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Burr's Pond and the Runnins River Annual Watershed Survey

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Burr’s Pond & The Runnins River
Mrs. Cunard’s AP Biology Class
Runnings River Overview

Site A
- Discolored brown-and-green water
- Algal growth.
- Wooden bridge above murky water
- Sulfur odor

Site B
- Contains a waterfall
- Base of waterfall is very rocky
- Shallow, fast moving water
- Abundance of foliage & wildlife
History of Burr’s Pond

• The pond was formed by Milo Burr in 1851 to create a dam for power generation
• Burr’s Pond created enough power to operate a tannery and three sawmills
• Many shallow places that then drop off
• Deepest place recorded is thirteen feet
Summer of 2012 Project

• Students were asked to observe several behaviors, nutrient cycles, and invasive plants at the pond.
Description of the Field Trip & Deployment of probes

- The water was tested for temperature, pH, dissolved oxygen, and specific conductance by using probes that were submerged in two locations (site A and site B).
- In order to deploy the probes, we had to put on waders and walk directly into the water.
- We tied the probe to a board in order to protect it and have something to attach the anchor to.
- Finally, we dropped the anchor and deployed the probe for a 24 hour period of time.
What is Dissolved Oxygen?

- The relative measure of the amount of oxygen that is dissolved or carried in a given medium
- Vital for all aquatic organisms to survive
- Concentrations of DO are measured in parts per million (ppm)
- Higher ppm = greater species/plant diversity
- Affected by:
  - Temperature, stream velocity, pollution, aquatic plant life
What Are Watersheds?

Watersheds are places where run off water collects. The Runnins River and Burr’s Pond are part of the Mount Hope Watershed.
Temperature and $O_2$ Dissolution Site A

- DO is inversely proportional to temperature
- No aquatic plant life producing DO
- Minimal flow
Temperature and Dissolved Oxygen at Site B

Temperature (Degrees Celsius) vs. Time (hours)

- Temperature (C) represented by green line.
- Dissolved Oxygen (mg/L) represented by yellow line.

Temperature and dissolved oxygen levels vary throughout the day, with peak oxygen levels occurring around midday and temperature peaks occurring in the early morning and late evening.

Data points:
- Temperature: 8°C to 22°C
- Dissolved Oxygen: 6 mg/L to 15 mg/L
Factors Affecting Site B

- Rocky bottom
- Shallow water
- Canopy/Mostly in shade
- Waterfall primary influence on DO
Site A Over the Years

Site A Temp vs DO at 4PM

Year

Amount

2005 2006 2007 2008 2009 2010 2011 2012

DO (mg/L) Temp (C)
Comparison at Site B
2005-2012 at 4 pm
Conclusions

- Site A's DO is higher than B's in general.
- Site B's DO is influenced by the waterfall.
- Site B’s DO is influenced by water level over the years.
Thank you from the Seekonk High School AP Biology Class!

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