

Stream Habitat Assessment in Iowa

Workshop on Stream Habitat Assessment

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Central Plains Center for Bioassessment

Lawrence, KS

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Stream Habitat Assessment in Iowa

- **Information Uses**
- **Data Collection and Assessment Methods**
- **Data Synthesis, Analysis, and Interpretation**
- **Needs and Recommendations**

Habitat Information Uses

- **Stream Designated Use Classifications**
- **Trend Monitoring**
- **Biocriteria Development**
- **Section 305b Designated Use Assessment**
- **Fisheries Management Research**

Levels and Types of Habitat Data Assessed

- **Landscape/Watershed** (land cover, soils, mean basin slope)
- **Segment** (riparian vegetation, stream order, sinuosity, channel slope)
- **Reach** (buffer vegetation and width, bank condition, channel shading, wetted channel width, average depth, channel bedforms, substrate composition, large wood debris, instream cover)
- **Micro-habitat** (benthic substrates / habitat niches)

Habitat Assessment Methodologies

- **Stream Classification Survey**
- **Rapid Bioassessment Protocols**
- **Habitat Suitability Models**
- **Quantitative Channel Transect Approach**

Transect Data Synthesis

- **Raw data aggregated to stream reach scale**
- **3 types of variables summarized:**
 - 1) **riparian / streamside**
 - 2) **channel morphology and dimensions**
 - 3) **instream habitat**
- **Habitat summary variables stored in relational data base**

Data Analysis and Interpretation

- **Statistical analysis supporting biocriteria development**
- **Section 305b assessment of designated use impairment causes and sources**
- **Multivariate statistical analysis to identify linkages between landscape/habitat variables and aquatic community**

Habitat-Related Section 305b

Impaired Use Causes and Sources

Causes:

- 1100 Siltation
- 1600 Other habitat alterations

Sources:

- 1410 Pasture grazing - riparian
- 7000 Hydromodification
- 7100 Channelization
- 7550 Habitat Modification (other than hydromodification)
- 7600 Removal of riparian vegetation
- 7700 Bank or shoreline modification/destabilization

