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

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Greater New Bedford Vocational Technical School, New Bedford, Massachusetts (2005). *The Effect of Autumn Leaf Drop on Water Quality at Turner's Pond Outlet*. In Watershed Access Lab Projects. Project 37.

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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

# Water chemistry test site

- 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 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:

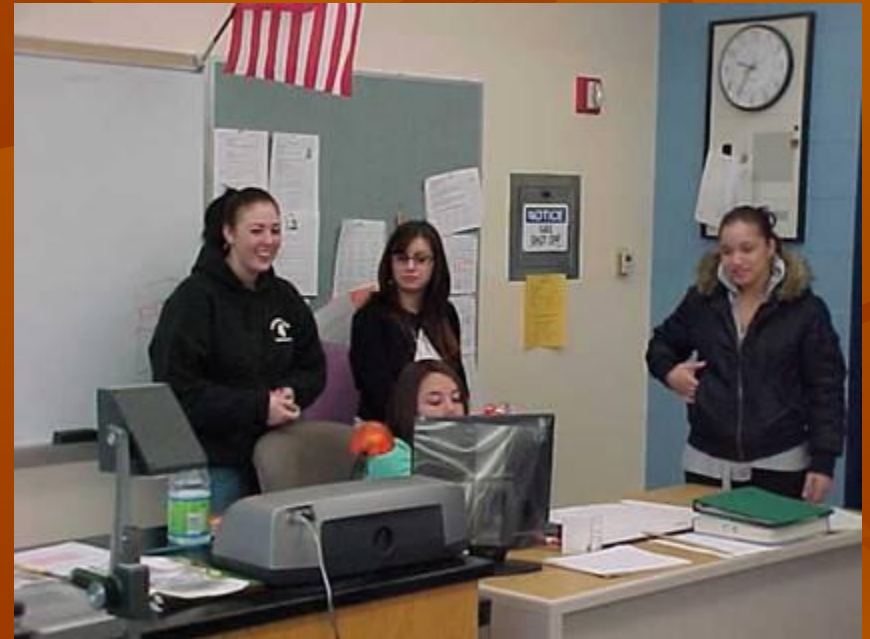
October 7, 2005 – 6.0	Fair/Poor
October 28, 2005 – 6.8	Poor

- Family group biotic index:

