20:55

Bacteria Discussion

Shon Simpson: Just curious about, what if you only had one sample in the entire recreation season?

Joe Martin: That's a good question. I am not of the opinion that one sample should be assessed against the geometric mean. This is interesting because, in the 2012 recreation criteria document, if you look at the draft document that came out in 2011 EPA did some analysis on this and what they found was, for example, if you had four samples and your geometric mean was 30, now remember is all enterococcus in coastal waters, that's all that was used in that 2012 recreation document, they found that if you increased the sample size from four to fifteen you reduce your frequency of misclassification by 50 percent. So essentially what they were saying in the draft document was "the more samples the better" for geometric means. The better the sample size, the more likely you are going to get that number correct. When you went to final document, all that language was stripped out and they said "look, you got a single sample, you should compare that to geometric mean." To me, there is much more inherent variability in a single sample than there is in geometric mean. The reason why we use geometric means for calculating bacteria is because of the extreme variability in bacteria data. Case in point, Dr. Alex Boehm out of Stanford University did a paper back in '07 and it was titled "*Enterococcus* concentrations in marine systems demonstrate extreme variability." So, sure, if we're in a surf zone we expect those numbers to be really high, but what she also looked at in the back of a quiescent bay, which was protected from any kind of wave movement, she took samples every 10 minutes and then on a different study, or on a different sampling event, she took samples every one minute. When samples were taken every one minute the max change in *Enterococcus* was 140cfu. Now, remember that depending on which rec criteria document you're looking at, if it was '86 it was 104 [cfu] and if it was 2012 it was 130 [cfu]. So, we're talking about in one minute you could have the difference greater than what the criteria on the books says. She also did sampling every 10 minutes and the max change there was 345cfu. There is so much variability in bacteria data taken, and this isn't in a flowing system, this was a quiet bay, so this is as similar as we can get to lakes here you're talking about *that* kind of variability. And when you have that kind of variability between samples taken every one minute, once again, that's a lot of variability built in when you're trying to compare that against the geometric means. So in my opinion, I would not think it is appropriate to compare a single sample to the geometric mean. You can compare it to the single sample number, 298, but not to the 126.

Any other questions?

24:07

Erin Scott: I have a question about something that was not proposed, but caught my attention as I was looking at the EPA's guidance, their 2012 document called "Recreational Water Quality

Criteria" and they go through magnitude, duration, frequency for criteria and they align that to what is the level of public health protection that it is going to be effective for, so one question about the excursion frequency. Right now it's written as 25 percent of the samples collected cannot exceed that IS [individual sample] value and in that EPA guidance they recommend a 10 percent excursion frequency and then looking at other states around that have similar methods of evaluating bacteria in their surface waters. Many of those states use the 10 percent excursion frequency, some states use a 20 percent [excursion frequency] and we use a 25 percent [excursion frequency]. My question would be, has Arkansas evaluated what that 25 percent excursion frequency, what level of public health protection that provides? And have we considered reducing that excursion frequency to more closely align with EPA's guidance?

Joe Martin: The 2012 document that… in the draft the 10 percent [excursion frequency] was not in there. [The excursion frequency] was 25 percent [and] water quality distribution was the same. Everything looked similar to the '86 document. When they came up with the final and they put the 10 percent [excursion frequency] in there, if you recall reading it in there, basically what they said was if you have a 10 percent excursion frequency it forces you to sample more. If you get one hit you have to take 10 more samples until you get a clean hit. There is no health endpoint to that 10 percent excursion frequency. That was more "you would need to sample more." In leading up to the 2012 [document] they went around the country hosting meetings and in those meetings nothing was mentioned about the 10 percent [excursion frequency]. So it doesn't seem to me in what they had said in their draft document or in their final document that there was any kind of health endpoint to the 10 percent excursion frequency. Further, if you looked at epidemiological studies leading up to the 2012 rec and what they used to develop that criteria, they only had one epidemiological study that was on freshwater… it was on two different lakes, they were Lake Erie and Lake Michigan. None of those epidemiological studies found any statistically significant correlation between culturable fecal indicator bacteria concentration and risk of GI illness. The rest of the studies were marine studies and they went to Mississippi, but that one was halted due to a hurricane. They were in… Alabama, Rhode Island, South Carolina, and Puerto Rico and out of all of those at one site, I can't recall if it was Alabama or Rhode Island, they found one statistically significant correlation between GI illness and qPCR. Quantitative polymerase chain reaction is a way to analyze bacteria. It's a rapid method used out on the West Coast so they can get a same day notification back, but most folks do not use qPCR or the calibrator cell equivalence that that number was associated with. None of the marine studies, they found, had any statistically significant correlation between GI illness and culturable bacteria. So being an inland state that uses culturable bacteria the '86 criteria document actually did work on freshwater. One of the studies was in Oklahoma and one of them was Lake Pontchartrain in Louisiana, and they found correlations there and thought that the 75th percentile was good. My thing with the 2012 rec criteria document was they didn't find anything in the [epidemiological] studies. Not that they didn't do a good job, you just don't know what you're going to find when you collect ecological data. And so, due to that, we didn't feel like there was a good reason to adopt some of those numbers because we didn't feel like they were backed up

by the data. I commend the EPA on all the studies that they conducted because those epidemiological studies are not easy studies to put together or to run. Due to the fact that those studies didn't really find health endpoints in freshwater or culturable bacteria, we didn't feel the need to adopt that 10 percent [excursion frequency].