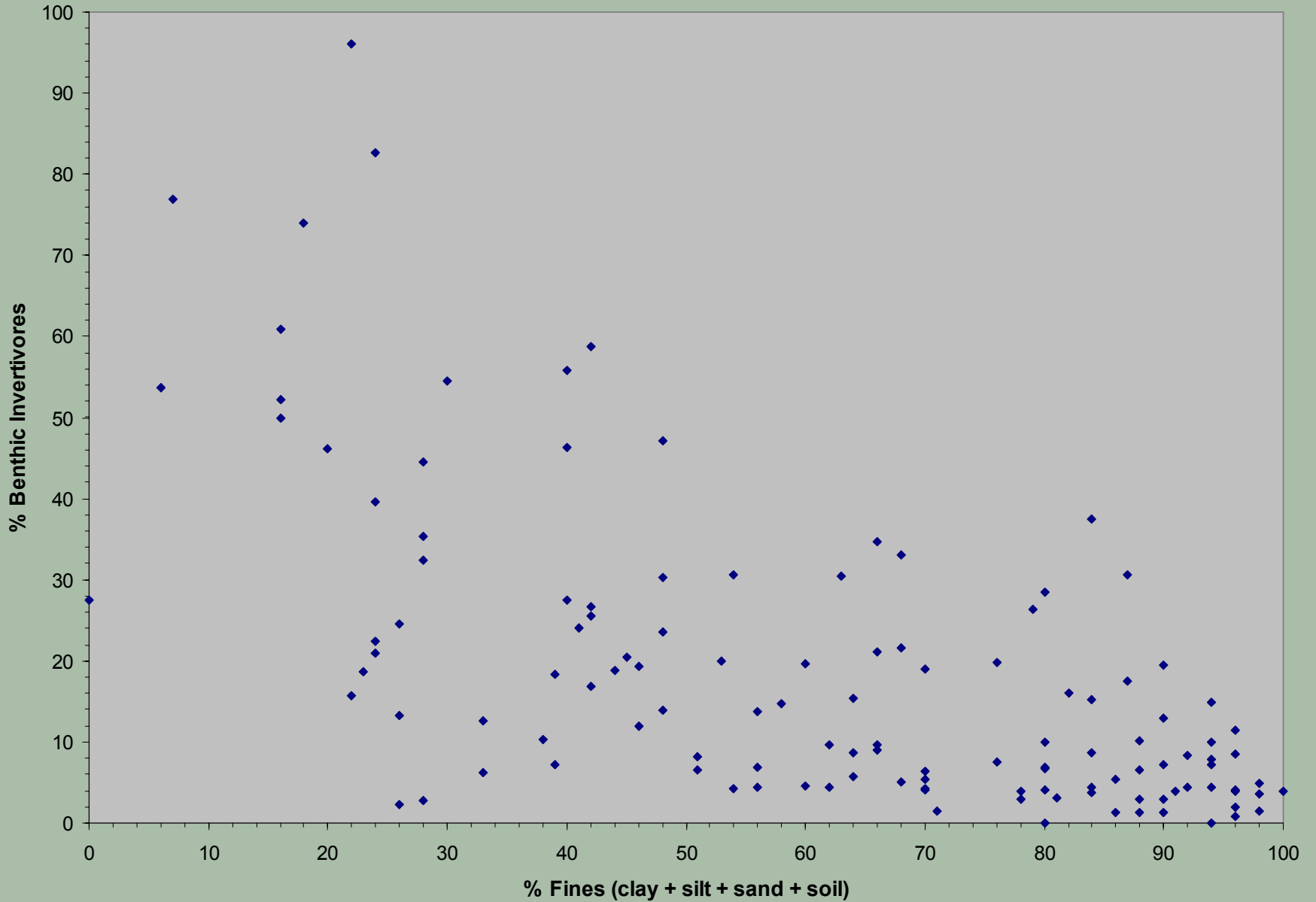
Summary and Needs

- **IDNR uses stream habitat information for multiple purposes**
- **No formal guidelines or standards governing collection, analysis, and interpretation of habitat information**
- **Many needs:**
 - **improved data collection methods**
 - **improved assessment models (at all scales)**
 - **methodology for causes/sources assessment**
 - **regional reference stream habitat conditions**

