From: Diers, Ted
To: Gaito, Danielle; stergios.spanos@des.nh.gov; Franz, Hayley; Tracy.Wood@des.nh.gov
Cc: Houlihan, Damien
Subject: RE: One further question
Date: Tuesday, January 21, 2020 3:15:48 PM

We have never looked at phosphorus as a toxin. We have a separate standard for cyanobacteria and there is new guidance on toxin limits. The TP limit is based on growth of chloropyll-a. We do not have a model that simulates cyano growth based on TP inputs. So what would be the practical implication of determining that the TP stimulates benthic deposits and toxic release? Monitoring requirements?

I'm not sure what we would do with macroinvert data in a pond. We don't have any metrics for that. All of our IBIs are built for running waters in wadeable streams. I would be very hesitant to have them collect any data that we can't use.

Similarly on the cyano, what would they actually monitor for? Which toxins (there are many) and when (during bloom or a regular schedule). Again, I'm not sure what we would do with that data, especially if it arrived monthly or quarterly and we have to get it from the DMR. That may give us a trend over time but maybe not since cyano is weird stuff.

My two cents.

Ted

Ted Diers, Watershed Management Bureau, Water Division, NHDES
603-271-3289

From: Gaito, Danielle <Gaito.Danielle@epa.gov>
Sent: Tuesday, January 21, 2020 1:55 PM
To: Spanos, Stergios <Stergios.Spanos@des.nh.gov>; Franz, Hayley <Hayley.Franz@des.nh.gov>; Diers, Ted <Ted.Diers@des.nh.gov>; Wood, Tracy <Tracy.Wood@des.nh.gov>
Cc: Houlihan, Damien <houlihan.damien@epa.gov>
Subject: RE: One further question

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Thanks Sterg –

Fred describes two possible studies related to these conditions in his response below.

1) Identifying specific cyanobacteria toxins and testing toxin concentrations in fish; and
2) Macroinvertebrate analysis related to determining the impacts of algal mats on benthic habitat

I am planning to be in the rest of the week and am available to discuss.

Thanks!
Danielle

From: Spanos, Stergios <Stergios.Spanos@des.nh.gov>
Sent: Tuesday, January 21, 2020 1:50 PM
To: Gaito, Danielle <Gaito.Danielle@epa.gov>; Franz, Hayley <hayley.franz@des.nh.gov>; Ted Diers <Ted.Diers@des.nh.gov>; Tracy.Wood@des.nh.gov
Cc: Houlihan, Damien <houlihan.damien@epa.gov>
Subject: RE: One further question

Hi Danielle,

Interesting, let's discuss, whether we have to wait to respond to it after the public comment period or not. That might be a good question for a lawyer.

I've typically thought of those permit conditions in the same way as you have, with them being related to the actual discharge of toxics, and as directly resulting in benthic deposits. But I see the reasoning behind question as it relates to the discharge of phosphorus and its effect. I feel a telephone conversation is warranted. I'm copying Ted on this for his participation in the discussion. Do you have a feel for what "water quality monitoring" and "additional studies" are in the balance?

Hey Ted,

Has the discharge of phosphorus been looked upon as a discharge of toxics? Has it been looked upon as resulting in benthic deposits that have detrimental impacts on the benthic community? See items 7 and 8 (page 10) of the draft permit (https://www.epa.gov/sites/production/files/2019-12/documents/draftnh0000710permit.pdf). Please see the message below and let us know when you are available to discuss.

Stergios Spanos, PE, Civil Engineer VI
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From: Gaito, Danielle <Gaito.Danielle@epa.gov>
Sent: Tuesday, January 21, 2020 1:23 PM
To: Spanos, Stergios <Stergios.Spanos@des.nh.gov>; Franz, Hayley <Hayley.Franz@des.nh.gov>
Cc: Houlihan, Damien <houlihan.damien@epa.gov>
Subject: FW: One further question

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Hi Sterg –

I received the following inquiry from Fred Quimby of the Merrymeeting Cyanobacteria Steering Committee related to the standard NH water quality permit conditions for the Powder Mill State Fish Hatchery.