Alan Nye: I had a question about sampling protocol, and I realize that's not part of Reg two, but since we're on that point, is there any recommendations by the DEQ to sample during different conditions for bacteria, say, runoff events or anything like that that target different conditions at all?

Joe Martin: For our ambient program we do not target any kind of… we do not want to bias our [sampling] events towards any particular flow regime. What we like to do is ambient sampling. We say "we're going to go out on this day every month," we go out there; we collect that data whatever the flow condition may be. We do not have target sampling towards low flow, high flow, storm flow, etc. It's an ambient program so we want to catch it on whatever day we say we're going to go out there and sample and whatever the flows are we expect that data.

40:06

pH Site Specific Criteria Discussion

Shon Simpson: I'm just curious how you actually selected the 5.5 [pH].

Yinka Iseyemi: We selected the 5.5 [pH] even though the values for some of the streams could be lower but however we try to do some research and we see that any value below 5 could cause any sub-lethal effect in fish. But any value above 5 is still optimal for aquatic life use and that is why we don't go beyond 5.5 [pH].

James McCarty: You indicated that you think it's a geological source for the variability in pH, particularly in the shale formation… I think you said sulfates? Was there any sampling for sulfates in these streams and did you compare it to some other…?

Yinka Iseyemi: We did not do any sampling, but we do know that…

Joe Martin: We may have some sulfate data that we can take a look at. It should have been part of our minerals suite when we went out there…

James McCarty: The other question I have is, you characterize these streams as having no anthropogenic influence, but then if you go forward a slide or two you've got land use upwards of almost six percent. I would say that a relatively higher urban area for a particular catchment. In the Beaver Lake watershed we have urban areas of similar percentages and we see the impacts of anthropogenic sources.

Yinka Iseyemi: We will note that and take that into consideration, sir.

Darcia Routh: As a geologist every time you throw a little thing my way I feel like I have to express an opinion, so forgive me for that. I do think the shale with the pyrite is an issue, but I think also it's a disturbance of shale issue. When I look at your map, I've got that physiographic region [map], which is a lot like the ecoregions, on my brain. There probably aren't permitted mines out there right now, there are little mines and quarries all over this area and people have mineral stakes to find some of our rare minerals in this area and there's a lot of quartz mining in some of these areas so, I don't know, you might, it's always dangerous to go talk to the geologists on the second floor, but somebody's gotta do it, and I also would be happy to do a little looking and digging around for you. I'm not commenting on the… it probably doesn't reverse the use, but I think it's premature to say there is no anthropogenic influence there.

Yinka Iseyemi: Thank you for that comment.

43:57

James McCarty: I was curious, it looks like you had some dedicated sampling over about a three year period and you showed [there's] not a lot of variability in that three year period, or even within a given day. Do you have any historical data you could look back further in time? Because I would think that if land use was the issue, that doesn't change overnight, that changes over a long period of time. So are there any data points from 10, 20 years [ago] or however long [ago] you got data within these areas to see if pH levels were in the same range or variability. It seems like three years is an awfully short period of time to try to assess long-term trends for something like land use.

Joe Martin: In some of these streams we do have long-term data; we have a stream or two where we have some data from the 90's. So, one thing I would say to that is typically if you do a use attainability analysis that is a one to two year study that's for change in use. We were there two to three years and we felt that we had a pretty robust data set as far as water quality [and] biology so we don't think this is that much different than if we were to do a use attainability analysis to change the use on a waterbody. Here we're not suggesting a change in use, it's just shifting the criteria half a standard unit. The other thing would be extremely small streams. As far as our ambient program goes it's typically in some of the bigger waterbodies and so on some of these smaller waterbodies it's harder to get that sort of data. We would love to have a twenty of thirty year data set on this but in this instance we just didn't have those for these waterbodies, but due to the thorough sampling that occurred at the time we felt confident in what we are proposing.

Yinka Iseyemi: In addition to that, I mentioned that our Bioassessment showed that all streams support aquatic life use and biology

James McCarty: I concur with her one that. Biology is representative of the water quality over long-term trends, so if you were experiencing a bigger degradation of that particular pH over 20, 30, 40 years due to land use you might expect to see the associated biological components do

vary as well. I was curious if there were older data points to look at I just figured there were a few scattered out there over time.

46:54

Shon Simpson: I'm just curious, I've looked at data in Southern Arkansas at a bunch of your ambient monitoring data and there's a lot of streams that have lower than 6 pH and I'm just curious if you're going to look at any other groups of waterbodies or any other parts of the state and try to determine whether the pH should be reduced or not reduced?

Yinka Iseyemi: Thank you for that question. For these ones that we are proposing we were sure to check for no NPDES facility upstream of the stream. For some of those other sites experiencing low pH there might be NPDES facility and that's why we are not looking at that and also based on the land use there might be higher percentage of urbanization and that's why we did not consider those.

Joe Martin: Just to add to what Yinka said, as we go out and collect data and get good data sets on water chemistry and biology, we will evaluate what those standards are. As we collect data around the state, especially when we have biological data matching with water chemistry over time, I think it's good to see if we can refine those standards. So we're always looking to see if we can refine things, especially on site specific versus the ecoregion number to see if we can dial that in a little better.

Justin Stroman: Has anybody talked to any of the Forest Service biologists about these proposed changes? A lot of these streams are on [US] Forest Service land and are mostly forested… they may have some opinions… I don't see anybody from the Forest Service here today unless they are online. Has anybody talked to them?

Joe Martin: I did early on. I talked to Rick Steele [Larry Seale] with the Forest Service in that area and another gentleman… James [Guldin]… So, we did reach out to them early in the process and talked to them a little bit, but we haven't talked to them in the past several months.

