

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

PRESENTED BY



GEOMORPHIC RECLAMATION

- ▣ **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.

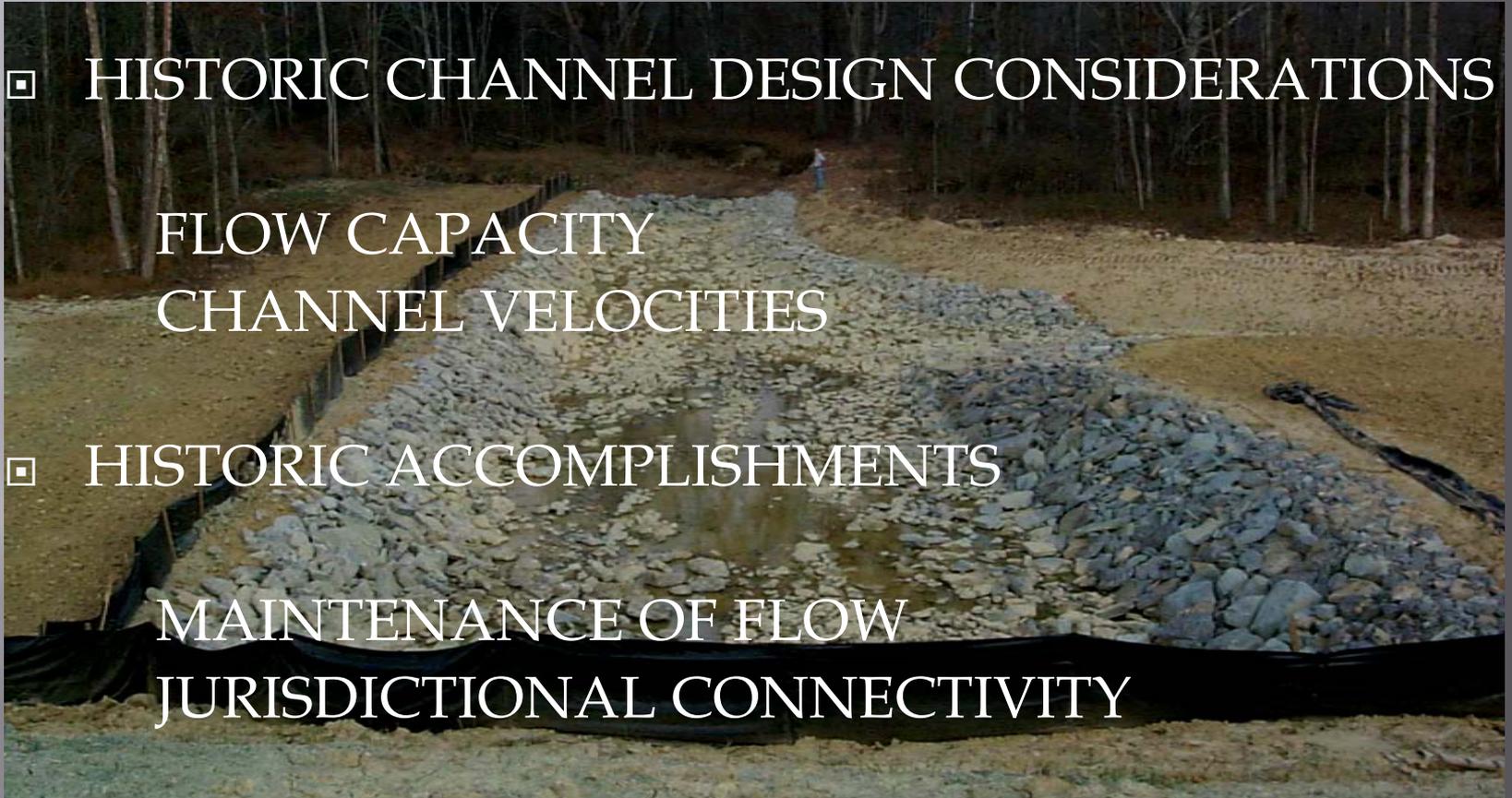
PAST PRACTICES

▣ HISTORIC CHANNEL DESIGN CONSIDERATIONS

FLOW CAPACITY
CHANNEL VELOCITIES

▣ HISTORIC ACCOMPLISHMENTS

MAINTENANCE OF FLOW
JURISDICTIONAL CONNECTIVITY



TYPICAL ISSUES

