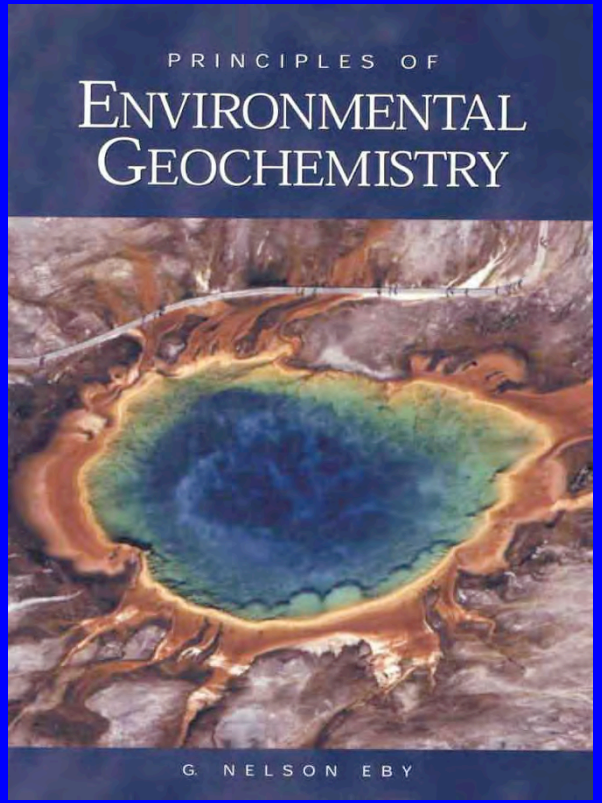
Wesleyan Earth & Environmental Sciences 250 / 251
Environmental Geochemistry and Laboratory



Faculty: Tim Ku

EES 250: 1 credit lecture class

EES 251: 0.5 credit laboratory class (Service-Learning project on Bolton Lakes)

What is Service-Learning?

- Service-Learning seeks to broaden students' understanding of course content through activities which are, at the same time, of service to the community.

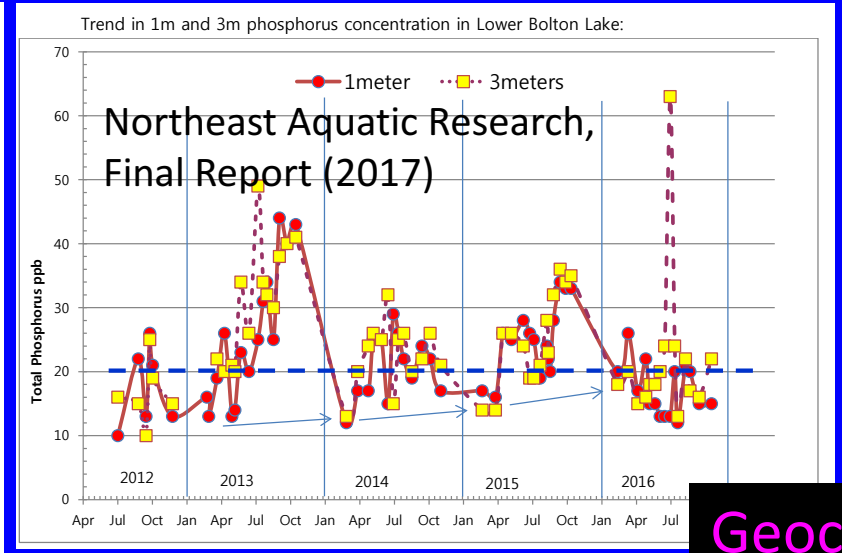
Lower Bolton Lake
Status Up-Date

Prepared for:
Town of Bolton
Bolton, CT

Prepared by:
Northeast Aquatic Research, LLC
Mansfield, CT

2017

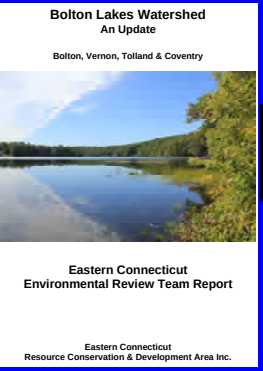
May 8, 2017
June 19, 2017
October 31, 2017



