



Land Use Methods and Metrics Outcome

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Through the Chesapeake Bay Watershed Agreement, the Chesapeake Bay Program has committed to...



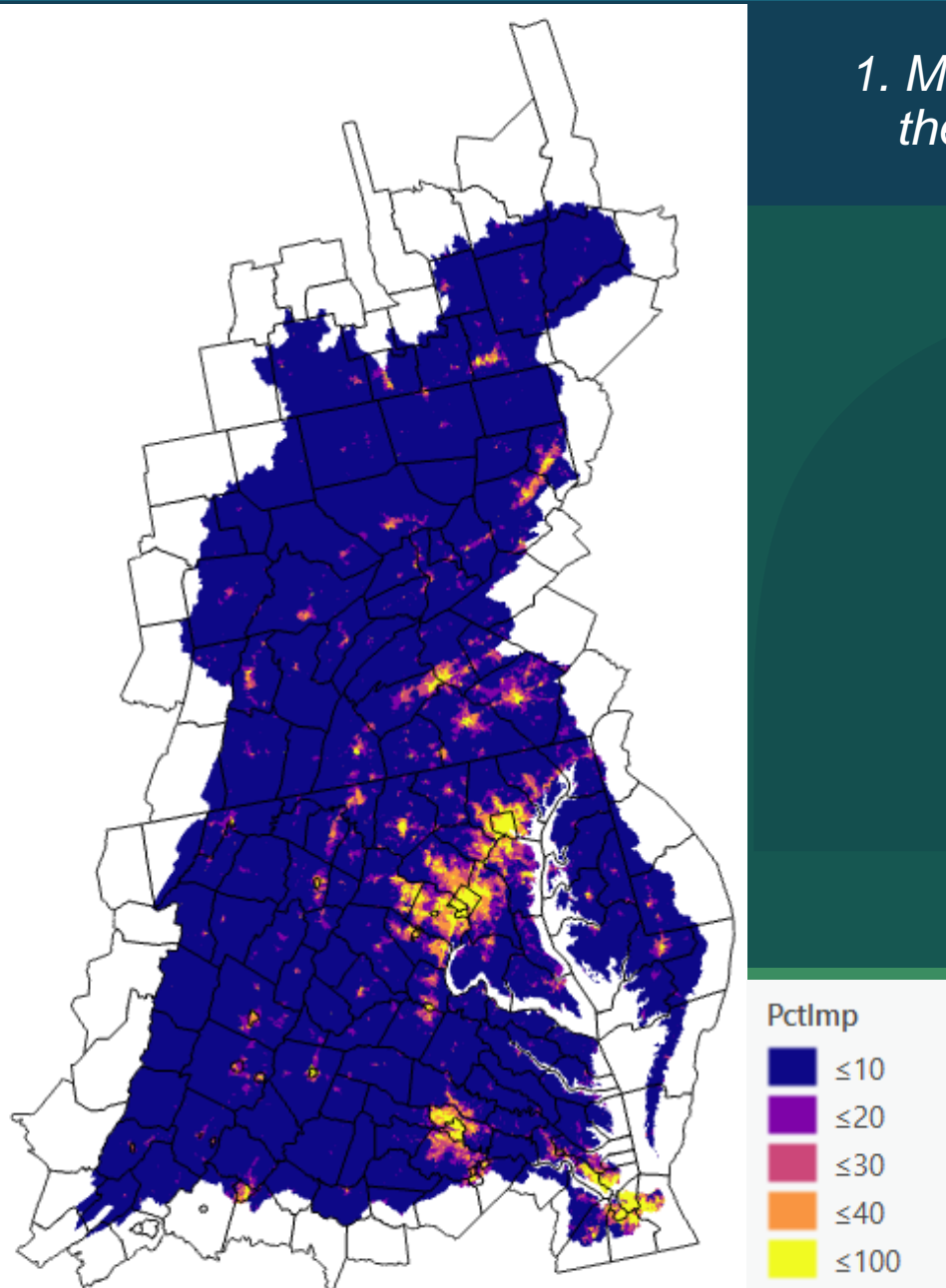
- 1. Measure rate of farmland, forest and wetland conversion, and the extent and rate of change in impervious surface coverage.*
- 2. Quantify the potential impacts of land conversion to water quality, healthy watersheds and communities.*
- 3. Launch a public awareness campaign to share this information with citizens, local governments, elected officials and stakeholders.*

