



Riparian Tree Cover Data

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Forestry Work Group and Stream Health Workgroup Joint Meeting
June 7, 2023

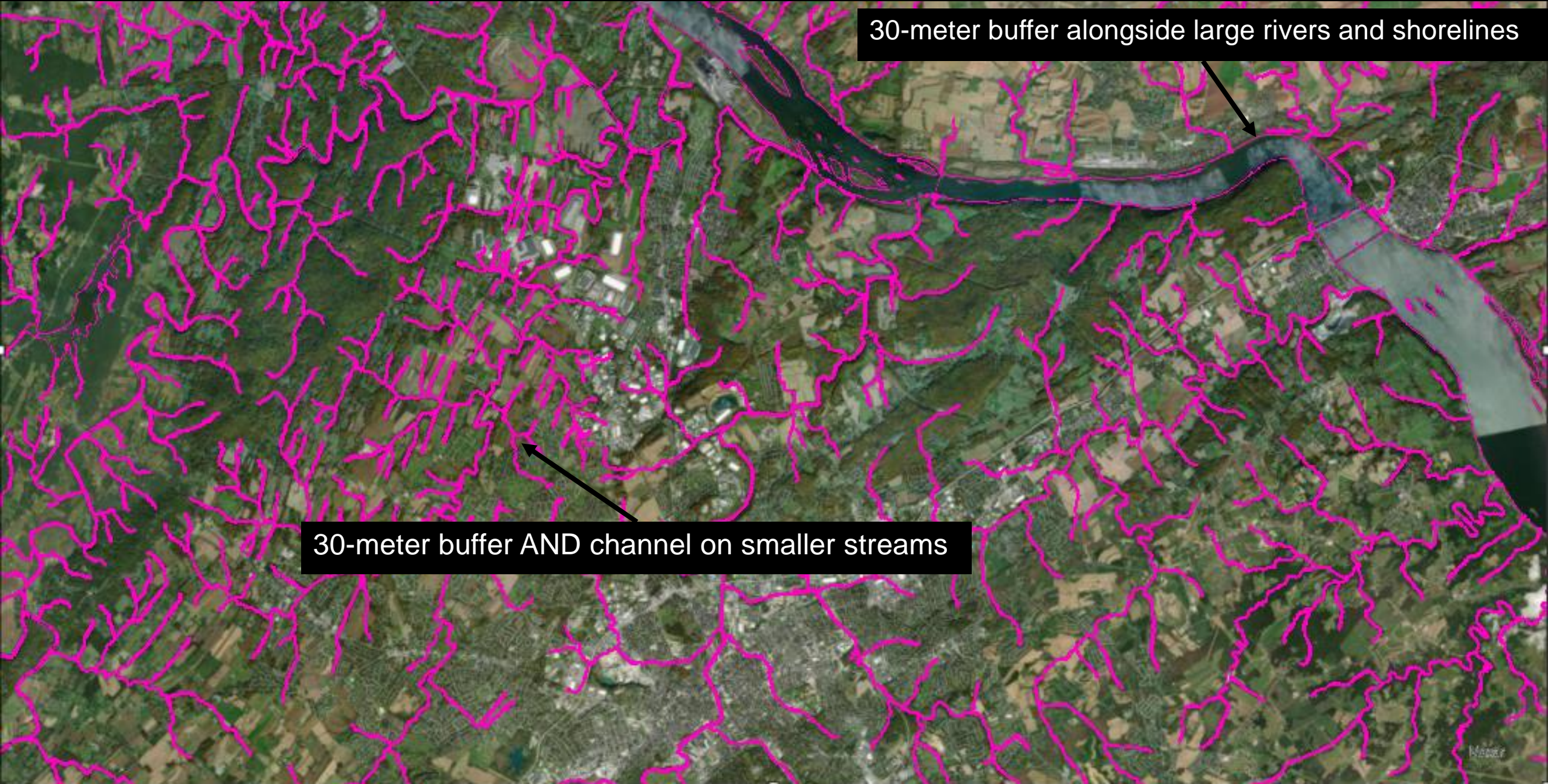
DISCLAIMER

These data are preliminary or provisional and are subject to revision. They are being provided to meet the need for timely best science. The data have not received final approval by the U.S. Geological Survey (USGS) and are provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the data.