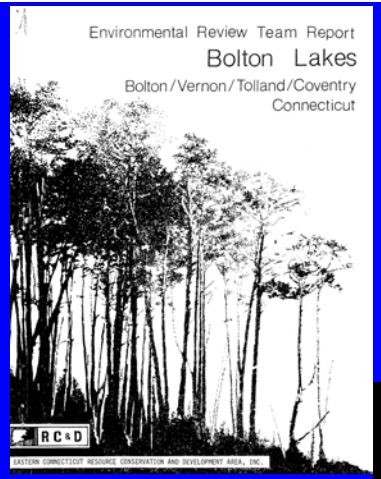
Northeast Aquatic Research, Final Report (2017)

Department of Earth & Environmental Sciences, Wesleyan University

Geochemistry of plants and sediment

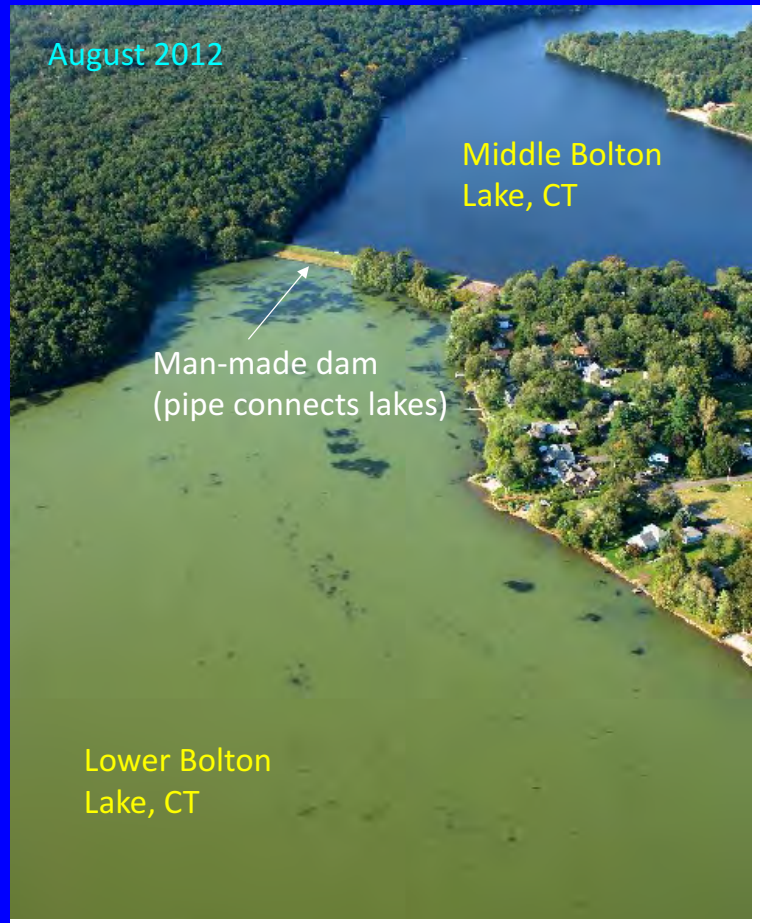


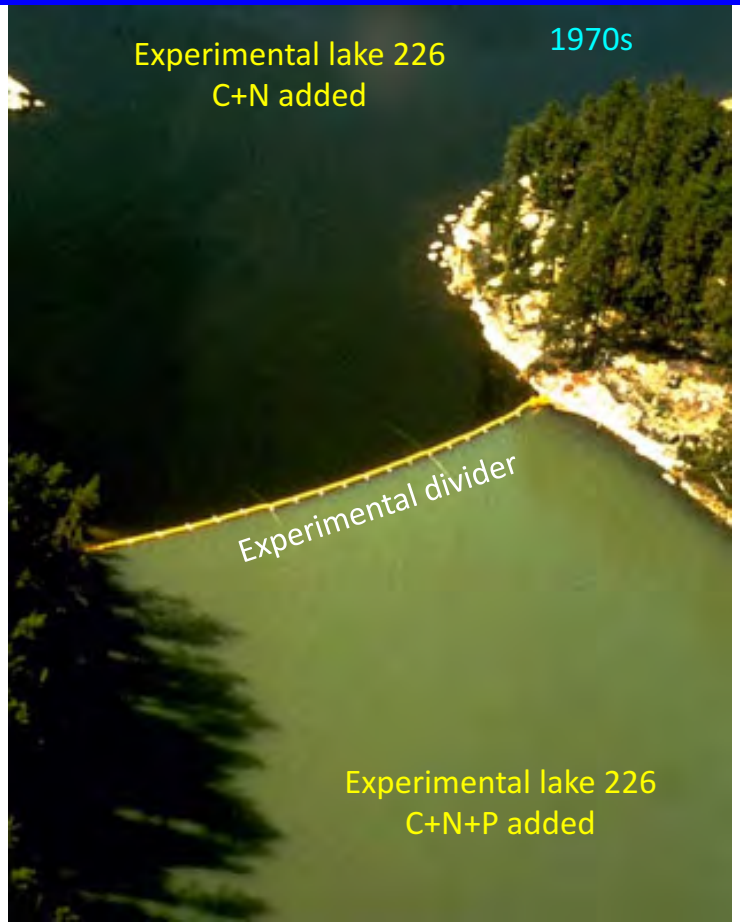
2014

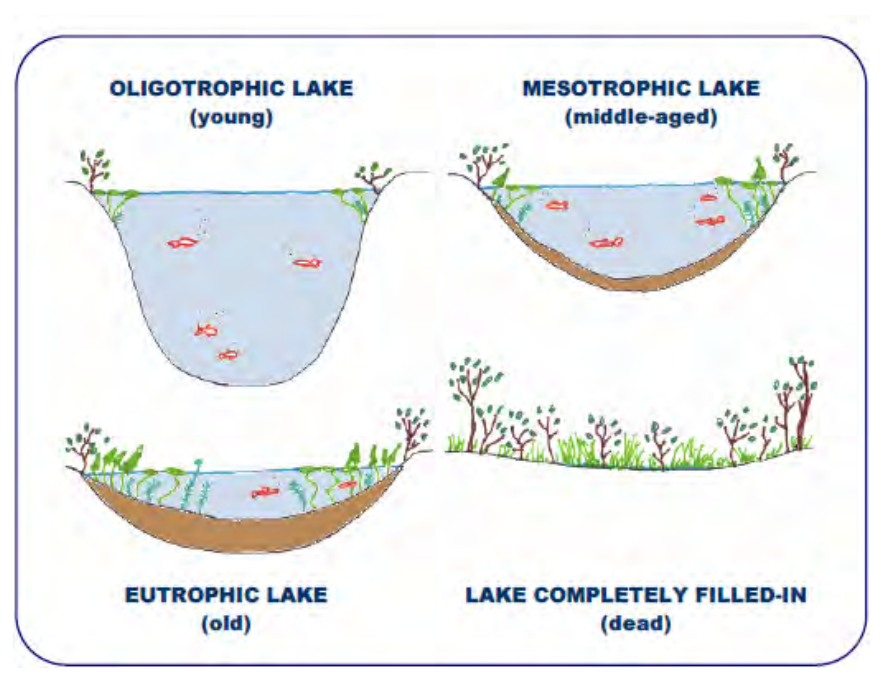


1978

