

U.S .Environmental Protection Agency
Science Advisory Board (SAB)
Committee on Valuing the Protection of Ecological Systems and Services (C-VPES)
Summary Meeting Minutes of a Public Teleconference Meeting
12:30 p.m. - 2:30 p.m. (Eastern Time)
April 10, 2007

Committee: The SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPES). (See Roster - Attachment A)

Date and Time: April 10, 2007, 12:30 pm - 2:30 pm (Eastern Time) (see Federal Register Notice – Attachment B)

Location: Participation by Telephone Only

Purpose: The purpose of the teleconference is to discuss draft text developed by committee members for a draft report related to valuing the protection of ecological systems and services. (See Meeting Agenda - Attachment C)

Attendees: Members of the C-VPES:
Dr. Barton H. (Buzz) Thompson, Jr. (Chair)
Dr. Kathleen Segerson (Vice-Chair)
Dr. Gregory Biddinger
Dr. Terry Daniel
Dr. A. Myrick Freeman
Dr. Dennis Grossman
Dr. Robert Huggett
Dr. Harold Mooney
Dr. Paul Risser
Dr. Holmes Rolston
Dr. Paul Risser
Dr. Mark Sagoff
Dr. Paul Slovic

Consultant to the C-VPES
Dr. Joseph Arvai

EPA SAB Staff
Dr. Angela Nugent [Designated Federal Officer, DFO]

EPA Participants
Dr. Julie Hewitt, EPA Office of Water

Other Members of the public (see Attachment D)

Teleconference Summary:

The teleconference agenda (see Meeting Agenda - Attachment C) was adjusted because there were no written comments submitted to the SAB and no requests for public comment. Dr. Julie Hewitt joined the call after initial committee discussion of national rulemaking.

The DFO opened the meeting by noting that the proceedings conformed to the requirements of the Federal Advisory Committee Act.

Dr. Buzz Thompson, chair of the committee, expressed appreciation for members' commitment in participating in six public teleconferences in preparation for the May 1-2, 2007 face-to-face meeting.

He emphasized the importance of the April 12th deadline for revising all parts of the text discussed in teleconferences prior to April 10th. He asked members with lead responsibility for revising text to contact the DFO if they foresee a delay in providing assigned materials and thanked them in advance for providing material on short deadlines. For authors of materials discussed at the April 10th teleconference, the due date for revised material is April 17th. Dr. Nugent informed the committee that the SAB Staff Office intends to send revised hard copy of the full text to members by Federal Express either on April 20th or April 23rd.

Economic Valuation for National Rulemaking (Part 2, Section 5), pp. 81-108

Dr. A. Myrick Freeman began the discussion by summarizing the written comments received from committee members (Attachment E). One comment called for a discussion of how the Agency should address valuation for "low probability, high cost" events. Dr. Thompson suggested that the CAFO discussion might note the issue but the report might best incorporate discussion of this topic in Part 2 Section 8.1, on Uncertainty because the comment raises a broad issue..

Dr. Harold Mooney committed to addressing the comments requesting an expanded description of "conceptual modeling." Dr. Mooney also noted that the flow of ideas in 5.2.2 needed work because Part 2, Section 3 had excerpted some discussion of conceptual models and functional groups. He noted that figure 3 was intended to convey in the second column of boxes that metrics can be used at different levels to quantify services that are not monetizable. He committed to revising the diagram and developing supporting text that provides specificity concerning how to provide biophysical quantification where monetized values are unclear.

The committee then discussed whether OMB's Circular A-4 would permit valuation other than economic analysis and quantification in biophysical form. Biophysical units are appropriate for cost-benefit analysis because they are a foundation of economic benefit analysis (i.e., they provide "the Q needed to multiple the P by" and "knowing the Q is better than knowing nothing about effects of Agency actions"). Dr. Freeman noted that other valuation methods are based on different premises about values; have different concepts of what values mean and where they come from; and have different assumptions about individuals and behavior.

A member asked whether, because no valuation method is perfect or gives complete results, other valuation results could be reported in parallel for decision makers,

even if they “can’t be all combined in a regulatory impact analysis.” Dr. Freeman spoke of the risk of endorsing the use of multiple methods even in this context. Any analysis must have careful qualification and avoid the dangers of “amalgamating values” derived from different methods. Any use of multiple methods must also avoid double counting. Other members of the committee agreed.

The Chair noted that the committee agreed that benefit analyses for regulatory impact analyses should include economic analysis and biophysical information related to rulemaking options. Other kinds of valuation information to assist decision makers need to be presented clearly to prevent confusion about commensurability and double counting. Assuming that one is very careful, additional valuation information can be of importance to decision-makers. He suggested that the committee not speculate on OMB’s reaction to such advice from the committee.

Dr. Julie Hewitt from EPA’s Office of Water provided comment on the draft text. She provided oral comments and committed to providing a written summary to be included in the minutes (Attachment F). Committee members then discussed points related to her comment. One member asked that page 99, lines 13-14 be revised to refer generally to extramural grants activity focused on methods development, not just STAR grants. The Chair asked Dr. Hewitt about the usefulness of advice in the report. Dr. Hewitt responded that the report is “not a silver bullet” but is helpful. Some points of advice are practical; other points of advice may not fit seamlessly into the Agency’s existing processes. She stated that it is helpful to have an outside group help the Agency “think outside the box.” The group briefly discussed an April 5 article in “Inside EPA,” entitled “Advisers Push New Approach For EPA To Assess Environmental Benefits.” The article emphasized language on page 26 of the draft report that referred to “a possible role for a standing expert body” for review. The Chair emphasized the importance of checking the next draft of the report for similar language that can be taken out of context.

