Stream Health Workgroup – August Meeting

Friday, August 20th, 2021; 10:00-12:00 ET

Participants

Neely Law, Fairfax County	**Alison Santoro**, MD DNR	**Sara Weiglein**, MD DNR	**Katlyn Fuentes**, CRC
Abigail Belvin, Virginia Tech.	**Alana Hartman**, WV DEP	**Amy Williams**, PA DEP	**Brittney Flaten**, DNREC
Chris Spaur, US ACoE	**Denise Clearwater**, MDE	**Emily Bialowas**, CMC	**Greg Pond**, EPA Region 3
Joe Berg, Bio Habitats	**Joseph Wood**, CBF	**Katie Ombalski**, Woods Waters	**Kelly Maloney**, USGS
Kevin Krause, USGS	**Kip Mumaw**, Ecosystem LLC	**Kristen Saacke Blunk**, Headwaters LLC	**Mark Southerland**, Tetra Tech
Matthew Cashman, USGS	**Mike Mallonee**, ICPRB	**Nancy Roth**, Tetra Tech.	**Richard Walker**, USGS
Rosemary Fanelli, USGS	**Sadie Drescher**, CBT	**Sally Entrekin**, Virginia Tech.	**Sandra Davis**, USFWS
Sara Caldes, Severn Riverkeeper	**Scott Stranko**, MD DNR	**Sebastian Makrides**, CWP	**Travis Ostrom**, CWP

Meeting Notes

Stream Health Workgroup Membership Survey: responses due by COB 09/07

- **PURPOSE OF SURVEY**: to verify stakeholder representation and identify barriers to workgroup participation.
- Survey was sent out several weeks ago. <mark>If you did not participate but would like to provide your input, please email us with your thoughts or use the link which is still active.</mark> ACTION: submit survey responses by COB 09/07. (**Link to Survey**)
- **PRELIMINARY RESULTS:**
  - Main barrier of participation is time. Approximately 50% of individuals are unable to participate as much as they would like.
    - Going to speak with Management Board regarding how to prioritize workgroup meetings so that those who want to participate have the opportunity to do so.
  - There were a variety of answers regarding the suggested future trajectory of the workgroup and recommended DEIJ efforts.
  - It is not known who is the current Virginia voting-member. The current lack of representative is being investigated and discussions with the Management Board are ongoing.
- **Final results will be incorporated into the 09/23 Stream Health SRS presentation. (Link to meeting info)**

Chesapeake Monitoring Cooperative and the Use of Citizen Science to Fill Chessie BIBI Data Gaps, Emily Bialowas (Chesapeake Monitoring Cooperative)

- **AGENDA:** *The CMC has GIT funding for filling in Chessie BIBI data gaps with the help of citizen scientists. Emily will be providing an update to the project and accepting feedback at this time.*
- **PRESENTATION:** <mark>feedback is greatly appreciated</mark>
    - **PROJECT GOALS:** collect 100 benthic samples from rocky bottom, HUC 12 watersheds not represented in the Chessie BIBI from 2006-2017; repeat sampling in "heterogenous land-use" watersheds; develop protocol for citizen science volunteers; include volunteers in data collection next year; and get samples processed by EPA Wheeling-Lab to family-level.
        - **Heterogenous Land-Use** = any watershed that has <78% forest and >3.5% impervious surface
    - **WORK TO DATE:** have tested collection protocol and QAPP with sampling protocol for volunteers has been approved. Presently working with Greg Pond on developing picking method for volunteers in the field.
    - **MAPPING WORK:** A map has been built with under-sampled watersheds, heterogenous land use, and CMC volunteer monitoring sites. *Map is included on the presentation slides.*
- **QUESTIONS & COMMENTS:**
    - **Scott Stranko**: In MD we're focusing on comparable methods for data, such as the work that Claire Buchanan and others at ICPRB are doing for the Chessie BIBI. It might be worth repeating some other work to demonstrate comparability of data used among various methods.
        - **Emily:** Protocol was developed based on using DEQ MBSS Stream Leaders Protocol as a guiding document. The methods in data collection shouldn't be too different than that of Buchanan's. As for sub-sampling and picking, we're working with Greg Pond, but methodology is still being developed.
    - **Neely:** Is there any data flow from your project to ICPRB or elsewhere?
        - **Mike Mallonee**: I can provide Emily with pamphlets we've used in the 2012-2017 data call. It details all the methodology from the various groups.
            - **ACTION: Mike will send information to Emily.**
        - **Emily**: We're putting the data first in the Chesapeake Data Explorer once it is processed.

