether the resulting information will have practical utility. Section III suggests alternative approaches to enhance the quality, utility, and clarity of the information to be collected.

## **II. Is the information collection necessary, and will it have practical utility?**

Non-use values derive from the mere knowledge of the existence of something, like the Grand Canyon, the Costa Rican rain forest or the Alaskan wilderness. Some economists view non-use values as a form of externality that must be addressed by government action,<sup>9</sup> and EPA's notice accepts that notion. The notice states:

As required under executive Order 12866, EPA performs economic impact and cost/benefit analyses of the section 316(b) regulation for Phase III facilities. Comprehensive, appropriate estimates of total resource value include both use and non-use values, such that the resulting total social benefit estimates may be compared to total social cost.<sup>10</sup>

Though generally discussed in the context of environmental amenities, non-use values exist for innumerable things. Some individuals may gain non-use values from the knowledge that forage fish are not caught in cooling water intakes, however, others may derive non-use values from the knowledge that low-income consumers can purchase goods at lower cost in the absence of additional cooling water intake regulation. In other words, many people express hypothetical gains and losses of subjective utility that do not correspond to market values, and EPA has not justified that it is only on the benefit side of the equation that those subjective values are not captured.

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<sup>8</sup> 69 FR 68142. EPA also solicits comment on the accuracy of its estimates of the burden of the proposed information collection request and ways to minimize that burden.

<sup>9</sup> University of Southern California's "National Ocean Economics Project" provides information and links to research on non-market values of environmental amenities. <http://ahf331b.usc.edu/nonmarket.html>. Last accessed 4/4/03.

<sup>10</sup> Environmental Protection Agency, *Agency Information Collection Activities: Proposed Collection; Comment Request; Willingness to Pay Survey: Phase III Cooling Water Intake Structures*, EPA ICP Number 2155.01, 69 Fed. Reg. 68140, 68141 (Nov. 23, 2004).

Monetary values assigned (by standard methods) to benefits and costs are summary statistics that presumably reflect people’s preferences about the underlying real resources. If, on the benefits side, EPA is going to do a survey to find out how people “really feel” about the underlying real resources, then it must do the same thing for the real resources on the cost side. Would the rule make electricity production less energy efficient? How do people feel about that? Are we extracting more material—coal, or cement—from mines in order to comply with these regulations? Do people have nonuse values related to mining? Are we using up more depleteable resources in order to save resources (fish) that are easily renewable? Or are we causing more intensive use of hydroelectric plants, thus killing more fish than we are saving?

Once EPA starts “correcting” market prices, it quickly becomes clear that there is far more work to do on the y-axis (“all other goods”) than on the x-axis (“fish”). EPA has made no effort to justify its implicit presumption that nonuse values are more important on one axis than on any other. By pursuing only one (the nonuse values of fish) EPA risks the appearance of intentionally biasing its results.

**A. The proposed survey is not necessary for the proper performance of the functions of the Agency.**

The proposed survey does not appear to be necessary for EPA to estimate the benefits of a proposed Phase III cooling water intake rule for two reasons. First, Executive Order 12866 does not require that EPA quantify non-use benefits, and second, EPA has not justified the assertion that non-use benefits exceed non-use costs, or indeed, that non-use benefits are greater than zero.

EPA supports the need to quantify non-use values by referring to Executive Order 12866, but the order does not require the *quantification* of costs and benefits. Rather, it requires the *assessment* of the costs and benefits of an intended regulation:

Each agency shall assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.<sup>11</sup> When market data are unavailable, Circular A-4, governing “Regulatory Analysis,” cautiously endorses the use of the stated preference surveys, but expresses concerns about the hypothetical nature of these methods, noting “a stated-preference study may be the only way to obtain quantitative information about non-use values, though a number based on a poor quality study is not necessarily superior to no number at all.”<sup>12</sup>

EPA argues it must measure “non-use values because nearly all (96 percent) of impingement and entrainment losses at CWIS consist of either forage species, or non-

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<sup>11</sup> Executive Order 12866, Regulatory Planning and Review (October 4, 1993).

