Minutes

Maintain Healthy Watersheds GIT Meeting
December 7, 2020 1-4pm

Meeting Attendees:

Renee Thompson, USGS, Coordinator
Nora Jackson, CRC, Staffer
Angel Valdez, MDE, Chair
Jason Dubow, MDP, Co-Chair
Debbie Herr Cornwell, MDP
Ben Coverdale, DE DNREC
Cassandra Davis, NY DEC
Todd Janeski, VA DCR
Kirsten Hazler, VA DCR
Garrett Stewart, CRC
Marisa Baldine, CRC
Julianna Greenberg, CRC
Jennifer Starr, Alliance
Megan Ossmann, CRC
Justin Shapiro, CRC
Lee Epstein, CBF
Steve Faulkner, USGS
Lou Reynolds, EPA
Ben Gressler, Contractor USGS LSC
Dan Murphy, USFWS
Nancy Roth, Tetra Tech
John Wolf, USGS
Paige Hobaugh, Tetra Tech
Kristin Saunders, UMCES
Jeff Lerner, EPA, HW Consortium
Kelsey Hensley, EPA
Scott Phillips, USGS
Gina Hunt, MD DNR
Ivan Hernandez, CRC
Bhanu Paudel, DE DNREC
Mark Southerland, Tetra Tech
Diana Saintignon, EPA
Steve Epting, EPA
Sally Claggett USFS
Peter Claggett, USGS
Christopher Wharton, Tetra Tech
Michael Blair, Innovate
Jamie Velkoverh, USGS
Sequoya Bua-Iam, EPA ORISE Fellow
Frank Roberts, Innovate! Inc.
Derrick Frese, Innovate! Inc.

Welcome, Introductions and Updates - Renee Thompson, USGS Chesapeake Bay Program.

Renee provided an overview of the agenda, and some background on the Land Use outcomes. Peter Claggett and Land Use WG taking the lead on LUMM, today will cover LUOE.

- Kirsten – VA HW prioritization, ready to give a presentation/update to the GIT for feedback.
    - Propose another HWGIT meeting in mid-January to finish presenting these projects, coordinate with Kirsten and VA so they can attend and give an update.

Innovate! Inc. Chesapeake Healthy Watersheds Assessment -Derrick Frese, Innovate! Inc.

Derrick and his team at Innovate built a product to display the results of the CHWA in a web-based platform, using ESRI's ArcGIS Web AppBuilder to create the application and working with the source data to determine symbology and breaks in ArcGIS Pro. Derrick introduced the application and demonstrated some ways to interact and explore in the map. In addition to some common ESRI widgets, they developed a custom widget that creates Watershed Catchment Report, showing index scores and individual metrics for a selected catchment. A few important tips for using the application were shared with the group. Some of them include:

- **It's important to understand the layer list and the groupings, i.e. parent layer turned on, checkboxes checked!*
- *Used a lot of commercial, off the shelf widgets so the app can be easily updated, different functions you'll find in other ESRI products.*
- **You can change transparency, only at the highest level (CHWA) layer (just overall score?)*
- *Includes widgets to add data to the map, bookmark locations, print feature which creates a layout with some editable features, different options to customize the printout like title and author.*
- *Health index overall score layer has to be turned on in order for filter widget to work, then filter by different metrics, states.*
- *Layers are broken into the health index for SIHW, and then for the whole watershed.*
- *Enable pop-ups to generate a pdf of the watershed catchment report.*

CHWA Menti Survey Results

Questions and Comments

- Steve - Are the health scores we are seeing the local catchment scores, or the total upstream area scores? Is there a way to toggle between the catchment vs. watershed scores?
    - There is an attribute in the dataset that allows you to filter the upstream, within, and outlet. we can provide more clarity on this in our resources, maybe included in next version, 2.0. Future discussion item on how to differentiate upstream, outlet and local catchment watershed scores.
- The SIHW were "nested into upstream catchment area" using Streamcat, same as the EPA PHWA
- Steve- upstream scores could be helpful when having discussions with local partners, since catchments tend to be small
- Kristin- Does it show signals of change, something in the notes to say "this signals a good or bad change" so we know to do closer examination and analysis?
    - The purpose is to augment jurisdictional efforts, assist with planning and reporting. We would need a conversation at the GIT level to determine what the signals are.
- Gina- Are the resources completed? Wondering what different audiences will need in resources.
    - In the process of creating a Story Map to provide specific instructions for how to use it, potential uses, examples at various scales, and a tutorial video.

