Assessment Methodology Stakeholder Workgroup
MEETING MINUTES
15 December 2016, 1:00pm-4:00pm
ADEQ Commission Room

Stakeholders present: Ryan Benefield (ANRC), Colene Gaston (BWD), Stan Suel (AWWMA – Wastewater), Randy Easley (AWWMA – Drinking water), Teresa Turk (BRWA), Bob Allen (Arkansas Canoe Club), Alice Andrews (Ozark Society), Darcia Routh (ADH), Arnold Hameister (Arkansas Agriculture Department), Luke Driver (USGS), Billy Justus (USGS), Justin Stroman (AGFC), Mike Armstrong (APPP), Shawn Hodges (NPS), Matt McNair (ADPT), Mary Barnett (ADEQ), Dara Hall (Arkansas Attorney General's Office), Sarah Clem (ADEQ), Selena Medrano (USEPA), Tate Wentz (ADEQ), Tom Fox (AEF), Greg Phillips (AEF), Billy Ammons (Beaver Watershed Alliance), John Bailey (Arkansas Farm Bureau), Tim Snell (TNC, phone), Brian Haggard (AWRC, phone)

1:06-1:08 – Sarah Clem - Introductions and Opening Remarks

1:08-1:37: Billy Justus and Luke Driver – Presentation: "An Evaluation of Continuous Monitoring Data for Assessing Dissolved Oxygen in the Boston Mountains"

1:37-2:12: Questions following presentation

MIKE ARMSTRONG: Rhetorically asked if the dataset included both base flow and storm flow.
BILLY JUSTUS: Replied "yes".
MIKE ARMSTRONG: Asked if analysis had been run just with base flow.
BILLY JUSTUS: Replied "the nutrient data was just from base flow and storm flow".
MIKE ARMSTRON: Replied that the point of his comments was just that during storm flow there will be a lot of mechanical aeration of water, so the influence of nutrients or other constituents in water would be much more masked by the mechanical aeration.
BILLY JUSTUS: Responded that they had tried to eliminate the high flow events when DO data were pulled; asked for confirmation from Luke Driver.
LUKE DRIVER: Replied "yes", but data were not filtered for stormflow, only based on temperature for when values corresponded with temperature above 22°C.
BILLY JUSTUS: Reiterated that they focused on data within the critical season (as it applies to Dissolved Oxygen (DO) in Regulation 2), which should represent base flow periods, but just base flow, but also not storm flow periods.
LUKE DRIVER: Stated data were not filtered to exclude storm flow, just DO corresponding to temperature above 22°C. There was filtering of base flow and storm flow with nutrient data, but raw DO included both.

MIKE ARMSTRONG: Stated that would make sense, because as far as exceedances at the 10%, as far as Regulation 2 is concerned, base or stormflow periods do not matter.

TERESA TURK: Called attention to page 38 of Assessment Methodology (AM), #C ["*The critical season dissolved oxygen standard is to be met at maximum allowable water temperatures and at Q7-10 flows. However, when water temperatures exceed 22˚C (71.6˚F), a 1 mg/L diurnal depression will be allowed below the applicable critical standard for no more than 8 hours during any 24-hour period.*]. Pointed out it was important to note there was an exemption there that allows it to be exceeded even more. Asked for clarification of interpretation.
TERESA TURK: Disregarded previous statement and question upon noting the above reference criteria applies to effluent limits.
COLENE GASTON: Inquired why that language was included in the AM since it is directly related to NPDES permit limits.
SARAH CLEM: Replied that what we have tried to do is give exactly what is in Reg, but stated that it is a good point, that we do need to take that out, because it is for effluent dischargers. We will capture that and take out.
LUKE DRIVER: Stated they did analyses looking at hourly mean DO values and evaluated 10% exceedance using hourly means, and had table of mean number of hours of exceedances at each site, but didn't end up using that data. Unit value data were more optimal in the sense that condensing the dataset to get hourly means results in less resolution. Evaluations were also done on an hourly basis, and do have some of that information available.