Impervious Surfaces as a LUMM metric

1. Measure rate of farmland, forest and wetland conversion, and the extent and rate of change in impervious surface coverage.

Measure the extent and rate of change of impervious surface coverage at different scales, i.e. county, NHDv2 Catchments, Census Places, Census Minor Civil Divisions (Townships in PA and NY)

- 206 Counties intersecting the Bay Watershed
- ~80,000 catchments covering the Chesapeake Bay Watershed



* Percent Impervious Cover by Catchment using Version 1 of the 2017 High-Resolution Land Use

Impact of Impervious Surfaces

2. Quantify the potential impacts of land conversion to water quality, healthy watersheds and communities.

Water Quality and Healthy Watersheds

- Impervious surfaces are the fastest growing polluting land cover class
- Impervious surfaces increase stream flow velocity and temperature and change the chemical composition of surface runoff
- These changes lead to upland erosion and the densification of drainage networks, erosion of stream banks, scour and sedimentation of stream beds, threaten the health of aquatic life (incr. temperature, conductivity, sediment, nutrients, and toxics)

Communities

- Impervious surfaces are an indicator of economic growth and investment
 - This growth can be perceived as both positive or negative, depending on the audience and the purpose of the growth
 - New or updated residential or commercial development for existing local community
 - Gentrification
- Accommodating population growth while minimizing (not eliminating) increases in impervious cover is a hallmark “smart growth” principle

