Stream Health Workgroup

February 2025 Meeting Minutes

Chesapeake Bay Program
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STREAM HEALTH WORKGROUP FEBRUARY 2025 MEETING

Friday, February 21, 2025, from 10:00 AM - 12:00 PM ET

Link to Meeting Materials

Microsoft Teams Meeting Link
Meeting ID: 239 163 249 666, Passcode: js3KF2F3
Dial in by phone
+1 202-991-0477, Phone conference ID: 710 147 031#

ATTENDEES:

- Cassie Davis, NYS DEC
- Josh Burch, DC Dept of Energy & Environment.
- Denise Clearwater, MD Dept. of the Environment
- Claire Buchanan, ICPRB
- Chris Spaur, USACE
- Gabriella Vailati, DE DNREC
- Lindsey Boyle, USGS
- Sandra (Sandy) Davis, US Fish and Wildlife Service, Chesapeake Bay Field Office
- Scott Stranko, Maryland DNR
- Rosemary Fanelli, USGS
- Martha McCauley, EA Engineering Science and Technology
- Jennifer Palmore, Virginia DEQ
- Scott Heidel, PA DEP Chesapeake Bay Partnership Section Chief
- Sean Emmons, USGS
- Kelly Maloney, USGS
- Greg Zuknick EA Engineering, Science, and Technology
- Katie Brownson, USFS
- Brock Reggi , Virginia DEQ, Stream Restoration Specialist
- Nancy Roth, Tetra Tech, Center for Ecological Science
- Emily Young (ICPRB)
- Rory Coffey (Tetra Tech)
- Brittany Sturgis (DE DNREC)
- Chris Guy HGIT coordinator
- Joe Wood, CBF
- McDonald, Everald A
- Sara Weglein (MDNR)
- Alison Santoro (MDNR)
- Davis, Cassandra M (DEC)
- Sadie Drescher (CBT)
- Peter Claggett (CBP)
- Kristin Saunders (CBP)
- Camille Liebnitzky (Unspecified Affiliation)
- Gina Hunt (MDNR)
- Finger, Louise (DWR)
- Meyers, Matthew (Fairfax County)
- Barnhart, Katheryn (EPA)

10:00 – WELCOME, ROLL CALL, & INTRODUCTIONS (5 minutes)

10:05 – UPDATES AND ANNOUNCEMENTS (5 minutes)

- **GIT Funding:**

- TetraTech has been awarded the GIT Funded Project:
  Phase 3B – Data Review and Development of Multi-Metric Stream Health Indicators – Physicochemical Metric Analysis

- **Upcoming Meetings:**
  - The Habitat Goal Implementation Team Spring Meeting will likely be on **April 29th 9 AM - 5 PM** and will be **fully virtual**
  - The Next Stream Health Workgroup Meeting will be on **April 18th 10 AM - 12 PM**

- **FYI: Management Board Meeting (workgroup members may attend as observers)**
  - February 27th
  - Chesapeake Bay Program Management Board will discuss Stream Health Outcome and what was encompassed within the 2-pager.

<u>Other Project: Literature Review</u>

Reggi, Brock (DEQ) (Chat): Who is doing the lit review? what are the specific papers in review?

for stream restoration issues?

➔ Drescher, Sadie (Chat):

Stroud Water Research is doing this and their draft framework outlines the lit review as, "Scientific Literature Review

Using standard scientific databases (Google Scholar, Scopus, and Web of Science), we will search the scientific literature for restoration studies reporting metrics relevant to climate change mitigation in indexed journals following standard recommendations for meta-analyses (O'Dea et al., 2021). Databases will be searched for terms related to river restoration and climate change. Search terms relevant to climate change will include various related impacts defined both broadly and specifically to include flow regime and thermal regime shifts (e.g., restoration AND (stream OR river OR watershed) AND (climate change mitigation OR climate change resiliency OR intensity duration frequency curve* OR flood frequency OR peak flow OR flashy OR hydrologic regime OR hydrologic disconnection OR base flow OR thermal regime OR water temperature). As outlined in the RFP, the specific stream restoration techniques and parameters to be included in this study will be determined during the project planning phase, and the review will be limited to non-tidal freshwater systems. Pertinent information on explanatory variables (geographical location, ecoregion, stream order, scale of project, restoration design, etc.) will be tabulated for each study to enable meta-analysis. Results of the review and analysis will be shown for each

stream restoration criteria examined and all criteria will be compared amongst one another." They talked to this group a few meetings ago and will update us in April (I believe).