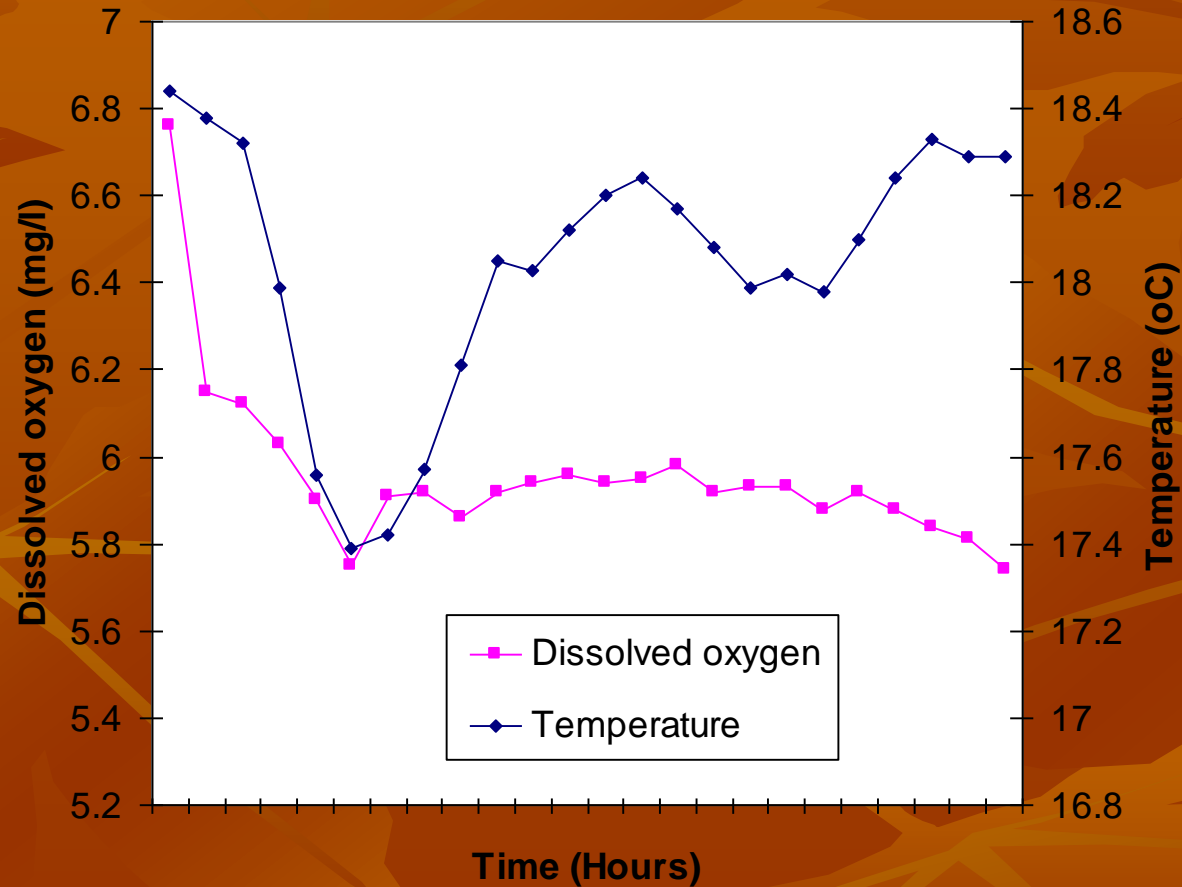
October 7, 2005 – 3.9	Very Good
October 28, 2005 – 4.1	Very Good