Introduction

- A new 100-foot (30-meter) riparian layer has been developed and is in the process of publication.
- Topics:
 - Description and methods
 - How does this data relate to 1:100k streams and the hyper-resolution (1:2,000) hydrography?
 - Draft Tree Cover and plantable area metrics (static and change)
 - Land Use Methods and Metrics Outcome Update
 - Future plans and next steps

100-foot (30-meter) Riparian Zone



30-meter buffer alongside large rivers and shorelines

30-meter buffer AND channel on smaller streams

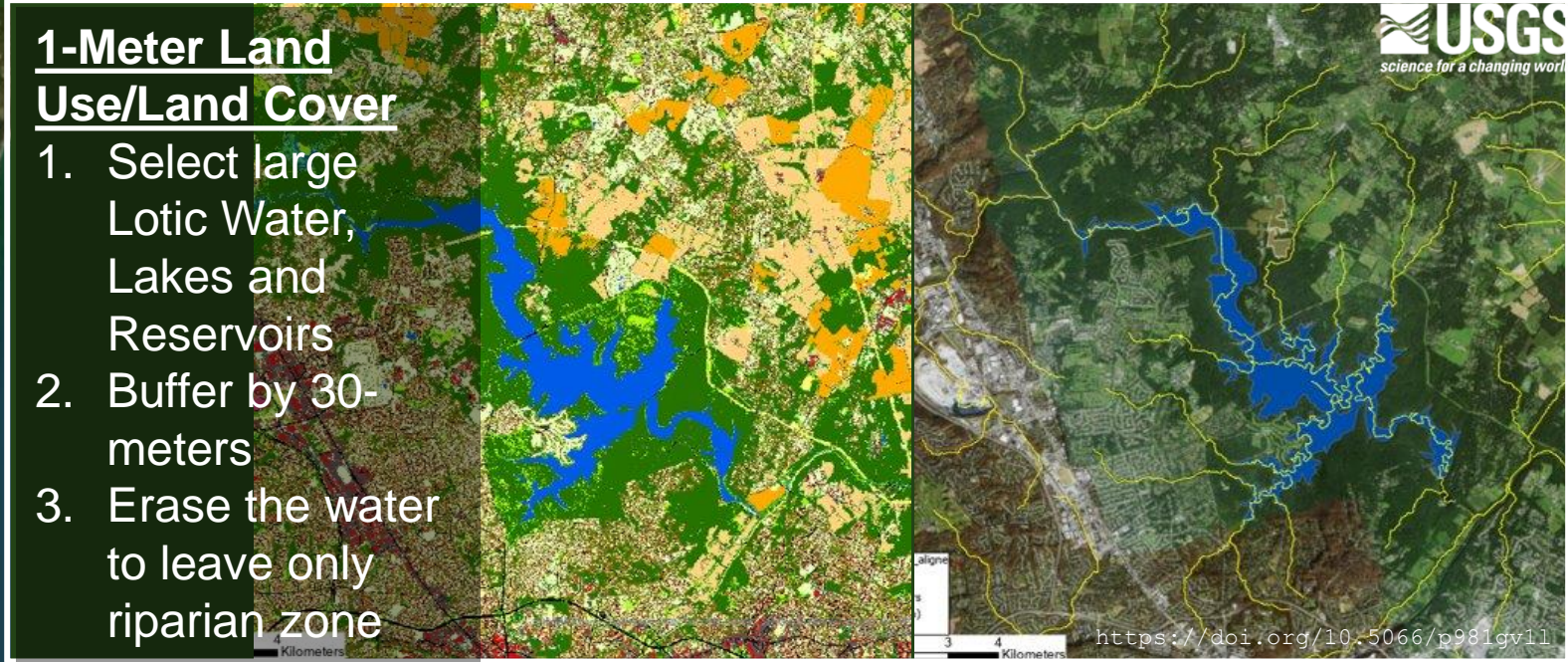
Chesapeake Bay and Delaware shoreline

1. Buffer by 30-meters
2. Erase the Chesapeake Bay to leave only riparian zone



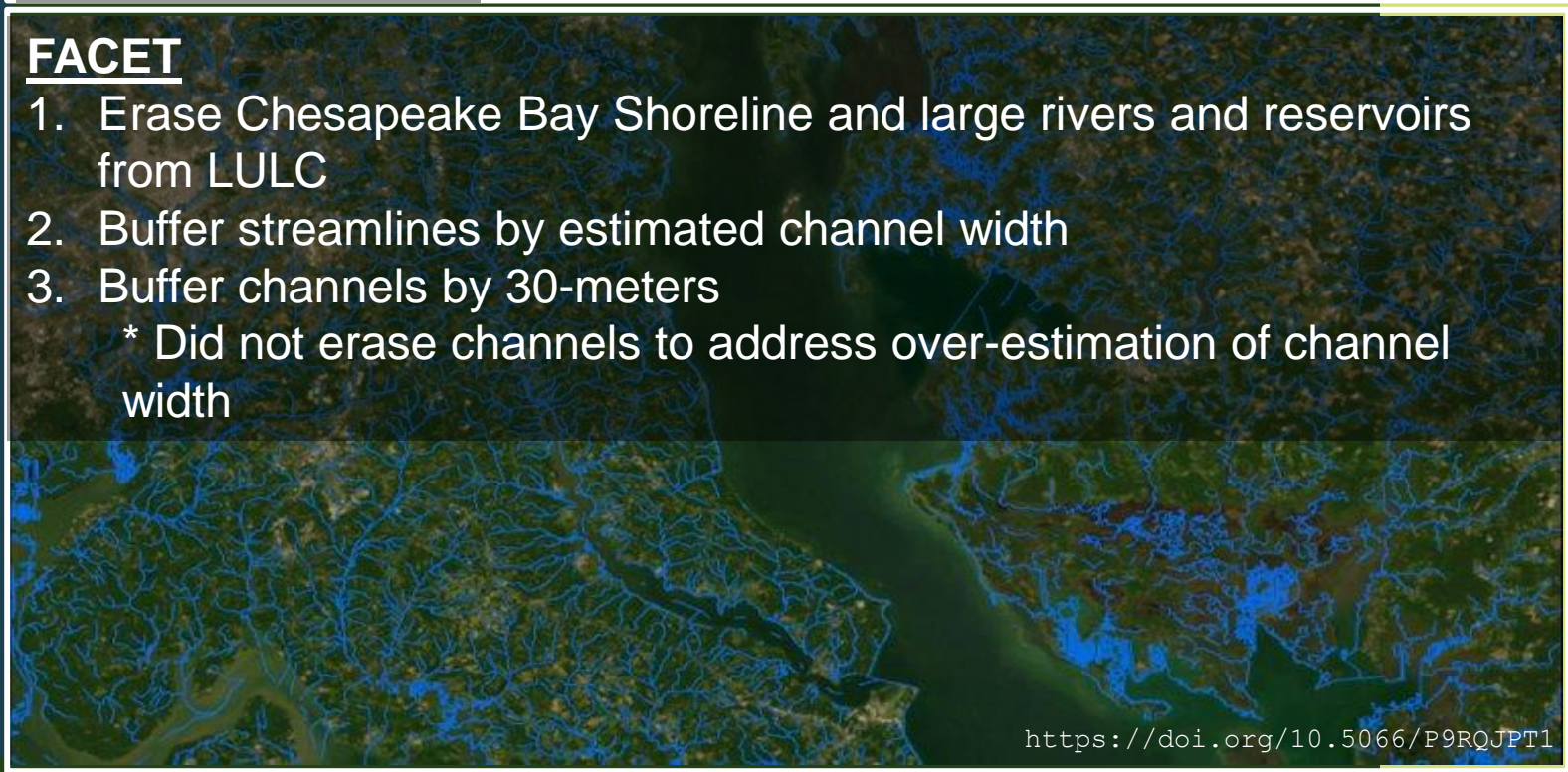
1-Meter Land Use/Land Cover

1. Select large Lotic Water, Lakes and Reservoirs
2. Buffer by 30-meters
3. Erase the water to leave only riparian zone



FACET

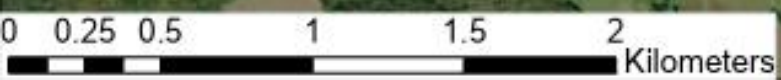
1. Erase Chesapeake Bay Shoreline and large rivers and reservoirs from LULC
2. Buffer streamlines by estimated channel width
