Biomarkers STAR Seminar

Welcome and opening remarks

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Brad Schultz
Human Health Risk Assessor
Office of Strategic Environmental Analysis (OSEA)
U.S. EPA, Region 5
Schultz.Brad@EPA.GOV

Thanks to:

- Kacee Deener, ORD/NCER
- Estella Waldman, ORD/NCER

for organizing session

Outline of afternoon session

- Overview of Use of Biomarkers in Risk Assessment - **William Farland**, Acting Deputy Assistant Administrator for Science, US EPA ORD
- Analysis of Genotoxic Biomarkers in Children Associated with a Pediatric Cancer Cluster and Exposure to 2 Superfund Sites - **Barry Finette,** UVt
- Improving Human Health Risk Assessment for Tetrachloroethene by Using Biomarkers and Neurobehavioral Testing in Diverse Residential Populations - **Jan Storm, NY State**
- Break
- Pre-natal Exposures of Children to PBDEs: The Collection of Animal and Human Data along with the Development and Validation of a PBPK Model - **J. H. Raymer, RTI**
- Biomarker Application and Risk Assessment of Cr(VI) - **Roy Shore, NYU**
- Moderated discussion with panel

Presentations will address cutting edge work

- 2 key *general* issues

(1) How should biomarkers be incorporated into regional and state risk assessments?

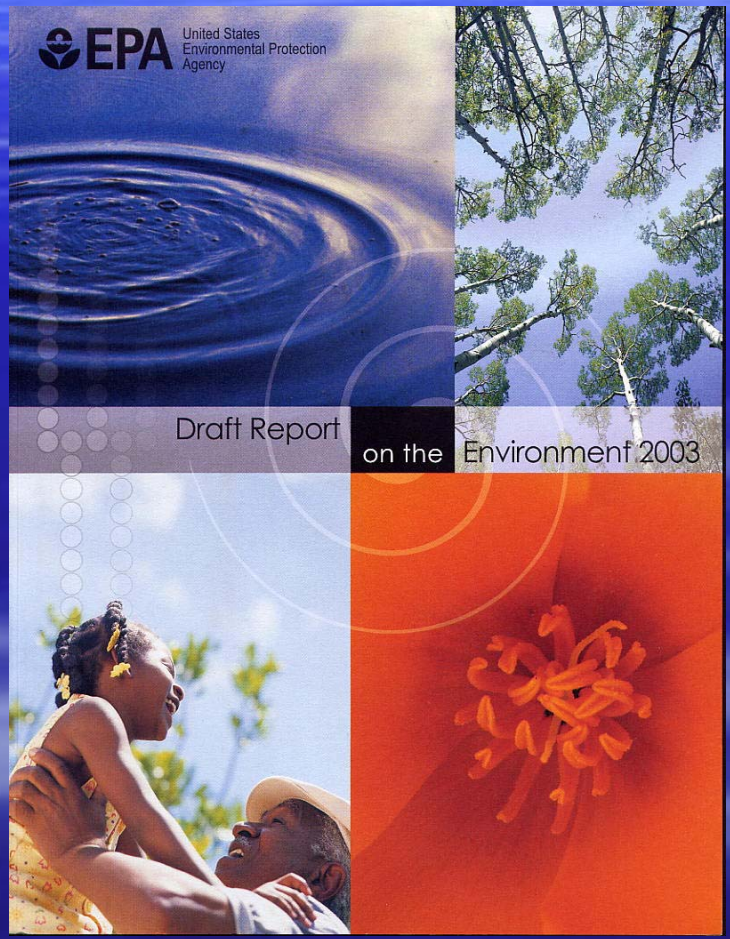
(2) How do biomarkers fit in with environmental indicators?

