SUPPORTING STATEMENT
Estimating the Benefits of Improved Water Quality in the Chesapeake Bay
Focus Groups
November 21, 2011

(1) Title of the Information Collection

Estimating the Benefits of Improved Water Quality in the Chesapeake Bay

(2) Short Characterization/Abstract

On May 12, 2009 the President signed Executive Order 13508 calling for the protection and restoration of the Chesapeake Bay. In response to the Executive Order and other considerations the Environmental Protection Agency recently established Total Maximum Daily Loads (TMDLs) that are expected to improve water quality in the Chesapeake Bay by reducing nitrogen, phosphorus, and sediment. While efforts have been underway to restore the Bay for more than 25 years, and significant progress has been made over that period, these TMDLs are necessary to continue progress toward the goal of a healthy Bay. The Chesapeake Bay watershed encompasses 64,000 square miles in parts of six states and the District of Columbia and a multitude of benefits can be anticipated to arise from restoring the Chesapeake.

Benefits from the TMDL for the Chesapeake Bay will accrue to those who live, or recreate, on or near the Bay and its tributaries, as well as to those who live further away and may never visit the Bay but have a general concern for the environment. The latter category of benefits is typically called "non-use values" and estimating the monetary value can only be achieved through a stated preference survey. This is a key reason for pursing this approach.

In addition, a stated preference survey is able to estimate "use values," those benefits that accrue to individuals who choose to live on or near the Bay or recreate in the watershed. Stated preference surveys allow the analyst to define a specific object of choice or suite of choices such that benefits are defined in as precise a manner as feasible. While use benefits can be estimated through other revealed preference methods, the stated preference survey allows for careful specification of the choice scenarios and can serve as a useful validity check on estimates from other methods. In addition, stated preference methods allow us to measure use-values associated with recreational or other activities that we may not have information on, and therefore cannot analyze through revealed preference approaches. Stated preference methods also allow us to estimate welfare impacts for changes in water quality that might not be observed in the revealed preference data. The goal of the current project is to develop a questionnaire (i.e., survey instrument) that will elicit individuals' willingness to pay (WTP) for the benefits associated with measures to improve water quality in the Chesapeake Bay. These benefits may extend beyond those activities associated directly

with the Bay itself, and include non-use values and enhanced recreational activities such as angling, wildlife viewing, and other outdoor activities. While our focus is in estimating the benefits of the TMDL in water quality improvements in the Bay, the survey instrument may be potentially applicable to other environmental contexts.

This Supporting Statement provides background material for a request to conduct 14 focus groups and 20 one-on-one interviews. The results from these activities will inform the design of a survey instrument. This exercise will <u>not</u> produce results that can be statistically analyzed to estimate willingness to pay for any group or set of individuals. It will produce, based on the results of these focus groups and tests, an instrument for a full-scale stated preference survey. However, implementing such a survey is beyond the scope of this ICR; any request for implementing that survey will be done in a separate ICR.

An initial sample questionnaire is attached, and additional materials for subsequent focus groups and individual interviews will be developed based on initial responses.

(3) Need for the Collection

The goal of this study is to improve EPA's ability to characterize the benefits of improving water quality in the Chesapeake Bay.   To date, the Agency and other analysts have not been able to include many types of benefits in a comprehensive economic assessment of the Chesapeake Bay. However, given that there are costs to achieving these improvements, quantitative assessment of benefits is important in order to provide an economic perspective on the relative merits of these investments.

These focus groups and one-on-one interviews are an important step in determining how to frame questions and design a survey instrument that can capture these values in a manner consistent with benefit-cost analysis. Specifically, the collection proposed under the generic ICR will help establish a viable survey instrument, which will later be used (under a separate ICR) to elicit and estimate the values people place on an array of benefits, and do so in ways consistent with micro-economic theory and benefit-cost analysis. While these benefits have long been recognized in principle, they have not been quantitatively assessed in such a comprehensive manner.

(4) Non-duplication
To the best of our knowledge this study is unique and does not duplicate other efforts. It is the first stated preference survey of the Chesapeake Bay that will estimate use and non-use benefits associated with multiple endpoints of interest. This approach is endorsed by a scoping study conducted by Cropper and Isaac (2011) that strongly supports the use of a stated preference survey, particularly for estimating non-use values.

While this study is unique, there are a number of relevant publications and studies that can provide insights into the design of the stated preference survey.   There have been two studies that have attempted to directly estimate non-use values for improvements in the Chesapeake Bay water quality. Bockstael, McConnell and Strand (1989) survey households in the Baltimore-Washington area and estimated WTP to improve water quality to a level suitable for swimming. Responses from non-users were taken to be an estimate of non-use values, which were approximately 28% of the total estimate. Hicks, Haab, and Lipton (2004) used a mail survey to estimate WTP to restore oyster beds and provide a suggestive estimate of potential non-use benefits for this type of benefit. Neither of these studies can support applied analysis of the benefits of water quality improvements expected from the recent TMDLs. The nature of the water quality improvements in these surveys are more limited than what is expected from the TMDL.

