



PETER CHAPMAN 5 MINUTE PRESENTATION

Key Issue:

How should we be using PSMs?

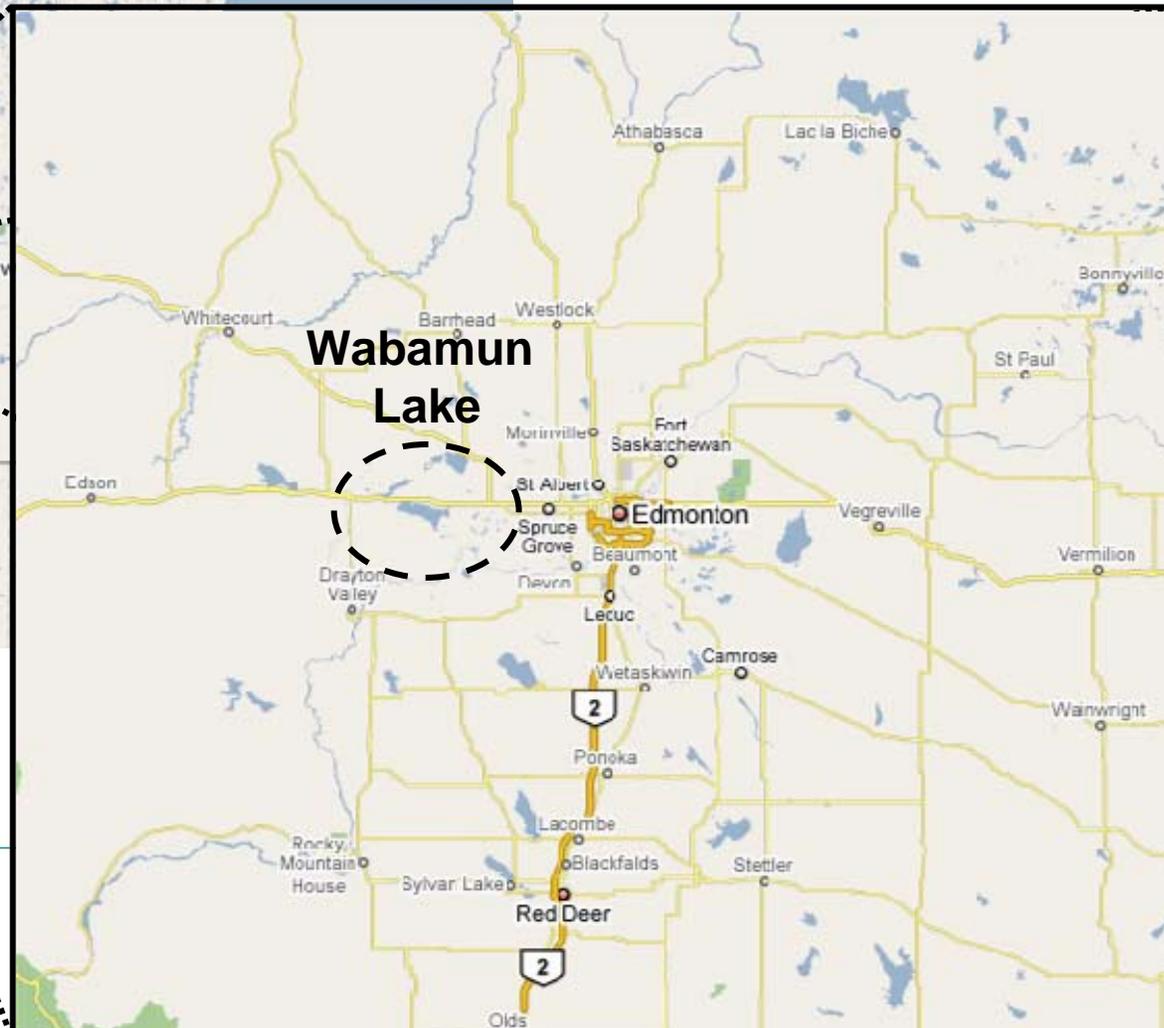
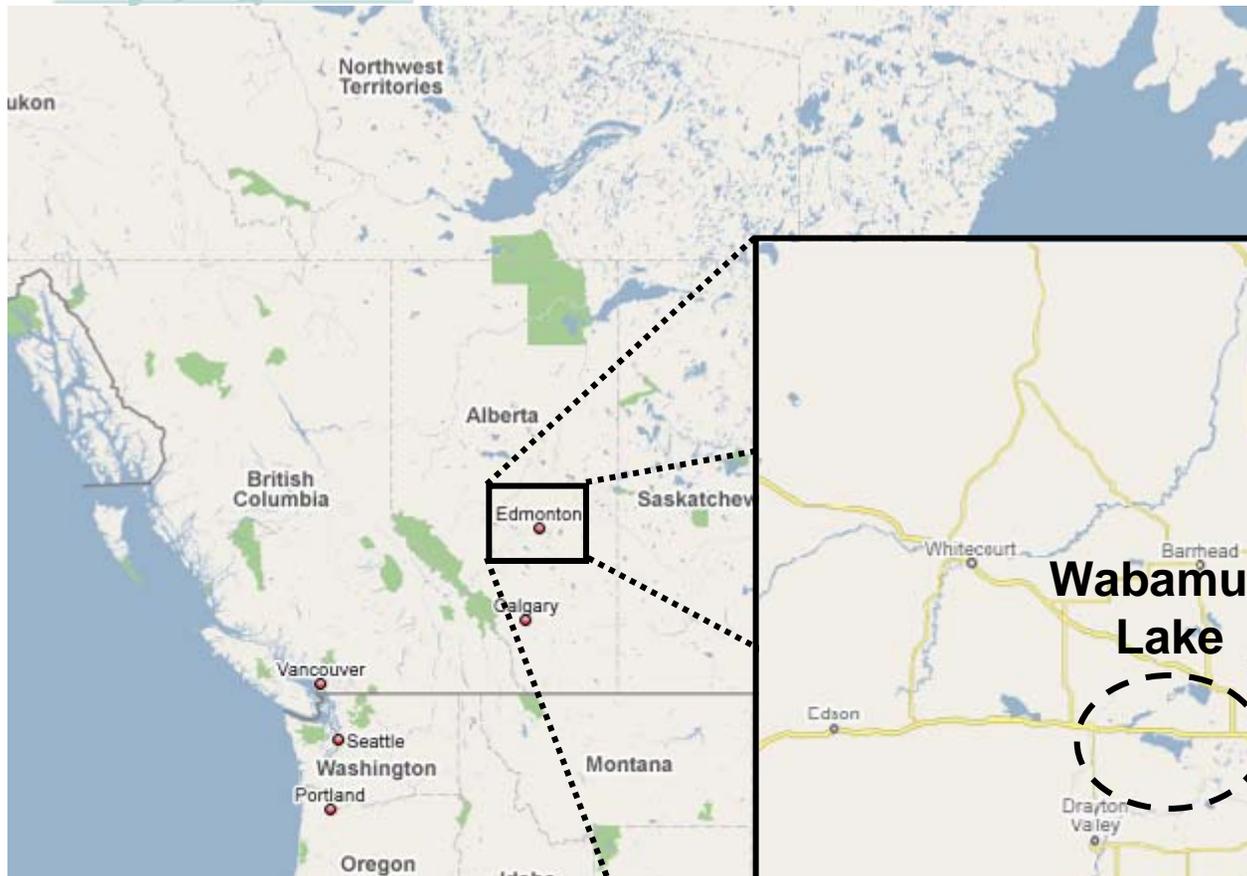
1. Alone