Justin Stroman: Okay, I've got some contacts I could hook y'all up with over there that would be good aquatic people to talk to. Secondly, you mentioned once you start getting around that 5 pH it doesn't support aquatic life anymore. Moving [the standard] down to 5.5 [pH] doesn't seem like much more 'wiggle room' for disturbance events that might spike the pH down some. So, how are we going to handle that if we start seeing aquatic life change because of changing the standard? How do we respond to that? Is there a… do we have to wait three years to do this whole thing again or how do you handle that?

Joe Martin: To get a clarification on one point: so, are you saying if it was to shift down to 5.5 [pH] and we start seeing excursions below that?

Justin Stroman: Yeah, if you have the data that looks like it was closer to… like a couple of points… pretty close to 5 [pH]. If we're now changing the standard, maybe a permit is introduced in this area, they're going to start lowering that pH a little bit, I guess the point I'm making is I feel like there's not a whole lot of 'wiggle room' if you had [a sample point] at 4.5 [pH], that's going to happen anyway… If the standard is lowered, I feel like there's less buffer to handle those situations.

Joe Martin: If we do assess those waterbodies and we do see that, they do become impaired and at that point it is an impaired stream. We will move forward with what we can do with restoration and things of that nature.

Justin Stroman: What's driving this need to move down the pH standard?

Joe Martin: We feel it's a better refined pH standard for these streams. We have the water chemistry and biological data… land use of the stream and felt like it was relatively…

Justin Stroman: So this was something y'all proposed yourselves? It hasn't been asked for?

Joe Martin: That is correct. Once again, as we go through and conduct these biological studies on any stream whether it be, whatever the parameter may be, we feel like we can dial in the standard a little better. Refine it a little bit.

51:44

Unknown Man 3: My question is related to this conversation, is the fish biotic criteria score what is supporting the rationale, part of the rationale change, to lower pH range from 6 to 5.5?

Yinka Iseyemi: Yes. So with those bio criteria scores, that's just an indication that this change… good or excellent water quality. So once we see a decline it will be supported by a change in the biota criteria score.

Unknown Man 3: Is that the strongest indicator supporting the rationale… is the change in fish bio criteria score?

Yinka Iseyemi: Yes.

James McCarty: Could you explain the legal requirements for making water quality criteria less stringent?

Joe Martin: So, typically with, and this is for use changes to conduct a UAA, so that would be a typical, like I said earlier, a one to two year study you collect water chemistry, biology, etc. and do that. So that's specifically for a use change. Here we're not proposing a use change; we're simply trying to move the criteria. I'm not 100% sure if there is a legal requirement for adjusting criteria. There are [legal requirements] for uses, but because of that, we kinda took the same approach that you would take if you were going to make a use change. For example if we had

tiered aquatic life uses and we wanted to bring it down one level we would do a UAA. So, 2.308 there's some language in the rule relative to site specific criteria. Do I need to go through that? Did I answer your question?

Tate Wentz: Did all the 2.308 and 304a guidance get met for this proposed change?

Ellen Carpenter: I was just going to comment that my understanding is that in order to change the water quality standards we do have to have the scientific justification at a minimum. So, any change …

Kim Fuller: So, were these streams on the verge being on the impaired waterbody list or were they getting close to that?

Tate Wentz: They're already on the impaired list for pH and dissolved oxygen. [Pause] The question was whether these streams were impaired or close to being impaired and my understanding on the 2018 and draft 2020 list these streams are all there for pH and continuous dissolved oxygen.

Yinka Iseyemi: And I would say that was one of the things we found also look a bit further to see what was going on there right now it's time and make sure that what was going on there was natural and not just impairment.

Justin Stroman: I'd be curious if y'all could assess… what you did in 2020, what you're proposing here and see if these streams would no longer be impaired for pH. I'd be curious to have that data.

Mary Barnett: Yes, we can certainly do that

BREAK 57:08-1:09:00

1:09:19

Mary Barnett: We had a comment, couple of comments earlier from Russell Nelson with EPA Region 6. He wanted to confirm that proposed pH criteria changes were based on natural conditions and not effected by anthropogenic effects, so I hopped on and verified that for him. He had another comment we're trying to get pulled up.

Unknown Man: Mary, since you are on that topic, can you tell us who else is on Zoom?

Mary Barnett: For the seated representatives on Zoom, we have Sarah Ross, Christina Baker, Russell Nelson and our Deputy Associate Director, Stacie Wassell. (There were issues pulling up Russell's other comment) We will address Russell's other comment on scientific criteria shortly.

Trout Lakes Discussion

*No questions or comments were made following this presentation.

Unnamed Tributary to Lake June

*No questions or comments were made following this presentation.

Fishable/Swimmable Uses for Two Waters Discussion

Kim Fuller: The one permitted facility… were they told about this yet?

Mary Barnett: We have not reached out to them yet. Since we are in this step of the process we wanted to gather input from this group before we reached out to them, but we will reach out to them.

1:25:26

Ecologically Sensitive Waterbody (ESW) Species Additions Discussion

Jason Phillips: I had a chance to go through the list of all the species and read. You probably don't want to go through it all here exhaustively, but there's quite a few errors in there in terms of what species occur in those streams. There's quite a few listed that aren't there and there's quite a few things that need to be added because they have recently been split out as new species, or just aren't listed there, or are recently proposed about to be [ESA] listed species. So I can provide that information for you guys so you know there were quite a few. I had no idea that Spectaclecase occurred so many places in central Arkansas. Really it's pretty limited. It's in almost every watershed on there so I don't know if that's just a typo. There's quite a few species that are now or about to be considered extinct or at least extirpated from these watersheds and some additions that need to be put in.

