

Stream and River Overview

- I. Lotic Systems
 - A. Continuously moving water
 - B. Important factors include
 - 1. Gradient
 - 2. Discharge
 - 3. Sediment Load
- II. Gradient
 - A. High Gradient - Fast stream
 - 1. Low sedimentation (most sediment carried away)
 - 2. Rock bottom (and perhaps some fine clay)
 - 3. Development of riffles, pools, and runs
 - a. Riffle
 - (1) turbulent
 - (2) aufwuchs
 - (3) substrate SA/volume drives production
 - b. Pool/Run
 - (1) Laminar, deep
 - (2) Sport fish
 - B. Low Gradient - Slow stream
 - 1. Sedimentation
 - 2. Homogeneous characteristics
 - 3. Meanders and braiding
 - 4. Biological composition
 - a. Molluscs
 - b. Burrowing mayflies
 - c. Mix of riverine and lentic fish
- III. Stream ordering system - two streams of same order must combine to become next order
- IV. River Continuum Hypothesis - Vannote et al. (1980)
 - A. Upstream - inputs from terrestrial important
 - B. Downstream - inefficiencies in the upstream production fuel downstream production
- V. Altered and Regulated Streams and Rivers
 - A. Why?
 - 1. Navigation
 - 2. Flood Control
 - 3. Irrigation
 - 4. Hydropower
 - 5. Recreation
 - 6. Sediment retention
 - B. Some problems
 - 1. Impeded fish passage
 - 2. Siltation
 - 3. Hydrological alteration - loss of predictability
- VI. Comparisons among systems - lentic versus lotic versus regulated lotic