2. In combination with other Lines of Evidence: Weight of Evidence for Management Decision-Making

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July 03, 2013
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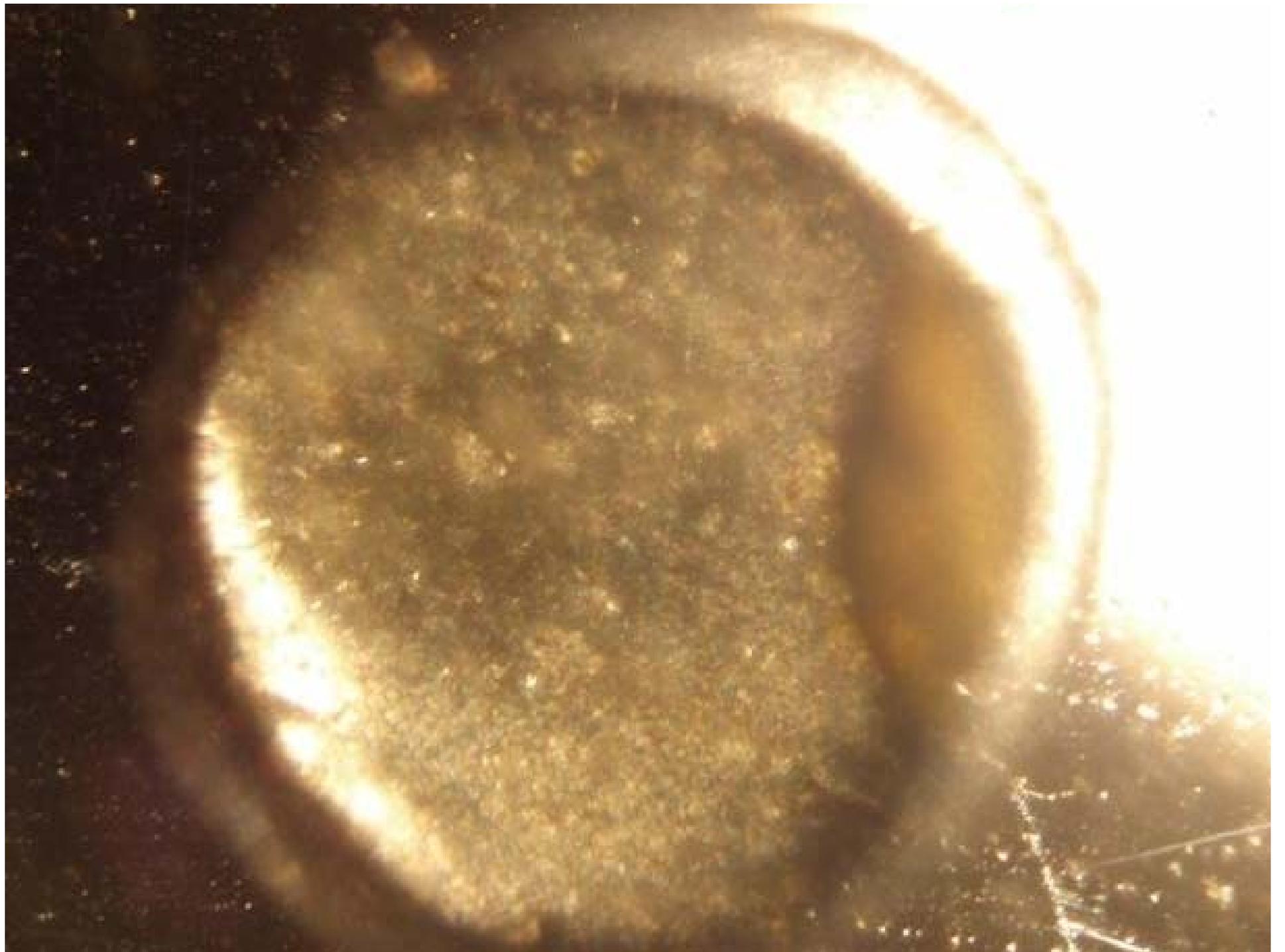


