Ecosystem-Scale Selenium Modeling in Support of Fish and Wildlife Criteria Development for the San Francisco Bay-Delta Estuary, California

Administrative Report

Figure 13b

U.S. Department of the Interior
U.S. Geological Survey
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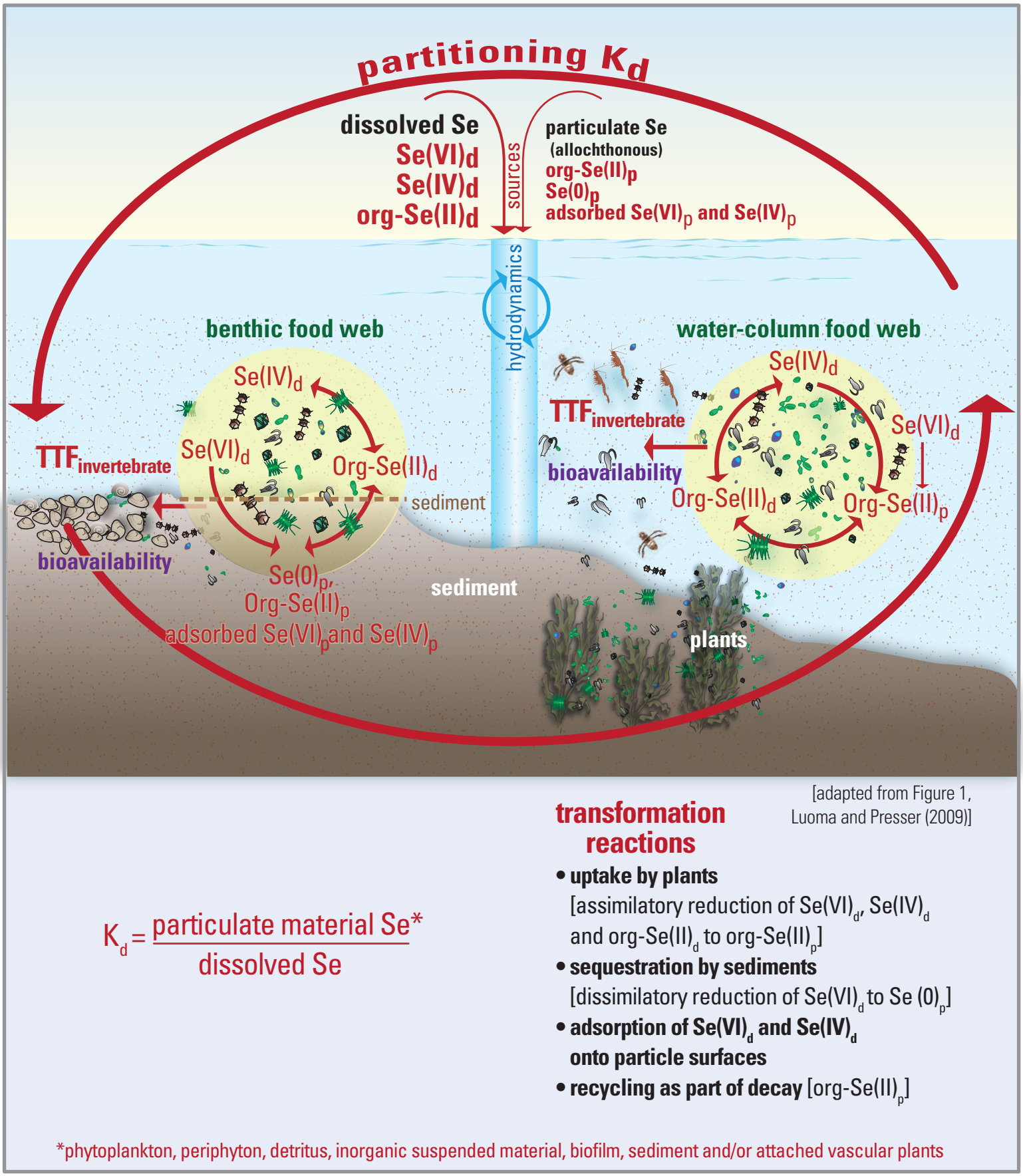
Find the full report and other attachments at http://www.epa.gov/region9/water/ctr



[adapted from Figure 1, Luoma and Presser (2009)]

$$K_d = \frac{\text{particulate material Se*}}{\text{dissolved Se}}$$

transformation reactions

- **uptake by plants**
  [assimilatory reduction of $Se(VI)_d$, $Se(IV)_d$ and $org\text{-}Se(II)_d$ to $org\text{-}Se(II)_p$]
- **sequestration by sediments**
  [dissimilatory reduction of $Se(VI)_d$ to $Se(0)_p$]
- **adsorption of $Se(VI)_d$ and $Se(IV)_d$ onto particle surfaces**
- **recycling as part of decay** [$org\text{-}Se(II)_p$]

*phytoplankton, periphyton, detritus, inorganic suspended material, biofilm, sediment and/or attached vascular plants

Figure 13. Conceptual details of environmental partitioning reactions between dissolved and particulate selenium.