➔ Reggi, Brock (Chat):

Can you provide a recording of that meeting?

➔ Denise Clearwater (Chat):

Re the literature review, information from unrestored streams may also be useful and should be included.

10:10 – Outcome Assessment (Open ended discussion)

- Overlap with other GITs

  How is Stream Health's scope different from non-tidal fish habitat? (Fisheries GIT)

  How is Stream Health's scope different from Healthy Watersheds GIT's scope?

- Final Stream Health 2-pager and other materials will be available on the Management Board meeting page.

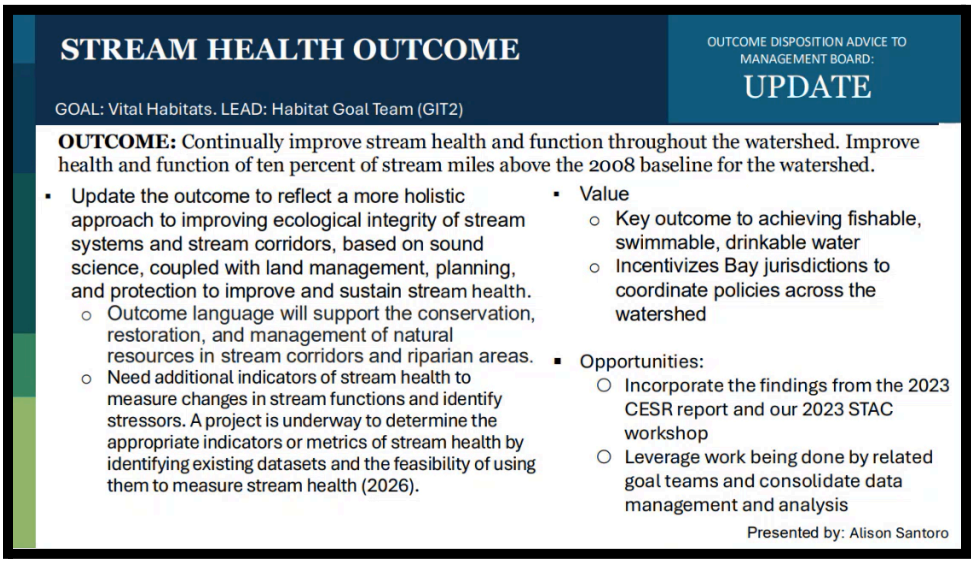

Figure 1: Steam Health outcome disposition slide to be presented to the Management Board on February 27th, 2025.

➔ **Chris Guy:**

From the first round of outcome review in the first Management Board (MB) meeting on February 13th, there is question on whether stream health is an output under Healthy Watersheds. Should Fish Habitat and Stream Health be combined? There are other efforts happening in this process to simplify and streamline our organization. However some's view of simplifying may not actually simplify. For example some of you on this call that do stream health arent necessarily the people who do fish habitat. Putting these two groups together could create some conflict.

Since our recommendation is to update our outcome, the next thing for the workgroup to do is to refine our language. Regardless of where stream health ends up, whether it is an outcome or an output of another group, we need to define what stream health is, make it SMART, and decide how it will be measured. This is our exercise for today.

Nick, Sara, and Alison put together some draft language as a starting point and we will use a program called Mentimeter to get your feedback.