SELENA MEDRANO: Asked if USGS looked at how the standard was initially created in terms of what data were used.
SARAH CLEM: Replied that we did look at how the data were gathered, and it was based on 72 diurnal studies from the original ecoregion work. Brought up that ultimate take home message is that it looks like 10% exceedance is appropriate for assessment of continuous data as well.
BILLY JUSTUS: Stated that percent exceedance of the standard did not change a lot when hourly values were looked at, and it was more straight forward to use the unit values.
SARAH CLEM: Commented that the reason ADEQ hired USGS was to look into the issue of how to use continuous DO data for assessment purposes and we believe 10% is appropriate.

STAN SUEL: Noted it was stated during presentation there were 30,000 approved data points, and asked whether any data were removed and why in regards to the data validation process. Premise for question was that since field units are there for 3 to 4 weeks, if checking for drift was a part of their protocol.

BILLY JUSTUS: Replied that the technicians that maintain monitors are in charge of reviewing data, and they go through a review process so if a monitor goes down or there is fouling, some of those data would be removed. However that review and validation is not something that [Billy Justus or Luke Driver] do themselves.
LUKE DRIVER: Stated there are corrections during the check and review process, and if drift is occurring there are protocols data technicians apply to correct drift.

COLENE GASTON: Asked if ADEQ is going to stick with 10% rule and use all unit values, what will be done if there is not a 5 year period of record and how will continuous monitoring data be used in combination with discrete data?
SARAH CLEM: Replied that we still haven't answered all of the questions.
TATE WENTZ: Stated that ADEQ has talked about that internally, and if we have limited dataset of continuous monitoring and paired discrete data, we would generally lean more on continuous monitoring because that is more indicative of what organisms are seeing for the protection of that designated use. If we only have one or the other, we don't how we would lean on that, but he thinks we would continue our normal practice – because of how we currently evaluate discrete data.

TERESA TURK: Stated she would like to see more analysis, and mentioned that some states take the lowest dissolved oxygen point for the entire day, and it would be interesting to see that compared to hourly as well as on 15 minute interval. She also pointed out that the question is how protective we want to be in our state. It's not about how the 10% was derived and whether that is appropriate and we may want to consider being more protective. It would be nice to see how all of those data lined up with each other.
TATE WENTZ: Commented that the daily DO values were evaluated in this exercise and that will be part of this draft report to compare those. Looking what other states have done: the daily DO minima, the hourly average, and 15 minute discrete interval samples – and in this exercise there was really no difference.
TERESA TURK: Responded "that's great, I would love to see that, do you have an idea when the report is going to be available?"
BILLY JUSTUS: Stated he suspected it would be approved within a three month time period.

COLENE GASTON: Referenced the White River and Town Branch USGS gages that are partially paid for by Beaver Water District and City of Fayetteville, and asked whether there are funds going toward continuous monitoring data from ADEQ, or through other state funded sources, and how placement and timing of funding those gages is decided on.

SARAH CLEM: Replied that ADEQ contributes to USGS to provide funds for monitoring stations, and ADEQ can specify which gages to contribute to, but it's up to USGS to decide how they distribute their funds and decide.
BILLY JUSTUS: Added that most of the ADEQ stream gage program has been cut in the last few years.
SARAH CLEM: Mentioned that as ADEQ's resources have diminished, budget for USGS gaging stations has decreased throughout the years.
BILLY JUSTUS: Added that in general, if any state agency or anyone wants a continuous monitor, USGS works with them. Continuous gages are pretty expensive to run, with 4 to 5 parameters costing approximately $25,000/year on average.
SARAH CLEM: Asked "What are you getting at, Colene?"
COLENE GASTON: Responded that in terms of the assessment methodology, use of continuous monitoring is going to be the exception rather than the rule. For most waterbodies, you will be dealing with discrete sampling. Is that correct?
SARAH CLEM: Replied "Yes".

