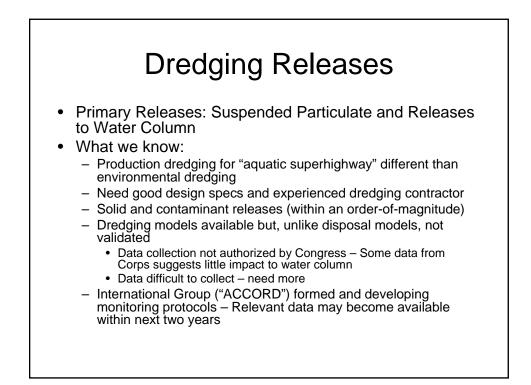
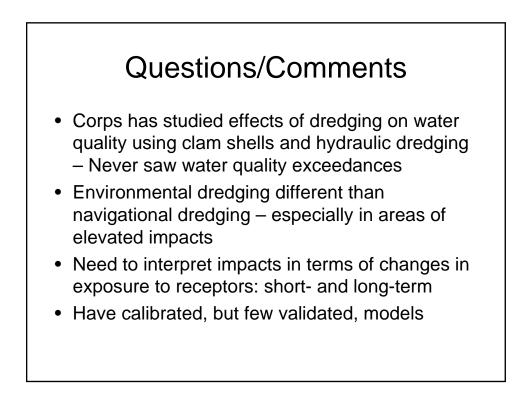
Panel 3 Synthesis – Processes of Relevance to Selecting Remedies

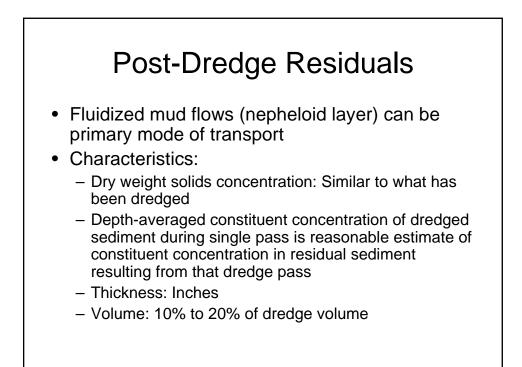
October 28, 2004

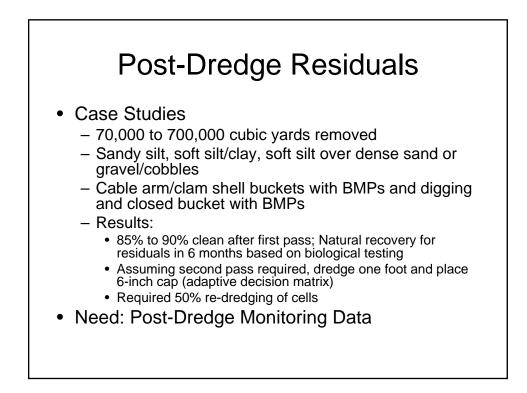
#### Presentations

- Contaminant Releases During Dredging
- Evaluating Post-Dredging Residuals
- Physical and Chemical Processes Affecting CAP Design and Performance
- Biological Processes Affecting Remedial Design and Performance
- Physical and Chemical Stability of Contaminants in Sediments



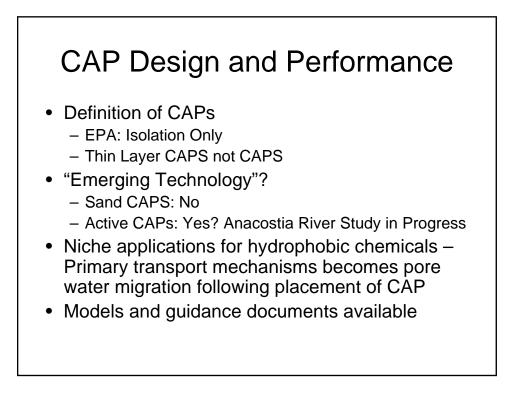






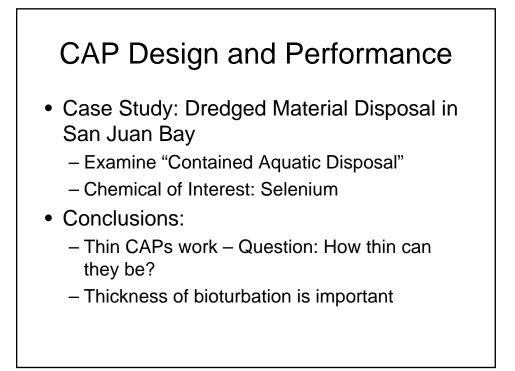
### Questions/Comments

- Natural recovery Should include subaquatic vegetation as well as benthic community
- Details regarding limitations of use of environmental bucket available in literature
- Need for definition of critical specifications for dredge operations Corps conference planned
- If capping required after dredging, why not cap in the first place?
- Some field data (Canada) suggest that marginal benefit associated with multiple passes