3. Buffer channels by 30-meters
 - * Did not erase channels to address over-estimation of channel width





Stream Network

— NHD 1:100k



Lower Right: 77°0'2"W 39°14'55"N

Denser network (more headwater streams)

Stream Network

- NHD 1:100k
- FACET 1:24k



Lower Right: 77°0'2"W 39°14'55"N

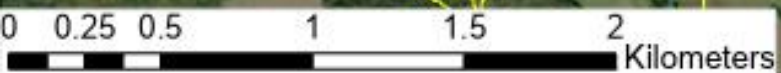
Denser network (more headwater streams)

Better alignment with network on the ground



Stream Network

- NHD 1:100k
- FACET 1:24k



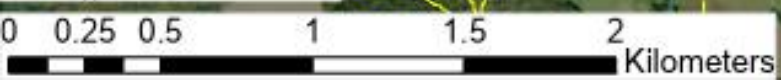
Lower Right: 77°0'2"W 39°14'55"N

Denser network (more headwater and 0-order streams)



Stream Network

- NHD 1:100k
- FACET 1:24k
- Hyper-Res 1:2k



Lower Right: 77°0'2"W 39°14'55"N

Denser network (more headwater and 0-order streams)

Better alignment with network on the ground



Stream Network

- NHD 1:100k
- FACET 1:24k
- Hyper-Res 1:2k



Lower Right: 77°0'2"W 39°14'55"N

Methods to use hyper-res for a riparian zone are TBD

- Work is funded to assess perennial flow in FY '24
 - Don't want to buffer where there isn't water!
- Consensus on what is bufferable