STAN SUEL: Question for USGS: with most data for the Boston Mountain region, did you see wide diurnal swings in the DO levels? And broadly thinking about other regions and all waterbodies of the state, would you anticipate seeing diurnal fluctuations in DO?
BILLY JUSTUS: Replied that one will see diurnal fluctuations at any site, but it's the amount of diurnal fluctuations that's concerning. You will have sunlight during the day and oxygen production, with only respiration occurring at night, which results in DO depletion. In a natural setting one would expect 1 to 2 mg/L swings a day expected depending on the water temperature and how much light you have.
STAN SUEL: Asked how long of a period one will see a depression.
BILLY JUSTUS: Replied that generally the lowest DO concentrations occur around 6:00 a.m. and gradually increase to the maximum value around 3:00-4:00 p.m.

MIKE ARMSTRONG: Brought up the importance in considering the use we are protecting with DO – which is really aquatic life; therefore the importance of focusing in on the most critical periods that aquatic life have to go through – characterized by high temperature and base flow, because your wetted perimeter is the smallest and the most stress for aquatic life would be during those periods. So it should seem that impairment assessment would focus on the most critical periods and partition off those time periods. Going back to my comment about storm flow – during which time there are a lot of other inputs to oxygen, one being mechanical aeration, so I would not expect DO to be an issue during storm flow events, above a certain flow. But during base flows, especially during 7Q10s or the bottom quartile, would be the time period those aquatic organisms have to live through the most stressful period event. So that's where the focus should be on –

what are the DO concentration exceedances then – because you only need one event to have a detrimental impact to aquatic life.
SARAH CLEM: Replied that she still sees the 22°C as the primary first step in looking at DO and secondarily perhaps base flow.
MIKE ARMSTRONG: Responded that 22°C is important, but the other parameter you need to look at is that base flow periods.
Also directed another question to Billy Justus regarding how much of this data is being influenced by mechanical aeration during stormflow event, which depends on what proportion of the data were during above 50% flow, or whatever defines that period when you start getting more mechanical alteration than photosynthetic aeration. How much masking of the impacts due to nutrients or land use is caused by stormflow? It seems you would want to partition that out and look at the periods of time DO is most affected by other water quality constituents.
BILLY JUSTUS: Replied that the primary objective was to evaluate current DO assessment methodology.
MIKE ARMSTRONG: Mentioned that since USGS does have the dataset, data could be partitioned out and analyses run to see if there are differences between base and storm flow times.
LUKE DRIVER: Stated there is a lot of overlap between 22°C and base flow. So you wouldn't expect to have a lot of storm flow samples when you have [temperatures above 22°C].
MIKE ARMSTRONG: Responded that you still don't know that until you run the analysis.

LUKE DRIVER: In response to one of Stan Suel's earlier comments, stated that using the 15 minute unit value data and asking what is a stressful exceedance level for an aquatic organisms, this goes back to the scale at which we are evaluating these exceedances. Although hourly and daily exceedances were calculated as well, using the unit values is more representative of the amount of stress to aquatic life. If 1/96 15-minute interval readings from a day drops below the DO standard, that is proportionately less than interpreting that exceedance based on daily minima, which is why the scale at which you interpret this data is really important.
MIKE ARMSTRONG: Replied the he understood, and part of the weakness is that any exceedance is treated equally, where a 5ppm exceedance gets treated the same as a 1ppm exceedance, even though effect on aquatic biota is going to be completely different. Which is why focusing on most critical time to do assessment is important to be protective since degree of exceedance can't be weighed.

SHAWN HODGES: Pointed out there are additional dissolved oxygen criteria labeled in the nutrient section – and asked whether there is a way to calculate percent saturation

using USGS data in order to tease out if there is nutrient impairment vs. groundwater influence.

BILLY JUSTUS: Responded we need barometric pressure to calculate saturation. We could assume a barometric pressure and get close. We have looked at variability at low end associated with groundwater – question came up as whether it would be more appropriate to use a high end variable where you have super saturation because you know you have groundwater influence.