▣ VELOCITY MODIFICATION

HEAD CUTS



SEDIMENT DEPOSITION



CURRENT CONDITIONS

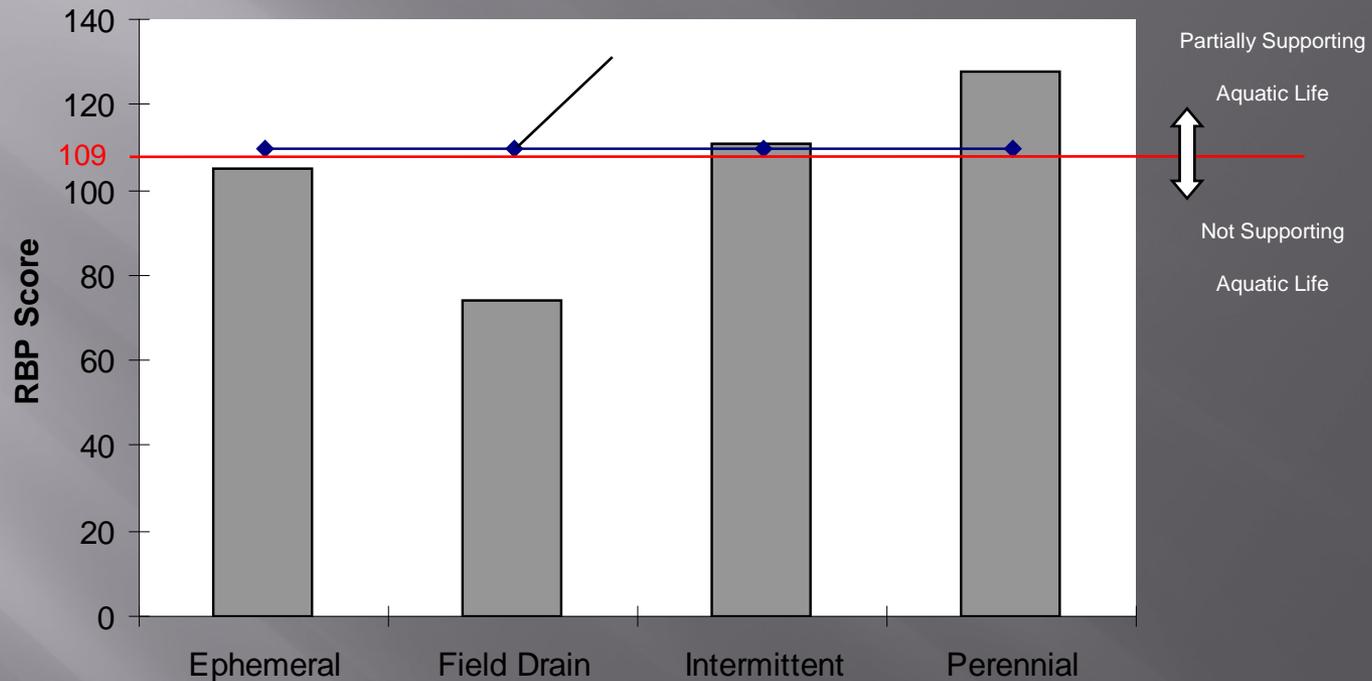


Figure 1. Weighted mean Rapid Bioassessment Protocol scores for 411 Western Kentucky Coal Field stream reaches. A score of 109 is the threshold for non-support of aquatic life in the ecoregion (KDOW, 2002).

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