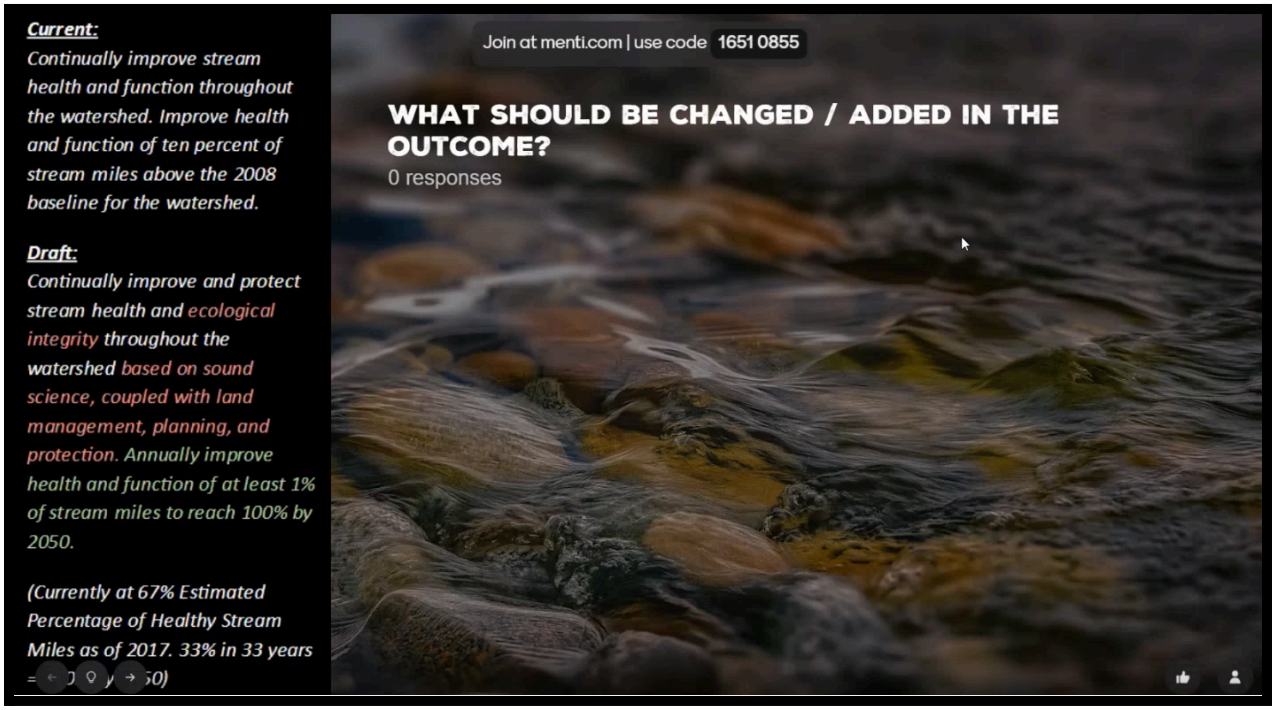

Figure 2: Blank Mentimeter page that prompts the workgroup to provide feedback to the question "What should be changed / added in the outcome?". The current outcome language is "Continually improve stream health and function throughout the watershed. Improve health and function of ten percent of stream miles above the 2008 baseline for the watershed." The draft language is: "Continually improve and protect stream health

and ecological integrity throughout the watershed based on sound science, coupled with land management, planning, and protection. Annually improve health and function of at least 1% of stream miles to reach 100% by 2050." The calculation to reach 100% by 2050 is as follows: Currently at 67% Estimated Percentage of Healthy Stream Miles as of 2017 (As reported on ChesapeakeProgress) therefore 33% increase in 33 years = 100% by 2050. All responses can be found in *APPENDIX I: Mentimeter Responses to Question 1: What should be changed / added in the outcome?*

➔ **Alison Santoro:**

Note this language is a draft and actual language will not be needed until May, but we wanted to start discussing it now.

➔ **Note:**

Mentimeter responses and associated comments/discussion will be captured in *APPENDIX I: Mentimeter Responses to Question 1: What should be changed / added in the outcome?*

12:00 – MEETING ADJOURNED.

APPENDIX I:
Mentimeter Responses to Question 1: What should be changed / added in the outcome?

Current:

Continually improve stream health and function throughout the watershed. Improve health and function of ten percent of stream miles above the 2008 baseline for the watershed.

Draft:

Continually improve and protect stream health and ecological integrity throughout the watershed based on sound science, coupled with land management, planning, and protection. Annually improve health and function of at least 1% of stream miles to reach 100% by 2050.

(Currently at 67% Estimated Percentage of Healthy Stream Miles as of 2017. 33% in 33 years = 100% by 2050)

1. "Increase the percent of healthy stream miles by 1% per year"

   ➔ **Peter Claggett:**
   It was not obvious to me in the proposed language that it is an overall increase / net increase in percent. You could translate that 1% in stream miles to an absolute number. Ex. I've done something in one area of stream miles in the past year, but there could be other things happening elsewhere degrading other segments.