There have been some stated preference studies specifically analyzing use values for the Chesapeake Bay. Lipton (2004) conducts a small survey to estimate benefits to boaters in the Bay due to improved water quality. And, Kahn and Kemp (1985) use a bioeconomic model to estimate a marginal damage function for reductions in submerged aquatic vegetation in the Bay.   Morgan and Owens (2001) use benefits transfer to estimate the annual benefits for boating, fishing and swimming due to improvements in water quality in the Bay from the Clean Water Act. The proposed stated preference study adds to this literature because respondents will be more representative of the general population (i.e., not just boaters), and will value a more comprehensive set of endpoints relevant to the Bay.

Studies in other locales, such as Johnston, et al. (2002), provide some information on the potential non-use benefits of large water bodies, and some researchers suggest using these in a meta-analysis to estimate non-use benefits (e.g., Van Houtven 2009). Although Van Houtven (2007) cautions against using meta-analysis, in general, due to the heterogeneity in the commodities used across studies.   Phanuef, et al. (2011) are in the process of conducting a study of nutrient reduction benefits in lakes in North Carolina using stated and revealed methods. Viscusi, et al (2008) conduct a national survey to estimate benefits of improved water quality in lakes and rivers. While these studies provide useful insights for the design of a Bay stated preference study, the water bodies are either general in nature or very different from the Chesapeake Bay and the results would not reflect any Bay-specific attributes.

(5) Consultations

This is a new collection so no periodic consultations have been conducted related to this effort.

This collection, or perhaps more likely, a potential survey instrument based on the results from these focus groups, may be of interest to other Federal, State, and Local Agencies that regulate water quality, as well as to the Office of Management and

Budget. Further, the collection may be of interest to non-profit and other groups with an active interest in the Chesapeake Bay and its surrounding environment.   NCEE will make a concerted effort to keep interested parties informed of progress as the survey instrument is developed, and will ensure that these parties are informed of any survey implementation.

(6) Peer Review Plans

Interim products such as focus group scripts and draft survey questions developed during this project will be subject to routine internal review by the EPA staff. The final product from these focus group efforts is a survey instrument to elicit respondents' willingness-to-pay for changes in water quality, in particularly quality of the Chesapeake Bay and related benefits. A report summarizing the main findings from the focus groups and one-on-one interviews will accompany the survey draft. External peer review is beyond the scope of this initial effort, but both the survey instrument and focus group report will be reviewed prior to any comprehensive field study.

(7) Confidentiality

The survey instrument will fully conform to federal regulations – specifically the Privacy Act of 1974 (5 U.S.C. 552a), the Hawkins-Stafford Amendments of 1988 (P.L 100-297), and the Computer Security Act of 1987. Each prospective respondent will be informed that their participation in the exercise is voluntary. The identities of the individuals will be kept confidential by the investigators and not associated with their responses in any report.

(8) Sensitive Questions

There are no questions included in the survey materials on sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private or sensitive in materials.

(9) Respondents

Respondents will be members of the general public volunteering to participate in focus groups and interviews. Participants will include both users and non-users of the Bay and will be recruited so as to provide adequate representation of the target population. See section 11 for more information on areas of focus.

(10) Collection Schedule

The project timeline depends on the results of the focus groups, as well as external constraints. Our expected timeline for the data collection is as follows. Please note that

these tasks may partially overlap, in particular, we allow for the possibility for some one-on-one interviews to be conducted prior to the completion of all the focus groups.

Task:	Expected Completion Date:
Contact potential respondents	Start 3 Weeks from ICR approval
Conduct Focus Groups	8 to 15 Weeks from ICR approval
One on one interviews with draft survey instrument	12 to 16 Weeks from ICR approval

(11) Respondent Burden

Participants for focus groups and individual interviews will consist of residents in several metropolitan areas within the Chesapeake Bay watershed, including Washington, D.C.; Annapolis, MD; Baltimore, MD; Salisbury, MD; Richmond, VA; Harrisburg, PA or similar locations. Respondents can also be recruited from more rural areas surrounding these locations. One purpose of the survey instrument to be developed under this ICR is to elicit non-use values, and therefore, some focus groups will also be held at locations outside of the watershed (e.g., Raleigh, NC), where participants are less likely to be users of the Bay. We plan to conduct a maximum of 14 two-hour voluntary focus groups of approximately 10 people each. The respondent burden for focus groups is 280 hours. We also plan to conduct 20 two-hour one-on-one interviews to test draft survey instruments. The respondent burden for interviews is 40 hours. The total burden under this ICR is therefore 320 hours.

In summary, the total burden for voluntary respondents consists of:
Focus groups: 14 groups * 10 people/group * 2 hrs per person = 280 hours.
One-one interviews: 20 people * 2 hours per person = 40 hours.

For a total burden of 320 hours.

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