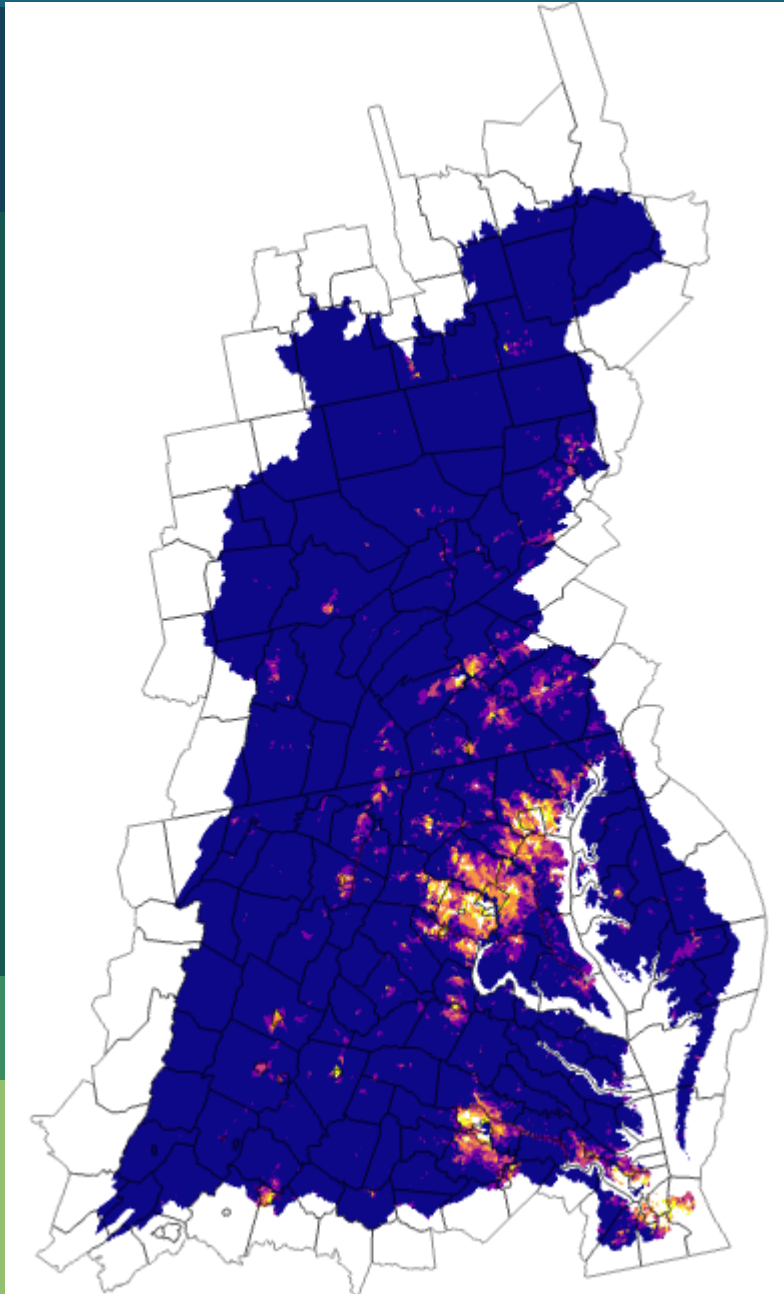


Communicating Impervious Surfaces as a LUMM Metric

3. Launch a public awareness campaign to share this information with citizens, local governments, elected officials and stakeholders.

Where are watersheds at risk of hydrologic, chemical, and biological impairment?

Studies have shown that streams in catchments with more than 10% impervious surface coverage are often impaired.

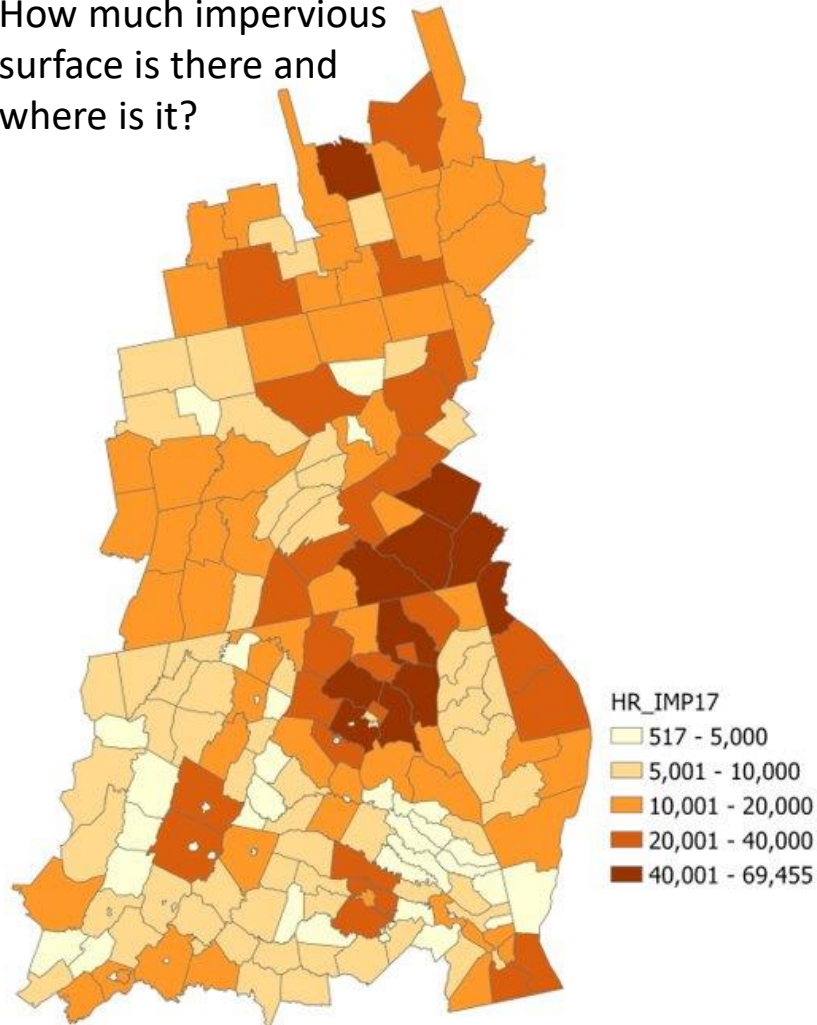


* *Accumulated Percent Impervious Cover by Catchment using Version 1 of the 2017 High-Resolution Land Use*

Communicating Impervious Surfaces as a LUMM Metric Cont.