   ➔ **Chris Guy:**
   This is a problem also in wetlands and forest buffers in which we are not accounting for losses.

   <u>Proposal:</u> Add "Net increase" in healthy miles to account for losses.

2. I think improving health of 1% of stream miles per is good but I have reservations about committing to 100% healthy streams by 2025. We live in dynamic environments.

➔ **Chris Guy:**

I recognize the reservations multiple comments are stating about the 100% by 2050 being unattainable. I think that 25 years gives us a lot of room to identify what is working and isn't working. I know it is aspirational and we may never be able to get to 100% but does that mean that we shouldn't have it in our outcome?

➔ **Nick Staten:**

Along the lines of the Net increase needed in our language, I know we proposed to add "and protect" to our outcome language. What would this look like? What metric would we look at to show we are protecting streams? How will this change the way that we?

➔ **Chris Guy:**

We could have the language just increase 1% per year on average? That is still time bound, but we do not need to mention 100% by 2050.

➔ **Alison Santoro:**

Nick to your point: Currently we use Chessie BIBI to define stream health, but we do not have data that goes back and measures the same stream reach except a few exceptions. I do not want to reference a specific metric because the science may change, but whatever we choose, it ideally should come from existing data sources rather than needing to set up new data acquisition.

➔ **Chris Guy:**

It would be idealto still have "and protect" within our language so if down the line it makes sense to develop metrics for that when/if we have additional resources, we have something to build on. Currently we are trying to reduce budgets not increase resource needs.

➔ **Peter Claggett:**

I am heartened to see language about land planning and managementent/protection. I think that is going to further solidify ties to the new proposed "watershed health outcome". This may make the MB inclined to lump stream health and watershed health together.

Regarding the metrics, I agree we shouldn't get into it now with the language, but when they are developed I would like to see consistency in scale and how we are describing stream health and watershed health. Right now the stream health metric is at a scale of HUC12 where we are inferring the health of the entire HUC based on a

few samples not necessarily sampled evenly. Additionally since HUC12's scale is large, the percent of healthy streams will jump 1-2% for each additional HUC identified as healthy which is not very granular when looking at overall watershed health. In watershed health perspective we are trying to go to a finer scale such as catchment level data.

- ➔ **Chris Guy:**
  Do you think we should put in parentheses "as measured by HUC12" or something similar after our percent increase in stream miles? Or do you think that is too weedy and belongs more in our logic and action plans and the webpage about how we are actually calculating it.
- ➔ **Peter Claggett:**
  I do not think that should be in the language because currently it makes sense to the general public and it should be.

3. An annual improvement of 1% may not offset new degradations. A net improvement to achieve 100% would be desirable. also, the draft should mention the current baseline.

4. A goal of 100% healthy streams is not attainable unless we cease all development and agricultural activities. Should the goal be more realistic?

5. I like the "sound science" addition

6. Include collaboration with the monitoring sections of the jurisdictional partners that are monitoring and assessing their local streams.

- ➔ **Chris Guy:**
  I'm curious how this can be included in the outcome. Add this to the language?
- ➔ **Scott Heidel:**
  To be able to link this to an actionable item we need to include the local monitoring and assessments sections throughout the jurisdictions because in order to track this, we are already doing very robust stream and watershed assessments all the time and produce integrated reports, approved by EPA, and we show high quality geographical data indicating the health of stream health of all the segments in PA. I know our

monitoring is a bit more robust than some of the other states within the region, but in order to have this be an actionable, communicable goal, we have to have more collaboration with the people doing the assessments.

➔ **Chris Guy:**

When I read the draft language "Based on sound science, coupled with land management, planning, and protection" I viewed the language as higher level. Do you think we need additional language that includes collaboration and monitoring, or does this belong within the logic and action plans/vision for the workgroup?

➔ **Scott Heidel:**

I think that wherever the group has consensus on where to place that is fine, but I do want to make sure it is included because a lot of people within our bureau of clean water are doing this work and they feel it is not being recognized and they want to be a partner in this.

➔ **Alison Santoro:**

I would like to be as general as possible with our language to allow adaptive management.

➔ **Chris Guy:**

Just to be clear – This is just going to be a recommendation / starting point. Outcome language is the purview of the Principals' Staff Committee (PSC) . We are tasked to give a recommendation to the Management Board who will then either adopt it or not and then send it to the PSC for consideration.