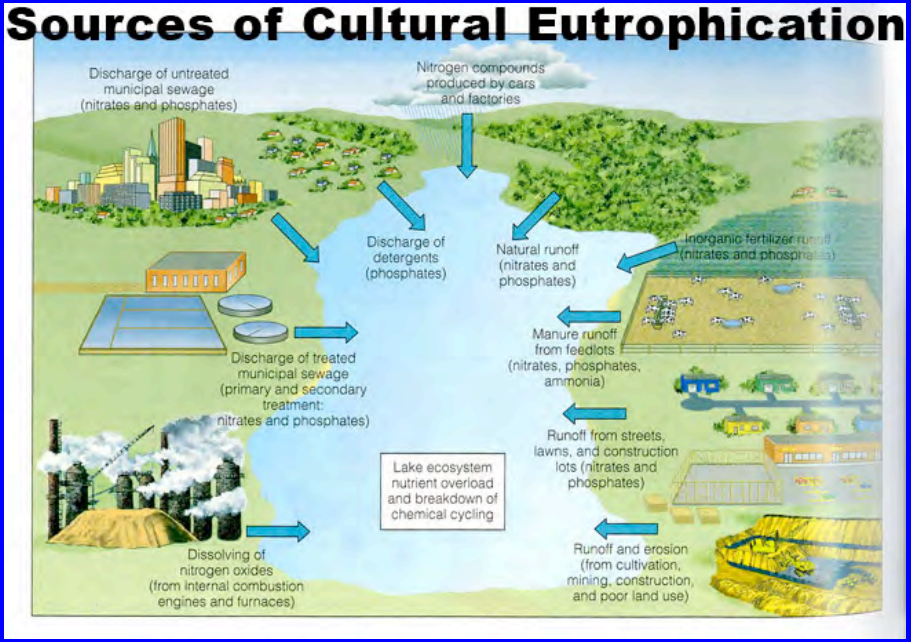
Invasive species







-Cultural Eutrophication: process accelerated by anthropogenic activities

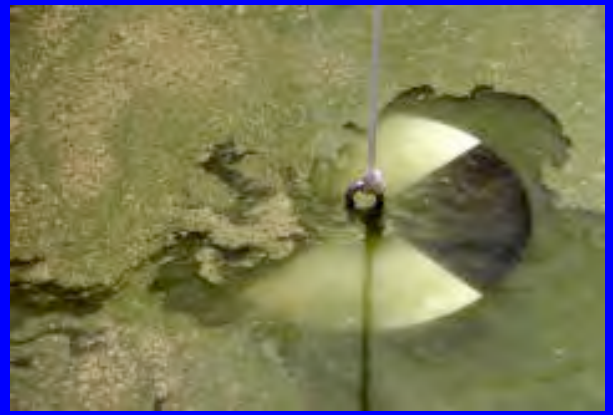


Eutrophication:

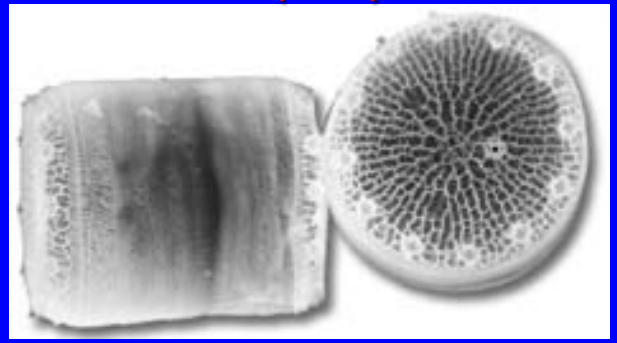
Process by which water bodies are made more well-nourished, eutrophic, by an increase in their nutrient supply (P, N, etc…)

[Canavan and Siver, 1995]

	Total Phosphorus (µg / L)	Total Nitrogen (µg / L)	Chlorophyll-a (µg / L)	Secchi Disc Depth (meters)
oligotrophic	0-10	0-200	0-2	>6
early-mesotrophic	10-15	200-300	2-5	4-5
mesotrophic	15-25	300-500	5-10	3-4
late-mesotrophic	25-30	500-600	10-15	2-3
eutrophic	30-50	600-1000	15-30	1-2
hyper-eutrophic	>50	>1000	>300	0-1



