Urban Stormwater Workgroup Meeting
Meeting Minutes
Tuesday, May 21st, 2024
10:00 AM - 12:00 PM
Meeting Materials

Summary of Actions and Decisions

Action: USWG Members with suggestions for Isabella regarding potential factors to test in CalCAST should email her (ibertani@chesapeakebay.net).

10:00 Welcome and Review of April Meeting Minutes.
Norm Goulet, Chair. Attach A.

10:05 Announcements and Updates
- Update on GIT Funding Proposal
- UNM Panel Status Update

10:15 Land to Water Factors
Isabella Bertani, UMCES

As a follow-up to Peter Claggett's April presentation, Isabella discussed the work to develop new land-to-water factors, using Feature densities by NHD catchment (e.g, ponds, channels/ditches, roads) and land use connectivity to streams, e.g., "effective impervious surface".

Discussion:

Olivia Devereux (in chat): CAST is offline now since today is the day we are migrating to the CAST-23 version. An email will go to registered users when it is back up. We are close to done now.
Cecilia Lane (in chat): Is this true for all BMPs too? (beyond ponds)
Dave Montali: Can you remind me how small stream attenuation works, the difference between land to water and small stream attenuation factors?
Isabella Bertani: Right now small stream attenuation is represented as a function of stream length or water velocity, one of the two. There's an exponential decay that's essentially a function of stream length. As the water travels downstream, the load gets attenuated in an exponential way with coefficients that are estimated through either previously SPARROW and now through CalCAST or a combination of both.
Dave Montali: I recall that small stream attenuation is always a reduction of landscape delivered loads whereas land to water factors are always set between zero and one so as to just represent the variability. When we get into CalCAST and you're comparing to

observations, how do you factor out the effect of small stream attenuation when you're looking at land to water?
Isabella Bertani: They happen simultaneously. Both of them happen in the model and right now they're both in it and everything is calibrated at the same time. I don't know if you were getting to the fact that there may be some confounding or effects captured by stream attenuation that would actually be attributed to land to water. If that's what you were thinking it would be a possibility.
Dave Montali: I was thinking that and didn't say anything because I figured we would address it when the time comes.
Isabella Bertani: I think this is a good question and makes sense. One way to address it would be to do runs where we alternatively turn off stream attenuation and land to water, and I have done a little bit of that, so we can definitely do that.
KC Filippino: This might go back to Cecilia's question, when you started off about wet ponds and wet pond density leading to a land to water factor, but at the very end you said BMPs are not included in that. Are BMPs not included in the land to water factors for CalCAST and/or CAST?
Isabella Bertani: They're not a land to water factor, they are a separate coefficient. In the figure here, BMPs are a separate coefficient and are represented separately. They are in the model but a different coefficient. In theory, you can think of them as a land to water factor because they are still a coefficient that gets multiplied by the load, just like a land to water factor is.
KC Filippino: But are wet pond densities like you started with a coefficient, are they even included?
Isabella Bertani: That was just an example they are not included right now. That was an example of one of the many factors that can be tested, right now its not in CalCAST, it hasn't come up as important in the tests we've done so far. I do know that the Land Use Team is looking at developing an improved pond density product that we want to test. Other models have found that pond density can be an important factor. We've been talking about potential double counting issues because ponds are BMPs so if we account for them in land to water factors we have to ensure that ponds represented as BMPs are not double counted. That's one of the reasons we've been very careful with pond density.
Norm Goulet: Why would it be double counting? The BMP removal occurs outside of that. We're just accounting for the BMPs in terms of the land to water factor, not the pollutant removal factor. We're looking at delivery versus removal.
Isabella Bertani: It's just that if a stormwater pond is already a BMP, so its effect is already accounted there, if we also have it as part of the pond density in the land to water factor, its accounted twice. So the same landscape feature would now appear in two different parts of the model.
KC Filippino: I see it as double counting. It makes sense to me.

Dave Montali: The work that the Land Use Team is doing, it's a big factor to figure out which ones of these ponds are BMPs so as to get them out of the data that we would use to set up the land to water. Norm, if the runoff from urban land is 10 and the BMP takes it down to 5, land to water is just talking about that 5 pounds and what happens to it downstream. The idea that its already accounted for is the fact that we're removing 50% automatically by applying the BMP.
Norm Goulet: I'll have to put some brain power to it later, because I'm still having a problem with looking at it from the hydrological aspect versus the pollutant removal aspect which is done separately. Isabella, one of the concerns I've always had, especially regarding the urban sector, is that a lot of what our factors are based off of are the soil characteristics. For the most part, a lot of the urban areas, the soil survey data is very old. These days in the urban sector we tend to see more d soils and soil compaction, but that's not really showing up in a lot of the soil survey data. I'm wondering if we're skewing things because of that.
Isabella Bertani: It's a possibility. We've been working with StatsGo and SurGo data, and I don't know of other data products that are representative across the watershed. One thing I would welcome is if you have recommendations on data sources to use or look into that better represent processes in urban areas, that would be a welcome suggestion. But we're using very old soil data for sure.
Cassandra Davis (in chat): Can you clarify the difference between land to water factors and sensitivity?
Joseph Delesantro (in chat): I'll try to do this in my presentation.
KC Filippino: How are we providing input then, and do we need guardrails to that input?
Norm Goulet: No, I don't have any. One thing we've heard from Isabella is that they're looking for newer source data than what's available. Isabella, one of the problems we always run into is that when we start making recommendations on additional data sources, is 'is it available for the whole Bay, and if not we don't want to use it.'
Isabella Bertani: Yeah, and that stands. Data is really only a small component. If you're aware of a good data source that we aren't looking at, I'd welcome it. I'm also interested in conceptual ideas of what you think is important. CalCAST runs relatively fast, so if USWG were to say I think these particular landscape properties should be important in urban areas, can you test it in CalCAST, I think conceptually it should increase/decrease loads we can test it. Any suggestion on factors you think could be important that we can test in CalCAST, we're in a testing stage so are open to suggestions.
Norm Goulet: Part of it is that CalcAST is so new, no ones familiar with it, so it may take a little bit of being out there and being used before we can start coming up with these ideas for you.
Isabella Bertani: Yeah, and you can really think of it as a SPARROW model since its very similar. As you think about processes that you would like to see tested, this works very similarly to SPARROW and CAST in the way processes are represented.