➔ **Claire Buchanan:**

I would really like to echo Scott Heidel. Things are changing in the States in the integrated reports. There is a shift away from probabilistic and more towards targeted. PA's example is out there in front of what is the future of monitoring in the regulatory world. There will be opportunities in the future to track changes over time from a set of targeted locations. It will not be just probabilistic. So keep this in mind when discussing this goal: the methods are changing for measuring metrics to track progress.

➔ **Scott Stranko:**

I agree strongly with Scott and Claire. In Maryland we have more detailed metrics used in our integrated reports. I think there is great utility in an indicator that is consistent throughout the watershed as the Chessie BIBI provides but as scott brought up, the specific indicators used by the states are used as much the same data but are slightly

different and so the question is are they / how are they different between the state indicators and the Chessie BIBI.

- ➔ **Chris Guy:**
  I think this is a great place for the Bay Program and this workgroup in general and I hope our GIT funded projects are going to be helpful in answering this question of how we can have a suite of metrics utilized by every jurisdiction that are measured using the same methods throughout the watershed.
- ➔ Kelly Maloney (Chat):
  I love setting goals to attain but perhaps we need to acknowledge that we will likely experience population growth - so I suggested "Maintain (Conserve) % of stream miles in healthy condition from a baseline (2006-11) and work to improve this baseline on average by 1% per year" I posted on menti but don't see it.
- ➔ Kristin Saunders (Chat):
  Could you just insert Scott's suggestion into the red language section "based on sound science, coupled with local monitoring and assessment, land management, planning....etc"?
- ➔ Peter Claggett (Chat):
  I hope that our high-res land use and land use change data can inform a targeted sampling approach.
- ➔ Claire Buchanan (Chat):
  It does and will in the future, Peter 🙂
- ➔

7. 100% is not realistic

8. The definition of healthy streams would need to be different in highly urban areas wouldn't it?

- ➔ **Chris Guy:**
  Perhaps we could have a different baseline to compare with for urbanized areas. Much like how eutrophic streams vs headwater streams have different baseline “healthy” definitions.
- ➔ **Nick Staten:**
  Many communities in urbanized areas, such as low income citizens, rely on their rivers and streams to supplement food intake and cut their grocery costs. If we are going to

have lower standards in urbanized areas it could directly impact human health and disproportionately affect low income communities.

- **Alison Santoro:**
  Just highlighting this is a multi-year conversation on how we are measuring/defining what is a healthy stream. In terms of the outcome and the improvement: going from very poor to poor or poor to fair, it is still an improvement. We are not saying we are making everything excellent rating, but improving.
- **Claire Buchanan:**
  The Chessie BIBI is reference based, so it takes a group of reference streams and the top 50 percentile are excellent. 25 to 50 are good and 10 to 25 are fair, and it was an arbitrary decision to include fair as healthy, so I wouldn't. Wouldn't mind at all going back and rediscussing that decision. The other thing too, to mention to address your point is development. Protection is going to be a very, very key part of holding the line.
- **Chris Spaur:**
  I'm not aware off the top of my head of any others that have essentially greater concern over unintended consequences than the stream restoration efforts have had. So as we know over the last whatever decade or so, there's been a lot of folks have got very concerned over riparian quarter impacts. You know, forest, etcetera, and you know particularly in urban parks, I think it's fair to say probably was some over-crediting of the nutrient load production benefits. I mean, so we had the protocols evolved, hopefully they're better now, but the initial ones that came out probably incentivize over-credited projects that maybe would have been done with better metrics of the nutrient load reductions. So we have, in my opinion, a little bit of a context difference that we we have to deal with here and some of that we've glanced upon and certainly that's reflected in our seeking to be more holistic rather than just you know also if you go back in time several decades, the assumption was if you fix the geomorphology the biology's going to be right there with it. You know, we're way past that now, but that was certainly in many people's minds initially.
- **Brock Reggi (Chat):**
  Just to clarify Chessie BIBI data is not a metric to use as a reference to a successful stream restoration.
- **Claire Buchanan (Chat):**
  Correct. The Chessie BIBI was developed in order to compare stream health across state boundaries.