Dr. Thompson asked the group to address Dr. Hewitt’s comment about the appropriate use of case studies and possible criteria for determining whether they are sufficiently representative to be used in a national rulemaking. Other members spoke of the regional or even local nature of ecological impacts, which may be geographically clustered, as they are in the Combined Animal Feeding Operations (CAFO) analysis. Dr. Nugent asked whether this issue also related to the issue of benefit transfer and transfer of ecological information. She also noted that Dr. Kerry Smith in past meetings had suggested that EPA conduct satellite analyses at the ecosystem level as sensitivity analyses that can be compared with national analyses.

Dr. Nugent also noted that Dr. Brian Heninger had provided comments that had been distributed to the committee (Attachment H). Dr. Freeman expressed appreciation for the comments.

Dr. Thompson concluded the discussion by noting that he would work with Dr. Segerson and the DFO to provide guidance for revisions for the next draft.

Uncertainty (Part 2, Section 8.1, 167-175)

Dr. Freeman opened the discussion by noting that he sees several areas in the draft text that he believes should be revised. With the exception of the comment pertaining to inclusion of a discussion of decision-making under uncertainty, he noted

that written comments received could be addressed. He expressed the view that the topic of decision-making is separate from the Committee's charge related to ecological valuation.

A committee member responded that the use of a particular kind of valuation must be considered within the context where it is to be used. He considered it useful to include a discussion of where and how valuation enters the decision-making process, without being prescriptive as to how EPA should do decision-making. He also noted that the issue of using multiple methods directly raises the issue of uncertainty and thought it would be "difficult to avoid acknowledging it." Another member suggested that this issue was covered in Sections 5, 6, and 7 of Part 2 (the context write-ups). The committee member suggested that there be a consolidated discussion of this point in a specific section of the document.

Dr. Thompson asked Dr. Freeman to revise the section on uncertainty without incorporating discussion of the relationship of valuation to decision-making and committed to working with Dr. Segerson and the DFO on an appropriate discussion of the issue in another section of the report.

Communication and Valuation (Part 2, Section 8.2, pp. 175-183)

The DFO noted that Dr. Ann Bostrom, the author of the section, was not available for the teleconference call. Dr. Bostrom had sent a proposed example of the kind of data that might be included in Table 9 (see Attachment E).

Dr. Thompson committed to following up with Dr. Bostrom to provide guidance on developing the table by April 17th and addressing the written comment received.

Discussion of Straw List of Topics for May 1-2, 2007 C-VPES Meeting

Dr. Thompson reviewed the straw list of topics and invited committee members' comment (Attachment H). Members generally approved the list. One member asked how unresolved conceptual issues regarding revisions to methods were to be addressed. Dr. Thompson asked members to notify the DFO if they see issues in the next draft that merit inclusion on the May agenda.

Dr. Thompson emphasized the importance of the May discussion of the advice/recommendations in the report. He asked the DFO to extract from across the whole report a consolidated list of advice that is inclusive. The list should provide annotations as to page and line. Dr. Nugent committed to sending this list before the meeting. The Chair asked members to be explicit in their revision about recommendations. Dr. Nugent noted that it is helpful to use expressions such as "The committee advises..." or "The committee recommends..." and avoid passive voice.

Conclusion of Teleconference

Dr. Thompson adjourned the meeting at 2:15 p.m. with thanks to participants.

Respectfully Submitted:

/s/

Angela Nugent
Designated Federal Official

Certified as True:

/s/

Dr. Barton H. (Buzz) Thompson, Jr.
Chair
SAB Committee on Valuing the
Protection of Ecological Systems
and Services

List of Attachments

Attachment A: Roster of the SAB C-VPES

Attachment B: Federal Register Notice

Attachment C: Meeting Agenda

Attachment D: Attendees from the Public Who Requested or Were Provided Call-in Information

Attachment E: Comments from Members and Consultants of the SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPES) on the 3/09/07 draft report for discussion at the 3/20/07 C-VPES public teleconference call

Attachment F: Comments from Dr. Julie Hewitt, EPA's Office of Water

Attachment G: Comments from Dr. Brian Heninger, EPA's National Center for Environmental Economics

Attachment H: Straw List of Topics for May 1-2, 2007 Meeting of the SAB Committee on Valuing the Protection of Ecological Systems and Services

**Attachment A:
Roster of the U.S. Environmental Protection Agency
Science Advisory Board
Committee on Valuing the Protection of Ecological Systems and
Services**

CHAIR

Dr. Barton H. (Buzz) Thompson, Jr., Robert E. Paradise Professor of Natural Resources Law, Stanford Law School, and Director, Woods Institute for the Environment, Stanford University, Stanford, CA

VICE-CHAIR

Dr. Kathleen Segerson, Professor, Department of Economics, University of Connecticut, Storrs, CT

MEMBERS

Dr. William Louis Ascher, Donald C. McKenna Professor of Government and Economics, Claremont McKenna College, Claremont, CA

Dr. Gregory Biddinger, Coordinator, Natural Land Management Programs, Toxicology and Environmental Sciences, ExxonMobil Biomedical Sciences, Inc, Houston, TX

Dr. Ann Bostrom, Associate Professor, School of Public Policy, Georgia Institute of Technology, Atlanta, GA

