Report to White Lake Town Board
February 2024

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LIMNOSCIENCES

1. A meeting was held in January with the Science Advisory Group plus several new representatives from DEQ and the Planning Branch. There has been quite a bit of turnover in DEQ, so it provided a good opportunity to interact and provide accurate information about White Lake. The climate is now collaborative rather than confrontational, and I hope we can keep it that way.

2. The 2023 White Lake Monitoring Report is complete (not all phytoplankton analysis completed yet, however). A couple of things that might be of interest:

    - **The pH of rainfall is still increasing at the Clinton monitoring station (NC35)—the 2022 annual average pH (data recently published to the National Atmospheric Deposition site) was over 6 for the 1st time**

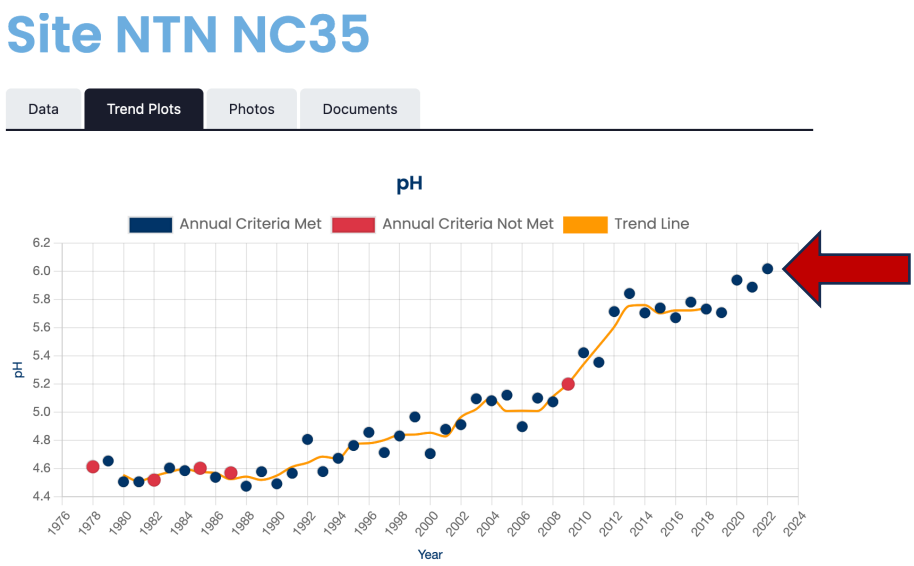
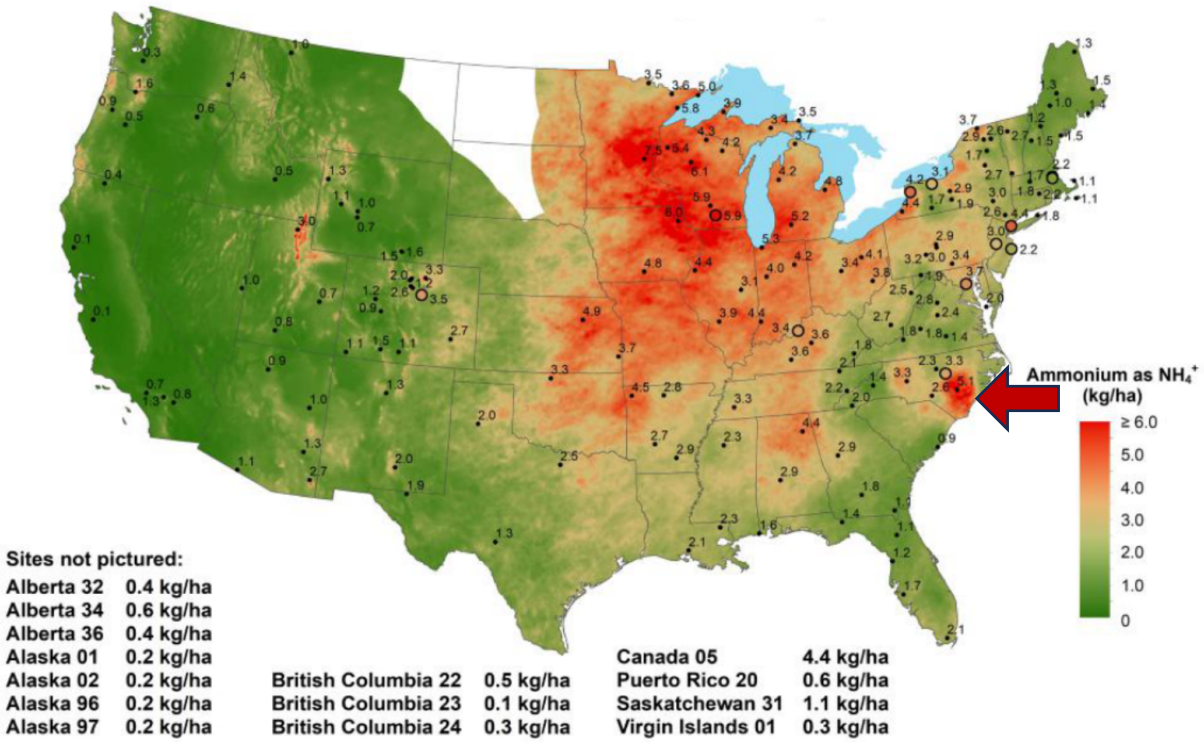


Figure 5. Median annual pH (SU) at the Clinton Crops Research Station in Sampson County (NC35). NADP web site, https://nadp.slh.wisc.edu/sites/ntn-NC35/ accessed 1/14/24.

    - **The pH is increasing because of increasing ammonia emissions in the region—ammonia is a strong base (a base is the opposite of an acid), which reacts with water vapor in the air**

Ammonia + **Water** = **Ammonium** + **Hydroxide**
Strong base Weak acid Raises pH

Wet deposition of ammonium in 2022. The total at the Clinton Crops Research Station in Sampson County (NC35) was 5.1 kg/ha, among the highest in the nation. National Atmospheric Deposition Program 2022 Annual Summary https://nadp.slh.wisc.edu/wp-content/uploads/2023/10/2022as2.pdfweb accessed 1/23/24.



Ammonium ion concentration (top) and wet deposition (bottom), 2022.

- **Ammonia/ammonium is a readily available form of nitrogen, which serves as an instant fertilizer for phytoplankton and plant growth.**
- **Ammonia is also a human health issue, as high levels cause respiratory problems.**