- **Scott Heidel (Chat):**
  In the most basic sense, a healthy stream is meeting the water quality standards of its designated use. Those standards include habitat scores, IBI scores, chemical and physical standards specific to each use.
- **Denise Clearwater (Chat):**
  If you use a multimetric approach, then certain aspects may become "healthy" for one metric (e.g. physical stability) but not others for water quality or living resources. This sort of change would have to be carefully considered.
- **Kristin Saunders (Chat):**
  Is there any piece of this that should include consideration of moving streams along the continuum of watershed health while addressing specific stressors to those areas (to track with the recent STAC report)?
- **Brock Reggi (Chat):**
  Changes in storm water permitting could help with degrading streams below development...
- **Denise Clearwater (Chat):**
  Note that streams in "fair" condition meet the qualifying criteria for stream restoration, so in that sense the steam is not considered healthy.

9. Would stream function and/or ecosystem services be more tangible than "ecological integrity"?

10. Also, should we incentivize protection in numerical objectives? (i.e., insert additional metric for protecting already "good")

11. I thought the mandate was to make our goals more realistic, not more aspirational.

12. Stating the goal as 1% per year implies this will be measured each year, which is not practicable.

13. Maintain the %of stream miles defined as a baseline period (2006-2011) and work to increase this percentage by 1% per year

14. Re; change from "function" to "ecological integrity" in the first sentence :Improving stream function is in the last sentence, Is keeping "stream function" while adding ecological .integrity too much?

15. "Maintain the health of all currently healthy streams and improve the health of degraded streams, with a goal of X% of degraded stream miles improved to healthy condition by 20xx."

- **Nancy Roth:**
  I think this does need to be a two-part goal and one part being about maintaining the health of the healthy streams, and the other part being looking for improvements in degraded streams. I think restoration should also look like removal of stressors not just physical stream restoration.
- **Chris Guy:**
  If the 100% by 2050 gives you heartburn, put your hand up. I see more than half of the people in this meeting are raising their hands, including our chairs, so we will probably remove that part. Going the other way, put your hand up if you think it should stay.
- **Joseph Wood:**
  To me a date is has tremendous value and if you lose that as a part of the language I think that the impact that's felt sort of evaporates. Personally, I think that a defined year, whether the percentage changes or the year changes, has a lot of value.
- **Scott Heidel (Chat):**
  our old cities that have streams in concrete channels with buildings built on top of them are quite honestly never going to be restored
- **Sara Weglein:**
  I see Scott Heidel just put something in the comments that was kind of where I was going. I really do like the idea that you know the way it is written right now, and, you know, still improving, where an urban stream from poor to fair would still count, as part of that 1% improvement, however, aging infrastructure is going to be a huge hurdle and I don't think it fits anywhere under our purview. I think that is something that is just not something that we are going to be able to overcome in the stream health work group.
- **Denise Clearwater (Chat):**
  Perhaps a date for % improvement could be to the term of the next agreement-another 10 years? It would be less than 100%, but still measurable.

- **Nancy Roth (Chat):**
  I think the issue is with setting goal at 100%
- **Kelly Maloney (Chat):**
  we also need to "break open" the BIBI because such indices combine so much information that make it hard to detect change; we could look at particular groups that we know have a sensitivity to a stressor (eg mayflies to salinity) and link to said indicator --> perhaps we are missing improvements in parts of the stream ecosystem we cannot detect with the BIBI --> not replace BIBI but augment. But these are outputs rather than outcomes IMO. Here I agree with Nancy - we should add "Maintain" to the language.
- **Nancy Roth (Chat):**
  Time steps are important in making the goal quantifiable, but perhaps something like 10% over 10 years, not 1% each year, since it would be very difficult to measure each year.
- **Chris Guy:**
  We'll move on from this pretty soon, but it's important that maybe it's the 100% that people are really having heartburn with and not necessarily the 2050. Maybe if we got rid of 100% just said continuing through 2050 or something along those lines and leave that as a placeholder for the management board to tell us
- **Nick Staten:**
  I think there's also something to be said about it's not necessarily like there is a regulatory stick here, but I do think that the statement of we aren't gonna meet our 2050 goal versus we aren't gonna meet our annual goal are two very different weights. If a big problem that we are encountering and trying to reach our 2050 goal is aging infrastructure, I think that that sheds a lot more light on that problem that should be addressed, maybe not by us, but by a different group, than just saying, we aren't going to meet our goal this year because it's it's out of our hands because of this other problem. Years down the line when we're talking about our struggles to the management board, if we're not meeting our 2050 goal because of this huge barrier that is outside of our purview I think that that holds more weight than just saying we're not gonna meet our goal this year.
- **Chris Guy:**
  I think it makes sense and why when we put this forward, we thought you know that

that 100% is aspirational. And I think folks are thinking if we want to be aspirational versus realistic and the charge may be realistic.