RANDY EASLEY: Commented that multiparameter probes being used were already collecting barometric pressure and percent saturation that could analyzed.

BILLY JUSTUS: Responded he knows it is an option, but not sure whether monitors were calculating those and available.

2:12-2:20 - BREAK

2:20-2:23 – Housekeeping Items

SARAH CLEM: Thanked Colene Gaston for bringing scones for the group (we may as well let the record reflect since Colene was out of the room at the time).

2:23-2:27 – Addressing: 3.2.1 comment from NPS

SARAH CLEM: Responded that ADEQ did not have a methodology in place in 2016 to assess continuous data, but believe that comment has now been resolved that USGS has addressed that with continuous DO data.

2:27-2:33 – Addressing: 6.2 Turbidity

SARAH CLEM: Commented that as it relates to continuous monitoring for turbidity (comment on p. 9), this is a Reg. 2 issue, and ADEQ is going to change the title from all flows back to storm flows, as it was originally. Looking at how to utilize continuous monitoring for turbidity, the data collected is measured in FTU; however, criteria are in NTUs, and those aren't always the same. We have talked with USGS about that, but have heard from EPA that we need to develop criteria in FNUs. So FNUs can be used for screening purposes, but not assessments.

TERESA TURK: Asked "Is there not a translation table?"

TATE WENTZ: Replied No, they do relate on a 1:1 relationship until about 400 NTUs, but if you talk to any person that studies turbidity, they are not synonymous terms or methods. FNUs are for protection of drinking water standards, NTUs are for protection of aquatic life. So our next step is to develop a relationship in Arkansas.

COLENE GASTON: Asked if any thought had been given to changing the standard.

SARAH CLEM: Responded a relationship between FNUs and NTUs would have to be evaluated before a standard could be developed.

COLENE GASTON: Asked whether the intent of the conversation was to go ahead and determine the assessment for future cycles.
SARAH CLEM: Replied that if we do see there is a potential turbidity impairment or issue we would want to focus efforts on that. Throughout reviewing all data, not just turbidity, if we see data that indicate there is a problem, we would want to address that further to investigate that more. It is not the case those data are dismissed and/or not evaluated.

2:33-3:00 – Addressing: 6.3 pH (continuous)

SARAH CLEM: Asked Billy Justus how many monitoring stations collecting pH are there compared to those collecting DO.
BILLY JUSTUS: Replied that stations USGS has stations that collect DO and temperature, temperature is collected pretty much everywhere. Conductivity and temperature are two most common constituents, but guessing at number of stations collecting pH somewhere around 12-15 sites.
SARAH CLEM: Commented that we evaluate our pH data at 10%. Internally we have discussed evaluating continuous pH at 10% as well.

RYAN BENEFIELD: Brought up question of how ADEQ is going to mesh continuous and discrete if continuous are not available over the entire period - gave example of 6 months continuous and 4 years discrete data.
SARAH CLEM: Responded that pH is there to protect aquatic life use, and data every 15 minutes is a better characterization of what is going on compared to discrete. But we will have to figure out how to utilize continuous data from shorter windows while including discrete samples as well.
MARY BARNETT: Added that for bacteria we assess based on primary and secondary standards and if either one has an exceedance there is a listing, same for turbidity (base flow and storm flow) and DO (primary and critical). So it could be similar in that if either one of the datasets showed impairment, there would be a listing.
MIKE ARMSTRONG: Responded that they would have to be treated equally, as they are technically both discrete samples, just taken at different intervals. It shouldn't matter if it is based on 15 minutes or 1 month.
RYAN BENEFIELD: Questioned the appropriateness of using 6 months of continuous data which would overwhelm and outweigh the number of discrete samples collected over 4 years when assessing based on a 5 year period of record.
MIKE ARMSTRONG: Responded that if the premise of a standard is to protect a use, an exceedance is an exceedance.
RYAN BENEFIELD: Commented that a stream that gets listed based on only a 6 month period, which will eventually drop off.
COLENE GASTON: Commented "not necessarily".