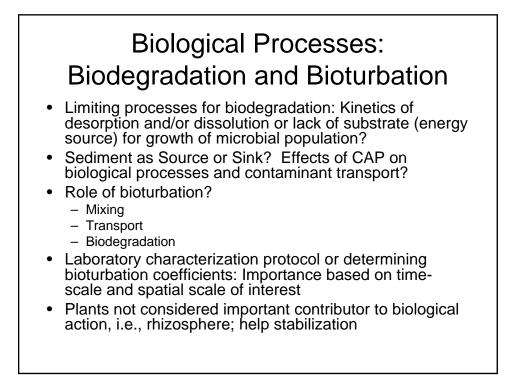
### CAP Design and Performance

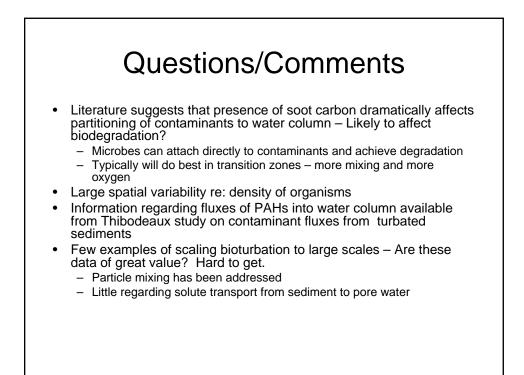
- Anacostia River Study Active CAPs
  - Sand
  - Apatite
  - Aqua Block
  - Coke
- Observations:
  - Can place material in thin layers
  - Gas evolution can be significant
  - Groundwater upwelling/seepage modified by CAP
  - DNAPL migration possible through voids

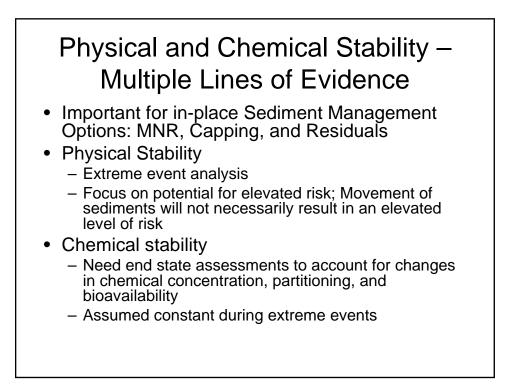


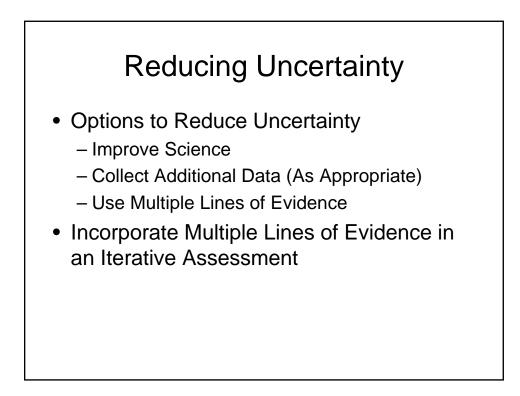
#### **Questions/Comments**

- Sand and Aquablock were not mixed during testing in Anacostia River
- Addition of carbon to sand can help slow down contaminant flux but will not eliminate it, at least at steady state conditions









## Key Questions/Comments: Panel Discussion

- Dredging Decreases Uncertainty Associated with Sediment Management
  - Can point to impacted sediment and say its been removed from the waterway
  - How much risk reduction has really been achieved?
  - Evidence that greater uncertainty drives more aggressive solutions?
- Sediments: Sources or Sinks?
  - Significant anthropogenic carbon content acts as strong sorbent for hydrophobic organics
  - Capping: Influence (reduce) biodegradation and result in contaminant movement?

# Key Questions/Comments: Panel Discussion

- Don't forget iron chemistry and importance as contaminant scavenger
- Importance of transient Nepheloid layer over long periods of dredging?
- How do we integrate current state of knowledge to make informed decisions regarding remedies?
  - Define future use (Consider expansion of ecological habitat)
  - Use CSM to define plausible pathways to achieve desired end state: Be honest about what is known or unknown
  - Eliminate options based on ability to achieve future end use conditions and associated risk to get there

#### Key Questions/Comments: Panel Discussion

- Try to avoid using quantitative limits for criteria such as resuspension as basis for making remedial decisions – Too much uncertainty
- Need good contractors who are part of the process from the beginning and who have been given proper incentives
  - Example provided: One pass dredge meeting criteria using four different buckets to address different conditions and with an incentivized contractor