- Jason- Maybe we need to have defined periodic updates of the assessment, with updates based on newer data sources. Then we could show changes (good or bad) between each update?
    - There will be an opportunity to look at change through time given the number of datasets with upcoming updates but maybe not on a set schedule. Could potentially automate the process, and opportunity to show change. Thinking of indicator development, how can we use this tool to track change and progress in maintaining 100% state-identified healthy watersheds? Discuss more at January meeting.

Tetra Tech update on MD CHWA - Nancy Roth, Tetra Tech

Nancy gave an update on the progress of customizing the watershed assessment at a local level for MD. Identifying potential statistical approaches to better understand relationships between landscape predictors and quantitative measures of stream health. Concurrent literature reviews being conducted between the Stream Health WG and USGS, will be selecting metrics to compile from this process, and identifying MD specific data sources. Next stage will be gathering source data, developing code and statistical analysis. Products will include a report, GBD and a manual on how this can be useful and integrated with MD iMap.

MDHWA Menti Survey Results

Questions and Comments

- Lou- Parts of EPA StreamCat tool could be incorporated into this, specifically the Index of catchment Integrity and the Index of Watershed Integrity. That data is all available by COMID.
    - We used ICI to characterize biological condition. Hoping to supplement it with MD specific data, MBSS, would be interesting to compare the two.
- Kirsten- VA is looking at metrics measured up to different distances upstream. Individual catchment may be too little, whole watershed may be too much. Taking certain metrics to use as predictor variables and using the INSTAR data as the response. For the predictors to be effective, we need a handle on the appropriate scale. We're investigating what the happy medium may be, basically measuring same metrics but at different scales and distances and comparing to see which would be most effective as predictor variables.
- Jason- How do we integrate this with NAWQA's trend work? - https://nawqatrends.wim.usgs.gov/swtrends/
    - Renee- not too familiar, seems possible once we have a few dates in time and develop a trend that it might be appropriate to reach out to them.
    - Nancy- as we look at statistical relationships, their trends and information can inform our thinking about metric development.
- Steve- Can you talk a little more about how this project will be used by MD? E.g. are you interested in characterizing condition around currently designated Tier 2 waters, identifying new candidate Tier 2 waters, or both?
    - Angel- Neither, the purpose is to provide information, better science to help support land use decisions, ways to influence decisions that planners might not want to make or understand. Lot of opportunity with smaller jurisdictions and developers who have different interests- overall everyone must be able to

protect and maintain water quality, there might be opportunities for collaboration between them. Counties have water resource elements built into comp plans, but no detail about what they do to address vulnerability or resiliency in those plans. This is bigger than just the Tier II watersheds, not just useful for me, it's wall to wall with info for wetlands and fisheries folks.

- Kristin- I am glad to hear you talk through this in relation to cross-GIT mapping, because what I am trying to reconcile in my brain is how cross-GIT, dashboards and this assessment work together in tandem.
    - Agreed, GIS team is looking at this issue as well.

CHWA Story Map and additional decision support tools

Renee introduced Jamie, USGS contractor helping develop the CHWA Story Map. Jamie has been working on developing multiple Story Maps, a communication/informational product for the CHWA visualization, also working on one for the high-resolution data, to help people better understand the utilization of the data and how it was created. Using Story Maps to present scientific information in a simpler way and help integrate science in social media. Renee shared an example from PA, who turned a report like the CHWA into a story map with an accompanying video tutorial on how to use the online report. This is what we are developing for the CHWA.

Renee demonstrated some of the tools providing information on land use and land policy, different data depending on interests. The Data dashboard, created for WIP progress reporting, really ties in the land use side of the model including all of the different model scenario runs, land policy BMP options (i.e. different zoning plans, different iterations). Draft of the Diversity dashboard, and Land Use Resource Guide- state of current land use resources in the Bay and current projects. Walked through an example management question "where are there high quality/high risk of future development lands that are in underserved communities?" what data could you look at, what tools?

