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Long Pond Replication Study

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Long Pond

Replication

Study

By: Liz Hanna
Jen Nash
Mollie Quelle
Lori Morgan
Becky Changery
Nick Allerdt

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.**



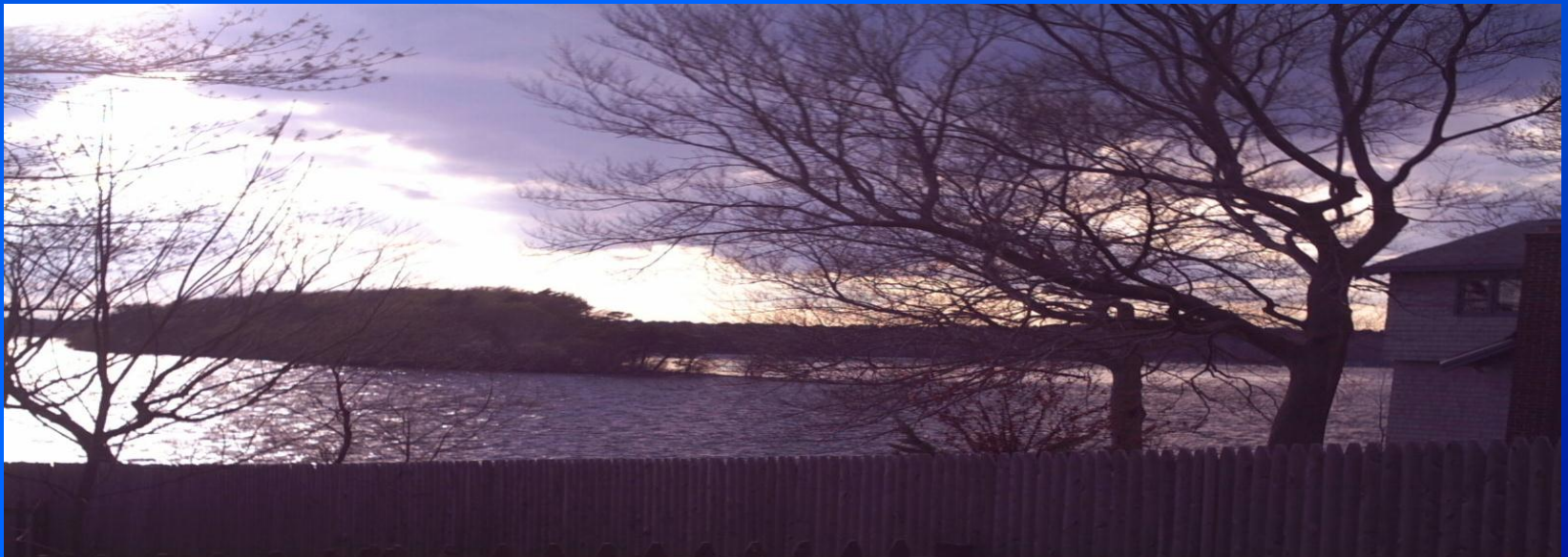
Pineault's



- **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

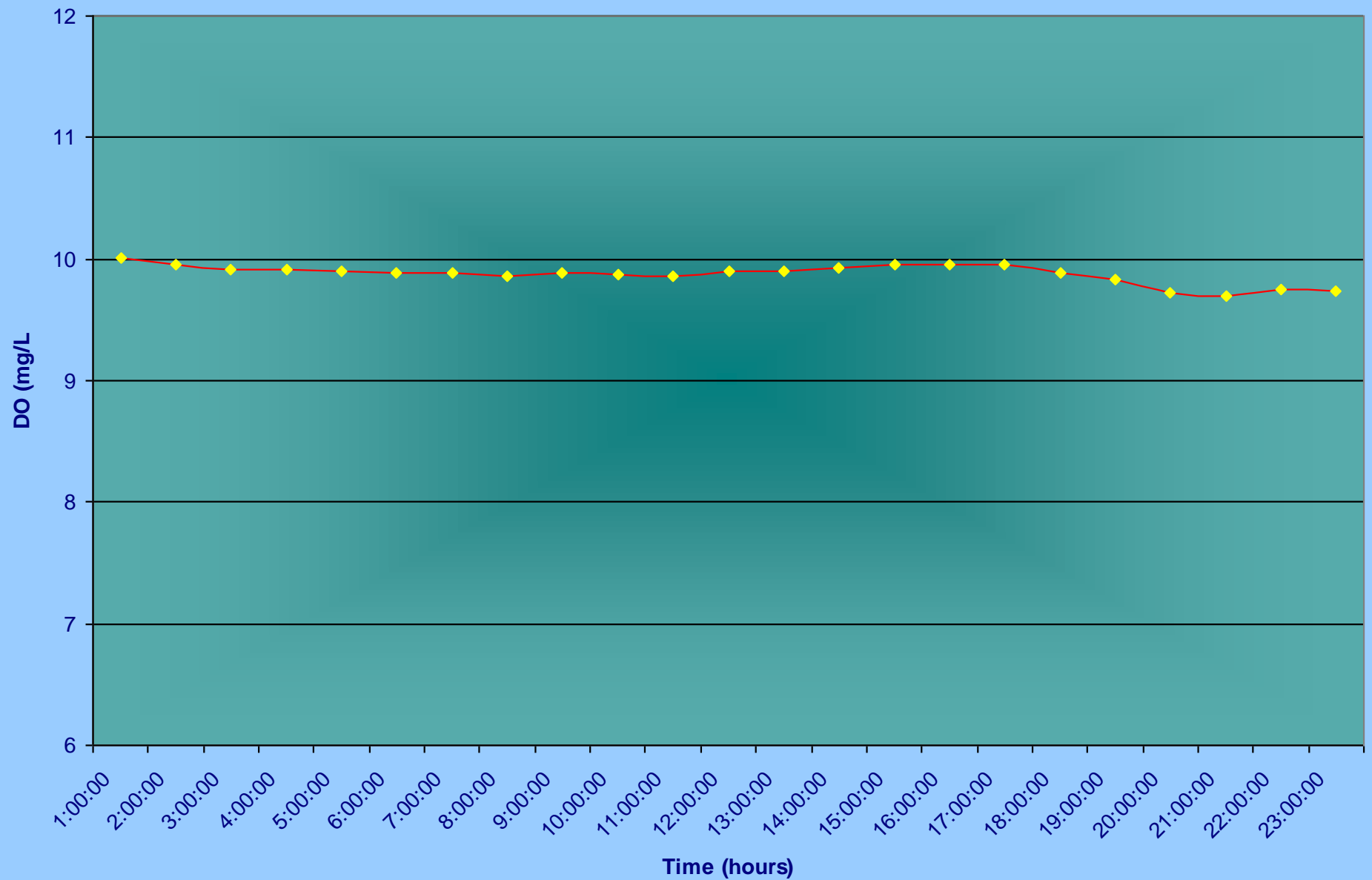
- **Northern end of pond.**
- **Reached by means of boat or wading.**
- **High water levels/weather prevented sampling on a regular basis.**