# Preparation of presentation

- Power Point experts construct the presentation
- Review and add to photographs

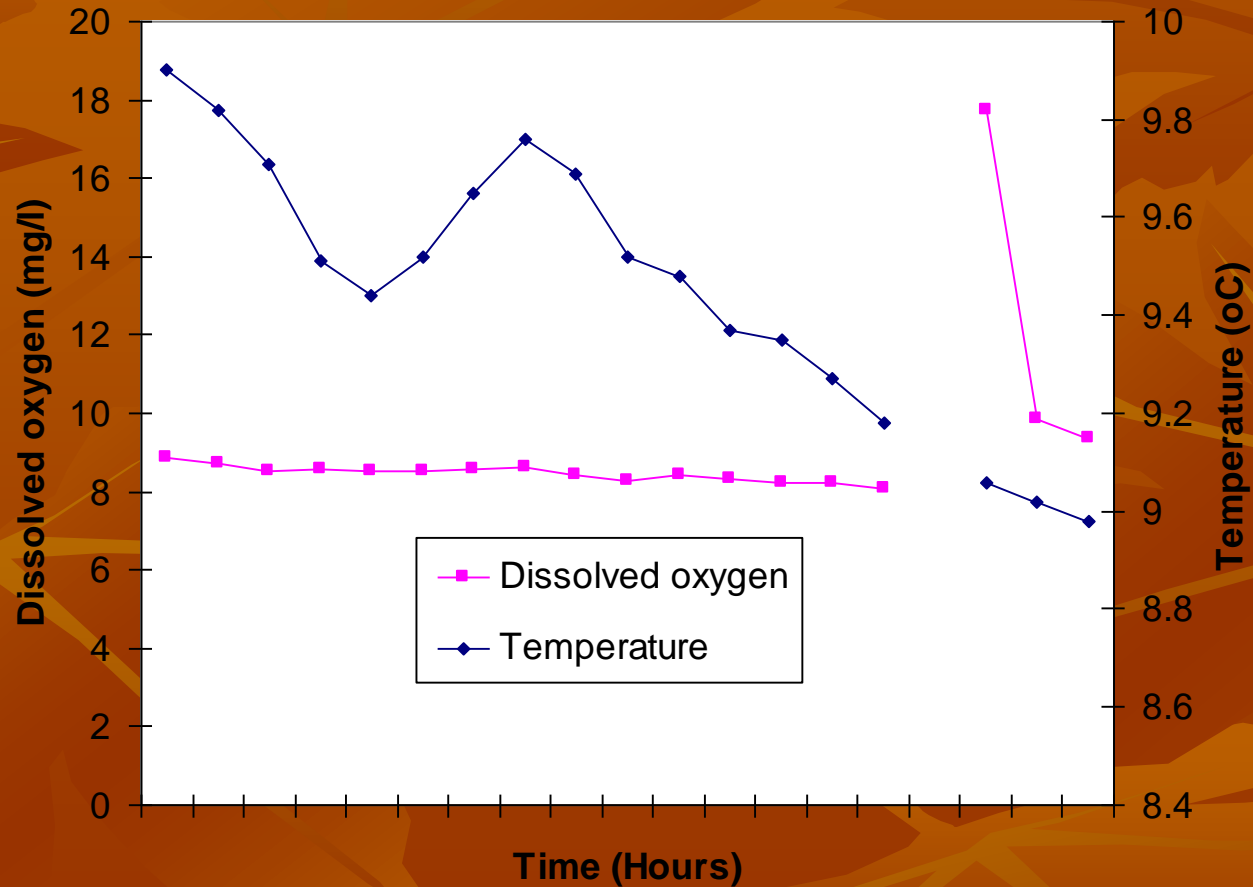


**Figure 1: Comparison of dissolved oxygen and temperature versus time at the Turner's