Dr. James Boyd, Senior Fellow, Director, Energy & Natural Resources Division, Resources for the Future, Washington, DC

Dr. Robert Costanza, Professor/Director, Gund Institute for Ecological Economics, School of Natural Resources, University of Vermont, Burlington, VT

Dr. Terry Daniel, Professor of Psychology and Natural Resources, Department of Psychology, Environmental Perception Laboratory, University of Arizona, Tucson, AZ

Dr. A. Myrick Freeman, William D. Shipman Professor of Economics Emeritus, Department of Economics, Bowdoin College, Brunswick, ME

Dr. Dennis Grossman, Principal Associate - Biodiversity Protection and Conservation Planning, Environmental and Natural Resources Department, Abt Associates Inc., Bethesda, MD

Dr. Geoffrey Heal, Paul Garrett Professor of Public Policy and Business Responsibility, Columbia Business School, Columbia University, New York, NY

Dr. Robert Huggett, Consultant and Professor Emeritus, College of William and Mary, Williamsburg, VA

Dr. Douglas E. MacLean, Professor, Department of Philosophy, University of North Carolina, Chapel Hill, NC

Dr. Harold Mooney, Paul S. Achilles Professor of Environmental Biology, Department of Biological Sciences, Stanford University, Stanford, CA

Dr. Louis F. Pitelka, Professor, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD

Dr. Stephen Polasky, Fesler-Lampert Professor of Ecological/Environmental Economics, Department of Applied Economics, University of Minnesota, St. Paul, MN

Dr. Paul G. Risser, Chair, University Research Cabinet, University of Oklahoma, Norman, OK

Dr. Holmes Rolston, University Distinguished Professor, Department of Philosophy, Colorado State University, Fort Collins, CO

Dr. Joan Roughgarden, Professor, Biological Sciences and Evolutionary Biology, Stanford University, Stanford, CA

Dr. Mark Sagoff, Senior Research Scholar, Institute for Philosophy and Public Policy, School of Public Affairs, University of Maryland, College Park, MD

Dr. Paul Slovic, Professor, Department of Psychology, Decision Research, Eugene, OR

Dr. V. Kerry Smith, W.P. Carey Professor of Economics, Department of Economics, W.P. Carey School of Business, Arizona State University, Tempe, AZ

CONSULTANTS TO THE COMMITTEE

Dr. Joseph Arvai, Professor, Environmental Science and Policy Program, and Department of Community, Agriculture, Resource and Recreation Studies (CARRS), Michigan State University, East Lansing, MI

Dr. Allyson Holbrook, Assistant Professor of Public Administration and Psychology, Survey Research Laboratory, University of Illinois at Chicago, Chicago, IL

Dr. Jon Krosnick, Frederic O. Glover Professor in Humanities and Social Sciences, Professor of Communication, Director, Methods of Analysis Program in the Social Sciences, Associate Director, Institute for Research in the Social Sciences, Stanford University, Palo Alto, CA

SCIENCE ADVISORY BOARD STAFF

Dr. Angela Nugent, Designated Federal Officer, 1200 Pennsylvania Avenue, NW
1400F, Washington, DC, Phone: 202-343-9981, Fax: 202-233-0643,
(nugent.angela@epa.gov)

Attachment B: Federal Register Notice

Science Advisory Board Staff Office; Notification of Six Public Teleconferences of the Science Advisory Board Committee on Valuing the Protection of Ecological Systems and Services

[Federal Register: December 28, 2006 (Volume 71, Number 249)]
[Notices]
[Page 78202-78203]

ENVIRONMENTAL PROTECTION AGENCY
[FRL-8262-8]

Science Advisory Board Staff Office; Notification of Six Public Teleconferences of the Science Advisory Board Committee on Valuing the Protection of Ecological Systems and Services

AGENCY: Environmental Protection Agency (EPA).
ACTION: Notice.

SUMMARY: The EPA Science Advisory Board (SAB) Staff Office announces six public teleconferences of the SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPES) to discuss components of a draft report related to valuing the protection of ecological systems and services.

DATES: The SAB will conduct six public teleconferences on February 5, 2007, February 13, 2007, February 27, 2007, March 6, 2007, March 20, 2007, and March 27, 2007. Each teleconference will begin at 12:30 p.m. and end at 2:30 p.m. (eastern standard time).

LOCATION: Telephone conference call only.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing to obtain general information concerning this public teleconference may contact Dr. Angela Nugent, Designated Federal Officer (DFO), via telephone at: (202) 343-9981 or e-mail at: nugent.angela@epa.gov. General information concerning the EPA Science Advisory Board can be found on the EPA Web site at: <http://www.epa.gov/sab>.

SUPPLEMENTARY INFORMATION: The SAB was established by 42 U.S.C. 4365 to provide independent scientific and technical advice, consultation, and recommendations to the EPA Administrator on the technical basis for Agency positions and regulations. The SAB is a Federal advisory committee chartered under the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C., App. The SAB will comply with the provisions of FACA and all appropriate SAB Staff Office procedural policies.

Background: Background on the SAB C-VPES and its charge was provided in 68 Fed. Reg. 11082 (March 7, 2003). The purpose of the teleconference is for the SAB C-VPES to discuss components of a draft advisory report calling for expanded and integrated approach for valuing the protection of ecological systems and services. The Committee will discuss draft assessments of methods for ecological valuation and application of those methods for valuing the protection of ecological systems and services.

These activities are related to the Committee's overall charge: to assess Agency needs and the state of the art and science of valuing protection of ecological systems and services and to identify key areas for improving knowledge, methodologies, practice, and research.