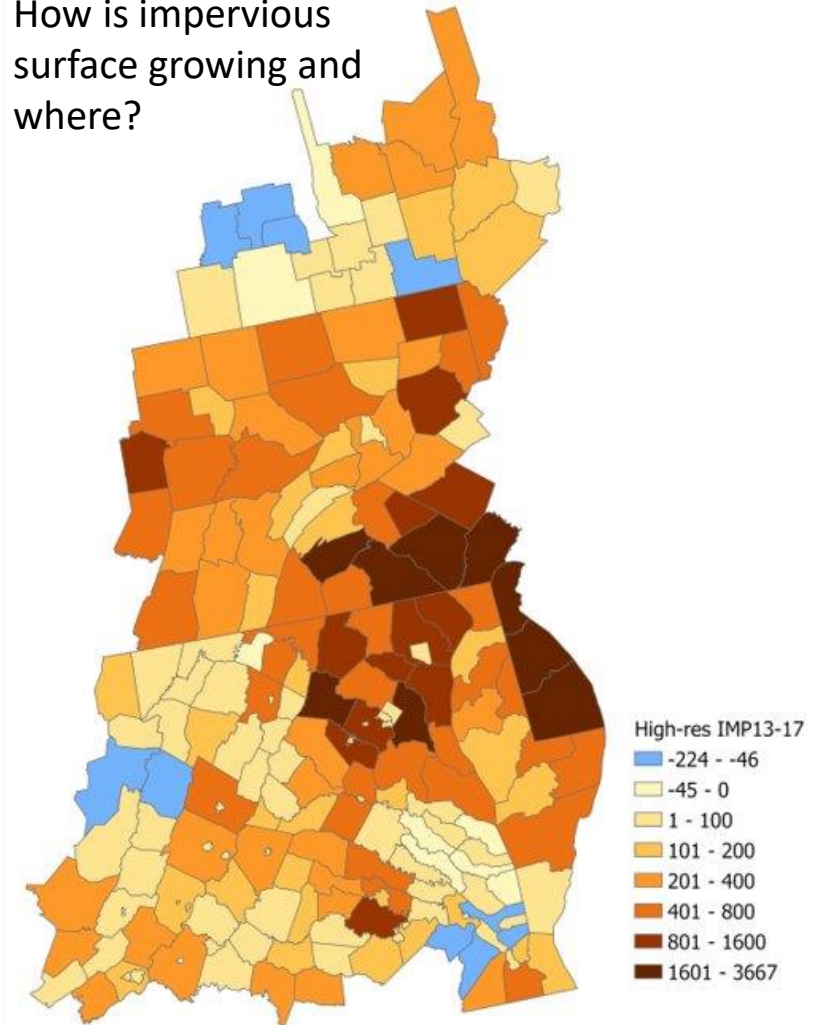
Metric: Total Impervious Area

How much impervious surface is there and where is it?



Metric: Impervious Area Change (2013-2017)

How is impervious surface growing and where?



Communicating Impervious Surfaces as a LUMM Metric Cont.

How do you think this indicator should be communicated?

- Relate to Water Quality and/or Healthy Watersheds?
 - Weight by association to streams (imperviousness next to streams more impactful)?
- How can we best relate this to communities?
 - Group communities by amount or percent impervious?
 - Group economically?
- Total area? Percent area? Percent Accumulated area? Effective impervious area?
- Others?

Contact

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