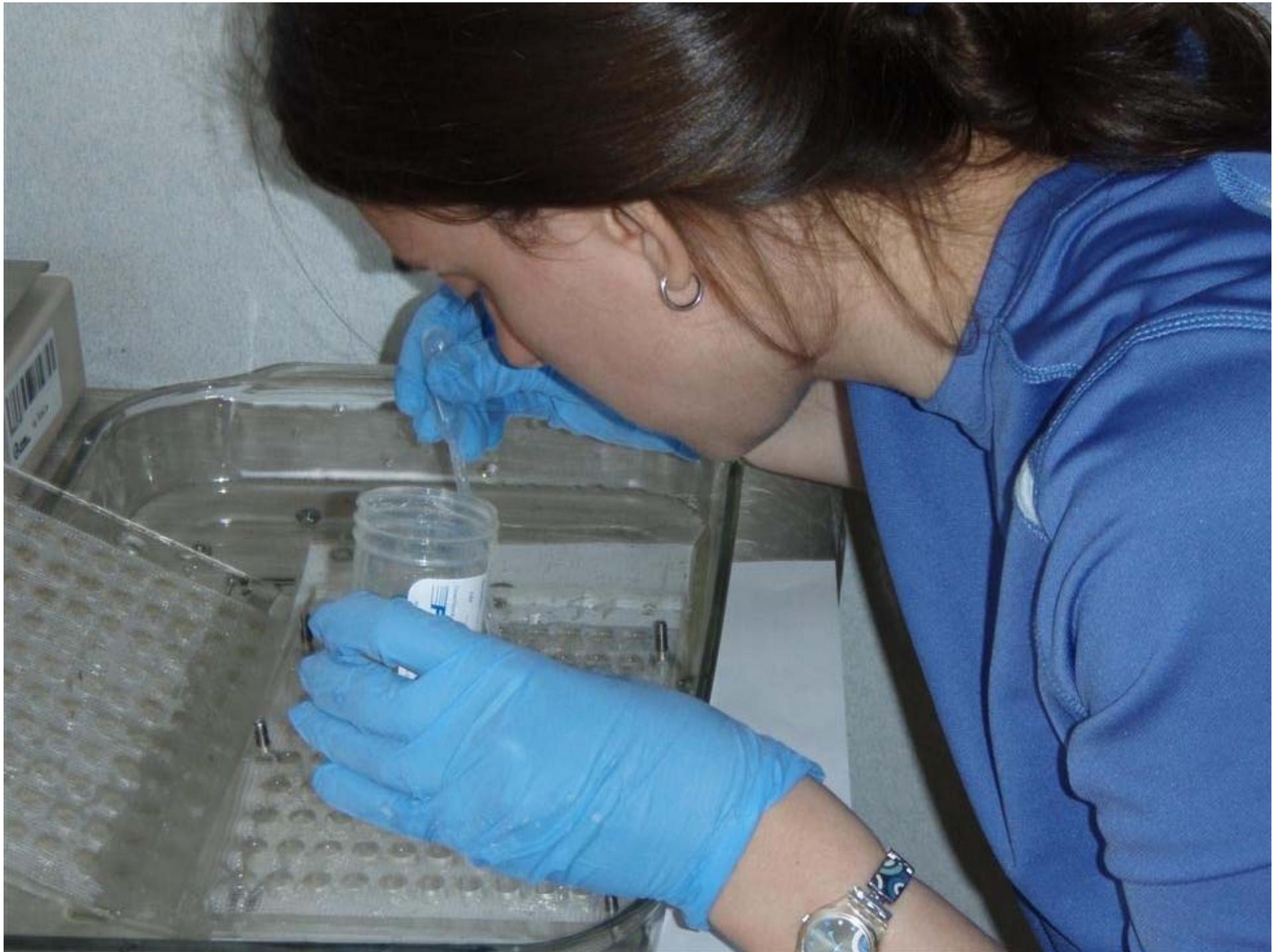


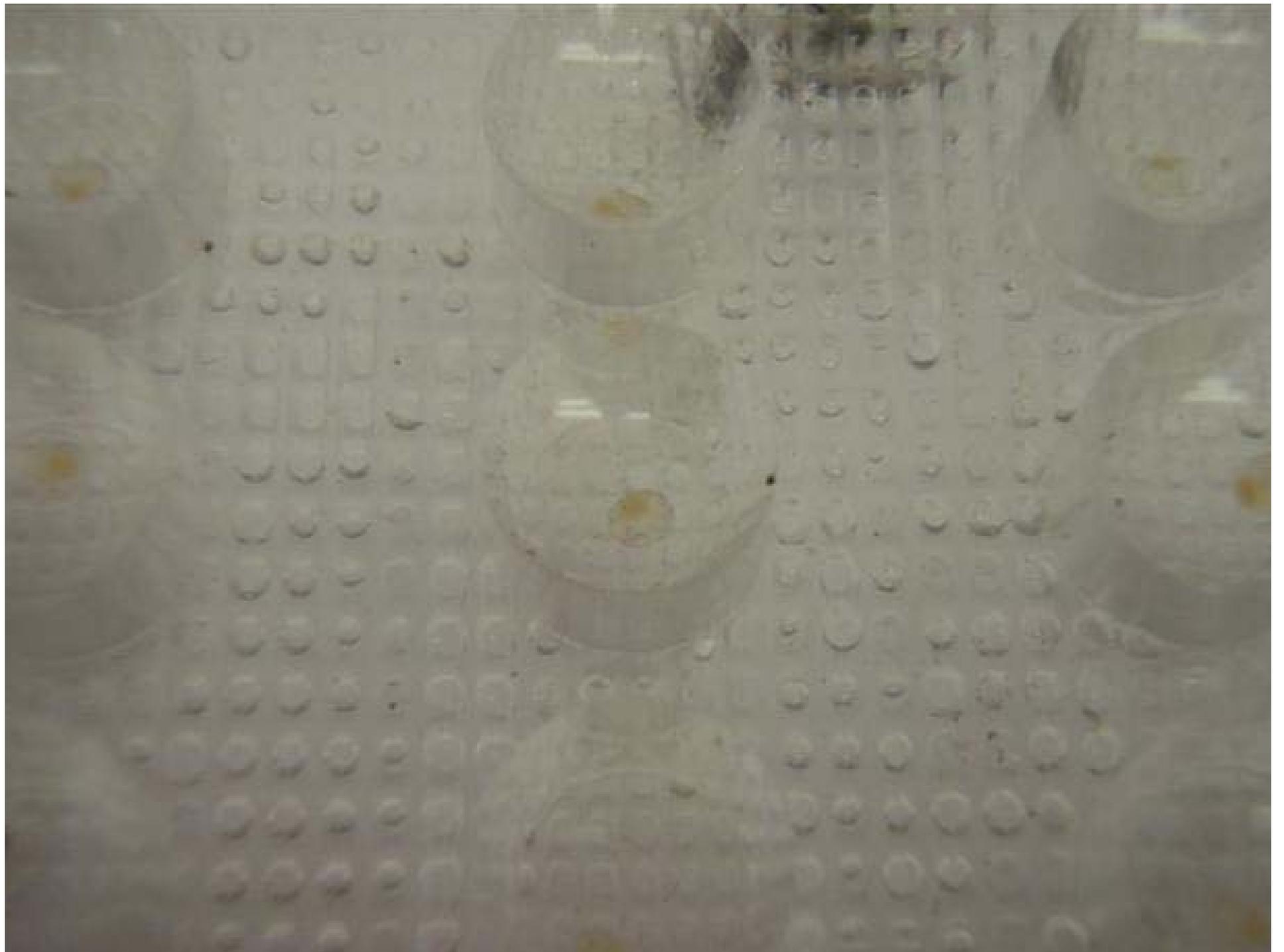
- August 3, 2005 - 46 freight cars derailed, 11 leaked
- ~712,000 L Bunker C released, ~149,500 L reached the lake