Availability of Meeting Materials: Agendas and materials in support of the teleconferences will be placed on the SAB Web Site at: <http://www.epa.gov/sab/> in advance of each teleconference.

Procedures for Providing Public Input: Interested members of the public may submit relevant written or oral information for the SAB to consider during the public teleconference and/or meeting.

Oral Statements: In general, individuals or groups requesting an oral presentation at a public SAB teleconference will be limited to three minutes per speaker, with no more than a total of one-half hour for all speakers. To be placed on the public speaker list, interested parties should contact Dr. Angela Nugent, DFO, in writing (preferably via e-mail) 5 business days in advance of each teleconference.

Written Statements: Written statements should be received in the SAB Staff Office 5 business days in advance of each teleconference above so that the information may be made available to the SAB for their consideration prior to each teleconference. Written statements should be supplied to the DFO in the following formats: One hard copy with original signature, and one electronic copy via e-mail (acceptable file format: Adobe Acrobat PDF, WordPerfect, MS Word, MS PowerPoint, or Rich Text files in IBM-PC/Windows 98/2000/XP format).

Accessibility: For information on access or services for individuals with disabilities, please contact Dr. Angela Nugent at (202) 343-9981 or nugent.angela@epa.gov. To request accommodation of a disability, please contact Dr. Nugent preferably at least ten days prior to the teleconference, to give EPA as much time as possible to process your request.

Dated: December 22, 2006.
Anthony Maciorowski,
Associate Director for Science, EPA Science Advisory Board Staff
Office.

Attachment C: Meeting Agenda

**EPA Science Advisory Board
Committee on Valuing the Protection of Ecological Systems and Services (C-VPES)
Public Teleconference
April 10, 2007, 12:30 p.m. - 2:30 p.m. Eastern Time**

Purpose: The purpose of the teleconference is to discuss draft text developed by committee members for a draft report related to valuing the protection of ecological systems and services.

12:30 – 12:35	Opening of Teleconference	Dr. Angela Nugent, Designated Federal Officer
12:35 – 12:40	Review of Agenda	Dr. Buzz Thompson, Chair Dr. Kathleen Segerson, Vice-Chair
12:40 – 12:50	Public Comments	TBA
12:50 – 1:00	Invited Agency comment on C-VPES draft text on “Valuation for National Rulemaking”	Dr. Julie Hewitt EPA Office of Water
1:00 – 1:40	Economic Valuation for National Rulemaking (Part 2, Section 5), pp. 81-108- Summary of written comments and response - Committee Discussion - Next Steps	Drs. A. Myrick Freeman and Harold Mooney Committee Dr. Buzz Thompson
1:40 – 2:05	Uncertainty (Part 2, Section 8.1, 167-175) Summary of written comments and response - Committee Discussion - Next Steps	Dr. A. Myrick Freeman Committee Dr. Buzz Thompson
1:05 – 2:15	Communication and Valuation (Part 2, Section 8.2, pp. 175-183)- Summary of written comments and response - Committee Discussion - Next Steps	Committee Dr. Buzz Thompson
2:15 – 2:30	Discussion of Straw List of Topics for May 1-2, 2007 C-VPES Meeting	Committee
2:25 – 2:30	Summary and Next Steps	Dr. Buzz Thompson

Attachment D: Attendees from the Public Who Requested or Were Provided Call-in Information

Mary Jane Calvey

Pat Casano

Nancy Beck

Jim Christman

Patrick Frey

Pieter Booth

Paul Hendley

Traci Iott

Darrell Osterhoudt

Jean Public

Matt Shipman

**Attachment E: Compilation of Comments from Members and Consultants
of the C-VPES**

Comments from Members and Consultants of the SAB Committee on Valuing the Protection of Ecological Systems and Services (C-VPES) on the 3/09/07 draft report for discussion at the 4/10/07 C-VPES public teleconference call.

Comments received as of 8:30 a.m. Tuesday, April 10, 2007.

Comments Received

.....	10
A. Economic Valuation for National Rulemaking (Part 2, Section 5), pp. 81-108.....	14
Comments from Bill Ascher	14
Comments from Ann Bostrom.....	14
Comments from Terry Daniel.....	15
B. Uncertainty (Part 2, Section 8.1, 167-175) Summary of written comments and response.....	17
Comment from Terry Daniel	17
C. Communication and Valuation (Part 2, Section 8.2, pp. 175-183)	19
Comment from Ann Bostrom	19
Comment from Terry Daniel	20

A. Economic Valuation for National Rulemaking (Part 2, Section 5), pp. 81-108

Comments from Bill Ascher

A general comment about what this very cogent section does not directly address: In addition to all the correct admonitions to include ecological/biophysical models, and all the caveats about how difficult this all is, should there be a discussion of how to handle the (perhaps) low but nontrivial probability that really nasty pathogens would be released by CAFOs and/or aquaculture operations, and these probabilities ought to be represented in the analyses? This is a very tough problem for analysis, because low-probability, high-cost outcomes are difficult to assess in terms of both estimating the probabilities and valuing the outcomes; therefore they are often simply left out of the analysis. No wonder the CAFO and aquaculture bca's seem so weak in terms of justifying the rules.

Comments from Ann Bostrom

This section is well organized, covers important ground, provides a good overview of the role valuation plays and could play in national rulemaking, and makes many good suggestions. In the current version, it's a little hard to read the section because of all of Kathy's questions (which look like good questions to me). Is there a more recent version that incorporates those responses? If so, these comments may be moot.