Justin Stroman: I appreciate you guys taking the time to start updating our list since we haven't done it since 1987, '89. I have to ask: why aren't we proposing any new waterbodies? You've got 30-40 years of new sampling data since this was done. There's quite a few more streams that contain SGC and T&E species. Particularly, what's concerning to me is the rapid growth in northwest Arkansas especially associated with a bunch of these streams. Maybe that stream layer needs to get updated. It feels like y'all are doing the effort to get science in here, but we haven't expanded this list any so it's almost meaningless is kinda what it feels like. You're updating our list, but we're not reflecting where these things are distributed in the streams in Arkansas. I want to know why we're not proposing any new streams.

Chance Garrett: Reg. 2.311 outlines the process for adding additional ESW designations and that can be initiated in-house or it can be initiated by a third-party. Any segments in particular that you're interested in that you would like to see designated we would review and we would like to accept any proposals.

Justin Stroman: I would love to work with y'all's agency to sit down and comprehensively do that. That's what I have been pushing for, for several cycles now. We really need to have that discussion. To make the actual regulation reflect what is intended by the regs. There is a big gap

there. I understand that there is a process that you have to have petition or we have to petition to make that happen. I would be more than happy to start that. We should do that soon.

Mary Barnett: Yeah, I was going to get to that. During our last triennial review stakeholder process, there were several entities, I believe there were 5 to 7 entities that all expressed the same desire to move forward on some ESW additions. We're willing to work together on that process. And so I sent multiple emails to that group providing a lot of background information and some work that we had started when we had the resources and I was unable to see any movement from that group.

Justin Stroman: Yeah, I think …resources.

Mary Barnett: If your agency has the resources, we'd be happy to review the proposals.

Justin Stroman: Yeah, it's going to be a big undertaking…

Mary Barnett: …It's several steps… yeah

Justin Stroman: I just want to encourage moving forward with that. Let us know what we can do and what our contacts and sister agencies can do to get that ball rolling. [Pause] Has Heritage reviewed this? It seems right up their alley, Natural Heritage Commission.

Chance Garrett: We actually received our listings from ANHC [Arkansas Natural Heritage Commission] so they were involved. And we have a representative from ANHC online.

Ecoregion Boundary Update Discussion

*No questions or comments were made following this presentation.

Open Discussion

1:37:00

James McCarty: What did you mean by "more site-specific criteria proposals"?

Mary Barnett: We have proposals for a number of parameters. We have three site-specific DO [dissolved oxygen] criteria that we want to propose or discuss next meeting.

James McCarty: Why weren't they proposed on this one?

Mary Barnett: We anticipated more discussion. Our last triennial was just a clean-up, a clean up of everything, trying to get everything in order. Since we're moving stuff and adding stuff and changing lines [this time] we just really expected more discussion [during this meeting].

James McCarty: I think you're about to get it.

Ellen Carpenter: Can I ask what happened to the Coffee Creek and Mossy Lake discussion? That's going to be a change.

Joe Martin: Correct. I did want to bring this up earlier when we talked about the fishable/swimmable uses. I don't know if you attended via Zoom meeting the other night for Coffee Creek. What we are proposing on Coffee Creek is essentially to add ecoregion uses to Coffee Creek. It's greater than 10 square miles, so they would have the normal ecoregion uses for a stream of that size: primary contact recreation, aquatic life, the DO for that region that's typical which I believe is 5 [mg/L] in the primary season, 3 [mg/L] in the critical season, and no longer exempt from color or chapter 5 standards.

Ellen Carpenter: Mossy Lake is in the middle of upper Coffee Creek and lower Coffee Creek (unintelligible)

Joe Martin: That is correct. We had a stakeholder meeting two nights ago in Crossett, Arkansas for this specific waterbody. I did not give that presentation, but Basil Hicks who is an attorney here at E&E [Arkansas Department of Energy and Environment] gave a presentation determining that Mossy Lake fell under the Waste Exclusion Provision in the regs. I'm not an attorney, so I'm not the best person to address those questions, but that was a quick summary of what he's stated.

1:39:42

Ellen Carpenter: One more question on that: there's data to support based on the Parsons and AquAeTer studies to support that there's aquatic life in Coffee Creek above and below Mossy Lake. Is there any scientific data to show that there is no aquatic life in Mossy Lake?

Joe Martin: So, there were collections done in both of those UAA's and there were some sampling events that caught nothing, some sampling events they caught one gar and maybe a bowfin or something like that. [The sampling] was limited in what they caught. [There] were very few things [caught] in general. I think in one sampling event they did catch a bluegill and one other type of sunfish, but for the most part when they were sampling it was very limited to a gar and maybe a carp.

Ellen Carpenter: Do you know if the department has ever used the wastewater treatment exclusion as a basis for saying a waterbody is not fishable or swimmable?

Joe Martin: I do not know the answer to that question.

Ellen Carpenter: (mostly unintelligible) I… and this is just a thought, but I saw precedence… (mostly unintelligible) concerning… (mostly unintelligible) DEQ… (mostly unintelligible)

Joe Martin: Yes Ma'am.

Erin Scott: How many meetings have there been on Coffee Creek?

Joe Martin: There was just the one. Tuesday night.

Erin Scott: (mostly unintelligible) thank you… wasn't clarified.

Joe Martin: Yes Ma'am.