<sup>12</sup> Circular A-4, “Regulatory Analysis” (September 17, 2003).

landed recreational and commercial species that do not have direct uses or, as a result, direct use values.” (69 FR 68141) What EPA means by “non-landed recreational and commercial species” is unclear. We assume this means individual members of a commercial or recreational species that are not caught. Certainly, though, a reduction in numbers will affect the number of fish available to be caught (if not immediately, then within a few years), and thus represent a use value. Similarly, a reduction in forage species translates into a reduction in commercial and recreational fish.

In both cases, the values of protecting fish from impingement and entrainment are actually indirect use values, not non-use values. In its final Phase II rule, EPA recognized this, yet it suggests there are additional, large, non-use values:

A portion of the total benefits of these unharvested commercial, recreational, and forage species, can be derived indirectly from the estimated use values of the harvested animals. A percentage of these unlanded organisms become prey or serve as breeding stock in the production of those commercial and recreational species that will eventually be caught, therefore their indirect use value as biological input into the production process is represented in the estimated direct use values of the harvested fish.<sup>13</sup>

The second category includes benefits that are independent of any current or anticipated use of the resource; these are known as “non-use” or “passive use” values. Non-use benefits reflect human values associated with existence and bequest motives.<sup>14</sup>

While Americans likely hold existence and bequest values for unique resources, like the Grand Canyon, it strikes us as unrealistic to think that individuals would give up any income or other use value in exchange for the mere knowledge that a larger population of common fish exist. EPA does not suggest in any of these related rulemakings that the fish in question are either a unique or diminishing resource.

More practically, ensuring that survey respondents can distinguish between the indirect use values associated with the fish as part of an ecosystem from true non-use value, would be virtually impossible. Given the theoretical and empirical problems with addressing non-use values, and the questionable merit of doing so, EPA should focus its analytical efforts on measuring the benefits of the actual use values.<sup>15</sup>

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<sup>13</sup> 69 Fed. Reg. 41661.

<sup>14</sup> 69 Fed. Reg. 41657.

<sup>15</sup> EPA’s estimates of use values in the Phase II rule may already overstate benefits. It estimated the rule would save \$389 million worth of a fish a year. That is 12 percent of the total value of all of the fish commercially landed in the U.S. in 2001 (\$3.3 billion), which strikes us as unrealistic.

**B. Information provided by the focus groups and survey will not have practical value.**

Even if some Americans do place non-zero values on the common fish in question, a survey cannot reliably ascertain those values. An article by Boudreaux, Meiners and Zywicki argues that stated preference surveys “are inconsistent with the fundamental principles of economic choice under conditions of scarcity and budget constraints and rest on a superficial understanding of the role played by dollar prices in a dynamic economy.”<sup>16</sup>

Values emerge, not as conscious, intentional decisions, but as the unintended and undesigned results of market activity. People do not have a single value for an environmental amenity (or even a predetermined schedule of values), but rather values that emerge when people actually make choices where they face a real opportunity cost. As a result, stated market values are simply not acceptable surrogates for market prices.

Kahneman, Ritov, and Schkade have also examined survey methods and results to understand what stated preferences actually express.<sup>17</sup> They find that willingness to pay estimates derived from stated preference (contingent valuation or CV) studies, though denominated in dollars, “are better viewed as expressions of attitudes than as indications of economic preferences,” and that “the anomalies of CV are inevitable manifestations of known characteristics of attitudes and attitude expressions.”<sup>18</sup> They find that stated preferences derived from CV studies are analogous to juries’ punitive damage awards, and are not consistent with economists’ rational models.

Kahneman *et al* and Boudreaux *et al*, through very different paths, reach the conclusion that stated preferences divorced from any expectation of actually having to pay the stated values, are not accurate proxies for revealed economic preferences. The similarities Kahneman *et al* find between jurors and CV respondents suggests that, like jurors determining civil damage awards, CV respondents view the values they assign as imposing costs on someone other than themselves. They know they will never have to pay the values they profess to place on different amenities. Thus, these responses do not comply with the key concept of opportunity cost articulated in Circular A-4—they do not “measure what individuals are willing to forgo to enjoy a particular benefit.”