Macroinvertebrate Structural and Functional Reponses to Abiotic Alterations from Best Management Practices in Urban and Agricultural Streams: A Review, Abigail Belvin (Virginia Tech)

- **AGENDA:** *Abigail is a PhD student at Virginia Tech, supervised by Sally Entrekin. She will be presenting her proposed design for a review of scientific papers that take place in four physiographic regions focusing on agricultural and urban disturbances to freshwater macroinvertebrate communities.*
- **PRESENTATION:** *<mark>seeking feedback on study design, search terms, etc.</mark>*

- o **WHY A REVIEW OF BMPs IS NEEDED:** Stream and river habitats are being degraded. It is unknown how macroinvertebrates are responding comprehensively or consistently to BMPs.
- o **THREATS, ALTERATIONS & EFFECTS FRAMEWORK (**framework taken from *Craig et al. 2017*)
    - ▪ **Framework:** A human action/threat (e.g., agriculture) that incurs an abiotic alteration (e.g., increasing nutrients) that then results in a biological effect.
    - ▪ **Regionality:** Coastal Plain, Piedmont, Valley & Ridge, Appalachian Plateau
- o **LAND USES**: the most common land uses were agriculture and urbanization, followed by forestry, deforestation, and industry.
- o **PREDICTIONS**:
    - ▪ Most common macroinvertebrate metrics used to measure BMPs will differ among regions
    - ▪ Richness and abundance measure will most commonly be used to assess BMP effectiveness – functional trait groups will be used less commonly
    - ▪ Functional metrics will be used less commonly than compositional metrics
    - ▪ Magnitude of taxa loss will differ between land use regardless of region
- o Richness and abundance metrics are the most common metrics to measure macroinvertebrate effects to BMPs
- **QUESTIONS/COMMENTS:**
    - o **Abigail Belvin:** Should I break down agriculture and urban land uses into a system showing urban intensity (e.g., based on impervious surface or different types of agriculture), that can then create alterations?
    - o **Greg Pond:** regarding sifting and filtering through BMP data studies - what about the spatial proximity? Also, what is the predicted response of some of these metrics/indicators? Just wanted to point out these challenges.
        - ▪ **Abigail**: I have been struggling with spatial and temporal variability within these papers. Trying to account for this by breaking up these papers mechanistically.
        - ▪ **Greg**: Will you come up with a relative ranking of success?
        - ▪ **Abigail**: I did have a direction of effect column, and may have a column detailing whether it is the expected response. I haven't thought about ranking systematically.
    - o **Joseph Wood: 1.** Do freshwater mussels fall in here somewhere? I'd be interested to see how their outcomes respond to BMPs. **2.** Are you accounting for changes in precipitation and how they might influence the BMPs?
        - ▪ **Abigail: 1.** Many papers include various types of mollusks and I documented those, but I'm more focused on insects. **2.** I'm thinking about precipitation regionally.
    - o **Scott Stranko**: **1.** Are there challenges in isolating the BMP and its influence versus other factors going on in the watershed at the same time? **2.** Will you have actual before and after results in your study (e.g., space/time analysis)? It would be interesting to know where the results are coming from in the different types of studies.
        - ▪ **Abigail**: **1.** In regards to isolating BMP effects, that's really hard. Isolating effects is very difficult in the field. **2.** I talked about the different types of designs of the

BMP studies with my committee members. It's necessary to group them, but it's also difficult due to overlap.