RYAN BENEFIELD: Responded that if the discrete samples aren't showing more than 10% exceedance.
COLENE GASTON: Replied that the delisting methodology would have to be looked at to make that determination, because it's not automatic.
RYAN BENEFIELD: Acknowledged Colene's comment and went on to expand on a potential example in which there could be a stream that gets listed forever if no one ever goes back to do the same level of continuous study.
TERESA TURK: Brought up that the real issue is all of the error associated with time of day sample is collected. That's probably where the real error is, because continuous data are much more representative of what is actually going on.
RYAN BENEFIELD: Agreed with Teresa but stated the amount of resources needed to continuously sample forever are just not there. Apprehension on ANRC's part is due to concern with collection of continuous data for special studies or specific purposes, and can be used to make assessment decisions, but those studies (particularly as it relates to collection of continuous data) are not meant to go on forever.
TERESA TURK: Proposed a solution that other states have implemented in solving that problem by taking one measurement per day to characterize those continuous data (e.g. daily minima or maxima).
SHAWN HODGES: Pointed out that there are a lot of places in the 2016 Assessment Methodology where listing *requires* (i.e. Nutrients) the collection of certain continuous data, but there are many times in which those data do not exist. And if there is never going to be a scenario where there could be a listing based on those methodologies, then they shouldn't be in the AM. Or there needs to be caveats, if a continuous dataset results in a stream being listed that ADEQ still has the ability to delisted based on discrete data, if that is the biggest concern.
BILLY JUSTUS: Brought up the fact that the current Arkansas DO standards were developed using continuous data in the 80s from 72-hour data.

SARAH CLEM: Mentioned there might need to be a different set of criteria to evaluate 72 or 96 hour continuous data.

RYAN BENEFIELD: Proposed three scenarios. 1) Discrete only data. 2) Continuous data over a complete period of record. 3) When you have both data for a period of record – need to figure out how those data would be used together. Then listing and delisting methodologies would have to be addressed if continuous data would not be available for delisting.
SARAH CLEM: Stated we will have to figure that out.

JIM WISE: pH standards were not set based on how the other ecoregion standards were created, they were literature based. There are places where natural excursions occur, however. pH standards were also not based on 72 hour monitoring. First thing we would have to do would be to evaluate 72 hour excursions.

SARAH CLEM: Stated, as it relates to 72 hour data, we are going to have to figure out and hopefully come up a recommendation for the group and address that in January.
BILLY AMMONS: Suggested we do a simple ratio of the time period of the period of record that each dataset (i.e. continuous vs discrete) represents and apply that.
MIKE ARMSTRONG: Acknowledged that it's hard to rationalize weighting something so much that's just based on a 6 month period, but we have to remember that monthly samples assumes it's representative of 30 days. We should come up with some kind of algorithm to weight samples to bring those to equal terms. You will have to have a threshold and do the same thing on continuous to give equal weight on the time.

TERESA TURK: Recommended looking at other states and take this up at the next meeting as other states have probably had the same challenge and have hopefully done a statistical review.
TATE WENTZ: Responded that the Association of Clean Water Administrators has compiled list of all states looking at continuous DO data and how they are doing it. We can provide that on the listserv.
TERESA TURK: Asked whether they also assess or recommend how discrete and continuous are used together.
TATE WENTZ: Replied "I think so", but didn't think they included that information in the summary.
SARAH CLEM: Recapped that we are stuck with issue of how to evaluate both continuous and discrete and will look into how other states are doing this and get back on this topic on January 12th.