Conceptual model: Repeating or elaborating here a little of the detail provided on the conceptual model in Part I section 3 would be useful (or at least provide specific page references).

Both in this section and section 3 ultimately appear to rely on a stakeholder-inclusive, iterative modeling process at the outset, to create a credible and useful conceptual model as a starting point. While section 3 identifies “valuation” as the endpoint for such models, ultimately such models are used to evaluate changes and potential interventions/remediations in ecological systems. It would probably help the reader if the section characterized this conceptual modeling phase a little more concretely – either by reference to the mediated modeling section, or by further description of and reference to the CAFO sample model, for example. There are not only questions of the scale and scope of such models, but of how they should be specified, represented, and used (just for the analytical blueprint? Or in other ways as well?). Doesn't the model have to in some form or other represent (ecological/biophysical) causal processes?

Section 3 emphasizes that there is a disconnect between ecological modeling and social valuation processes, in that ecological endpoints specified in ecological models often don't align well with socially valued endpoints. Here there is a hint of ‘blame the public for ignorance’ instead (e.g., lines 11-23 on page 88). With a little editing, this section would convey more of the context portrayed in section 3.

Page 89 – Perhaps the Biodiversity Recovery Plan or later documents from the Chicago Wilderness could provide some good examples for a table like Table 4.

Page 89 Lines 13-14 – could expert judgment (or some explicit expert elicitation process) be referenced rather than justification from a conceptual model or the literature?

Page 93 lines 14-15 – Could the same be said for many economic valuations - that they are based on quite different methods and assumptions, and sometimes even different underlying premises? [e.g., about how people respond to information]. Can the report say something more specific about amalgamating values, rather than that it shouldn't be done unless they are from economic valuation studies?

Page 93-94 – while this is a good starting point, it may not go far enough. Saying total monetized benefits without including at least a qualitative assessment of the relative importance of benefits that are not quantified or monetized may still lead to overlooking non-monetized benefits.

Comments from Terry Daniel

As the title proclaims and the introduction strongly reinforces, this section is contrary to the broad definition of value and value assessment that has been followed in the rest of the C-VPSS report and to the multi-method approach that we have been advocating for assessments of values of the protection of ecosystems/services. The initial commitment to benefit cost analysis demands monetary valuations (of a particular kind) and precludes the possibility of contributions to national rule making from the majority of the methods discussed elsewhere in our report. This is quite a different approach from the site-specific and regional partnership cases discussed later, and it is at odds with much of the middle portions of the national rule making section itself. While the other case example sections have emphasized how multiple

methods can be productively applied, this section initially acknowledges that “Most of the environmental laws administered by the Agency require that regulations be defined by a set of criteria other than benefits and costs,” and then proceeds to narrow the field for national rule making to benefit cost analysis, relying on a strict and possibly overly narrow reading of Executive Order 12866 and OMB Circular A-4. It is not clear whether this simply reflects a preference on the part of the authors of the section, or if it is founded on some legally established constraint that is peculiar to the national rule making context.

Even the confines of Executive Order 12866 and the narrower prescriptions of Circular A-4 would seem to allow considerably larger roles for non-BCA, non-monetary value assessment methods. This might be clearer if the quote from Executive Order 12866 (P 81, L 18) were complete:

6) 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.

In addition, citations from other parts of the Order would further open the door for alternative methods. For example,

Section 6, C (i) An assessment, including the underlying analysis, of benefits anticipated from the regulatory action (such as, but not limited to, the promotion of the efficient functioning of the economy and private markets, the enhancement of health and safety, the protection of the natural environment, and the elimination or reduction of discrimination or bias) together with, to the extent feasible, a quantification of those benefits;

The distinction between “efficient functioning of the economy” and “protection of the natural environment” seems to provide ample motivation for the application of ecological and other valuation methods discussed in the C-VPSS report. Similar distinctions are also made in the opening statements of the rationale for the Order and are repeated in other sections.

The prescriptions from OMB Circular A-4 for implementing the Executive Order clearly favor benefit cost analysis, but also consistently acknowledge that this method will often not be sufficient. The valuation of ecosystems/services (where markets generally do not exist and where people and analysts have little or no basis for determining their WTP) would seem to present just the type of circumstances in which the Circular indicates that credible monetary valuations will be difficult or impossible to achieve, and thus where other/additional valuation methods will need to be applied. The bias toward monetary valuation is evident throughout the Circular, and alternative methods are largely relegated to a fall-back status (money first, then ecology, then talk). None-the-less, the particular context of protecting ecosystems/services, as our committee’s work has shown, provides ample opportunity and substantial need for alternative valuation approaches. Some representation of other methods in the national rule making context would help to make this section more consistent with the other application-case sections, and would make an important contribution to the main themes of the overall report.

In 5.2.2 the hazards of “focusing on stressors whose impacts can be monetized” are noted and illustrated in the context a national rule. Moreover, it is advocated that “... first impacts should be described or characterized qualitatively, followed by quantification and ultimately monetization when possible...” But the national rule making section is essentially silent on what methods might be useful when this right analytic path leads, as it frequently will for ecosystems/services, to a non-monetizable endpoint. Instead, 5.2.3 returns to the restriction to benefit cost analysis, and thus to monetary measures of value.