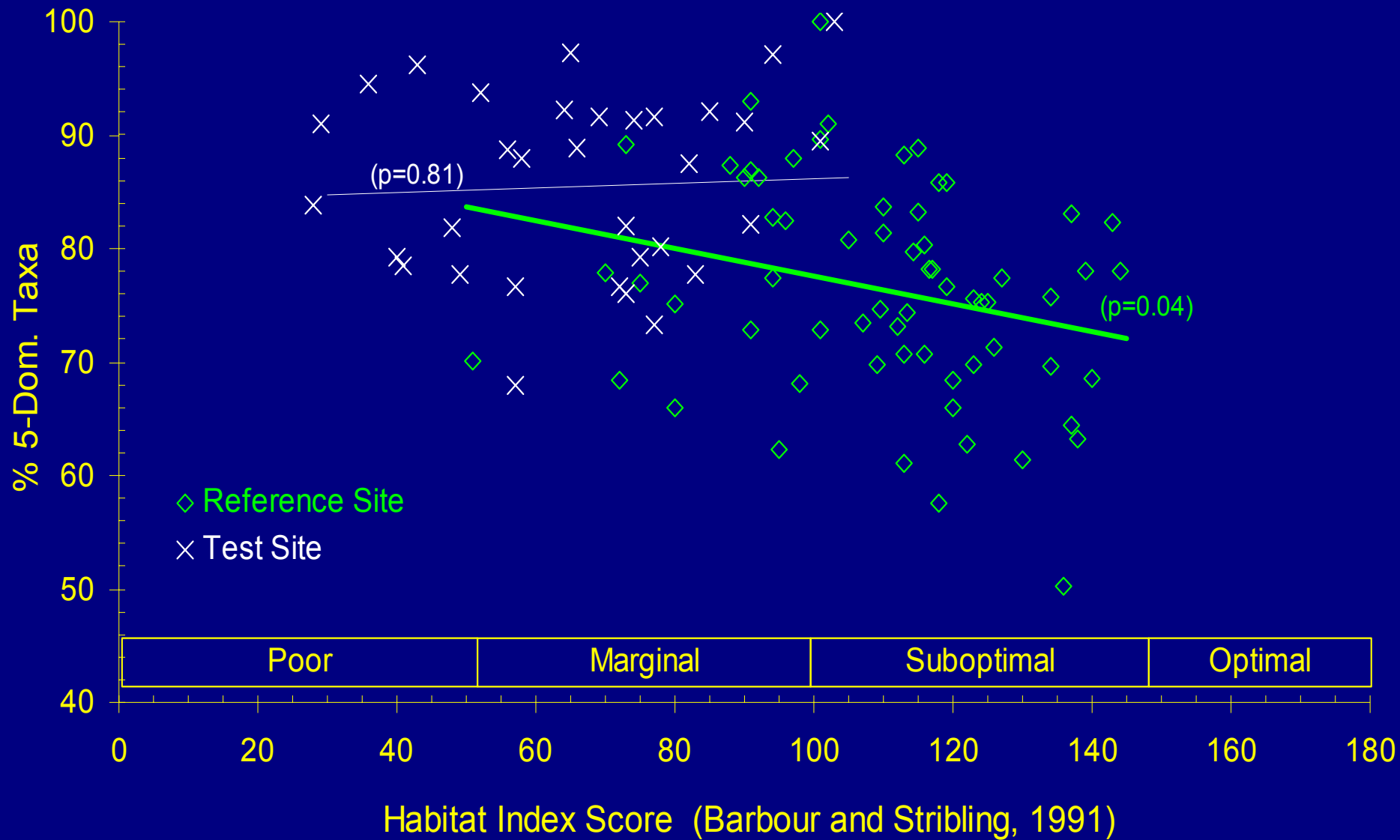
Channel Transect Data Collection Methods



% Fish in Sample as Benthic Invertivores and % Stream Bottom Area as Fine Sediments All Sites and Ecoregions (1994 - 1997)