3:00-3:14 – BREAK

3:14-3:45 – Addressing: 6.9 Nutrients

COLENE GASTON: Stated in regard to one of the comments Beaver Water District submitted was we considered the 10% rule as we go on to talk about individual parameters. Noted she would like to come back to turbidity to talk about variance from 10% rule.
MARY BARNETT: Replied that it is the Department's intent to make data use requirements and specific exceedances more clear in the methodology by addressing those individually for each specific parameter.
COLENE GASTON: Responded that wasn't completely her question, that an explanation for variance from that 10% rule is what she is looking for and noted we will have to come back to turbidity to talk about that.
SARAH CLEM: Stated as our sessions continue, we will bring that up and talk about the history of how those were developed as we go on to each specific standard.

SARAH CLEM: Recapped first comments about nutrient assessment from NPS.

SARAH CLEM: Stated screening values of total nitrogen and total phosphorous are developed (p. 48) based on all stations within an ecoregion.
TATE WENTZ: Added that the 75th percentile of all available data is calculated from period of record for a given ecoregion to develop screening value. For each station within an ecoregion, we average all data to determine value to compare to 75th percentile value.
SHAWN HODGES: Pointed out that the concern for that, since there are no numeric standards set, as nutrients accumulate within a watershed or ecoregion, an increase in nutrients over time will never be measured.
SARAH CLEM: Asked for clarification that the concern, based on the assumption nutrients are continuously increasing, we are potentially comparing to a degraded condition.
SHAWN HODGES: Replied there are lots of fisheries papers written about "shifting baseline syndrome". This could allow continuous degrading of nutrient concentrations.
SARAH CLEM: Responded that this is just the screening value, although it pushes you into this decision tree. Even though we start at the high end, it helps us decide where we are focusing our efforts. We are doing the best we can. Asked whether Shawn believes we are missing those streams that should be plugged into the decision tree.
SHAWN HODGES: Replied "there is a potential". To look at that, if you go back and look at if the 75th percentile value over the last 6 or 7 assessment cycles to determine whether that value is increasing.
TATE WENTZ: Stated that it would depend on the dataset you have at that time and the sites sampled. Looking at trends in those sites with ambient data for over 30 years, you don't see large fluctuations up or down if you look at those over a 30 year period. If something is happening you could miss it, but the idea is we are going to focus on the most likely to be impacted sites.
SHAWN HODGES: Asked if when numeric nutrient criteria are developed if it will be possible to base those on long term sites that have not increased in nutrients so that criteria aren't based on sites that have increased in nutrient concentrations.
TATE WENTZ: Replied that there are ways to do that that EPA refers to as the historic condition approach.
SARAH CLEM: Added that there are different approaches, one could use a reference or a gradient approach.

COLENE GASTON: Asked for clarification on what Tate stated - taking all data from wadeable streams for an ecoregion, "but you are saying shoes are the worst of the worst?"
TATE WENTZ: Replied "no". We have ambient stations that are sampled on a monthly basis. Depending on Planning's rotation through the state, sample size for a particular ecoregion could be increased in either direction as it relates to nutrient gradient throughout the ecoregion. The 75th percentile was to focus on sites already potentially impacted and where you may see impacts to aquatic life rather than spending resources on sites that aren't being impacted by nutrients. For setting criteria, EPA recommends using the 25th percentile

