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TVA RESEARCH SYMPOSIUM 2011

A summary of breakout session discussions.

|| Key Goals to Address:

Identify/assess any continuing damages.

Evaluate effectiveness of remediation.

Identify any new problems as they appear.

Current Monitoring

ACCUMULATION

- Bioaccumulation reflects exposure.
- Seeing spatial gradient for Se in multiple taxa.
- Causal relationship between ash spill and exposure to biota.

EFFECTS

- No obvious “smoking guns” in community or effects data at any level of biological organization...so far.
- Effects can take a long time to appear.

Future Monitoring Strategy

- Spatial extent
- Frequency
- What to monitor
- Adaptive managing



|| Spatial Extent and Frequency

SPATIAL

- Coordinate and overlap sample sites for different media and taxa whenever possible (tighten when possible).
- Focus on Emory River (spill site, below spill site, upstream) and confluences of Clinch/TN Rivers.
- Focus list of COCs to select metals
- Need routine, spatial extensive sampling regime of sediment (current and predicted) and porewater.

FREQUENCY

- Limited baseline monitoring for other abiotic media.
- Given goals of CERCLA, monitoring most biota 2 times per year.
 - Spring
 - Fall

Abiotic Monitoring

- Sediment

- pH, redox, electrical conductivity for predictive modeling of speciation
- DOC
- Metals speciation (Se)
- Grain size for modeling of ash transport

|| Biotic Monitoring

- Suite of sentinel species:
 - Birds
 - Fish
 - Mussels
 - Benthic Invertebrates
 - Periphyton
- Represent different feeding ecologies
- Want “stay-at-home species”

Adaptive Monitoring Strategy

- Process of periodically evaluating current findings which dictate future monitoring strategies.
 - Consider new tools and methods
 - Importance of hypothesis testing to evaluate any observed effects