There is no doubt that benefit cost analysis and associated monetary valuations are important and useful tools for deciding environmental policies and regulatory actions. Where these methods can be applied to attain credible measures of the value of alternatives, they should be applied with rigor as this section rightly advocates. But no one believes that benefit cost analysis is now (or perhaps ever will be) sufficient on its own to support the important national decisions that must be made regarding the protection of ecosystems and services. Unnecessarily restricting the discussion of national rule making could be counter-productive to the goals of C-VPASS.

B. Uncertainty (Part 2, Section 8.1, 167-175) Summary of written comments and response

Comment from Terry Daniel

This is generally a straightforward and clear presentation of the key issues in determining and representing the uncertainty of ecosystems/services value assessments. On P 167, L 30 the problem of “untruthful” revelation of preferences has several unfortunate and probably unsubstantiated implications. First, the implication that respondents to CVM or other surveys purposively lie might more accurately be represented as an effect of context (information provided/not provided, understood/not understood, etc) on felt preferences rather than some calculated strategic effort to mislead the research/assessment. Second, the reference to untruth implies that someone knows the truth, which is probably not the case for most ecosystems/services values—and deviates from the stated intention to address uncertainty and not accuracy. Perhaps “the unfortunate effect of encouraging strategic or other biases” would better fit the situation, though it still probably overemphasizes calculated efforts to misrepresent felt preferences.

On P 170, L 9 it is not clear what the point is of the assertion that decisions are “often made by single individuals ...” with “personal idiosyncrasies.” This seems to be more a comment on the state of bureaucratic decision making rather than an issue of uncertainty in value assessments. The fact that value assessments are almost always based on the preferences and judgments of a small subset of the potential stakeholders is acknowledged elsewhere in the report (I forget where), but that is true regardless of the assessment method employed. Some methods, such as careful surveys using probability samples can come close to precisely and accurately representing the sentiments of the designated population of stakeholders/citizens, but most methods rely on much smaller samples of respondents with questionable representativeness or on analysts who must rely on methods and assumptions that in many situations are likely (or even assuredly) to produce unrepresentative outcomes. Further uncertainty (imprecision) is surely added by relying on a very small number of individuals (decision makers) to interpret these assessments, along with many other factors, to arrive at a

decision. But we are not likely to be offering any suggestions for how to alleviate the latter source of uncertainty, so we might better tread a bit more lightly in pointing it out.

On P 170, L 19 the assumption, not always deserved, of greater reliability of value assessments based on revealed preferences raises an important point, but relies on terms (model mis-specification) that will not be fully presented until later in the report, and fails to mention market failure, externalities and many other factors that might add uncertainty (and inaccuracy). The point is still worth making, as stated preference methods, by virtue of their ability to control the context in which preferences are expressed may well produce higher levels of precision (lower uncertainty) than revealed preference methods, but there is a nagging concern that they may not be accurate—that is they do not predict “real world” choices and actions. In the end, neither revealed nor stated preference methods assure correct assessments of values, any more (or less) than the other techniques discussed in the C-VPSS report. In the context of protection of ecosystems/services it seems that increased precision of value assessments is a poor substitute for accuracy, and perhaps the effort to constrain the discussion to precision and not address accuracy is not appropriate—and it is evidently very difficult to do. In such situations it may be better to appeal for the application of multiple methods to get the benefits of cross validation and convergence as our best shot at increasing accuracy.

The decision on P 174, L 23 to delete the discussion of decision making under uncertainty potentially deprives the report of a considered basis for determining the relative merits of alternative value assessment methods. Many in the audience for the report may come with the question “Which method is best?” Certainly the answer depends upon many things, but the nature of the decision making model and framework is likely to be one of the most important considerations. As noted, this issue might better be treated earlier in the report, in a more general context, but it seems important that at least a brief discussion be included somewhere. Even then, some mention of the issue seems important here, as one of the key differences among decision models is how they respond to and treat uncertainty.

C. Communication and Valuation (Part 2, Section 8.2, pp. 175-183)

Comment from Ann Bostrom

Proposed Text for a “Text Box 9

The idea would be to include a few more examples corresponding to the types of examples discussed in the text, and discuss the table a little further, to illustrate specific communications issues having to do with communicating values.

VALUE	MEASURE	Characteristics	Context/Use	Reference	Communication
Avoided decrease in crop harvest	Avoided 7.5% decrease in crop harvest from UV-b radiation by 2075	Quantified	Context/Use: Regulatory Impact Analysis: Protection of Stratospheric Ozone Reference:	Table 7-9, Quantified and Unquantified Ecological and Welfare Effects of Title VI Provisions, page 96 of http://www.epa.gov/air/sect812/1990-2010/fullrept.pdf	Structured narrative
Unquantified ecological benefits	[List of benefits:] . recreational fishing . forests . marine ecosystem and fish harvests . avoided sea level rise, including avoided beach erosion, loss of coastal wetlands, salinity of estuaries and aquifers . other crops . other plant species . fish harvests	Unquantified measure, descriptive	Regulatory Impact Analysis: Protection of Stratospheric Ozone	Table 7-9, Quantified and Unquantified Ecological and Welfare Effects of Title VI Provisions, page 96 of http://www.epa.gov/air/sect812/1990-2010/fullrept.pdf	Unstructured list/narrative
Freshwater acidification from wulfur and nitrogen oxides regionally, in the Adirondacks	(in millions of 1990\$) range of \$12 to \$88 for 2010; central estimate for 2010 is \$50; \$260 cumulative estimate 1990-2010.	Monetized ecological benefit. Captures only recreational fishing impact regionally (incomplete geographic coverage), based on an economic model of recreational fishing behavior.	Regulatory Impact Analysis	Tables 7-8 and 7-10, pp 91-92 and 97 in http://www.epa.gov/air/sect812/1990-2010/fullrept.pdf	Dollars, used in calculations of benefits