- **Kelly Maloney (Chat): In response to Scott Heidel's "our old cities that have streams in concrete channels with buildings built on top of them are quite honestly never going to be restored":**
  but would going from an IBI score of 5 to 10 be a win? Or is the goal getting all from Poor to at least Fair. We discussed this early on but the group settled on Poor vs Fair/Good. Claire - correct me if my memory fails here.
- **Scott Stranko (Chat):**
  Maintaining a % and increasing by 1% is the same as just saying increasing by 1% - unless the same streams healthy now are to be maintained. The statement as written assumes it refers to a net increase..
- **Claire Buchanan (Chat): In response to Kelly Maloney's "but would going from an IBI score of 5 to 10 be a win? Or is the goal getting all from Poor to at least Fair. We discussed this early on but…"**
  This question came up many times but was never resolved, unfortunately. Improvement is improvement in my book, regardless of whether its from a score of 5 to 10 or from 80 to 85. The question is how to credit it.
- **Scott Heidel (Chat):**
  PA has shown great progress restoring AMD impacted streams and has recently delisted a 30 mile segment and reclassified it to EV so we not only met water quality standards but went above them to reestablish a naturally reproducing brook trout population as well as a robust and sensitive macroinvertebrate population. Need to recognize AMD work in this.
- **Peter Claggett (Chat):**
  Increase the health and condition of stream miles in 1% of the watershed area per year.
- **Martha McCauley (Chat):**
  does the annual improvement concept incorporate both new stream miles (e.g. streams had have shown NO improvement and are now improving) and stream miles that have already had measured improvement and have continued to improve?
- **Alison Santoro:**
  The issue that I have with that 100% is that at some point we're going to reach the asymptote of how much we can do and I don't know if that's going to be in five years

or ten years or 20 years like, I don't know. What is reasonably attainable? I think if we have that cap like that by 2035 or whatever it is, that could help alleviate this unknown time-frame. 1% every year for forever? At some point we're gonna hit that maximum improvement that we can do.

- **Chris Guy:**
  One of the other things I was thinking is, is it 1%, you know, of the remaining acreage left?
- **Denise Clearwater (Chat):**
  New assessments of streams which lack data would be a good output. Maybe part of a new work plan?
- **Sean Emmons (Chat):**
  Are any states collecting eDNA/DNA metabarcoding data for benthic biomonitoring that could be used for new/updated assessments?
- **Scott Heidel (Chat):**
  Conowingo is not really all that passable at this point because of attempts to block invasive species including snakeheads
- **Scott Strank (Chat):**
  Beginning to explore eDNA. I think potentially promising -but much work to do.
- **Peter Claggett (Chat):**
  Increase the health and function of streams in 1% of the Bay watershed area per year. This suggestion is made because stream length is generally proportional to watershed area but it's also scale dependent. For example, there are potentially 2x more stream miles in our soon-to-be released hyper-res hydrography data. In contrast, high-resolution topography doesn't change the overall Bay watershed area by very much. Stream miles are also problematic as to whether we're focused on ephemeral, intermittent, or perennial streams. The 24K streams include both intermittent and perennial stream and were mapped in the late 1990's at best and many 7.5" quad maps haven't been updated since the 1970's or 1980's.
- **Cassandra Davis:**
  Good morning, everyone. I'm joining these meetings until we find a representative in New York to join in. One thing I wanted to bring up is that in New York, we have small streams that we slice up for our assessments that get reported to EPA and some of those are still unassessed and I don't know if that's unique to New York. I was just wondering if we were to have to annually improve the health and function of a stream

reach, how would we if we don't even know the health and function of the stream at the time, can we look at upstream and downstream?