Pond Outlet before leaf drop**

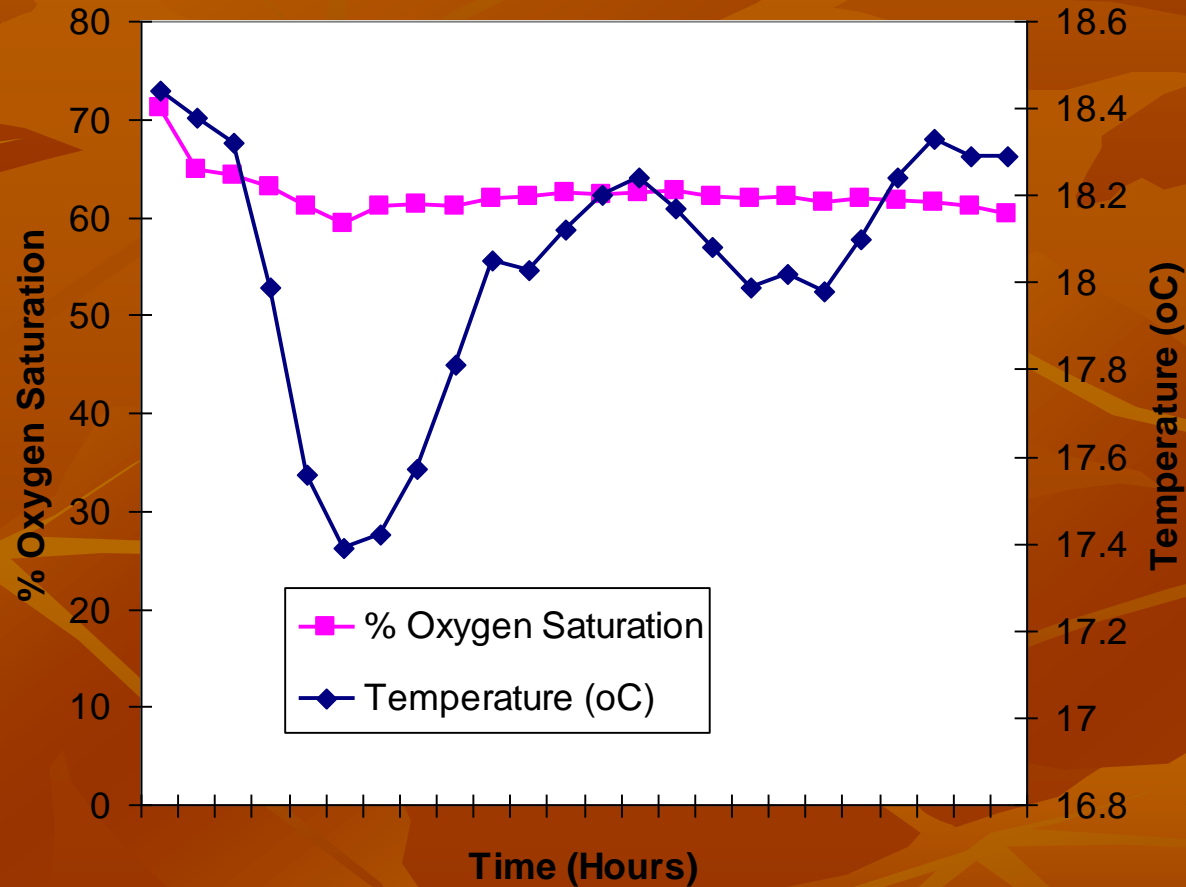




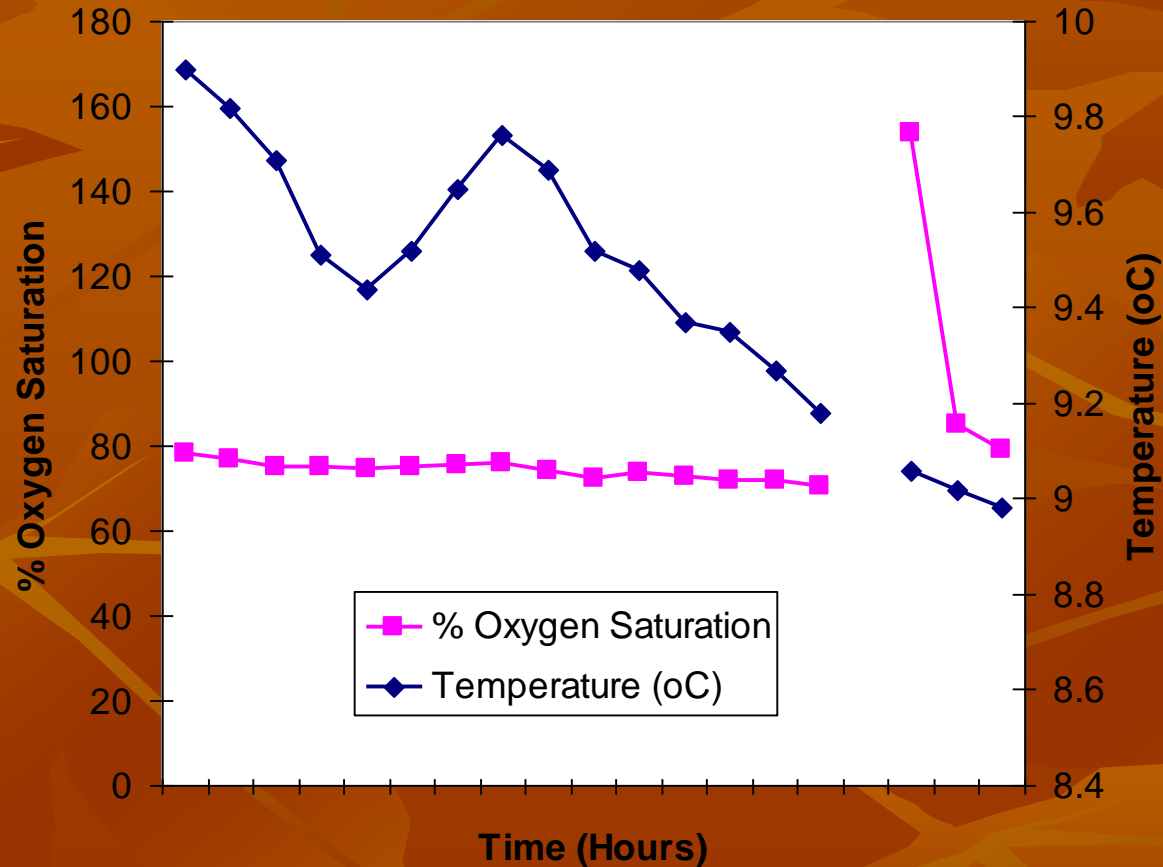
**Figure 2: Comparison of dissolved oxygen and temperature versus time at the Turner's Pond Outlet after leaf drop**



