GEOMORPHIC RECLAMATION AT COAL MINES
WESTERN KENTUCKY PROSPECTIVE
PAST AND CURRENT PRACTICES, BENEFITS AND CHALLENGES

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Working Explanation of Geomorphic Reclamation: Geomorphology generally is the study of landforms and the processes that shape them. This includes the substances that make up the land (i.e. rock and soil of various consistencies, hardness and cohesiveness) as well as the forces that act upon the substances (i.e. erosion forces such as wind and water and uplifting geological forces.) For our purpose, we are most concerned with the erosion capabilities of water and how it interacts with the substances that make up the land.
PAST PRACTICES

- HISTORIC CHANNEL DESIGN CONSIDERATIONS
  - FLOW CAPACITY
  - CHANNEL VELOCITIES

- HISTORIC ACCOMPLISHMENTS
  - MAINTENANCE OF FLOW
  - JURISDICTIONAL CONNECTIVITY
TYPICAL ISSUES

- VELOCITY MODIFICATION

HEAD CUTS
SEDIMENT DEPOSITION
Figure 1. Weighted mean Rapid Bioassessment Protocol scores for 411 Western Kentucky Coal Field stream reaches. A score of 109 is the threshold for non-support of aquatic life in the ecoregion (KDOE, 2002).
REGIONAL LAND USES

- FORESTED / AGRICULTURAL 47%
- DEVELOPED AREAS 2.4%
- MINING ACTIVITIES 0.4%
- ALL OTHER LAND USES 50.2%
POTENTIAL BENEFITS

- REGULATORY APPROVALS
- REDUCED LIFECYCLE MAINTENANCE COST
- IMPROVED WATER QUALITY
- INCREASED ECOLOGICAL VALUE
- IMPROVED POST MINING LAND USE
- ENHANCED POST MINING VALUE
CHALLENGES

- REGULATORY COORDINATION
- INDUSTRY EDUCATION
- OPERATOR BUY IN
- AGENCY COOPERATION
RESULTS

- INCREASED ECOLOGICAL VALUE
- CONTINUED COMPETITIVELY PRICED ENERGY