1:41:54

Justin Stroman: I'm going to change the subject real quick if we're done with Coffee Creek. If that's ok.

Joe Martin: Sure

Justin Stroman: Just curious, and this may be another discussion you're having at the next meeting. Where are we at with the development of the sedimentation standards? Because that's been something we've brought up in this triennial review cycle now for at least since 2012 going back and documenting that. We had some stakeholder working groups and felt like there was a lot of movement towards that and then we haven't heard anything for a couple of cycles now. So, I was wondering if we were still moving forward with that or what's happening with sedimentation standards?

Joe Martin: Currently we don't have any proposals for sedimentation criteria in this revision, but we can look into that moving forward. I know that that's come up before. I have done a little background into that to see what other states have done.

Justin Stroman: Yeah like they went so far as to look at Oklahoma. They came up with some pretty good standards; they even had, at one point, a stakeholder workgroup to get that added to the [regulations] and it just sorta, I don't know, administrations change, people change and it just sort of fell off. So, I'd like to see that back on the department [agenda] they spent a lot of time and effort to put this stuff together I just hate to see it fall off the wayside, including DEQ.

Joe Martin: I did look at Oklahoma. I don't know if they have sedimentation criteria in their rule for water quality standards. I believe they do use it for assessment, though, when they're assessing aquatic life if I'm not mistaken. I do recall looking at their water quality standards and I don't believe they have anything in there on that. I can double check.

Justin Stroman: I wasn't a part of that group; however I know [Arkansas Game and Fish] worked heavily on that and Oklahoma was one of the states they used to come up with their template coming up with this, where it falls in the regs I don't exactly know. That's something I'd like to see discussed since we've been 'punting that ball' now for a decade plus and haven't gone anywhere with it when we probably should be.

1:44:10

James McCarty: I was wondering if you could give an update on nutrient criteria standards development

Joe Martin: We will be doing that at the next stakeholder meeting.

James McCarty: Next stakeholder meeting? Ok. I want to revisit the site-specific pH from our [second] agenda item… what's proposed could be perfectly reasonable, but I'm not super concerned about the Ouachita region personally. I'm concerned about the level of investigation and research that was being applied in other situations. I want to reiterate: referring to these streams as having no anthropogenic impact I think is not true. Just because they don't have an NPDS discharge does not mean they don't have anthropogenic impacts [impacting water quality]. We have very low urban land use in the Beaver Lake watershed but still, we see evidence all the time of anthropogenic impacts. A stream that has 2-6% urban is far from a reference stream, which is probably something that should be used when identifying whether this pH [criteria] is appropriate. I think Tate mentioned these are listed waterbodies, but we were only given a small subset of data for pH. If it's listed for pH then data indicates that the pH was 'out of whack' so, what does that data look like?

Joe Martin: I'd have to go back and look at the data set, but I will assume that much of the data that was on the graphs today was the data that got those streams listed.

Mary Barnett: That is correct.

James McCarty: That makes sense, but there's no additional data that goes back any further than what was presented?

Joe Martin: Not to my knowledge. Many of these streams don't get ambient monitoring stations on them so finding historical data or long-term datasets on some of these streams is difficult to do.

James McCarty: One more comment on that topic. When you're looking at aquatic life response, especially to disturbance in a stream, the lag time between when that disturbance [occurs] and when the actual change in aquatic life [occurs] can depend on the disturbance and the degree of that disturbance. I think two to three years of sampling on something like this probably not adequate to capture those changes to aquatic life. So, there could be a disturbance and then we're still seeing quality aquatic life indicators that haven't caught up with that [disturbance] yet.

Joe Martin: Thank you for that.

1:47:40

Colene Gaston: I don't know if anyone else has anything else to say. [pause] Okay, so I just have some process questions: one, it would be helpful for us, you know, maybe while we have some time at this meeting, to first know a little bit more about the nutrient criteria. You said it's a new parameter, so, can you give us a little more information on that?

Joe Martin: I'm sorry; you said nutrient criteria is a new parameter? – It was an update on studies working towards developing or collecting data towards the development of those criteria.

Colene Gaston: Okay, so that's the update. The next thing is Mary said there were some site-specific criteria and she said three DO, but then she also said a new *parameter*.

Joe Martin: We're proposing some new additional criteria for Rule 2 at the next meeting, correct.

Colene Gaston: Which are? What are they?

Joe Martin: We have some new toxics that we are proposing, off the top of my head I can't recall, but there are a number of new toxics we are proposing at the next meeting.

Colene Gaston: I ask just because I don't have to talk about something necessarily that you are going to talk about, but that's still a little vague. The toxics are – is microcystin one of them?

Joe Martin: No, it is not.

Colene Gaston: That's something that has been requested multiple times that that be investigated, and certainly for drinking water, utilities – that's an important parameter. So, reiterate that one. Now go back to some process issues. James talked about the process issue for downgrading the pH criteria. I'm curious to know if Russell Nelson is still on [Zoom]. It may be helpful to hear from him. You all talked about some of the legal requirements for essentially downgrading a [criterion] – also for removing a use. The standards in Rule 2 have some holes in them, I would say. So… we're for setting a precedent and I want to make sure that if the state is going to be downgrading some criteria or removing a use, which you're doing for the trout fisheries, and I realize that's a subcategory of a use and it's not directly addressed in Rule 2, but it's still removing a use. Does that require something akin to a UAA? Does it require an economic and societal impact analysis? I'm not sure that I know the answer to that. I have a feeling Russell may have an opinion on it.

Joe Martin: What was the use again you were talking about removing?