Comment from Terry Daniel

Decision model issues come up again in the context of communicating assessed values to decision makers. For example, there is no doubt that having multiple metrics for representing the values of protecting ecosystems/services complicates the decision making process (P 176, L 23). But the alternative of a single metric (usually dollars) may mask important differences among relevant and important considerations and encourages naïve acceptance of often questionable assumptions of commensurability and substitutability between and within ecological, social and economic values that may not be appropriate. Again the deleted section on decision making models might help to clarify the issues here, especially by discussing the relative merits of placing the aggregation across value sets early or late in the decision making process, and whether that process is the responsibility of authorized decision makers or is accomplished by analysts further back in the process or by deliberative processes requiring communication and negotiation among stakeholders, experts and decision makers.

This section most directly addresses communication of the results of value assessments, but it has many important implications for what and how value assessments should be done (crossing many of the issues noted for the Uncertainty section above). In that context, we need to pay more attention to the consistency between this and the previous section on uncertainty.

General comments:

I wholeheartedly endorse the switch in focus for the national rulemaking case study to CAFOs.

While I support the idea of an external panel to review proposed benefits analysis, it goes above and beyond what is anticipated in EPA's 3rd edition Peer Review Handbook (2006). The committee should consider putting their recommendation for an external panel in context of the peer review guidelines.

Are there specific ways to manage early public involvement that meet requirements of Administrative Procedures Act (APA) and Federal Advisory Committee Act (FACA; I should have mentioned FACA in my oral comments, too) without slowing things down or otherwise running afoul of the law?

You might wrap up section 3.3, the illustrative CAFO example, with a little reminder that other rules suffer from similar kinds of issues.

Specific comments:

- p. 6, #9-11: the latest EPA Strategic Plan is dated 2006; healthy communities and ecosystems is also included in this SP as Goal 4
- p. 7, #13: does "population impacts" refer to human populations only, or populations of plants and animals, too?
- p. 18, #17: make clear that "some" doesn't refer to OMB
- p. 18, #27-29: there isn't generally time for this to occur
- p. 21, #17: EO 12866 has been amended by EO 13422 (see http://www.whitehouse.gov/omb/inforeg/eo12866/index_eo12866.html for original and amendments)
- p. 21, #25-27: If the 2000 document cited is Guidelines for Preparing Economic Analyses, then "initial" (#26) should instead probably be "broad"; yes, reference the EBASP, too, but it's not really guidance
- p. 22, #10-23: add a bullet for regions taking on duties otherwise delegated to States for those specific States that have not applied for or been approved to run programs on their own (more direct than bullet at #20), such as issuing NPDES permits
- p. 23, #13-15: continue to cite 2003 EPA Strategic Plan here, because 2006 version doesn't include new social cost analysis, instead refers to this one
- p. 25, #6: The parenthetical is not true as written; I think the only blanket exemption agencies have are: 1) surveys of 9 or fewer people (total, not per focus group), and 2) web usability type surveys (not in PRA, but as policy/interpretation). Focus groups to develop stated preference surveys aren't exempted. That said, EPA/NCEE has an ICR currently under review at OMB that would cover focus groups for survey

instrument development whenever there is an economics component to the survey, but it has not yet been approved. If and when it is, it still means the Agency has to get OMB's permission to do focus groups, but it will be via a much expedited process. If the parenthetical refers to this, it's a bit premature.

p. 25, #14: to be clear, it's not just benefits analysis that is subject to OMB scrutiny

p. 26, #6-8: cite EPA's Peer Review Handbook, 2006, 3rd edition

p. 26, #21-29: the efforts suggested to improve ecological valuation is really an investment in data collection with long-run payoffs, and is not always supported with adequate resources (budget and personnel). From EPA's FY08 budget submissions, OMB has proposed zeroing out funds for STORET, the water quality data base that has seen limited use in the past, owing to difficulties in accessing data; most of these difficulties were addressed in FY06, some in FY07, but this illustrates a difficulty associated with such efforts to make long-run investments in data.

p. 27, #16-18: EPA staff really see this as two separate steps

p. 29, #15-22: How will we know that case studies aren't outliers?

p. 30, #4-6: Not required to by Agency's Peer Review Handbook (2nd edition would have been the controlling version then, but I don't think this is something that changed much from version to version).

p. 35, #3: typos

p. 37, #15: interesting suggestion

p. 39, #14-15: odd format for citation

p. 41, #8: It's STAR as acronym, not Star

skipping to Part 2, section 5

p. 81, #23-28: The Safe Drinking Water Act, another statute whose primary benefits are related to human health, has also required a cost-benefit analysis of national primary drinking water regulations ("benefits justify costs") since 1996. Maybe the reason Congress hasn't seen fit to add a cost-benefit requirement to the Clean Water Act is precisely because the state of the art/science in ecological benefits estimation is not sufficiently advanced.

p. 83, #5-11: Add a point about why the other 3 components aren't discussed in this section? (not that I disagree with the 3 focused on)

p. 83, #21-28: the text suggests that figure 5 doesn't come from EPA supporting documents; if not, make this clear. I'm not quite clear "where the levers are for improving environmental performance." It seems that the general overview figure includes loadings and emissions, but doesn't quite demonstrate assessment endpoints, which will make determining which are the most socially important challenging.