- A few remarks on how I see these issues

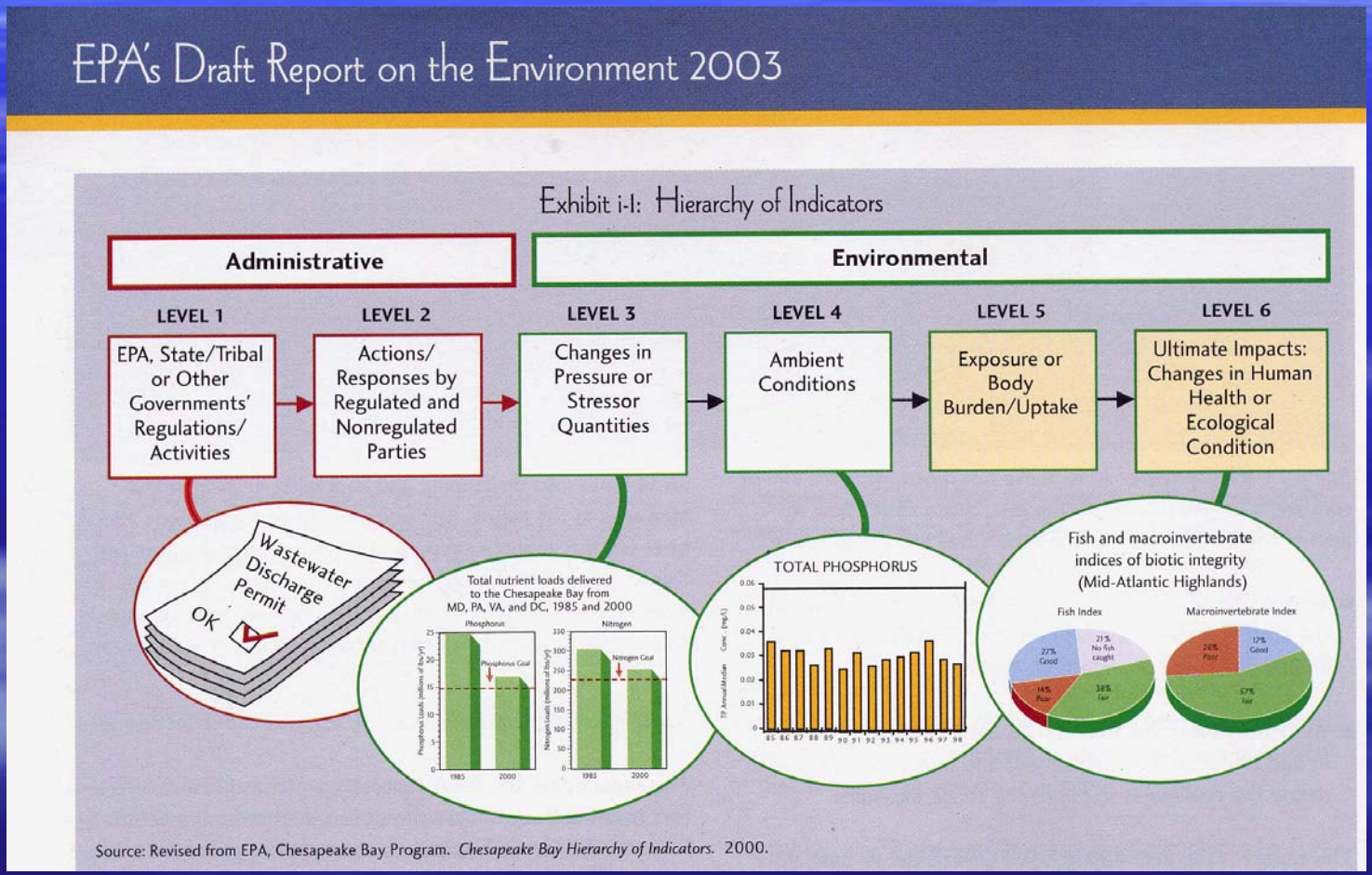
Biomarkers taking on increased importance

- Gov't Performance Results Act (GPRA) goals & related activities
- Increased lab capabilities & expectations
- EPA Report on the Environment
- Various indicators initiatives

EPA Report on the Environment



RoE Indicators Hierarchy



RoE Indicators hierarchy (cont'd)

- "Level 6" are health impacts: "ultimate impacts," such as neurotoxicity, asthma, cancer
- Biomarkers generally "Level 5" (e.g., blood conc. of Pb, Hg, cotinine)
- "Level 4" are ambient conditions: lead in dust, paint, soil, air; mercury in fish for consumption; airborne ETS

Biomarkers as indicators

- RoE Human Health chapter relied heavily on biomarkers (appropriately)
- Very relevant to GPRA goals
- Excellent markers of human exposure
  * Represents actual exposure
  * Pb from multiple sources (dust, soil, paint, air)
- Measure of exposure changes & program effectiveness very relevant

Biomarkers potential & needs

- Tremendous potential
- Provide better assessment of exposure
- Closer link to health effects
- Links lacking between exposure & biomarkers
- Lack of overall link between biomarkers & health effects for most chemicals (only parts understood)
- Overall link from Level 4 → Lev5 & Lev5 → Lev 6 is continuing big research need