2005

The Effect of Autumn Leaf Drop on Water Quality at Turner's Pond Outlet

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The Effect of Autumn Leaf Drop on Water Quality at Turner’s Pond Outlet

By: The Senior Botany Class of Greater New Bedford Regional Vocational Technical High School

Fall 2005
Objective: To determine the role leaf drop plays in changing water chemistry and habitat

- Collect water chemistry data
- Collect macroinvertebrates
- Two dates – before and after leaf drop
Macroinvertebrate test site

- October 6 & 7, 2005 - Before leaf drop - test site – upstream of bridge

- October 27 & 28, 2005 - After leaf drop – test site – more upstream from bridge – significant flooding and habitat change
Before leaf drop - test site – downstream of bridge

After leaf drop – test site – downstream of bridge – significant flooding and habitat change
Flooding

- After leaf drop, significant wind and rains dropped trees throughout the test site.
- Site was hazardous for data collection.
Macroinvertebrate sampling

- Before leaf drop the macroinvertebrate sampling yielded a small sample that did not need to be further divided.
- After leaf drop the macroinvertebrate sample was much larger.
Macroinvertebrate samples

- Organisms found at the site both dates included scuds, caddisflies and damselflies

- Organisms found prior to leaf drop also included a water scavenger beetle

- Organisms found after leaf drop included mayflies, riffle beetles, dobson flies, midges, a crayfish and an aquatic sow bug
Macroinvertebrate identification

Students use a field book, handouts, and previously identified samples to identify mystery macroinvertebrates.
Data – Biotic Indices

- **Major group biotic index:**
  - October 7, 2005 – 6.0 Fair/Poor
  - October 28, 2005 – 6.8 Poor

- **Family group biotic index:**
  - October 7, 2005 – 3.9 Very Good
  - October 28, 2005 – 4.1 Very Good
Preparation of presentation

- Power Point experts construct the presentation
- Review and add to photographs
Figure 1: Comparison of dissolved oxygen and temperature versus time at the Turner’s Pond Outlet before leaf drop.
Figure 2: Comparison of dissolved oxygen and temperature versus time at the Turner’s Pond Outlet after leaf drop
Figure 3: Comparison of percent oxygen saturation and temperature versus time at the Turner’s Pond Outlet before leaf drop.
Figure 4: Comparison of percent oxygen saturation and temperature versus time at the Turner’s Pond Outlet before after leaf drop.
Figure 5: Comparison of pH versus time at the Turner’s Pond Outlet before and after autumn leaf drop.
Figure 6: Comparison of specific conductivity versus time at the Turner’s Pond Outlet before and after autumn leaf drop.
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