**A picture containing drawing

Description automatically generatedStream Health Workgroup Meeting Notes**

**Friday, August 21 10:00-12:00**

**Virtual Meeting**

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| Alana Hartman (WV DEP) | Alison Santoro (MD DNR), Co-Chair | Amy Williams (PA DEP) | Anne Hairston-Strang (MD DNR) |
| Bill Jenkins (EPA) | Caroline Donovan (UMCES) | Chris Spaur (US ACOE) | David Byrd (FWS) |
| Denise Clearwater (MDE) | Emily Bialowas (Isaac Walton Leauge) | Greg Noe (USGS) | Greg Pond (EPA) |
| Joe Wood (CBF) | Julianna Greenberg (CRC), Staff Liaison | Katie Brownson (USFS) | Kelly Maloney (USGS) |
| Ken Hyer (USGS) | Kip Mumaw (Ecosystem Services) | Matthew Cashman (USGS) | Nancy Roth (Tetratech) |
| Neely Law (Fairfax County), Co-Chair | Rich Starr (EPR) | Rich Walker (USGS) | Rikke Jepson (ICPRB) |
| Rosemary Fanelli (USGS) | Sandy Davis (FWS) | Sara Weglein (MD DNR), Vice-Chair | Scott Phillips (USGS) |
| Vicki Blazer (USGS) |  |  |  |

**Action Items:**

* Coordinate with HWGIT for October meeting

**Updates and Announcements – Neely Law (Fairfax County) and Julianna Greenberg (CRC)**

* Introduce Alison Santoro (MD DNR) as co-chair
* Introduce Sara Weglein (MD DNR) as vice-chair
* Proposal for stressor workplan with USGS was submitted
  + Funding decision can be expected sometime in September
* Update to stream restoration protocol
  + USWG requested public comments in July with recommendations expected at the USWG September meeting
* Reminder of new meeting schedule
  + Next meeting is on October 16, 2020
* Chris Guy is the new HGIT coordinator

**Chessie BIBI updates – Rikke Jepson (ICPRB)**

* Full QA’ed database of water quality measurements 1992-2011 nearly complete and will upload to ftp site ;
* Will be sending out a notice when new data is available
* Data from 2012-1017 have all been put into CEDAR template
  + Should be available in datahub by early September
  + Chessie BIBI scores will soon be calculated for that time period as well
    - Determine change in stream quality from baseline

**USGS Stressor white paper updates – Rosemary Fanelli (USGS) and Matthew Cashman (USGS)**

* Rosemary and Matthew provided a status update on the literature review. Highlights below.
* Major stressor causes identified
  + Urbanization top cause
  + 22% of papers look at multiple drivers
    - 113 papers were reviewed
    - 12% of studies examined urbanization and agriculture
  + Water quality and flow were the most measured stressors
  + Metals were most common toxic contaminants measured
* Looked at agricultural environments vs urban environments
  + Same core variables examined in both cases
  + Toxic metals are more common in urban environments, relatively rare in ag
  + Salinity/ions also more common in urban environments
* Community composition metrics are most common response variable, followed by multi-metric indices
* Major questions and analysis workflow
  + Directionality – how does a stressor or driver affect biological community?
  + Rank – How do different in-stream stressors compare to each other in terms of their effect on the biological community
  + Interactions- Do stressors/drivers have interactive effects?
  + Scale – How does the effect of in-stream stressors compare to landscape scale drivers?
* Denise Clearwater – How do riparian stressors fit in to this framework? Are they considered?
  + Rosemary Fanelli – It depends on the study, sometimes near stream is categorized as a local stressor, but it is occasionally considered a landscape metric
* Scott Phillips- Since the end goal is to determine mitigation metrics, the last question of scale will be important. How many studies were looking at landscape scale drivers on stream condition?
  + Rosemary Fanelli – One-third to one-half of multi-stressors studies try to account for local as well as catchment scale characteristics
* Neely Law: Is there a disconnect between stressors and scale between studies? There are local scale impacts and Bay Program assessment of how we are doing. Are you seeing this as more local scale assessment?
  + Rosemary Fanelli – In-stream measurements are more local in scale. Many of the best studies looked at large populations or local points as well as larger scale metrics.
  + Matt Cashman– We could probably look more explicitly about the spatial scale of the data and the assessment that is being done.
* Scott Stranko –How much overlap has there been with the Healthy Watersheds GIT (HWGIT) for this project?
  + Nancy Roth – We are in the process of getting started with a project for HWGIT and using Maryland as a pilot to further develop the Healthy Watershed Assessment with more local data and trying to look at metrics associated to stream health. We are trying to characterize watershed health while also looking at info from in-stream and figuring out what factors are most important to look at
  + Neely Law – SHWG working towards closer collaboration with HWGIT. Topic for October’s meeting.
  + Rosemary Fanelli– Our group doing the literature review has been working with Renee and Peter to make this as complementary as possible. We see our study as nested within the work that HWGIT is working on. Landscape drivers may be manifested within the in-stream stressors
* The ranking doesn’t include info on stressors that weren’t included in the study design
  + Limitation because we have no information on what’s not being measured
* Dave Byrd – Are you looking at potential effect on freshwater mussels or crayfish?
  + Rosemary Fanelli – We have been tracking those studies, but we are focusing on benthic communities. Mussels are sometimes included in that community. If there is a broad interest, we can look in to trying to include more explicitly
* Conducted a textual analysis
  + Looked at article keywords from author
    - “Benthic macroinvertebrates”, “multiple stressors”
  + There is a range of topics and keywords beyond that
* Abstract clustering
  + Cluster in toxicity tests, mining, effluent, EPT, landscape
  + Analyzed characteristically unique terms
    - Tells us a little more about what is going on beneath the surface
* Final results – Sept-December, 2020
  + Document will go out to key WG members for internal feedback and begin internal USGS review in December
* Incorporate revisions – Jan-March 2021
* Host recorded presentation on final project findings – April 2021
* Written summary released after internal review – Spring 2021
* This is not a SHWG decision document so it will not be circulated to the entire workgroup. It will only be sent to core workgroup members as a courtesy.