➔ **Alison Santoro:**

I think it is over half the watershed is missing data and that's something that we're trying to work through. We have Matt Baker at University of Maryland, Baltimore County starting to work on putting together a workshop about how to address these gaps in monitoring and whether there are opportunities for creating a more widespread monitoring network. No, it is not just New York. And it is something that Claire and Enrique and the folks at ICPRB have worked on a lot in terms of interpreting the BIBI data that they have.

16. "Annually improve health by 1%" could still be assessed across larger timescales (aiming for a 5% increase over a 5 year period)

17. Should improving stream habitat be added?

18. I'd recommend adding to the end "as measured by stream miles delisted from states impaired waters list by 2035

19. Conservation is important, and improving does not capture that, but I agree that there is no stream data to capture it. If we get data and a metric in the future, we can add the output.

20. 2050 seems too far out to be an effective date. I'd recommend something with in a 10-15 year timespan.

21. For now add the word “overall” to capture Peter’s earlier comment about net gain and account for loss. That way if we get a metric in the future that captures this we can add it

22. Collaboration on monitoring could be included as a management strategy

23. how are unforeseen changes in political stances toward stream health and an evolving natural environment covered in this language

24. I think it is important to add language to identify areas for restoration, conservation, and management practice activities to help practitioners target areas for these initiatives. Spatial planning.
25. I think the outcome should directly respond to the stream restoration STAC report;
26. The stream restoration STAC report provided a pretty clear pivot opportunity and this outcome should reflect that.
27. the 2050 goal is unattainable, if current is 67%, it would take 33 years to meet the goal which is beyond 2050, putting forth an unattainable goal is probably not a good idea
28. Increase the health and condition of stream miles in 1% of the watershed area per year

APPENDIX II:
Mentimeter Responses to Question 2: How can we differentiate from fisheries GIT / fish habitat workgroup?

1. Stream health is smaller washable streams currently. Nontidal fish habitat includes rivers
2. Wadeable
3. SHWG is focused on smaller systems; fish habitat from headwater to bay as well as projects combining larger systems and estuary. Fish habitat is also heavily focused on estuarine.
4. The brook trout and fish passage outcomes seem like natural fish partners for the stream health outcome. Fish habitat outcome at this point seems a stretch bc it focuses mostly on estuary.
5. stream health can include fish habitat, etc. however not necessarily MUST. For biology we should be focused on aquatic organisms.. joining will lose nuances
6. Stream health living resources go beyond fish.
7. I am thinking it is reasonable to have updated nontidal fish habitat language as an output of stream health
8. Is there an opportunity to broaden this as a "nontidal aquatic ecosystem health" outcome? Or "stream and river health"? That could leave the door open to develop separate nontidal fish outputs later
9. Keep separate but because of the inherent importance of stream health to fish habitat, communicate and collaborate between the groups?
10. Seems like there is more functional alignment between stream health and nontidal fish habitat than between nontidal fish habitat and tidal fisheries management
11. I like the idea of separate sub-groups under a single heading, with regular joint meetings.
12. Certain actions will help maintain and/or improve stream health and fish habitat. Certain other actions can be more specific to either.

13. A "stream and river health" outcome or "nontidal aquatic ecosystem health" outcome could be split into two sub-groups too- rivers and streams
14. Mussels would be a good addition somewhere

Additional Comments:

- ➔ Denise Clearwater (Chat): The Wetlands Workgroup split into Tidal and Nontidal sub-groups. Perhaps organizing along similar lines would be beneficial.
- ➔ Kelly Maloney: How do we want to define the outcome? It is pretty general. Fish and fish habitat can be an output that comes in as an indicator. Fish and BIBI are going to pick up different things. For example, fish are very sensitive to barriers which may not be picked up by the BIBI. I struggle with why fish habitat is so far away from stream health.
- ➔ Chris Guy: We need to involve mussels somehow, either as an output of stream health or something else.
- ➔ Peter Claggett (Chat) Ultimately, it shouldn't matter how we're structured in terms of workgroups, GITs, etc. if we were able to effectively work across groups... which we currently can't do.
- ➔ Kristin Saunders (Chat): We are hoping that form will follow function - so determine the outcomes and goals and then the structure/governance can be adjusted to make these things work (and hopefully help us effectively work across groups as Peter says)
- ➔ Alison Santoro: Moment of zen from a book my kid got from the library.