He is asking whether we would interpret the standard water quality conditions about toxics and benthic deposits (Part I.A.7 and 8 of Draft) to apply to the discharge of phosphorus as well. We typically think about these in terms of the direct discharge of toxics or direct impact of effluent on benthic habitat, but I wonder if NHDES have any thoughts on whether these would also apply in an indirect way – in other words, the discharge of phosphorus results in conditions that contribute to a toxic bloom or algal bloom that affects benthic habitat. He is asking because he is preparing the budget for water quality monitoring and is considering additional studies that may be necessary if these permit conditions would apply to the discharge of phosphorus.

I cautioned that we might not be able to address his questions if they are comments, rather than clarifying, and this seems like a comment that may need a more thorough review than we can offer at this point, but I wanted to check with you first.

Any thoughts you might have would be appreciated.

Thanks,
Danielle

From: Fred William Quimby <fwq1@cornell.edu>
Sent: Tuesday, January 21, 2020 11:59 AM
To: Gaito, Danielle <Gaito.Danielle@epa.gov>
Subject: Re: One further question

Yes, I thought this was not a Q/A session , that is why I asked. So here are my questions. I have asked these questions to David Neils at NH DES over a week ago without a response so I think he may not know the answers as well. All my concerns refer to statements made on page 10 of the Draft Permit. Item #7: The discharge shall not result in toxic substances or chemical constituents in concentrations or combinations in the receiving water.... My question is this. We know it is likely the phosphorus in the discharge caused a bloom of the cyanobacteria, Planktothrix isothrix, every year since it was first discovered, but with the exception of testing the water for microcystins, we have not made any attempt to identify any specific toxin made by this organism. Does this statement oblige us to conduct such testing? Planktothrix are known to make at least three toxins harmful to humans and each are likely to be concentrated in fish. Question: if we discover the organism is making one of these toxins are we obliged to test fish for toxin concentrations harmful if eaten? Item #8:The discharge shall not result in

benthic deposits that have a detrimental impact on the benthic community. We are pretty sure the TSS released into Marsh Pond did settle forming a nutrient-rich deposit. While we have conducted a whole algal species profile at the deep site on Marsh Pond and found it highly disturbed(in fact the most disturbed ever seen in a NH lake) the real test for benthic communities is a macroinvertebrate analysis. Does this statement oblige us to conduct a macroinvertebrate analysis of the Marsh Pond site? I ask these questions because this is the time we are soliciting for the new Town budget and, if we need to conduct these studies, I should place additional funds in our budget now for 2020. Thanks, Fred

From: Gaito, Danielle <Gaito.Danielle@epa.gov>
Sent: Tuesday, January 21, 2020 7:53 AM
To: Fred William Quimby <fwq1@cornell.edu>
Cc: Houlihan, Damien <houlihan.damien@epa.gov>
Subject: RE: One further question

Hi Fred –

If they are clarifying questions similar to those that Mike Gelinas asked last week I can try and provide explanations or point to areas of the fact sheet where explanations are provided. If they are technical questions about the methodology or justification, they will be addressed as public comments. You can certainly submit them to me – I will address what I can now and will consider any additional questions as public comments submitted during the public notice period, which we will address for the final issuance.

The public hearing is not a question and answer session – its an opportunity for the public to submit comments. EPA and NHDES listen and record the comments, but we don't provide feedback during the hearing. For this reason, I suggest submitting your questions now. You may reiterate any I cannot answer at this point at the hearing if you would like.

Danielle

From: Fred William Quimby <fwq1@cornell.edu>
Sent: Saturday, January 18, 2020 5:18 PM
To: Gaito, Danielle <Gaito.Danielle@epa.gov>
Subject: One further question

Danielle, I have a couple of technical questions which I would like clarified should I wait and ask them as the public meeting or ask them from you now? Fred