- o **Neely Law**: This is a great study to include in the larger work that USGS is doing. Is the focus still on abiotic factors? Joe Berg has a focus on flow alteration, so it might be helpful for him to chime in.
    - **Abigail**: The main focus is the physical changes that BMPs are bringing on (water quality, flow alteration, etc.) and how macroinvertebrates are responding in different types of streams.
    - **Joe Berg**: The morphology of the channel and the aquatic habitat is affected by the adverse impacts of urbanization (i.e., channel becoming overlarge due to storm events, losing water depth and biodiversity). The idea is that if the velocities in the streams during these frequent small storm events are transporting all of the small food out of the system, then the aquatic organisms will struggle go through their maturation process. How do we reverse these trends in urbanization by slowing water flow, etc.? There has been a significant lack of attention on how those hydromodification elements of stream modification. You can look at invertebrate results with respect to some of these factors. When you have opportunities to look at studies that show significant positive uplift, it would be interesting to see how much of that is due to flow plane reconnection.
        - **Abigail:** I've read a lot on flow regime changes in urban streams, so this is one of the major reasons why I've picked urban versus agriculture.
    - **Greg Pond**: I draw a distinction between agriculture and urban BMPs versus active channel design stream restoration. Does this meta-analysis make this distinction?
        - **Abigail:** I have thought about focusing mostly on BMPs and if I do have some overlap in the results, then I would definitely parse those out.

Work Plan Update: comments due by COB 09/24

- Will be presenting progress on current workplan to the MB in September
- Updating workplan for next two years by December
- Please refer to draft of revised workplan to see proposed changes in *red text*
- **MANAGEMENT APPROACH 1:**
    - o **Chris Spaur**: Anything that measures as a stressor could have a metric that affects stream health. We were hoping that we could capture all of this using the Chessie BIBI, so we almost have to decide which stressors that we care about the most.
        - **Neely Law: w**e don't want to duplicate efforts (re: Claire Buchanan's work with Chessie BIBI, ongoing work by USGS, and the Healthy Watersheds Assessment). So, the first action is to capture the data-review exercise to see what we can leverage from existing efforts.
        - **Kelly Maloney:** we are working on an assessment of habitat conditions and fishes as part of a collaboration with the Fish Habitat Action Team. We'll be doing

something similar to Chessie BIBI, not an IBI, but looking at parts of the community and some of the species and habitat conditions. **Rosemary Fanelli** and **Matthew Cashman** are part of this project. The biological part of this project will be done by this calendar year.

- **MANAGEMENT APPROACH 3:**
  - o Is Action 3.1 still a priority?
    - **Denise Clearwater**: Yes, and MDE can be added as a responsible party.
      - **ACTION:** a follow-up conversation and anyone else who is interested in having a dialogue prior to the October meeting
  - o Action 3.2 - DEIJ efforts
    - **Sadie Drescher** volunteered to help with this effort
- **MANAGEMENT APPROACH 4:**
  - o Action 4.2
    - **Denise Clearwater**: Add Wetland Workgroup, which has STAC funding to evaluate a whole-systems approach
    - **Sandra Davis, Kip Mumaw,** and **Joe Berg** all support this action
    - **Nancy Roth** and **Joe Berg** are leading planning on MD Water Monitoring Conference - will have follow up discussions on if/how to include this topic.
- **MANAGEMENT APPROACH 5:**
  - o **Alana Hartman**: Suggest paying attention to other workgroups that present to the MB each quarter to stay informed on their progress and any reports/other project updates. One example is the Fish Passage Workgroup document on culverts.

Wrap-up:

- **10/15** – Stream Health Workgroup October Meeting → Will have an updated draft of workplan to discuss
- Please fill out the membership survey if you haven't done so already → **09/07 Deadline for survey responses**
- Most recent workplan draft will be distributed to members/interested parties for edits/comments. → **09/24 Deadline for comments.**
- Neely will follow-up about the STAC workshop