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<sup>16</sup> Donald J. Boudreaux, Roger E. Meiners, & Todd J. Zywicki, *Talk is Cheap: The Existence Value Fallacy*, 29 *Envtl. L.* 765, 776 (1999).

<sup>17</sup> Daniel Kahneman, Ilana Ritov, and David Schkade, “Economic Preferences or Attitude Expressions?: An Analysis of Dollar Responses to Public Issues,” in *Journal of Risk and Uncertainty*, 19:1-3; 203-235 (1999).

<sup>18</sup> *Id.* at 204.

### **III. How can EPA enhance the quality, utility, and clarity of the information to be collected?**

EPA asks for comment on how to enhance the quality, utility, and clarity of the information to be collected. First, EPA should recognize that individuals will be unable to isolate pure non-use values from the ecosystem health values that are measurable directly, and that the indirect use values likely capture the full value of the resource to Americans. Second, if EPA does justify the need to measure separate existence and bequest values, we offer a superior method for doing so.

#### **A. EPA should examine whether the values in question are actually non-use values.**

As noted above, EPA has not made the case that the values with which it is concerned (reduced damage to forage species and non-landed recreational and commercial fish) are indeed “non-use” values. Rather, it appears that reducing impingement and entrainment losses at cooling water intake structures translates readily into increased populations of commercial and recreational species, which have directly-measured use values. Before contemplating a survey of individuals’ willingness to pay for undefined non-use values, EPA must demonstrate that respondents understand the difference between values associated with continued fish population and ecosystem health and pure non-use values for bequest and existence. We highly doubt this is possible, as discussed above.

#### **B. Experimental economics may offer a superior method for studying non-use values.**

If EPA can justify the existence of non-use values as a result of cooling water intake regulations, a revealed preference approach would provide superior measurements.

Circular A-4 guides agencies:

Other things equal, you should prefer revealed preference data over stated preference data because revealed preference data are based on actual decisions, where market participants enjoy or suffer the consequences of their decisions. This is not generally the case for respondents in stated preference surveys, where respondents may not have sufficient incentives to offer thoughtful responses that are more consistent with their preferences or may be inclined to bias their responses for one reason or another.

Boudreaux *et. al.* point out,

In market transactions, we can assume that all individual trades increase individual utility, because the occurrence of the trade itself suggests that the individual values the good received more highly than the good surrendered. Thus, it is only through the process of actual exchange of one good for another that we can know for sure that an individual values

one option over another... Divorced from the discipline of making actual choices, the hypothetical choices presented by contingent valuation have little value. (p. 785)

As some scholars have noted, “As a matter of logic, if you do not have to pay for the good but a higher *verbal* willingness to pay response increases the chance of it’s provision, then verbalize away to increase your expected utility!”<sup>19</sup>

Experimental economics may offer a method for revealing individuals’ true willingness to pay for “non-use” items. Experimental economics is the application of the laboratory method to test the validity of various economic theories and to test bed new market mechanisms. Using cash-motivated students, economic experiments create real-world incentives that can help understand how people make trade offs and value different amenities.

Faculty in the Economics Department at George Mason University are at the forefront of experimental research.<sup>20</sup> Rather than investing in a stated preference survey, for which the results will be questionable, EPA should investigate the viability of using experimental economics to measure non-marketed goods.

#### **IV. Conclusion and Recommendation**

In its Phase II regulation, EPA initially estimated that the non-use values associated with avoided damage to forage and non-landed commercial and recreational fish, were 54 to 100 times greater than the commercial value.<sup>21</sup> It was forced to abandon those estimates because the methods used to derive them were inadequate, but is convinced that non-use values are a significant portion of the benefit associated with cooling water intake structure regulations.