Colene Gaston: Trout fisheries.

Joe Martin: It's an interesting question, I thought about that myself, it's a difficult one, because it's not like the waterbody was degraded and the trout could no longer live there and therefore we are pulling that use off. This was an artificial use that was a put-and-take fishery and it no longer a put-and-take fishery. So once that put-and-take fishery is no longer there, why are we applying criteria to that waterbody for a use that doesn't exist in the waterbody any longer? I agree with you, I think it's an interesting question in this situation because it's somewhat unusual. We can let Russell say something if he would like to. I will say that earlier in my UAA comment when James asked the question on the legal requirements, Russell put in the chat:

"Joe is correct on the UAA aspect. Chemical analysis is similar, but a UAA is defined in 40 cfr 131.3 and outlined in 131.10 would not be required if use isn't being changed."

Mary Barnett: I think Russell's comment was in relation to the pH criteria.

Joe Martin: Right. It's the site specific one when James asked the question regarding the legal requirements.

Mary Barnett: For the trout use… those lakes, as Joe mentioned, we did think about… we had discussed if the stakeholder group did not have objections then that would develop a document in support… the documentation that Rule 2 requires would have to outline that out for the trout lakes.

1:52:46

Joe Martin: Another point would be: what would a UAA look like to remove that use other than going out there, sampling, [and] finding no trout? And then if you don't find any trout, what does that mean? That means the trout are no longer stocked there and there is a water quality issue leading to them not being there, or could they not survive there anyway because of natural conditions and water temperatures. Water temperature [criteria] for some of those is 20 degrees [Celsius]… y'all have a reservoir in the north and I bet water temperature get about 20 degrees [Celsius] pretty regularly during the summertime. That's not due to anything anthropogenic; most waters in Arkansas see temperatures greater than 20 degrees [Celsius] most of the time, assumingly in the summer time. That's a great point, maybe Russell could address that.

Russell Nelson: That's one thing that's unusual about the trout waters use. It's essentially a subcategory of use on top of an existing use, so the regulations really don't speak to something like that. It does speak to a requirement of your UAA if you're removing a subcategory or creating a subcategory of use that has less stringent criteria. The [regulation] isn't really clear on something like this. I would tend to agree with what you've said because it is an artificial use; it is not a natural fishery use. And it probably wouldn't require an extensive UAA, but your supporting analysis of "why" you're removing it would be adequate for EPA's action or any determination we make.

Colene Gaston: I do have a question in terms of the type of… it sounds like, Mary; you plan to do a scientific justification that's part of the packet that goes to the commission. Will that include some analysis of what the removal of the trout use and the subsequent lessening of criteria for [dissolved oxygen] and temperature, making them less stringent essentially, what impact that could have on downstream fisheries from those lakes? In other words, the water that's released from those reservoirs that feeds those downstream trout fisheries, that remain trout fisheries, is that going to change potentially? Does raising the standard, lessening the standard, have an impact on the downstream trout fisheries? I don't know.

Mary Barnett: We will definitely take a look at that.

Russell Nelson: There's other parts of the regulation that require the state to provide that supporting documentation, but there's also specific regulations. I believe it's 131.21b that requires consideration of downstream uses. That would likely be part of what we would expect in the state's supporting documentation for that.

Justin Stroman: I just want to say; from our state trout fisheries biologist's perspective… I've had her review this proposal and she does not have concerns with the tailwater being affected by this. I had the same question… we're basically changing the standard and making it warmer even though the fishery's not there… what's the other consequences as a result… at least as far as the trout fishery is concerned those tailwaters should not be affected by this standard. At least according to our trout biologist.

1:56:50

Colene Gaston: So, next process question: What's the status of the antidegradation implementation, methodology?

Joe Martin: That's driven through the permitting section since they would be implementing that anti-degradation policy. I know that's been out for public comment. We've received comments on that, but after that I don't… I'm pretty sure they have at least responded to those or are working on those responses. But I can check into that and get you a more complete answer at the next stakeholder meeting.

Colene Gaston: I didn't think that was going to be your response. I didn't mark it, but in DEQ's filing to the Commission in January in support of amendments to Rule 2 there was a statement made that some change was made or not necessarily made because of the existing anti-degradation implementation methodology and it was stated as a fact that that was in effect. And it wasn't [in effect].

Joe Martin: I'm not familiar with that statement, but my suspicion is that they were talking about the anti-degradation policy that's in Rule 2 not the anti-degradation implementation.

Colene Gaston: Well, anyway, that was in a part of the 2019 triennial review comments, documentation, supporting documentation and it was basically DEQ saying "we have an in-effect anti-degradation implementation methodology" when that's not the case. I think it needs to be clarified that that's still a very important missing component of water quality standards. The aim is a part of the water quality standards, not permitting. It's used for permitting, but it is a component of water quality standards.

Russell Nelson: Clearly the standards and regulation requires both policy and implementation. While that implementation A) may actually come into play when a permit is established or renewed there's still that regulation that requires that implementation be referenced in or be clearly tied to Reg 2 or now Rule 2. So, I will anticipate EPA will speak to that action on the 2020 Triennial.

Joe Martin: Thank you, Russell

1:59:39

Colene Gaston: One last comment, and this is going back to something in the last triennial review that still puzzles me and I've read the DEQ's responses to comments and it just doesn't make common sense to me. So, DEQ has changed, deleted the definition all flow, no deleted the word 'all' from flows, kept the same definition from 'all flows' and now calls it 'storm flows.' Common sense, it doesn't make sense. What's important I think, and I never have gotten any answer to this is back when those turbidity criteria were established and they were called 'storms flows' my assumption and what I know of it is that those were actual storm flow numbers. And so, switching the name doesn't seem scientifically defensible.