Ginny Snead: Is there anything written like a white paper that summarizes all of the decisions that were made and the different factors that were put in CalCAST?
Isabella Bertani: At this point no. We have internal draft documentation, but we haven't made any decisions on things like the land to water factors, we're still testing them. Eventually we'll make decisions but there's nothing written yet.
KC Filippino (in chat): It's the same as accounting for trees as a BMP afer they've been picked up in the imagery and accounted for as acres in the model.
Cecilia Lane (in chat): Yes, I agree Norm!

Action: USWG Members with suggestions for Isabella regarding potential factors to test in CalCAST should email her (ibertani@chesapeakebay.net).

10:50 Land Use Sensitivities and Sewer Exfiltration
Joseph Delesantro, EPA ORISE

Joseph discussed the process and timeline for updating land use sensitivities for the Phase 7 Model, and sought feedback from the workgroup about what, if any, changes should be investigated for the developed sector. Joseph had also been working with the newly re-convened Wastewater Treatment Workgroup to discuss their interest in exploring sewer exfiltration as a load source in the Phase 7 Model and provided an update on those discussions. Joseph sought feedback on the following questions:

- What concerns exist for nutrient sensitivities in the developed sector that should be evaluated?
- What is the best path forward for updating sensitivities?
- Are you aware of any good data or models that we should be looking into?

Discussion:

KC Filippino (in chat): Is the groundwater recharge variable incorporated into CalCAST as well?
Norm Goulet: You know we use crop uptake in the Ag side as a sensitivity. Do we utilize turfgrass uptake?
Joseph Delesantro: Yes, there is an uptake for turfgrass.
Norm Goulet: Is it species dependent? Depending on where you are in the watershed, there are several different dominant types.
Joseph Delesantro: I don't believe that it is right now.

11:20 Other Follow-Ups to April Land Use Discussion
David Wood and Norm Goulet

At the April meeting, the USWG agreed to a follow-up conversation on a series of questions Peter Claggett posed in his presentation. USWG Leadership solicited input from membership on the following questions:

1) Is the USWG interested in exploring a unique loading rate for "Developed Open Space"? Lead? Interested party?

2) What level of involvement does the USWG want to have regarding the development of new land-to-water factors for different land uses? (*Addressed in previous agenda item)*

3) What group should oversee updates to the septic methodology for Phase 7? - LUWG, WWTWG, or USWG

4) How best to update sewer service areas footprints? – Post for review? Solicit most recent polygon GIS data?

5) How best to update MS4 areas? - Post for review? Solicit most recent polygon GIS data?

Discussion:

KC Filippino (in chat): Hampton Roads localities and HRSD have been doing MST for a while, wonder how/if that data can be used.
Cecilia Lane (in chat): COG has done some MST for us, I can look into the exact details re:work plan and next steps
KC Filippino (in chat): Suspended succession. See slides 8-10 here.
Olivia Devereux (in chat): Please address that in some circumstances CAST shows that the land use loading rate is higher for treed urban areas. Tree Canopy can increase loads. This is clear in the District, and perhaps other lrsegs. In DC, there are substantially more acres of Buildings and Other, which is then converted to Tree Canopy over Impervious. Tree Canopy over Impervious has a higher loading rate than Buildings and Other, causing the increase in loads. Any segment where there are more Roads than Buildings will show an increase with this BMP.
Buildings < TC/I < Roads
For TN, 14.76 < 16.37 < 17.68
KC Filippino (in chat): Maybe we need a joint WWTWG/USWG meeting.
Scott Crafton (in chat): In Virginia, Septic systems are regulated by the State Health Dept.
Elaine Webb (in chat): In Delaware – DNREC regulates septic/sewer but outside of the program that I work in. Would need to follow up.
Alana Hartman (in chat): FOIA = Freedom of Information Act

Scott Crafton (in chat): True that many local Health Dept's had paper rather than digital records - I don't know whether that has been updated in recent years - also don't know whether they have any data regarding system loading estimates.
KC Filippino (in chat): In VA, PDCs tried to get that data in a digital form from the Health Depts. But it's still not accurate enough. It would be good if the state could coordinate on that effort.
Cecilia Lane (in chat): I agree it's worth pursuing some
Scott Crafton (in chat): 👍 Also, DEQ in VA says if the 2020 census removed any areas, they will still be covered -- whatever was in will always be in.
KC Filippino (in chat): Plus many of our localities delineate their service areas and they want to continue to be able to do that.
Cecilia Lane (in chat): Plus many of our localities delineate their service areas and they want to continue to be able to do that.

Participants

Alana Hartman, WV DEP
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