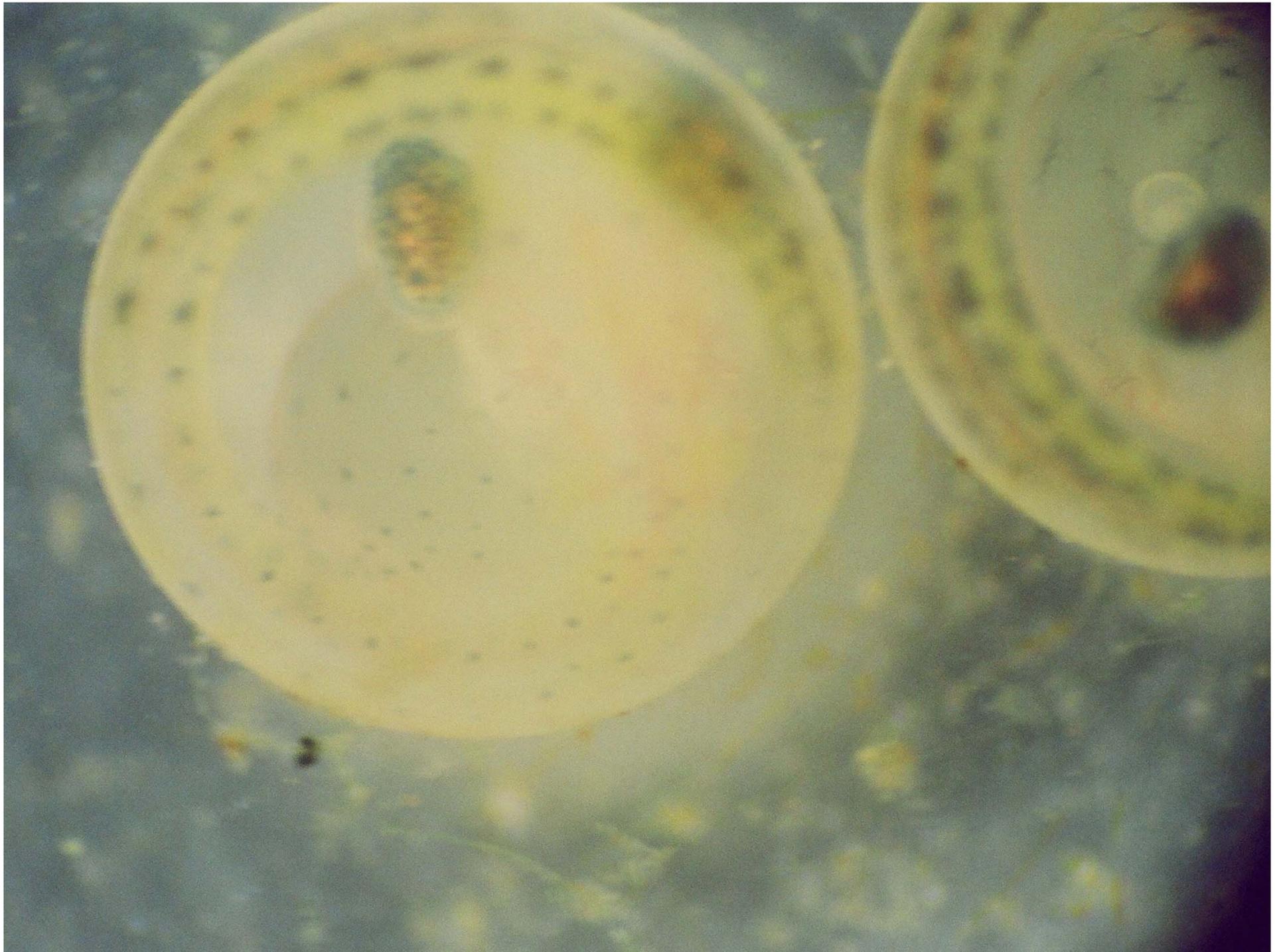










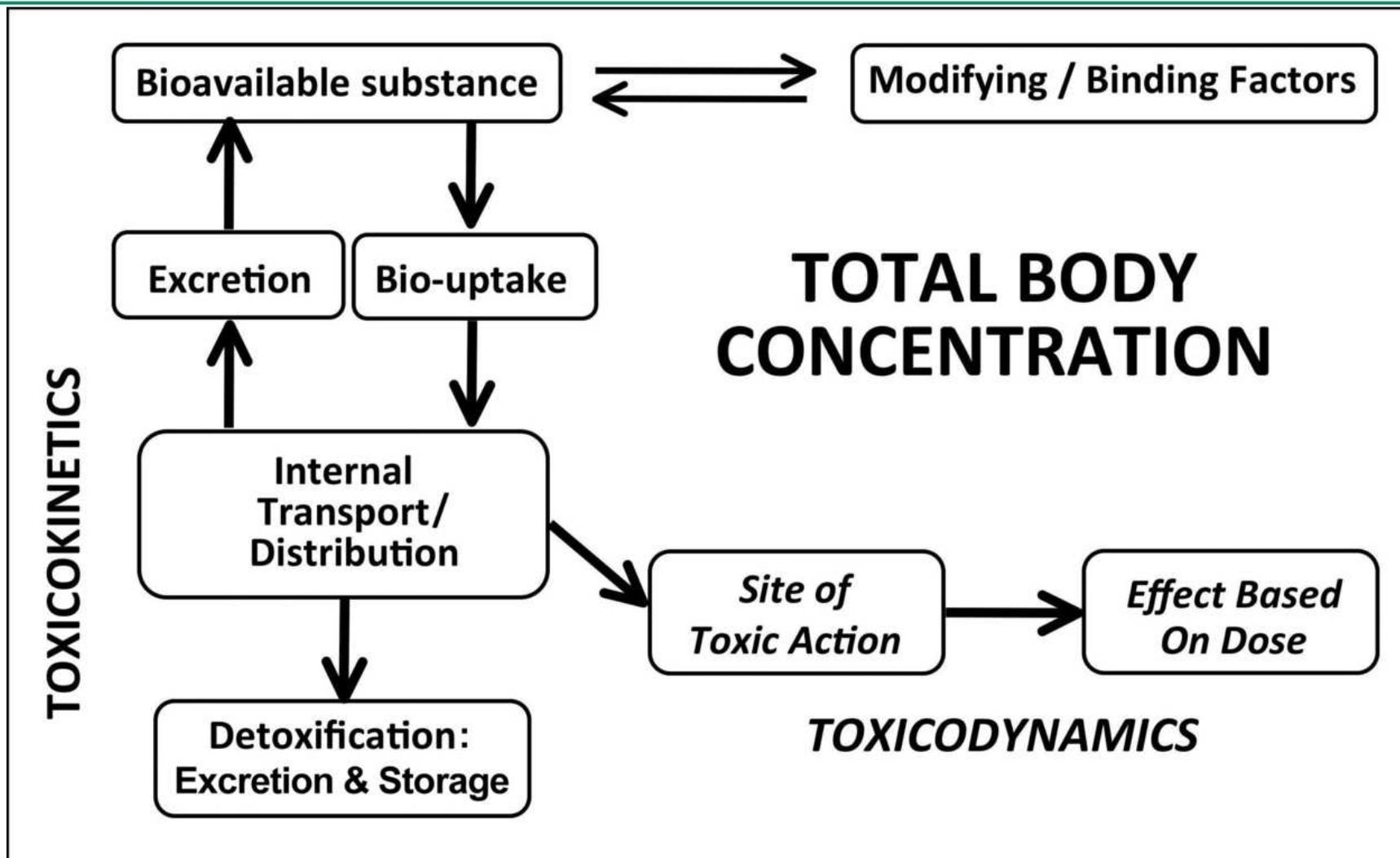








Substance Uptake, Internal Distribution, Effects



Landrum PF, Chapman PM, Neff J, Page DS. 2012. Evaluating the aquatic toxicity of complex organic chemical mixtures: Lessons learned from polycyclic aromatic hydrocarbon and petroleum hydrocarbon case studies. Integr Environ Assess Manage 8:

217-230

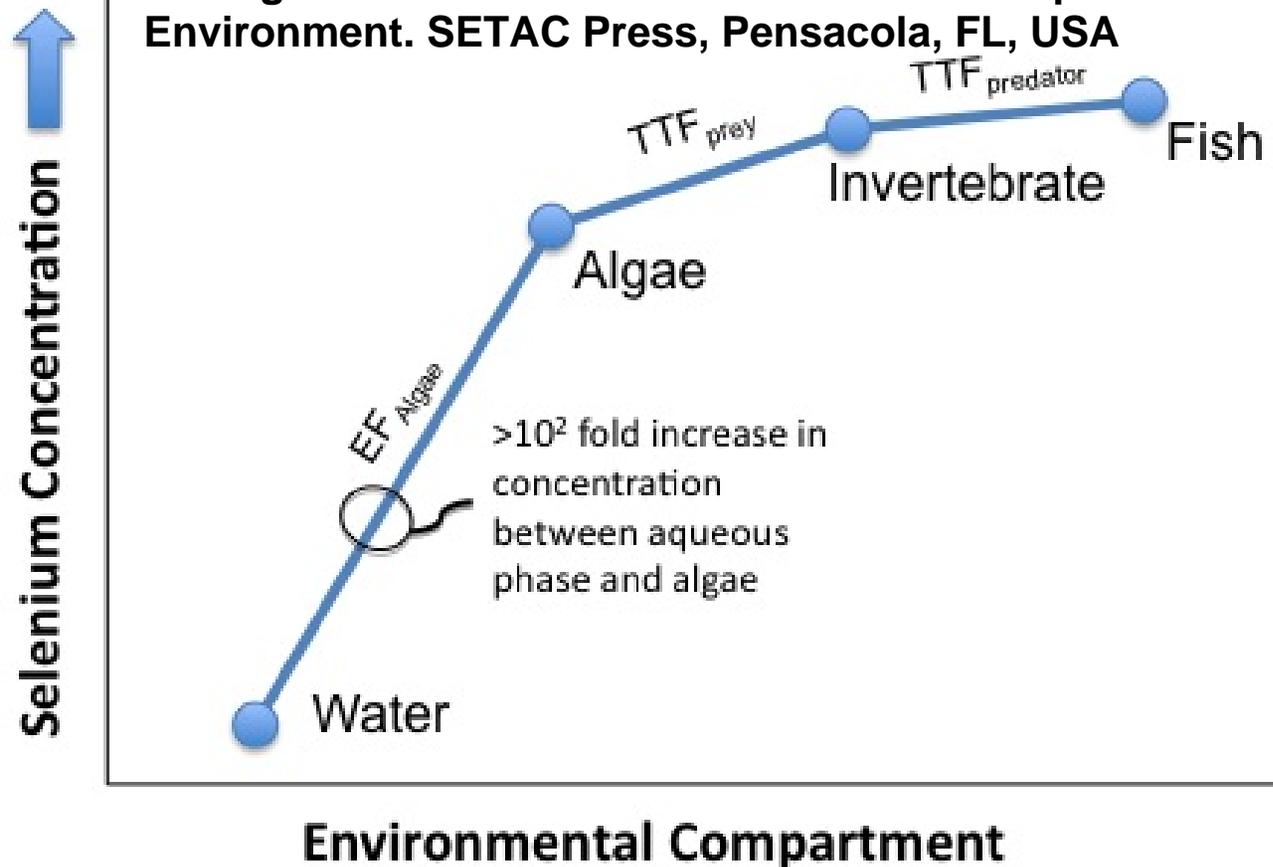




CAUTIONS

- **Do not do more harm than good**
- **There is nothing that humans do that does not have an impact, including treatment/remediation**
- **Excessive over-protection is not beneficial to human welfare or, ultimately, the environment**
 - Use appropriate assessment (i.e., safety, uncertainty) factors, not just based on number of human fingers, e.g.:
 - Chapman PM, Fairbrother A, Brown D. 1998. A critical evaluation of safety (uncertainty) factors for ecological risk assessment. Environ Toxicol Chem 17: 99-108

Chapman PM, Adams WH, Brooks ML, Delos CG, Luoma SN, Maher WA, Ohlendorf HM, Presser TS, Shaw DP (eds). 2010. Ecological Assessment of Selenium in the Aquatic Environment. SETAC Press, Pensacola, FL, USA



Selenium enrichment and trophic transfer in aquatic food webs

Enrichment Function (EF_{algae}) represents the increase in Se concentration between water and the base of the aquatic food web (e.g., algae). Trophic Transfer Function represents the increase in Se concentration between algae and invertebrates (TTF_{preY}) and invertebrates and fish (TTF_{predator})