

Summary List of Committee Member Comments on the 4/16/12 Draft SAB EPEC Report

Dr. Fred Benfield

I have looked over EPEC's draft report on EPA's Ecological Assessment Action Plan and have nothing to add.

Dr. Greg Biddinger

Most of these comments are editorial or word replacements to improve meaning. The Principle exceptions are updates to the recommendations in the letter to administrator. There I have added text bring forward recommendations that might otherwise get lost in the details of the report. Also the opening sentence for Charge question 5 is technically inaccurate so have added what I thought is a more accurate statement. (Dr. Biddinger's edits have been incorporated into the 5/9/12 draft)

Dr. Allen Burton

No comments. The report looks good and thorough.

Dr. Peter Chapman

Report looks good, aside from a few points. (Dr. Chapman's points have been incorporated into the 5/9/12 draft)

Dr. Loveday Conquest

Minor edits/clarifications here and there. I could not find easy ways to shorten 3.4.1--EPEC members who actually wrote that will have to take responsibility. (Dr. Conquest's edits and clarifications have been incorporated into the 5/9/12 draft)

Dr. Richard Di Giulio

I have read the report and believe it is very good – no major issues.

Dr. Lucinda Johnson

Two things I am concerned about: 1) statement about metrics in the second charge question, and 2) the length of the response to the WOE section. That contains really good information, but seems too long in contrast to the other sections. (Dr. Johnson's edits and comments have been incorporated or noted in the 5/9/12 draft)

Dr. Wayne Landis

This is a strong document. The various sections make a number of strong suggestions to improve the ability of EPA to conduct risk assessment. I have two primary comments.

1. The term **ecosystem health** is used in several places (letter page 3, line 25; Executive Summary, page 6, lines 28 and 29; Section 3.1, page 10, line 42; Section 3.7, page 38, lines 3 and 7). The term ecosystem health is Normative (see Lackey (2001, 2004)) and is not definable as a scientific description. If this is going to be an influential technical document then technical language is preferable.

Lackey, RT. 2001. "Values, policy, and ecosystem health." *BioScience* 51:437-443.

Lackey, RT. 2004. "Normative science." *Fisheries* 29:38-39.

2. The high prioritization of weight of evidence (WoE) in the introductory letter and in the text should be examined more closely. I agree that there should be an overall process to improve the use of quantitative methods in risk assessment and WoE is one of many tools. I have used WoE. In the introductory letter WoE is given a high priority. However, there are other tools that can be even more useful. Qualitative and quantitative meta-analysis has a number of advantages as pointed out in the following example.

The analysis of the potential endocrine effects of atrazine has been especially controversial. Solomon et al (2008) conducted a conventional WoE of the literature available for review. Using the classical criteria for cause and effect and lines of evidence the overall conclusion was that there was a lack of evidence for the ED effect of atrazine. Rohr and McCoy undertook an extensive qualitative meta-analysis of the same sets of papers plus those published since the review of Solomon et al. Rohr and McCoy generated rules for the inclusion of results a priori, eliminated a number of papers that did not fit those criteria, and using a voting type of assessment clearly demonstrated that a large number of studies demonstrated that atrazine is an ED.

I have provided a more detailed review in the textbook Landis, Sofield and Yu (2010), Chapter 6. It bears closer examination as why the two methods of analysis could arrive at such different conclusions, but that is perhaps another committee's work. However it may be that more current methods of meta-analysis can provide important means of consolidating evidence from a number of studies in a more quantifiable methodology than conventional WoE. I have listed several references that introduce the methodology below. It is important that EPA get ahead of the science for once. WoE may have been reaching a maturity but there are alternative approaches that may be more powerful.

References

Landis, WG, Sofield RM, Yu M-H. 2011. Introduction to Environmental Toxicology: : Molecular Substructures To Ecological Landscapes, 4th Edition. Lewis Publishers, CRC Press. Boca Raton.

Solomon KR, Carr JA, DuPreez LH, et.al. 2008. Effects of Atrazine on Fish, Amphibians, and Aquatic Reptiles: A Critical Review. *Critical Reviews in Toxicology*, 38:721-772.
Rohr JR, McCoy KA. 2010. A Qualitative Meta-analysis Reveals Consistent Effects of Atrazine on Freshwater Fish and Amphibians. *Environmental Health Perspectives*. 118:20-32.

Meta-analysis resources. There is an extensive literature and these are some introductory materials. The Glass papers are some of the earliest.

[James Neill](http://wilderdom.com/research/meta-analysis.html). Meta-analysis Research Methodology.
<http://wilderdom.com/research/meta-analysis.html>. Accessed April 29, 2012.

Glass, G. V. (1976). Primary, secondary, and meta-analysis of research. *Educational Researcher*, 5, 3-8.

Glass, G. V. (1977). Integrating findings: The meta-analysis of research. *Review of Research in Education*, 5, 351-379.

Rosenthal, R. 2001. META-ANALYSIS: Recent Developments in Quantitative Methods for Literature Reviews Annual Review of Psychology. Vol. 52: 59-82 (Volume publication date February 2001) DOI: 10.1146/annurev.psych.52.1.59

(Dr. Landis' comments have been noted in the 5/9/12 draft)

Dr. Judy Meyer

I've attached my comments on the draft of the RAF report. They are in track changes; my main concerns are identified in the comments (Dr. Meyer's edits and comments have been incorporated or noted in the 5/9/12 draft)

Dr. Amanda Rodewald

I thought the report was well-written and thorough. I felt that all of my comments were reflected in the report, and I have no changes to recommend at this point.