

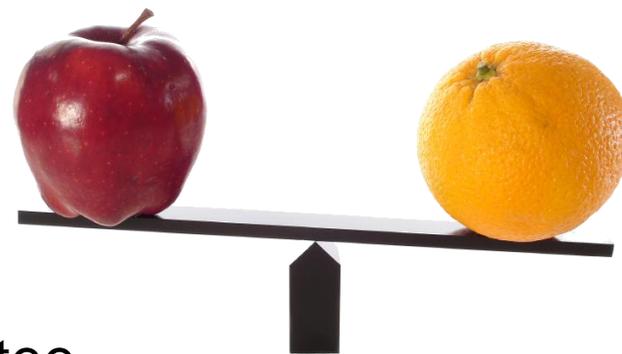


**SAB EPEC Review of the
Ecological Assessment Action Plan
February 22, 2012**

***Use of the Weight of Evidence
Approach in Ecological Risk
Assessment***

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Should Evidence be Weighed?

- Weighing evidence is common practice in scientific community
 - Chapman's sediment quality triad
 - Many potential advantages from using all evidence
- Weighing evidence is commonly condemned in scientific community
 - Subjective, non-quantitative, ambiguous, etc.
- Weighing evidence is recommended by some reviewers
 - SAB review of nutrient criteria report
 - *But sometimes not*



Is Evidence Weighed in the EPA?

- Sometimes
 - Causal assessments (SI & CADDIS)
 - Superfund remedial investigations
- Sometimes not
 - Water quality criteria vs bioassessment vs effluent toxicity (e.g., Se)
 - The best evidence should prevail
- Choice may depend on context
 - What is true vs. what is acceptable vs. which is best?
 - What are the legal constraints and precedents?



What could be Weighed?

- Pieces of evidence
 - Multiple LC50s for a species
- Types of evidence
 - Single chemical tox tests, biosurveys, effluent tox tests, biomarkers, etc.
- Bodies of evidence for alternative hypotheses
 - Alternative candidate causes



What is Needed?

- Colloquium participants expressed uncertainty
 - Should they weigh evidence?
 - If so, how?
 - How can they decide
 - Whether it is appropriate?
 - What method is appropriate?
 - Opinions were mixed on desirability
 - Technical Panel and EOC included in plan
- Has policy implications
 - Acceptability likely to differ among programs



Charge Question

- Please comment on the scientific merit and limitations of using a weight of evidence approach in decision making and offer any guidance on weighing ecological risk assessment lines of evidence.