- Jason shared MD's park equity tool, https://dnr.maryland.gov/pages/parkequity.aspx.

Land use options evaluation outcome – Review Draft SRS Content

Due to capacity and nature of this outcome and competing priorities, this outcome does not have lot of support behind it. We have made progress, evaluated policies incentives and planning tools, and compiled them. What does it mean to reduce the rate of land conversion? Doing a lot of work with LLWG and the local leadership strategy to help weave this outcome into related goals. Successes in cross-CBP local engagement and land use work include the HW forests projects, green fin communications modules, SKEO TOGI project, and presenting this information and recent work at webinars and virtual conferences. Reviewed the local engagement strategy and the role of the HWGIT as subject matter experts. Part of the adaptive management process looks how are we assessing our performance- we can't measure policies, but we can measure the rate of conversion through time. Tracking land change conversion, pilot examples and anecdotes on how the information is being utilized on the local level, track specific meetings, webinars, materials, resources where CBP land use resources were utilized, it's a large scope of work. Request input and feedback from GIT on resolving the lack of capacity issue.

Questions and Comments

- Scott- the lack of capacity to address this outcome should be brought to the attention of the MB. This should not fall on only one person
- Jason – One of challenges is there are so many jurisdictions to track, similar large number of local jurisdictions and it's not feasible to track their efforts. The Bay agreement envisions strategies developed by local governments, that should still be expected. It's not a mandate but how does that happen?
    - LLWG, coordinator Laura have been providing examples and resources for other goal teams to follow. Working with trusted sources to get onto those regional planning conferences, so we can bring these resources directly to the audiences we're interested in.
    - The Local Leadership Workgroup is happy to continue partnering with you all on implementation of this outcome!
    - Another upcoming GIT project to add to your list of opportunities: the FY20 Planning for Clean Water: Local Government Workshops coming in Summer/Fall 2021
- Kristin- Where are the member jurisdictions who pushed for this outcome to be included? At a minimum, they could be asking themselves what they can do to help you.
    - The LUOE and LUMM arose from Land, Growth, and Stewardship Subcommittee of focusing on informing land use plans. The intent was to provide the data, resources, and models.
- Scott- In addition to bringing this to the MB's attention, the review process is an opportunity to scope down, and make sure people can help and complete the actions, rally around LLWG- this is an opportunity to make our actions feasible.
- Kristin- We can also re-enlist Kirk and Carl to help move forward with you to look at the assessment piece and think about it slightly differently in terms of how you measure success.

Action items and decisions summary

- HWGIT meeting Monday, February 8, 2-4pm to finish presenting these projects, coordinate with Kirsten and VA so they can attend and give an update on the VA HW prioritization project and stream metric scale analysis work.
- Send final Story Map and video tutorial to GIT members
- Future discussion items
    - How to differentiate upstream, outlet and local catchment watershed scores in CHWA application.
    - Define signals for "signals of change" in watershed health
    - How to use the CHWA application to track change and progress in maintaining 100% SIHW.
    - CHWA 2.0 or before 2.0 starts, analysis comparing Streamcat ICI and MBSS data to assist in QA/QC and uncertainty development.

Resources

- Land Use Resources Guide land_use_resource_guide_090420_2.pdf (chesapeakebay.net)
- Chesapeake Open Data: Chesapeake Bay Open Data Portal (arcgis.com)
- Watershed Health Metrics infographic: Health Index (chesapeakebay.net)
- Watershed Vulnerability Metrics infographic: Vulnerability Index (chesapeakebay.net)
- Chesapeake Bay Environmental Justice and Equity Dashboard (DRAFT): https://gis.chesapeakebay.net/diversity/dashboard/
- Chesapeake Bay Watershed Data Dashboard: https://gis.chesapeakebay.net/wip/dashboard/
- NAWQA: https://nawqatrends.wim.usgs.gov/swtrends/
- MD DNR park equity tool: https://dnr.maryland.gov/pages/parkequity.aspx
- CHWA Application: Chesapeake Healthy Watersheds Assessment