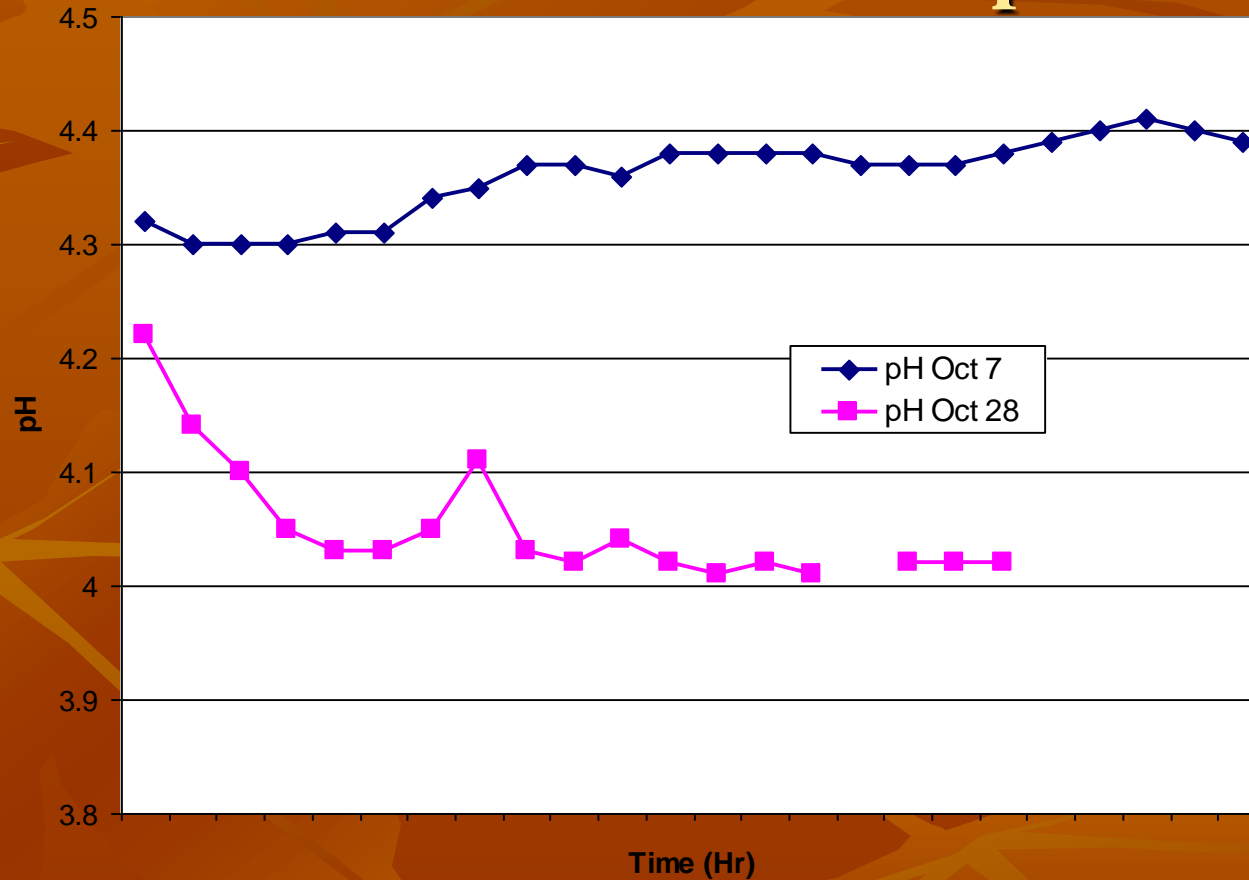
**Figure 3: Comparison of percent oxygen saturation and temperature versus time at the Turner's Pond Outlet before leaf drop**