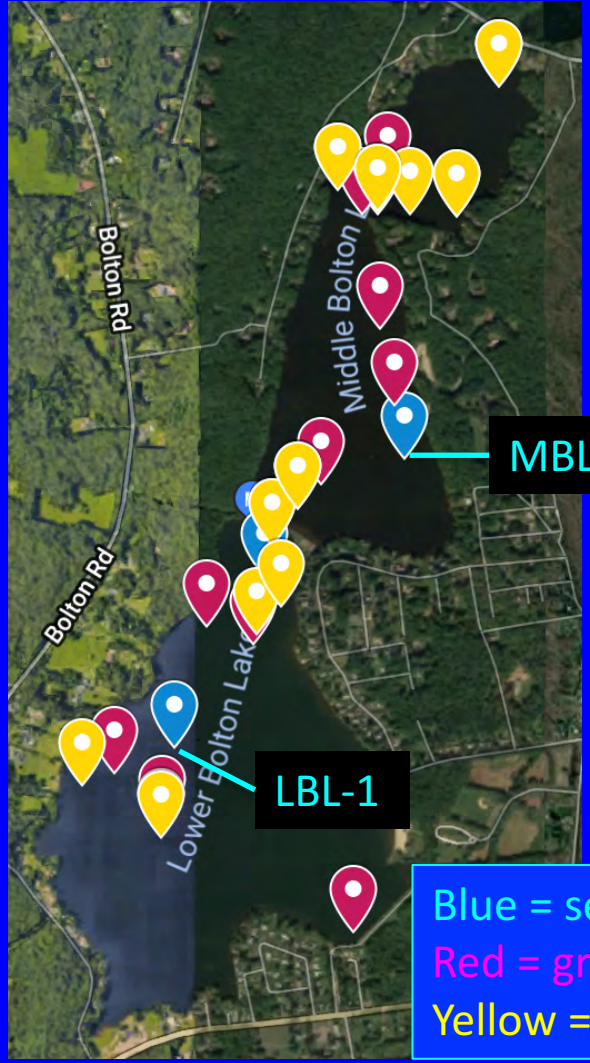
- Diatoms (SiO_2)



- Blue-Green Algae

Field Work

- June 28-29, 2017: water and sediment samples from Lower and Middle Bolton Lakes (Peter van Dine and Karl Prewo)
- September 15, 2017: Class sampled water and sediments from Lower Bolton Lake with help from Gerry Lalancette
- September 29, 2017: Class collected samples from Middle Bolton Lake with Karl Prewo



Sampling Locations

Blue = sediment cores
Red = grab samples
Yellow = plant samples


WESLEYAN

A Geochemistry Study of Middle and Lower Bolton Lakes

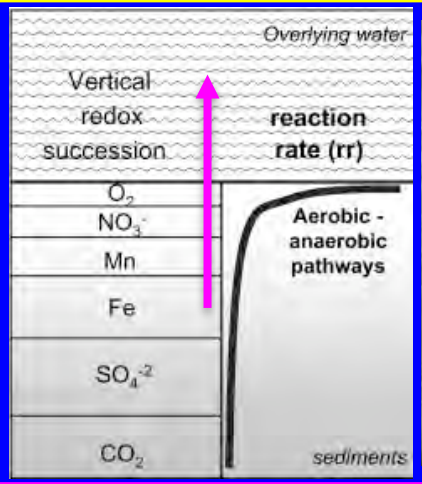
Introduction (Tim Ku)

1. Internal Loading

   Owen, Paula, and Jason

2. Aquatic Plants

   Matt and Hannah



- -> Break?

3. Physical Sedimentology

   Jordyn-Marie, Natasha, Emma, and Shuo

4. Nutrient History

   Min, Melissa, Celeste, and Molly

5. Diatoms

   Eliza and Eduardo

1-2 quick questions at the end of each talk, but please save longer questions for the break of the end of the presentations

ACKNOWLEDGMENTS

- **Friends of Bolton Lakes**
  Karl Prewo, Peter Van Dine, John Williams, Shelly Jewel, Paul Weisser, David Forrest, Jeff Phelon, Gerald Lalancette, and Paul Senk
- **Aquatic Ecosystem Research**
  Mark June-Wells
- **Wesleyan Allbritton Center for the Study of Public Life**
  Peggy Carey Best
- **Wesleyan University E&ES Department**
  Joel Labella, Virginia Harris, Johan Varekamp