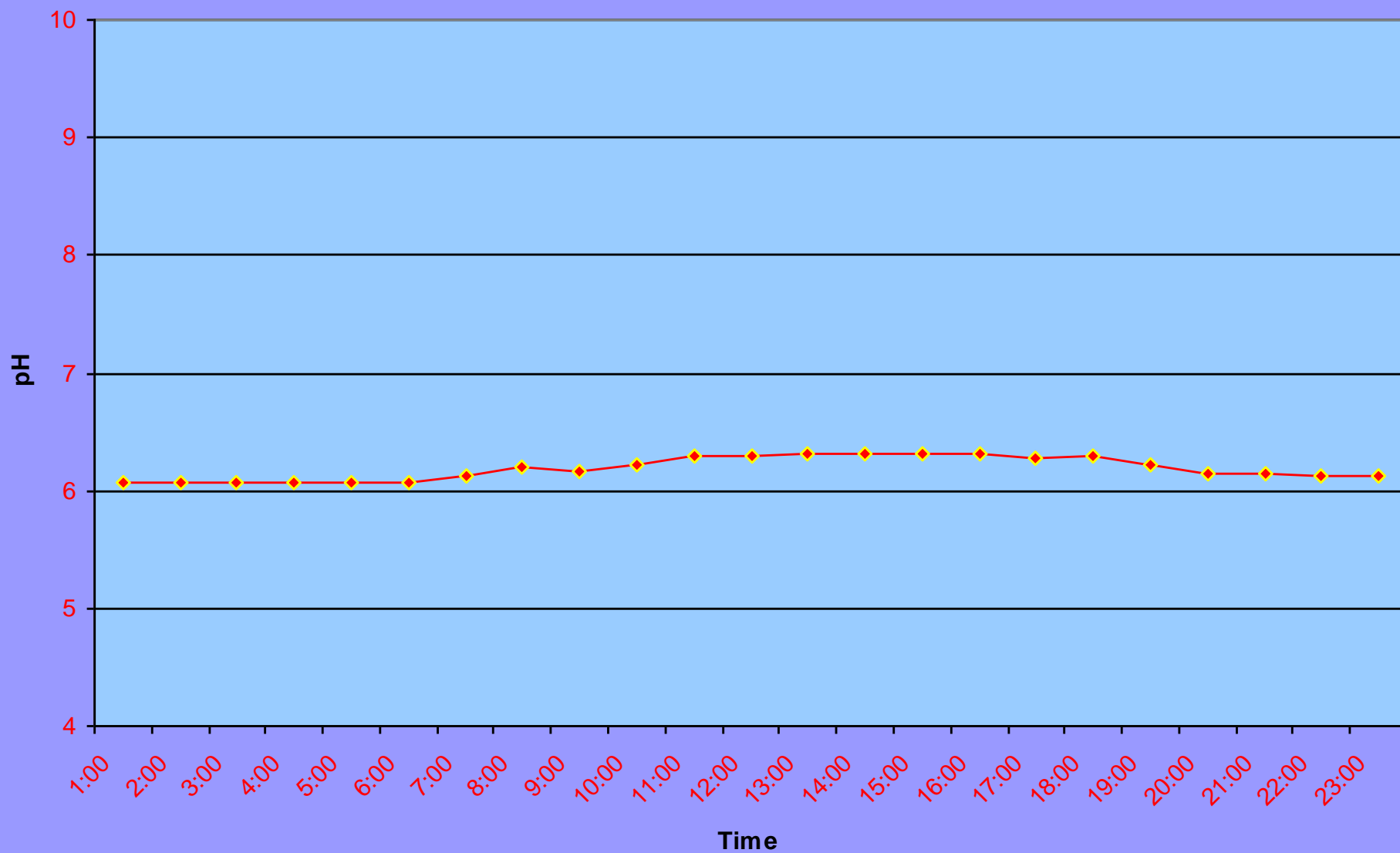
Probe Information

- 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.

