

Watershed Group

- Improve the nutrient response to flow and sediment change
- Change the N and P speciation
- Incorporate the effects of climate change into the BMP effectiveness estimates
- Introduce uncertainty into the decision-making process

Nutrient Responses to Flow and Sediment Changes

- Current –
 - TN is 1:1 with flow
 - TP is based on surface runoff and sediment washoff except in developed where there is no effect
- 2019 and long term
 - Spatially vary the N relationship.
 - Perhaps existing sensitivities to groundwater recharge and available water capacity
 - Developed area Sensitivity to P
 - Review of small-scale modeling efforts
 - Investigate WWTP, SSOs, and CSOs.

Change the N and P Speciation

- Current
 - N speciation determined by observed relationship between load per acre and nitrate percent
 - Probably a land use and water balance signal
- 2019 - How would speciation respond to climate signal?
 - Perhaps looking at observed surface and baseflow speciation and apply modeled change in surface and baseflow?
 - Likely assume no change
- Long term –
 - Complex observed Concentration-discharge relationships from existing data sets
 - Mine existing data sets: DNR storm sampling network, national BMP database; MS4 databases; Jordan/Weller, Occoquan
 - Land use and geology-dependent (through sparrow?). Can we tease out climate from land use and BMP implementation
 - Review of smaller scale studies.

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Incorporate the effects of climate change into the BMP effectiveness estimates

- See prior STAC workshop!
 - BMP panels are supposed to deal with it now, but none do
 - Need IDF curves some are already developed
 - Need response to IDF curves
- CBP recommend that states update their stormwater regulations (CA, WI, MA, Canada)
- Consider failure in extreme conditions
- Co-benefits change as well as efficiencies
- Request CBTrust RFP for BMP response to climate change.

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Synthesis

Incorporate uncertainty in the decision-making process

- Climate change presents an opportunity for a ‘trial run’ of decision making under uncertainty
 - Smaller stakes than full target-setting
 - Some uncertainty components determined
- 2019 - Present to managers as probabilities
 - 5% chance that climate has no or beneficial effect on oxygen
 - 50% chance that it is equivalent to a 9 million lb reduction or more
 - or
 - Climate change increases risk of failure by a certain amount
 - Reducing loads by 9 million lbs reduces that risk of failure by X%
- Longer-term
 - fully integrate uncertainty into models and decisions
 - Convert to probabilities of environmental consequences and benefits in dollars
 - Consider robust decision making