

**An Introduction to Freshwater Ecology**  
(read: pp 3-14 in Dodson)

“For many of us, water simply flows from a faucet, and we think little about it beyond this point of contact. We have lost a sense of respect for the wild river, for the complex workings of a wetland, for the intricate web of life that water supports.”

--Sandra Postel

**Why care about water?**

- Water is needed for life.
  - $6\text{CO}_2 + 6\text{H}_2\text{O} \Rightarrow \text{C}_6\text{H}_{12}\text{O}_6$
  - Humans—provides direct and indirect resources that human societies depend on.
  - Water-related diseases are the leading killer of children under 5.
  - Animals—most animals are 70% water.
- Increasingly limited resource
  - Water conservation and management increasingly important.
  - Opportunity for making a difference in world
    - Good difference?
    - Bad difference?

**What is Freshwater Ecology?**

- The relationships between organisms and their surrounding environment.
  - in freshwaters

**What is Limnology?**

- The science of inland waters, including physical, chemical, and biological components.
- “The oceanography of lakes [and streams]” Forel 1892
- Focuses on inland waters, including salty (non-fresh) ones.
  - Eg., lakes, streams, wetlands, salty inland seas
  - Lentic = still-water (e.g. lakes)
  - Lotic = moving water (e.g. streams)
- Strong applied component
- Integration of multiple disciplines.
  - E.g., food web model

### **History of Limnology and Notable Limnologists**

- Francois Forel (1880s-1900s)
  - Studied Lake Geneva in Switzerland
  - Coined phrase “Limnology”
  
- Stephen Forbes
  - US Midwest lakes and rivers
  - Classic paper--“Lake as a microcosm” 1887
  
- Brige and Juday (early 1900s)
  - Founders of academic limnology in North America
  - Wisconsin lakes
  - Interdisciplinary approach
  
- G.E. Hutchinson (early and mid-1900s)
  - Advisor of many of the founders of ecology
  - “Father of modern limnology”
  - “modern Darwin”
  
- W.T. Edmondson
  - Student of Hutchinson
  - Studied Lake Washington in Seattle WA—classic example of application of science to conservation
  - 1950s-2000