

Lecture 18
Biotic Integrity
Fish Management (Zool 466)

1. Researchers and managers have different goals
 - a. Researchers – focus on understanding and publications
 - b. Managers – need tools for policy, regulations
2. What Indices are available for ecosystem health?
 - a. Individual – W_r (already covered)
 - b. Population – PSD, RSD
 - c. Community
 - i. Richness
 - ii. Diversity
 - iii. IBI – Index of Biotic Integrity (lecture focus)
 - d. Habitat – Qualitative Habitat Evaluation Index (QHEI)
 - e. Suitability Indices (for streams and rivers)
 - i. Habitat Suitability Index (standardized curves)
 - ii. Instream Flow Incremental Methodology (specific flows that provide “optimum” habitat for fish)
3. IBI – mechanics and case study
 - a. Response to other indices which do not look at the biological “endpoint”
 - b. Ease of use – fishes, whose distribution is affected by
 - i. Responses of multiple trophic levels
 - ii. Habitat types available
 - iii. Water quality
 - c. Goals
 - i. Classify streams based on fish assemblages
 - ii. Categories
 1. Excellent
 2. Good
 3. Fair
 4. Poor
 5. Very poor
 6. No fish
 - d. Components
 - i. Species composition and richness
 1. number of species
 2. presence of intolerant species
 3. Darters, suckers, sunfish
 4. Green sunfish
 5. Hybrid sunfish
 - ii. Ecological factors
 1. # Individuals per sample
 2. Proportion of omnivores
 3. Proportion of insectivores
 4. Proportion of top carnivores

5. Disease occurrence
- iii. Grading System
 1. + receives 5
 2. 0 receives 3
 3. – receives 1
 4. sum