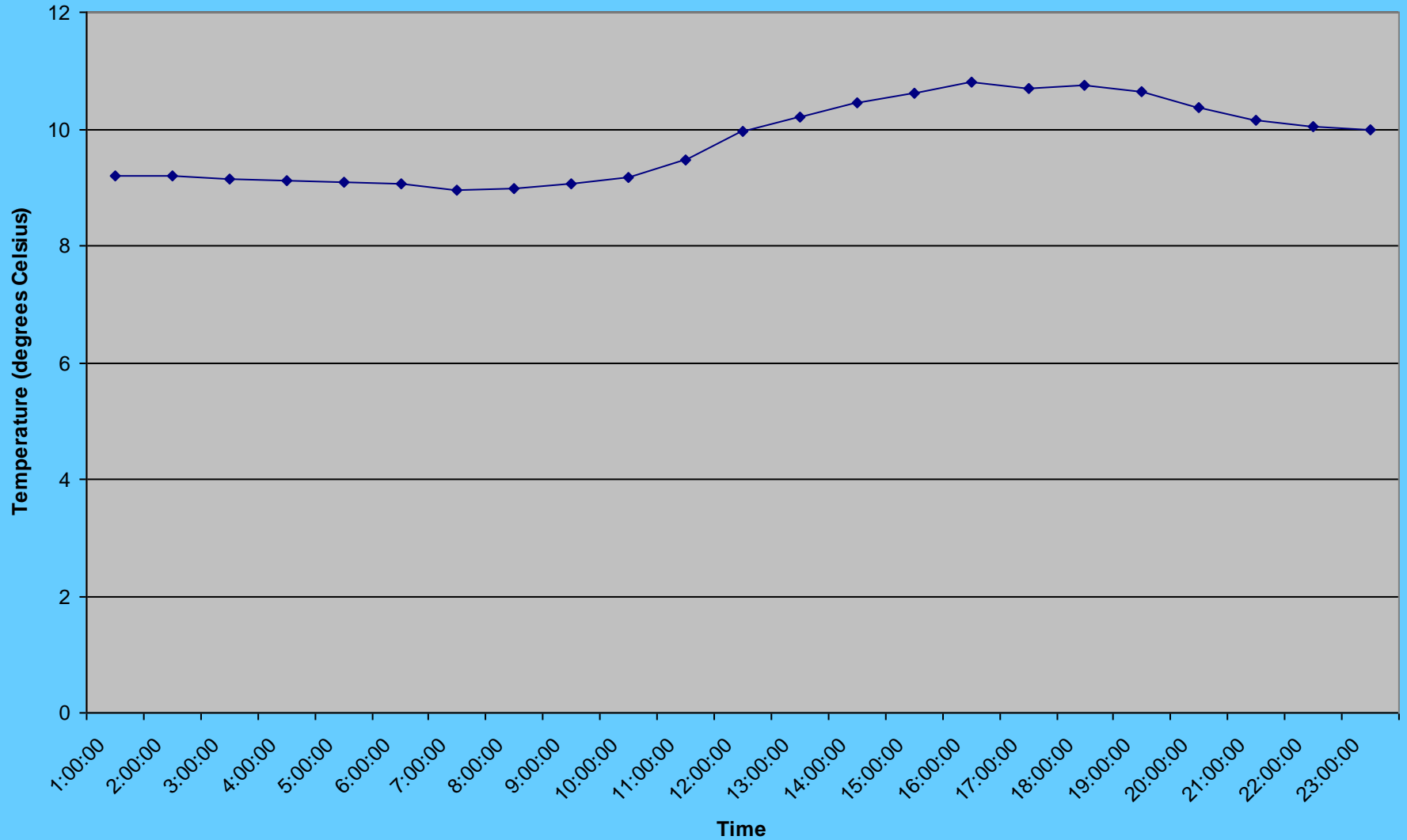
Long Pond, Goat Island Site, Dissolved Oxygen vs. Time, April 6, 2005