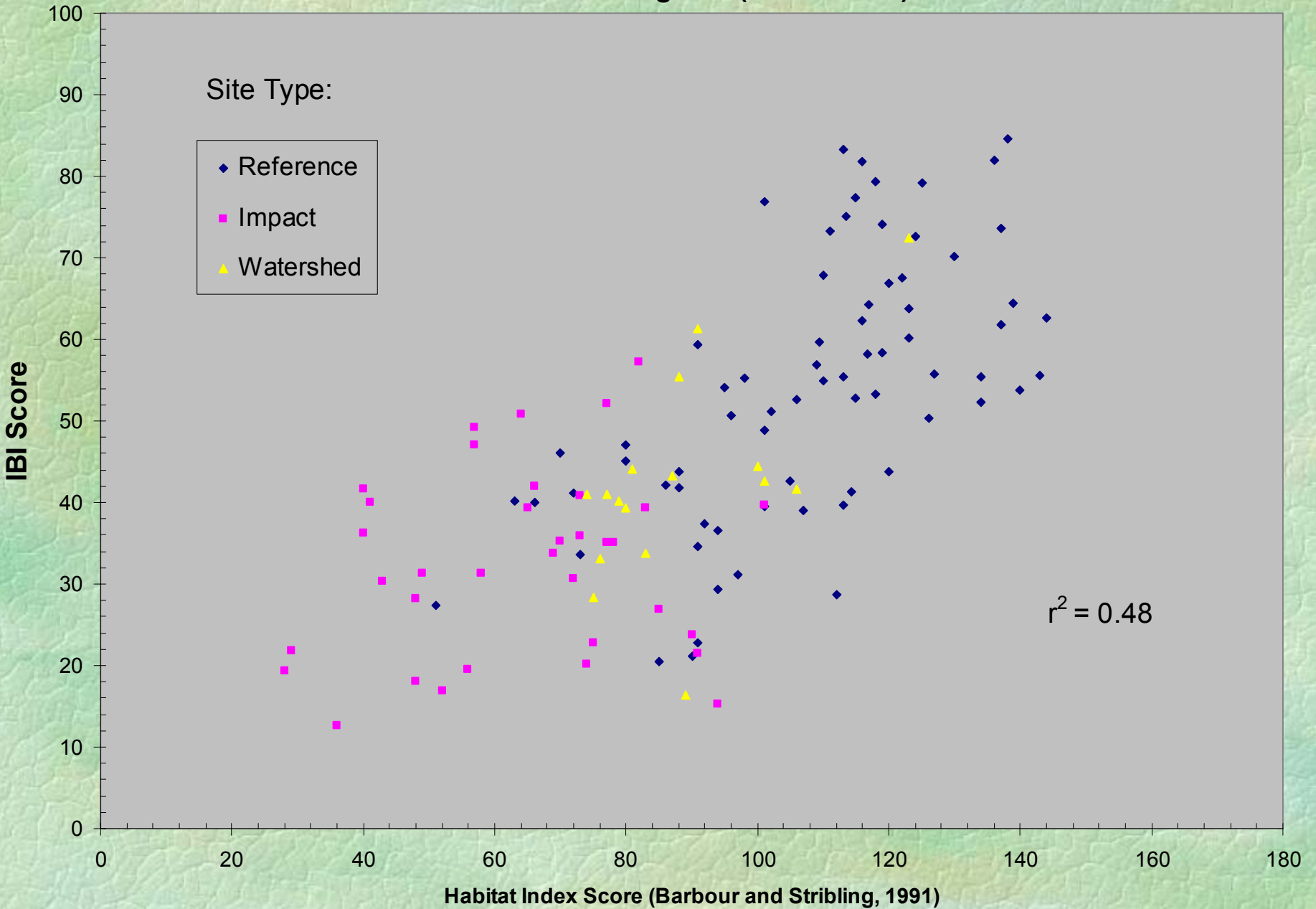


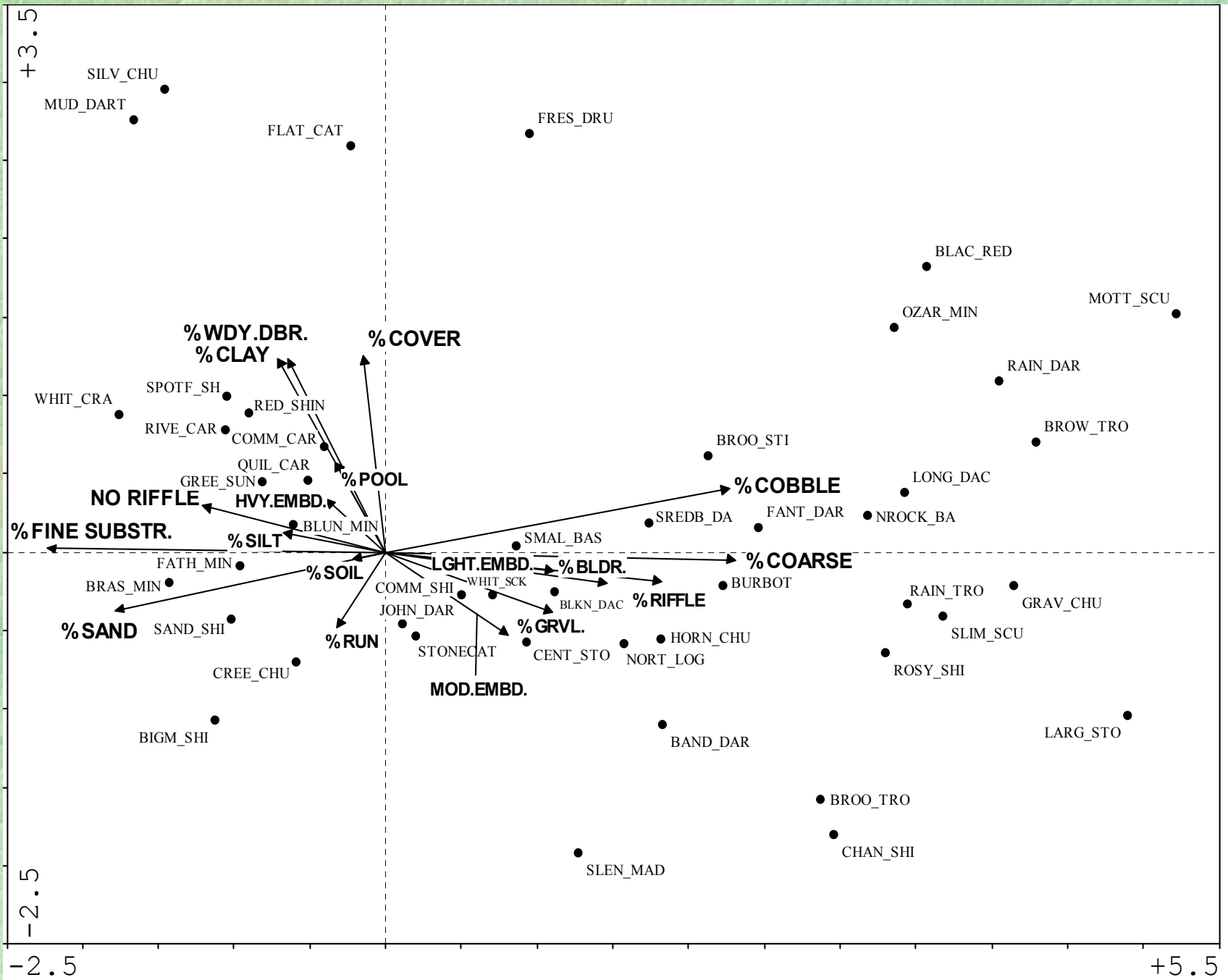
Proportion of Stream Benthic Macroinvertebrate Sample Comprised of 5-Dominant Taxa: Standardized Habitat Samples, 1994 - 1997