of all available data or 75th percentile of least disturbed data. Those recommendations are for setting criteria, not for screening nutrient impacts.
COLENE GASTON: Responded that it seems like that would still apply.
TATE WENTZ: Replied that there is no guidance for developing screening criteria for where we need to start evaluating nutrient impacts. This was a starting point and this was always intended to be a living document. Until we have numeric criteria, this is one of the best things, and if we limit to the 25th percentile of all available data or 75th percentile of least disturbed data, we may spend unnecessary resources for those median or mean values of total phosphorous or total nitrogen that may not be necessarily nutrient impacted.
COLENE GASTON: Responded that it's the first hurdle in the decision tree. Suggested doing the converse of what is currently being implemented and not assume everything is okay below your first step. Meaning you would have to use the 75th from least disturbed or 25th percent from entire dataset – which would also address the NPS concerns about drift.
RYAN BENEFIELD: Commented that he assumes ADEQ then uses those streams that get past the first tier, but don't have all of the relevant data to assess, to prioritize where you are going to collect data in the future.
SARAH CLEM: Replied "yes".
RYAN BENEFIELD: This was an approach to address the worst streams first. It was developed as a way to assess the narrative criteria and to prioritize where data are needed to even make an assessment decision.
SARAH CLEM: Replied "that's true".
MIKE ARMSTRONG: Added that he agrees with Colene that this approach is still a hurdle to get to the next stage. Also, there is potential for drift of screening levels over time with this approach.
RYAN BENEFIELD: Commented that Tate said ecoregion nutrient concentrations have not really been increasing, and the potential for drift is very minimal since you are looking at an entire ecoregions data.
MIKE ARMSTRONG: Responded that unless you are going back and checking, you wouldn't know that and it would behoove the department to error check itself. It should also be a part of the Department's process, to make sure values aren't increasing, before applying said screening value. Nationwide, nutrients are increasing.
TATE WENTZ: Commented we have only used these screening values for two cycles so far, so I can look at that, but it also is driven by where the samples were collected within that period of record. If more disturbed sites are the focus of a study then the 75th percentile could be driven up, and likewise, if least disturbed sites are the focus it could drive that value down.
SARAH CLEM: Stated we can look at that and report back to you.
MIKE ARMSTRONG: Replied he's not surprised increases haven't been seen over a whole ecoregion, because it is going to be more site specific. 75% is high as a screening value

because you are more likely to miss impacts to other criteria (e.g. chemistry and biology) that you may never see due to such his screening level.
SARAH CLEM: Stated we are open for recommendations on what we should change 75% screening level to.
MIKE ARMSTRONG: Replied "25%".
COLENE GASTON: Mentioned there have been plenty of recommendations for the use of 75^{th} from least disturbed or 25^{th} percent from entire dataset. It's a matter of crunching some numbers. You may find you don't have those data for all streams to make a full assessment. Opening the funnel at the top and narrowing as you go down seems like a better approach.
SELENA MEDRANO: Commented that several streams (with nutrient concentrations above the screening level) have gone through this screening and have not come out as impaired, so we are doing pretty good as far as coming up with a way to assess a narrative standard at this point.

Note: Mary Barnett passed out 2016 screening levels based on 75^{th} for each ecoregion.

SARAH CLEM: Stated we could show what those other values (75^{th} from least disturbed or 25^{th} percent from entire dataset) actually are.
RYAN BENEFIELD: In response to Colene's comment about why not change those screening numbers – it would result in putting a lot of streams in Category 3 rather than Category 1. That would be a disadvantage of having more streams go into Category 3, rather than those just above the 75^{th} percentile. Hopefully ADEQ uses Category 3 to more data are needed and to prioritize. This could result in us throwing streams in Category 3 that are at the detection limit.

SARAH CLEM: Stated not disregarding Colene or Mike's comments. This is unique in how we do this for nutrients because it is narrative assessment.
We will go back and look at how our percentiles (25^{th} and 50^{th}) are changing for an ecoregion for period of records. We do have to think about whether we are allocating our resources in the correct way. Asked if anyone else want us to compile and look at anything else?
COLENE GASTON: Stated these are criteria for assessing whether streams are meeting aquatic life use, but she would like to see how this might be affecting other uses besides that.
SARAH CLEM: Responded that seems like information we can put in the 305(b) report perhaps.

SHAWN HODGES: Requested we also include the n (sample size) for how percentiles were derived.

TERESA TURK: Requested pristine and historical numbers are also included to see how these have changed.
TATE WENTZ: Replied we could put 25^{th} percentile of all available data and that would be near least disturbed conditions in theory.

SARAH CLEM: Asked what the group would like to do with last 15 minutes.
MIKE ARMSTRONG: Responded that nutrients are important enough to address at the next meeting.

TERESA TURK: Clarified that the group wants to see how other states have handled two datasets if they have both discrete and continuous.