EPA’s current notice would attempt to gather information through surveys to quantify those non-use benefits. However, the proposed information collection request does not meet the requirements of the Paperwork Reduction Act. First, it is not necessary for the proper performance of the functions of the Agency. Executive Order 12866 does not require agencies to quantify all costs and benefits. Moreover, EPA has not articulated why one would expect Americans to hold non-use values that are additional to, and

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<sup>19</sup> Harrison, G. W., and E. E. Rutström. forthcoming. “Experimental Evidence on the Existence of Hypothetical Bias in Value Elicitation Methods.” In *Handbook of Results in Experimental Economics*. ed. C. Plott, and V. L. Smith. New York: Elsevier Science., quoted in Murphy J.J., and Stevens T.H., “Contingent Valuation, Hypothetical Bias and Experimental Economics, available at <http://www.umass.edu/resec/faculty/murphy/papers/Halifax.pdf>.

<sup>20</sup> Professor Vernon Smith won the Nobel prize in Economics for his contributions in 2002. For more information on experimental economics, visit <http://www.ices-gmu.net/>.

<sup>21</sup> Daniel R. Simmons & Susan Dudley, *The Environmental Protection Agency’s “Proposed National Pollutant Discharge Elimination System Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities”* 6, Mercatus Center, available at <http://www.mercatus.org/pdf/materials/329.pdf>.

separate from, the indirect use values of protecting fish from impingement and entrainment (i.e., maintenance of the fish population).

Second, information from a stated preference survey will not likely have practical utility. People do not have a single value even for well-understood environmental amenities, but rather values are determined based on opportunity costs (the next best alternative not chosen). When the good in question is not a unique resource or a known environmental good, but rather the forage fish in question here, the valuation becomes much more suspect, and simply cannot be deduced through survey questions.

EPA has not demonstrated that it is in society's interests to pursue government policies that would divert society's scarce resources to address hypothetical non-use values associated with the fish in question. However, if it is able to justify including measures of non-use values, they should not be based on subjective, stated preferences surveys.

To ensure the quality, utility, and clarity of the information to be collected, as required by the Paperwork Reduction Act, EPA should investigate revealed-preference approaches to estimating these values. Experimental economics offers an alternative method for revealing individuals' true willingness to pay for "non-use" items.

**APPENDIX I**  
**RSP CHECKLIST**

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	<p>Non-use values must be quantified because 96 percent of fish damage at cooling water intake structures have no direct use.</p> <p>Grade: F</p>	<p>EPA presents no evidence that the non-use values in question are, on net, greater than zero (particularly when one takes into account non-use costs). Furthermore, the proposed use of a survey instrument to measure non-use values for a non-unique and renewable resource displays a lack of understanding of market processes and individual preferences.</p>
2. Has the agency identified an appropriate federal role?	<p>The regulations for which the information will be collected are authorized by the Clean Water Act.</p> <p>Grade: C</p>	<p>There may or may not be a federal role for the valuation of non-use values for fish. These subjective values change from person to person and may change from one state to another and from one region to another in each state.</p>
3. Has the agency examined alternative approaches?	<p>EPA requests comment on one proposed approach—a stated preference survey. In earlier rules, it attempted alternative approaches.</p> <p>Grade: D</p>	<p>EPA should consider basing benefit estimates on direct and indirect use values. If it can justify estimating non-use values, it should consider revealed-preference alternatives, including experimental economics approaches to estimating them.</p>

Element	Agency Approach	RSP Comments
4. Does the agency attempt to maximize net benefits?	EPA requests comment on how to enhance the quality of, and minimize the burden of the information collection.  Grade: F	The premise of the information collection appears to be that people assign a substantial existence value on non-unique, non-endangered fish. Yet, it has not considered potential non-use costs, such as the existence value people get from knowing that power rates for low-income families will not rise as a result of this rule. Without a consideration of non-use cost, EPA cannot maximize net benefits.
5. Does the proposal have a strong scientific or technical basis?	Grade: F	EPA has presented no scientific or technical support for the presumption that non-use values are greater than zero.
6. Are distributional effects clearly understood?	NA	
7. Are individual choices and property impacts understood?	The proposal would elicit subjective data on values intended to supersede individuals' revealed values and tradeoffs.  Grade: F	EPA's proposal reveals a misunderstanding of markets, individual choice, and property rights.