2005

Long Pond Replication Study

Recommended Citation
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Long Pond

Replication Study

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Long Pond Replication

Has the water quality of Long Pond changed in 2005 since the study performed in 2001?
Hemlock

- Southern tip of Long Pond.
- Year-Round residential area.
Cathedral

- Recreational camp
- Used for swimming and water sports during the summer.
Clark

- Conversion of summer homes to year round residences.
- Water is used for recreational purposes during the summer.
Sandy Pt.

- Small beach located in the back of a private home.
- The houses are further apart, with larger lot size.
Snake River

- A narrow stream
- Connects Long Pond to Assawompsett Pond
Huckleberry

- A small beach located to the north of residential homes.
- Originally only intended for summer residency.
Pineault’s

- Samples taken in the back of a private home.
- Located to the right of Captain Bub’s Marina, which was the site used in 2001.
Nelson Island

- Northern end of pond.
- Reached by means of boat or wading.
- High water levels/weather prevented sampling on a regular basis.
Probe Information

• Our probe was deployed one week later than 2001 due to ice conditions.

• In 2001, there was a 4.0” rain storm during the sampling.

• The rain conditions differed. There was 0.96 inches more in Feb, 5.23 in. less in March, and 0.39 in. more in April of this year.
Reactive Phosphorus

- The levels of reactive phosphorus were similar amongst the two studies.
- In November, we had a spike in phosphorus levels at Snake, but Snake was consistently higher throughout our study.
- Both studies show a large spike at Sandy Pt. During the month of February.
Long Pond Replication, Reactive Phosphorus, 2004-2005
Conclusion: Dissolved Oxygen

• In 2001, the maximum dissolved oxygen concentration was 10 mg/L.
• Today, the maximum dissolved oxygen concentration was 12.5 mg/L.
• They had large jumps throughout the day, while ours stayed steady all day.
Reactive Phosphate

• Today, our highest phosphate level was 0.023 mg/L at Sandy Point on February 11, 2005.
• In 2001, the highest phosphate level was 0.021 mg/L at Sandy Point on February 1, 2001.
• Our lowest level of phosphate was 0.001 mg/L, which occurred at Pineault on March 22, 2005.
• In 2001, the lowest level of Phosphate was 0.001 mg/L at Cathedral on October 24, 2000.
Nitrate Levels

• Today, our highest nitrate level was 0.840 mg/L, which occurred at Clark on February 11, 2005.
• In 2001, the highest nitrate level was 6 mg/L, which occurred at Clark on February 1, 2001.
• Our lowest nitrate level was -0.80 mg/L, which occurred at Pineault on January 14, 2005, and Snake on October 13, 2004
• In 2001, the lowest nitrate level was 0.001 mg/L, which occurred for them at Huckleberry on October 24, 2000.
Fecal Coliform

- Used to determine safe levels for water use.
- Normal value of fecal coliform for total body contact is less than 400 in a 100mL sample.
- In our study each colony per 100mL was less than 10.
Fecal Coliforms

- For our fecal coliform test in 2005, we discovered 2 colonies at Huckleberry, 1 colony at Clark, and 5 colonies at Sandy Point.
- In 2001, they found 1 colony at Huckleberry, 215 at Clark, and 1 colony at Sandy Point.
- Clark has shown a dramatic improvement, while both Huckleberry and Sandy Point have gotten worse over time.
Why the Changes?

• The amount of precipitation between the two years, 2001 and 2005, differs greatly. Overall, we had:
  • 0.96 more inches of rain in Feb.
  • 5.23 less inches of rain in Mar.
  • 0.39 more inches of rain in Apr.
  • These differing amounts could have greatly altered the results of both nitrates and phosphates.
  • We also deployed our probe one week later than the 2001 study due to icy conditions.
Acknowledgements

- Clark Shores
- The Haworth Family
- Kim McCoy from Bridgewater State College
- JoAnn Michaud
- Mr. Pineault
- Mrs. Rousseau (Hemlock Point)
- Nancy Yeatts

THANK YOU FOR YOUR HELP!