p. 85, #16-20: Open public meetings to take input from the public and experts is a good idea; I'm not sure that mediated modeling methods doesn't run afoul of FACA (or APA?).

p. 85, #28-31: Every comment from the public gets a response (not necessarily unique); comment/response documents often run to high hundreds

or thousands of pages. A summary is usually included in the rule preamble, but is extremely brief in comparison. Typically, an economic analysis is completed before the responses to comments; responses to comments are drafted early on, but must be reviewed by the Office of General Counsel, to make sure they're consistent with the preamble, which is itself usually finalized with only a very small number of weeks to final signature by the Administrator (pencils down -- no more changes or additions to the record). Reviewing the final response to comments is typically the last thing that's done. I'm not quite sure how the Agency could effect this suggestion; at the end, especially in court-ordered deadline situations, people are already putting in very long days and it's important to minimize the number of places where changes can be made or where corroborating changes are required (this is inherently governmental work, and can't be contracted out). Supporting documents such as the RIA can and often do include a summary of comments received; the only responses that are included in the RIA are for those comments narrowly focused on the RIA itself. Comments on valuation are likely to be sufficiently controversial as to be left to be addressed in the gargantuan response to comment document.

p. 86, #1-2: The challenge here is that analytical blueprints are often revised as rulemaking proceeds but only informally; it would not make sense for the Agency to post an analytical blueprint that wasn't followed to the public record.

p. 88, #21-23: I'm not certain what's being exacerbated.

p. 88, #29-30: the reversal point is important

p. 91, #9-13: are the simple features the kinds of data that are usually readily available?

pp. 91-92: it would be nice to see an illustrative example related to CAFOs (acknowledging the bypassing of the complete inventory step for purposes of this document)

p. 95, #20-27: I think the 316(b) Phase III economic analysis follows something like this suggestion, although the focus on recreational and commercial fish species begs the question of whether this captured all the fish losses that would be considered socially important.

p. 98, #1: CAFOs is a good example of the +B approach (do you say that upfront?)

p. 98: the section on Uncertainty analysis should probably refer to the A-4 guidance on doing more in terms of uncertainty analysis for rules that pass the \$1 billion threshold.

p. 99, #5: what precisely is meant by a satellite sensitivity analysis (did I miss something in the intervening pages I skipped over?)

p. 99, #13-23: recommendations for STAR grant areas and Agency-wide meetings seem quite useful.

p. 107, #26: "it is necessary to carry out the following steps" sounds prescriptive; or is it describing what EPA did in this earlier analysis?

Attachment G: Comments from Dr. Brian Heninger, EPA's National Center for
Environmental Economics

Email from Brian Heninger, April 4, 2007

Hi Angela,

I reviewed the "812 text box" section in the C-VPSS chapter at the suggestion of Jim DeMocker; as you know I am intimately familiar with this work. I read this a week or so ago, but am just writing up my comments now.

You or the authors are welcome to call me for any clarifying questions "subject to all SAB rules for one on one communications"

Here are a few minor comments below:

The forestry model used to estimate the response of tree growth to ozone is "PnET-II", not "PmET-II" as stated in several places in these section.

Page 106, Line 18 - The authors use the term "forest products" when describing when referring to the change in harvest which is fed into the Timber Assessment Market Model. The reality is that only the change in harvested commercial timber was modeled, and the change in other "forest products" was not.

Page 107, Line 6 - change "sued" to "used."

Page 107, Line, 9-10 - "As a result it is impossible to judge how these transitions were represented." - More information is available in: Economic Benefits Assessment of Decreased Acidification of Fresh Water Lakes and Streams in the United States Attributable to the 1990 Clean Air Act Amendments, 1990-2010. (Available upon request.)

Page 107, Line 1-3 "No attempt was made to identify and quantify other ecosystem services of water bodies likely to be affected by acid deposition." - This is an incorrect statement. Many ecosystem services of water bodies likely to be affected by acid deposition were identified in the main report (in the main text, Appendix E, and in multiple supporting documents) but no attempt was made to quantify or monetize these changes in ecosystem services.

Page 393, Line 29 The citation/reference for this report is incorrect, it states:

"1999. The Benefits and Costs of the Clean Air Act: 1999 to 2010."

It should be "1990-2010."

Thanks,

-Brian Heninger

Manager of Ecological Effects work for the "The Benefits and Costs of the Clean Air Act: 1990 to 2010"

EPA National Center for Environmental Economics

Attachment H

Straw list of Topics for May 1-2, 2007 Meeting of the SAB Committee on Valuing the Protection of Ecological Systems and Services

- Discussion of New Text that Will Be Created For/Significantly Revised for ~April 20th Draft Report
 - “Some Caveats Regarding Valuation,” Part 1, Section 2.4
 - Ecosystem Services/Indicators/Biophysical Metrics & Predictions (Part 2 Sections 2-3 – most likely merged)
 - Table of Methods and Surrounding Text in Part 2 Section 4
 - Transfer of information for Valuation
 - Survey Text/Appendix A

- Advice/Recommendations for EPA
 - Part 2 Section 9 “Recommendations Section”
 - Does text in all sections provide clear advice?
 - Part 3 Recommendations

- Next steps
 - Process for drafting Cover Letter (with highest level advice)
 - Editing
 - Peer Review
 - SAB Review Process
 - Communication plan
 - setting appropriate expectation
 - communicating what’s new/value added for EPA