Mary Barnett: I would like to speak to that for a minute. You're correct; the situation has been an ongoing discussion with DEQ, EPA, and our stakeholders. So when those criteria were developed the data set that was used was just the base flow, we had just the base flow part of the year so the other set of criteria were the entire year's worth of data including those data where storm flow was present. So, because of that the term storm flows got attached to those numbers, to those criteria. When DEQ is in support of using the term all we didn't just go out there and say "it's storming right now, we'll go out and sample now". We didn't look for any hydrograph separations and say "oh, this is a peak so we'll use that to count as a storm". We used an entire year's worth of data and DEQ's stance is that the term 'all' is more reflective of how the criteria were actually developed. EPA probably wants to talk about that some too, but since the definition has not changed because how those criteria were developed has not changed. If we were to develop a 'storm only' [criterion] and had a 'storm only' definition we would have to have a process by which to do that, by which to say "these data points were reflective of when it was storming" and therefore we could set those criteria. We don't actually capture flow when we're out sampling most of the time. We do sample flow… algae, but our ambient program, when our inspectors go out and when planning samples, when we grab our *in situ* samples, we don't collect flow. So we don't really have a process right now to say a sample was or was not a storm sample, therefore we can't develop an actual storm criteria. I don't know if that helped explain that.

Colene Gaston: That does, that's the first time I've heard, maybe I've just missed it, someone say the actual data that was used to establish those criteria were called 'storm flows' were not in fact samples explicitly taken during storm events. It that what you're saying?

Mary Barnett: Yes, that is correct the documentation that I've read, says that it's including when samples that included it, so it's everything.

Colene Gaston: You've looked at it more than I have, but my recollection from a long time ago was that there was a real effort on DEQ's part to collect those samples during storm events. They may not have recorded precipitation or the river gauges or whatever, but I just remember people

who were here a long time ago talking about those turbidity criteria that there was a concerted effort to capture storm events. So maybe I'm wrong about that.

Tate Wentz: My understanding is that it was the 90th percentile of all data. So, chances are it was going to be dominated by storm events but it was all data.

Mary Barnett: We can definitely provide some of our historical documentation to the stakeholders.

Colene Gaston: That makes me feel more comfortable that it's an appropriate number. But still, and this may be an issue with EPA, but still calling it 'storm flows' when it's 'all flows' doesn't make sense.

Mary Barnett: We tried to change it to 'all' and they disapproved that. Russell, do you want to give your two cents?

Russell Nelson: That disapproval occurred in the 2007 Phase 2 revisions and some of the revisions made in this triennial addressed those issues, but one concern remains is that although the name of the definition changed, the content of that definition did not change. EPA will likely speak to that in this upcoming… 2020 triennial once it's submitted. That's actually all I can say on that.

Mary Barnett: I think when Russell said "this triennial"; he's currently looking at 2020.

Colene Gaston: I do think it's something that would be helpful for DEQ and EPA to reach some clarification on, but also including the definition of 'critical flow' and how that's handled, and whether it should be in Rule 2 or not or what form it should be in Rule 2. I do think the flow issues are just critical to everything, all the other criteria, most of them. I do hope you will keep that on your important issues list. Thank you.

2:06:51

Joe Martin: Thank you for your comments. Anyone else?

Ellen Carpenter: I just want some clarification on what we're going to talk about at the next meeting. We're going to talk about nutrients, we're going to talk about the anti-degradation implementation status, some of other changes that are going to be made, and toxics. Was there anything else?

Joe Martin: That's correct.

Mary Barnett: We are also going to provide a status on the minerals.

Multiple people talking: (unintelligible)

Russell Nelson: I hate to go backwards, but I was unable to join right at 10 o'clock so I missed the whole bacteria thing, so would you mind sending me your PowerPoint rather than have to repeat it here?

Joe Martin: No problem, Russell. I can even give you a call and give you the talk.

Mary Barnett: We do post the PowerPoints as a .pdf on our website so we'll do that for this presentation as well.

Michael Clayton: I'd like you to expand on the next meeting, stakeholder meeting… discussion of nutrients… information on what that discussion might look like.

Joe Martin: It's really just an update on the studies we're conducting. It's not super in depth as far as the development of actual numbers. We just want to give a status update on where those studies are that we're doing currently, collecting data… the data collection that we're doing will revise new criteria. The development of nutrient criteria is just one of those. We're just giving a status update on the studies; we're not proposing any kind of criteria for this revision. Anyone else?

2:09:50

Colene Gaston: I know that at some previous stakeholder participation… with other triannual reviews that you've concluded the meetings where you had presentations and then you would give the stakeholders a reasonable amount of time to write up comments and submit them to you before you actually hang up your final draft to submit to the commission. Do you plan to do that again?

Mary Barnett: I haven't actually discussed that specifically with Joe. We do want to make sure our stakeholder opinions are heard and that something we can do after our second meeting is to provide some time to receive any written comments.

Colene Gaston: I think that would be much appreciated. I am guessing that some of the comments though are going to be "we want something on X, Y, and Z" and may even say "we want this exact language" to make it easier for you. I get the feeling that it's a foregone conclusion that you're not going to expand the changes that you're proposing, but if that's the case it's just this ongoing frustration for stakeholders that year after year we say "please develop these criteria" or "please make these changes" and we're promised "next meeting, next three years, next three years." So, I would just like to encourage some willingness to consider expanding beyond what you are thinking about proposing right now.