Long Pond, Goat Island, pH vs. Time- April 6, 2005



Long Pond, Goat Island, Temperature vs. Time, April 6, 2005



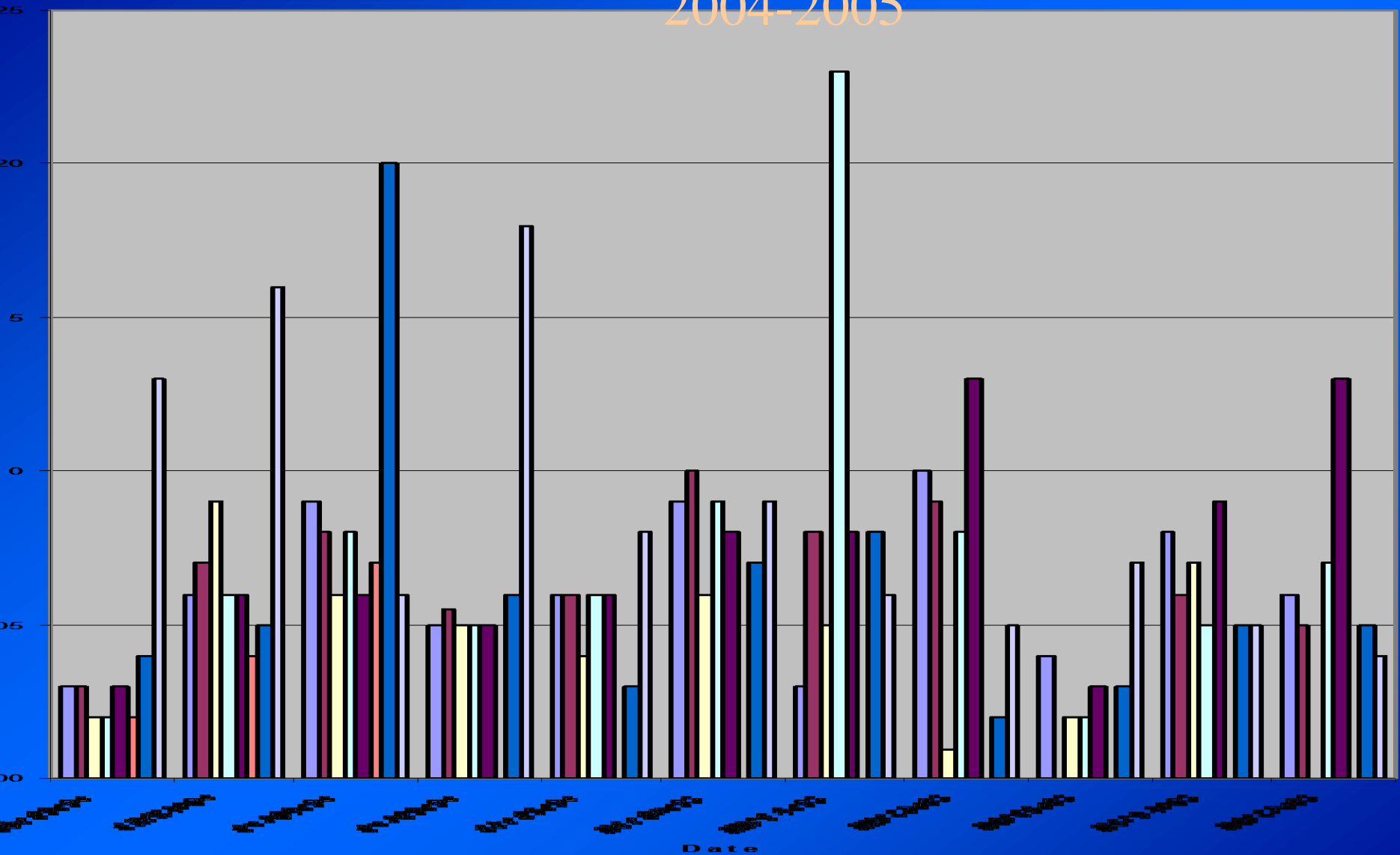
Reactive Phosphorus

- **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,

Long Pond Replication, Reactive Phosphorus, October 2004-April 2005

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

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- **Mr. Pineault**
- **Mrs. Rousseau (Hemlock Point)**
- **Nancy Yeatts**
- **THANK YOU FOR YOUR HELP!**