**Incorporating Mussels into Bay Restoration – Joe Wood (Chesapeake Bay Foundation)**

1. Presentation posted with meeting materials.
2. STAC workshop report “Integrating Freshwater Mussels with Chesapeake Bay Restoration” held March 5-6, 2020
3. Interest to continue discussion with SHWG and how mussels may be incorporated into stream restoration

* Chris Spaur- How much has the water quality function of mussels been replaced by Corbicula?
  + Joe Wood – Unsure. It opens up the possibility for someone to argue for Corbicula as a BMP, if so. Unsure if Corbicula contribute to denitrification as well.
    - Chris Spaur -Oysters have no replacement which is why they make a good BMP. Mussels may have one.
    - Joe Wood–Some argue that we shouldn’t even be doing mussel BMPs or water quality. What is best for this threatened species?
* Neely Law – Are there leasing of beds for mussels like there are oysters?
  + Joe Wood– I don’t think so. There is no large industry associated with mussel restoration. Though, some people think there is some possibility for private restoration
* Denise Clearwater– We need more info on habitat requirements to incorporate their needs in to stream restoration. Where can I find that info?
  + Joe Wood – We have begun to discuss that but have not come up with an answer yet. There might need to be some more consideration given to what the best way to maximize habitat for different species or priority species
* Scott Phillips - Recommendations from STAC mussel report look very good. Having some effort on mussels reflected in SHWG seems worthwhile.
* Anne Hairston-Strang - Good point on mussels benefiting from and contributing to Bay restoration. Part of a positive feedback cycle.
* David Byrd – There is funding in the central Appalachian stewardship NFWF program to do some mussel restoration. FWS has used that in the past. Funding is limited though. Mussels have been really abundant in some areas. I wonder if there is a lack of historical data in some areas prior to colonization. There has definitely been a decrease in abundance, but we don’t have info on how much.
  + Joe Wood – One of the things we tried to do was look and see if we had a super healthy mussel population, what would the denitrification be. We came up with a maximum number of 4% of Susquehanna nitrogen in the best-case scenario. Could be an additional incentive for restoration but probably won’t be a total saving grace
* Neely Law– Does stream size or order make a difference for mussels or are they pretty ubiquitous?
  + Joe Wood – Not sure, but general understanding is that big river is probably the most common. There is some presence in smaller streams but its less common
  + Neely Law – Stream restoration is generally on smaller order streams, so that’s worth considering. It might be very species-specific which mussels we are able to impact
* Alana Hartman- I am very interested in this work because of the local relevance to our stakeholders in WV, like Joe said.

**Open discussion**

* October meeting
  + Will spend some time discussing stream metrics work and how to move forward
* Please send any thoughts on what you would like to discuss at the October meeting to the SHWG Leadership team to include on the agenda
* The Leadership Team will work with USGS to look at their document sometime before December meeting

Kelly Maloney – USGS is working on a multi-year plan to look at status assessment, would like to give an overview to the group. Doing a lot of water quality and stream morphology work. Fish habitat assessment, BMPs, going to look at biological lift.

Neely Law–What does the scale of stream health mean at a local level versus at a watershed wide level? Bay health vs stream health.

**Adjourn**