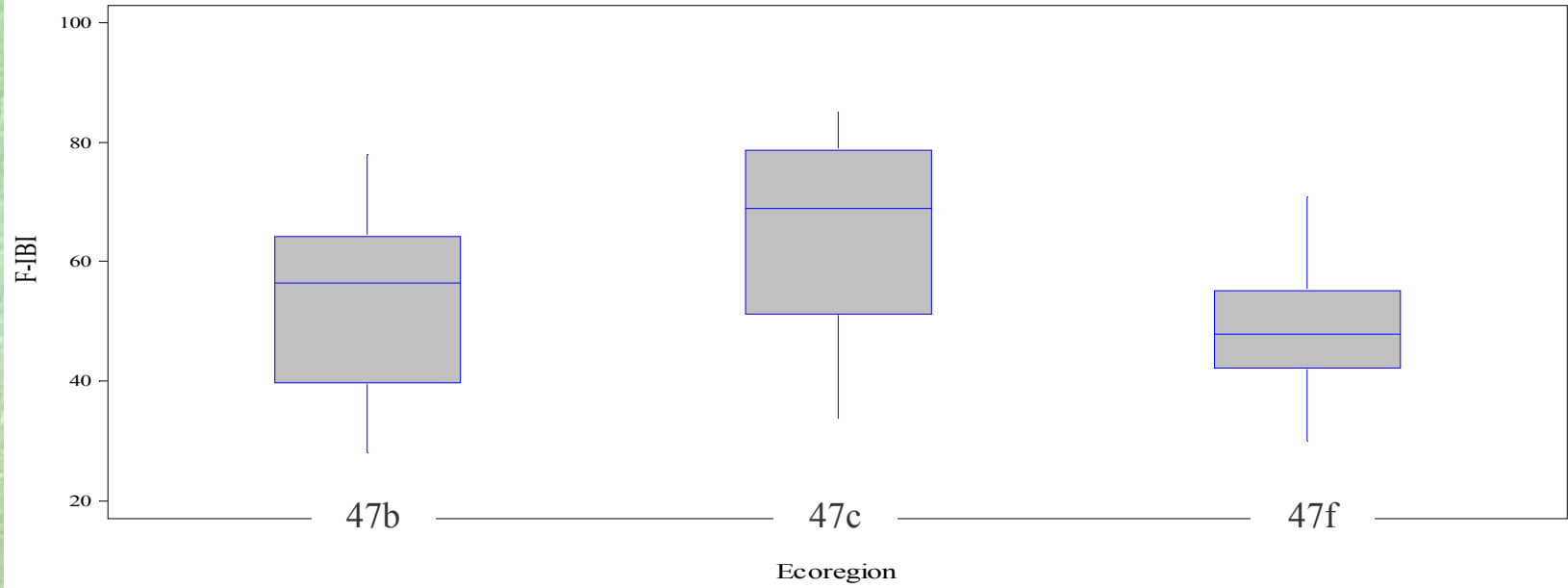
Fish IBI X Stream Habitat Index

All Sites and Ecoregions (1994 - 1997)

