

MEMO

Date: July 28, 2021

To: Traci Iott, Connecticut Department of Energy and Environmental Protection

From: Aquatic Ecosystem Research

Re: Comments on Bantam TMDL Report

Hi Traci,

I was able to read through the draft TMDL report. I will start reading the Watershed Plan next week.

I thought the report was clear and well-written, minus a typo or two. I did create a list of comments as I was reading. Some are questions, others are comments, and a couple of spots where I picked up a typo.

I was delighted to see that the paleolimnology played a role. FYI... we cored over 60 Connecticut lakes back in the 1990s (including Beseck!), dated them and reconstructed conditions at moderately high intervals within the core for a number of those lakes. For others, we just reconstructed conditions near the top, in the middle, and at the bottom of the core.

Please let me know if you have any questions on my comments.

Congratulations on this work.

Kind regards,

Larry

1. Any discussion/thoughts on why the substantive increase in phosphorus and nitrogen loading in 2020 (Table 2)?
2. On page 9 under Stormwater from Regulated Point Sources - last sentence... *in the watershed in the watershed*.
3. Under Land Use Trends it states

Bantam Lake watershed has experienced a net increase in agricultural (11 acres) and developed (314 acres) land uses and decreased forested (242 acres) and wetland (83 acres) land uses (Figures 7, 8).

Wouldn't the net increase equal the net decrease?

4. Also, under Land Use Trends it describes new development and references Figure 8. These areas are not clear on Figure 8.
5. The 2007 to 2018 average chlorophyll-*a* concentration of 37µg/L seems high, even for Bantam, and not overly consistent with the mesotrophic average nutrient levels and eutrophic Secchi transparency. Do you know what methods were used to measure chlorophyll-*a*? Spectrometry? Fluorometry? Sampled at 1 meter, surface scum?

Note the number of chlorophyll-*a* data (n=4) vs the number of nutrient and Secchi transparency data is (n=150, 132, and 182 for phosphorus, nitrogen, and Secchi). Also noted the Secchi transparency high in the range (4.2m) vs the chlorophyll-*a* low value in the range (27µg/L). Should be easy to maintain chlorophyll-*a* under 37µg/L if that is deemed the target maximum.

6. Use of the paleolimnological reconstruction noted under LAKE SPECIFIC STUDIES applauded and appreciated! Earliest fossil records from the Siver et. al. (2021) study suggests that Bantam was closer to oligotrophic / early mesotrophic *ca* 1857.

I agree with the natural trophic state for Bantam at this stage being mesotrophic. The oligotrophic / early mesotrophic "*ship has sailed.*"

7. In Sec. 6.3, where TMDL targets are discussed, also discussed is a 4.5% probability of a HAB. Does the target factor any in any mitigation of internal loading?
8. Last paragraph on page 31: *For the purposed of the model.*
9. In *Current Conditions & TMDL Target - Total Nitrogen – ...WLS D's contribution may be more easily addressed than managing other sources. (See Figure 15)*
10. Is internal loading of legacy phosphorus part of the Load Allocation? See bottom of page 37.
11. Top of page 36

Additionally, if WLS D were to eliminate its discharge from the Bantam Lake watershed, a potential increase in the Load Allocation for nonpoint TN sources of 20.3 kg/yr. for TP and TN sources of 335.7 kg/yr, the current allowable WLA for the facility, could be considered.

Is that correct? Also note that both kg/yr. and kg/yr are used.

12. Later on page 36 it appears that font size changes in the middle of the second paragraph under Nonpoint Pollution Sources.

13. Section 7.4 – The Town of New Fairfield has a successful septic walkover program worth looking at.
14. Section 8.2 – A number of the recommended components, beyond the standard water quality monitoring components are already in place, e.g. cyanobacteria monitoring, microcystin toxin monitoring. Table 14 needs some revising.