**Figure 4: Comparison of percent oxygen saturation and temperature versus time at the Turner's Pond Outlet before after leaf drop**

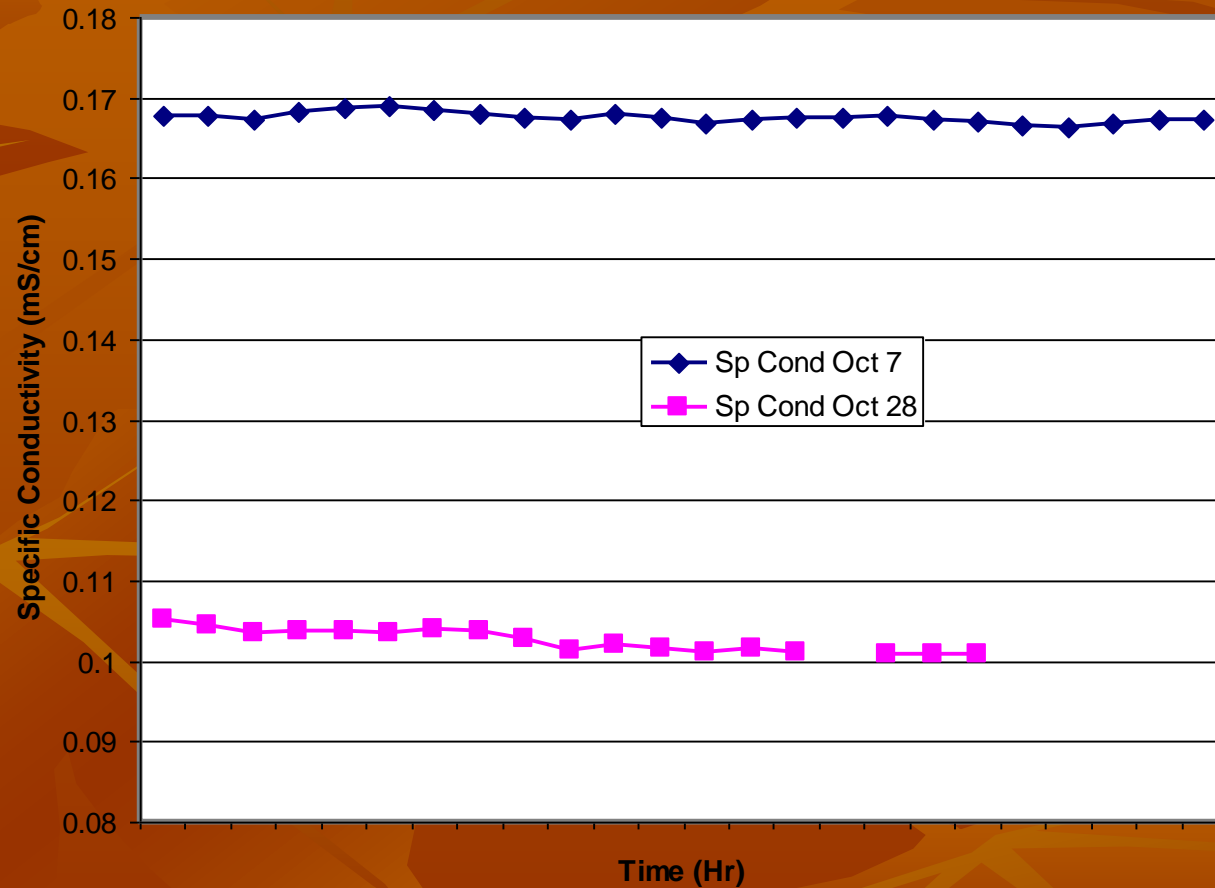


**Figure 5: Comparison of pH versus time at the Turner's Pond Outlet before and after autumn leaf drop**





**Figure 6: Comparison of specific conductivity versus time at the Turner's Pond Outlet before and after autumn leaf drop**



# The future of environmental stewardship