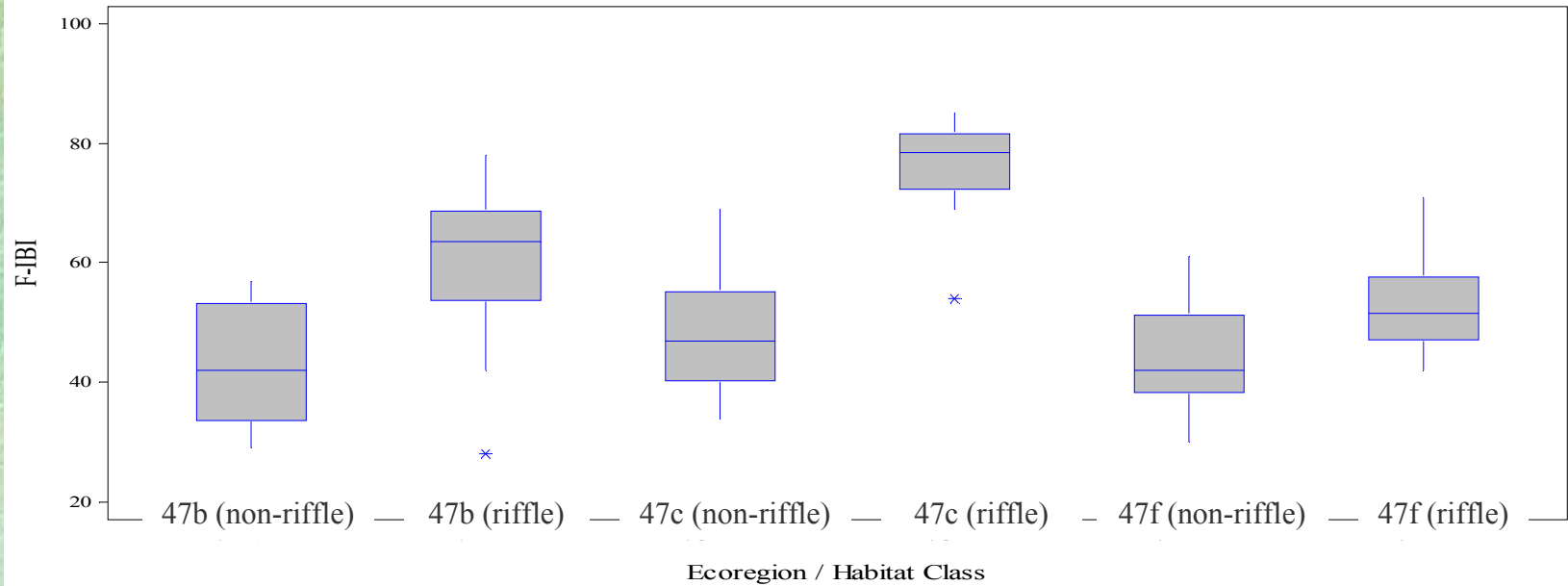




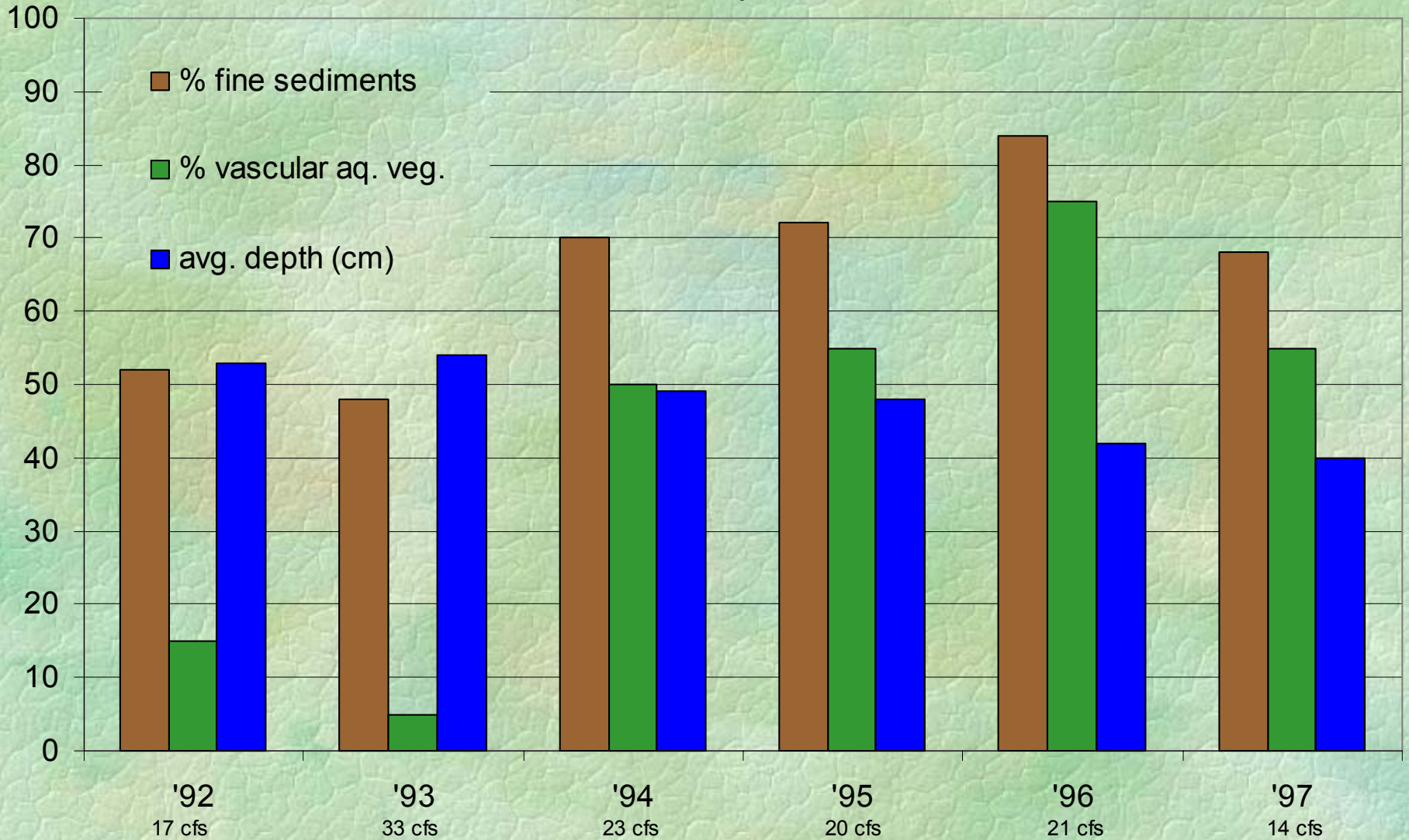
Fish IBI X Ecoregion



Fish IBI X Ecoregion & Habitat Class



Relationship of fine sediments, vascular aquatic vegetation, and water depth in Bloody Run Creek, Site BR1



Questions