Joe Martin: We do take that into consideration. If you recall about a year ago, when we started trying to open up the triennial review process we had a 45 day or 60 day time period where if you had any wishes that you would like for the 2023 revision. We, surprisingly, got very few comments on that. I think only two people submitted comments. We're always willing to take

feedback. Just one point about criteria development. Criteria development is very difficult, it takes a lot of data collection, very robust data sets across the whole state. With the number of staff we have we stay extremely busy collecting data. We had an extremely busy summer last summer, we'll have extremely busy one this summer as well. We're really working staff hard to get out there, get the data collected in order to bring that back and try to get some good analysis so that we can develop defensible, really strong criteria. We are working towards that, I understand that these are slow processes, but we certainly are moving in that direction.

James McCarty: In terms of data collection, are you using any partner agencies to collect data as well?

Joe Martin: When we have data we will pull that. It depends on what we're looking at. One thing we want to use is high quality data. We want to make sure it's quality data, quality assured collected data with similar methodologies. And so, there is some nuance there as far as what data you want to use, was it collected it in a similar manner, those type of things, but we do look for any kind of data that we can in developing these criteria.

James McCarty: Has DEQ ever considered communicating their data collection strategy in terms of criteria development, other partners? Here at the water district we collect tons of data and if we knew what your strategy was, if we knew what you were looking for we would alter our data collection strategy in order to help you guys out because we're interested in nutrient criteria development. We want to see that happen.

Joe Martin: I appreciate the comment, that's good to know. One thing that we are going to do… we are developing a procedure manual that we want to put out there. So if you want to collect data the same way that DEQ does we'll have that manual out there. It will be everything that we collect in wadeable streams and how we do that, that way we have comparable data just so that it's out there for people to use if they so choose. That's one thing we could do, but I think that's good to know and we may be in touch in the future.

Russell Nelson: Before we get too far away from the concept of the triennial in general, I wanted to make this point really clear to both DEQ and the public is to be considered a triennial revision, the entire rule has to be open for comment. You can't limit it to just what DEQ's proposals are. Now that does not obligate DEQ to address everything that the public may ask for. That's the State's purview because the standards process is a state primacy process.

Joe Martin: Thank you for that clarification.

Justin Stroman: I just want to say that I would definitely appreciate some sort of response to stakeholders before it gets out to public comment. We're not just members of the general public; we all have a background specific to water and would like to see our comments specifically addressed. I'm sure you guys can do that. We would appreciate that, getting some sort of feedback to our written comments before a draft goes out for public comment. I know you guys

are busy, I get it, I get it, but anything you can do, even if it's "Thanks for submitting something, Justin" I'd like to see something.

Joe Martin: We appreciate all the comments from our stakeholders. Realistically speaking, we planned on having our next one in May, is that correct Mary, after that meeting we will take a break for comments, but once June hits we're in the field every week. Half of the staff is in the field every week for possibly two to three days a week so it really does put us in a resource limitation on doing some of that stuff.

Justin Stroman: …I'm a field biologist, so I get it.

2:16:23

Joe Martin: Any other questions? [Pause] Alright, well, thank you so much for coming. We really appreciate it, we appreciate the discussion, all the feedback we get. We'll put the PowerPoint on the triennial review website, so if you'd like to go back and review that. Once again thank you so much. Look for an announcement we'll send back out to our list serve for the next stakeholder meeting. We hope you can all attend again. And we just appreciate you, thank you so much.

Mary Barnett: And I did want to say real quick, we have that email up there [Rule_2_Comments@adeq.state.ar.us] and the reason is primarily because both me and Joe can access that inbox so if one of us is out, like if I'm out in the field or if he's out at meetings, we can both get to that, so if you have comments, especially for this process, we'd appreciate you using that Rule 2 email so we're both kept in the loop. You probably don't need to Cc us, but, you know.

Russell Nelson: Thanks for providing the remote link, Joe.

Joe Martin: Yes, sir.

Unidentified woman: If we do go ahead, stakeholders, and send you some written feedback, say between now and the next meeting, will you post it on the page having to do with the triennial review so that everybody in the group, well anybody, can see it?

Joe Martin: We'll talk internally about that.

Unidentified woman: Okay. I think it might be helpful.

Joe Martin: Thank you.

Unidentified woman: And since I have this, one thing I forgot earlier. I think you said something about the assessment methodology update when you were talking about, I guess the, some of the other proposed changes. How is that going to fall in with the triennial review and what do you anticipate in terms of the public process on the assessment methodology?

Mary Barnett: Any criteria revisions would not get updated in the assessment methodology until after EPA approval. So it really just depends on where the approval falls in the assessment cycle.

Joe Martin: We don't have anything scheduled right now for a public meeting for the assessment methodology. But as we work through and if we have the opportunity… send out an email to both our list serves so everyone will know it's there.

Unidentified woman: I'm not making myself clear. When is the next 303(d) cycle? When is that getting started?

Joe Martin: The 2022 cycle has already started, because we're running behind on that. So we're working hard to get caught up, so we're going to be behind on the 2022, but we hope to get caught up on the 2024. So I would expect, and we haven't discussed this yet, there is no plan, but my suspicion would be that we'll probably have a public participation process for the 2024 IR.

Mary Barnett: And 2020 is currently under EPA review and 2022 is under Planning review and preliminary assessment. So it is in the… of the 2022 cycle.

Joe Martin: Once again, thank you everyone have a safe drive home.