

Invertebrate Drift – Costs and Benefits of Going with the Flow
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I. Costs and benefits of dispersal

II. Downstream drift of aquatic stages

- A. Why are stream ecologists fixated on this phenomenon?
- B. How measure?
- C. Detecting patterns of temporal variability
- D. Detecting causes of drift (Evidence?)
 - 1. Passive drift (accidental) - oops! ☹ (Kohler 1983)
 - 2. Active drift (voluntary) - wheee! ☺
(Abiotic and Biotic Stressors) (Hall et al. 1980, Hildebrand 1974, Malmqvist and Sjöstrom 1987)
 - 3. Do predators influence prey drift behavior?
 - a. Evolution of nocturnicity? (Flecker 1992) “Ghost of Predation Past”
 - b. Induction by fish? (McIntosh & Peckarsky 1999, Peckarsky & McIntosh 1998)

III. The "drift paradox": Upstream reaches would run out of bugs without compensatory upstream movement. **Fact or Fancy?**

- A. The Colonization Cycle Hypothesis (Svensson 1974) – Evidence?
- B. Do adults fly upstream? (Hershey et al. 1993, Macneale 2005)
- C. Why don't upstream reaches run out of bugs?
 - 1. Aquatic stages move upstream (Elliott 2003)
 - 2. Short drift distances (Ode 2002, Allan and Feiferick 1989)
 - 3. Only need a few females - random flight direction is sufficient (Anholt 1995)
 - 4. Why do females of some species fly upstream? *Baetis* example:
 - a. Oviposition site limitation?
 - b. Avoid trout?

Suggested Reading:

Allan, Stream Ecology (First Edition)- Chapter 10- Drift. pp. 221 – 237
Second edition – pp. 211 – 213