Expectations of 1:2k Scale Riparian Zone

- Overall increase in percent tree cover in riparian zone
 - Most of the new 0-order streams in the hyper-res are in areas people find difficult to work in (steep and mountainous, wet, etc.)
- Variable across the region
 - Mountainous areas will likely have an increase in % TC in riparian
 - Coastal will likely decrease in % TC in riparian (new streams are braided and surrounded by wetlands)

Stream Network

- NHD 1:100k
- FACET 1:24k
- Hyper-Res 1:2k

0 0.25 0.5 1 1.5 2
Kilometers

Lower Right: 77°0'2"W 39°14'55"N

State	% Tree Cover	% Pervious	% Tree Cover Change	% Pervious Change
DC	64%	18%	-0.3%	0.2%
DE	57%	41%	-0.3%	0.1%
MD	63%	33%	-0.1%	0.0%
NY	66%	31%	0.1%	-0.1%
PA	72%	25%	-0.2%	0.1%
VA	76%	22%	-0.8%	0.7%
WV	77%	21%	-0.3%	0.3%
CBW	72%	26%	-0.4%	0.4%

Draft % Tree Cover in Riparian Zone

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WV	77%	21%	-0.3%	0.3%
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Why loss in TC?

- Reduction in canopy doesn't mean loss of trees
- New plantings aren't detected yet

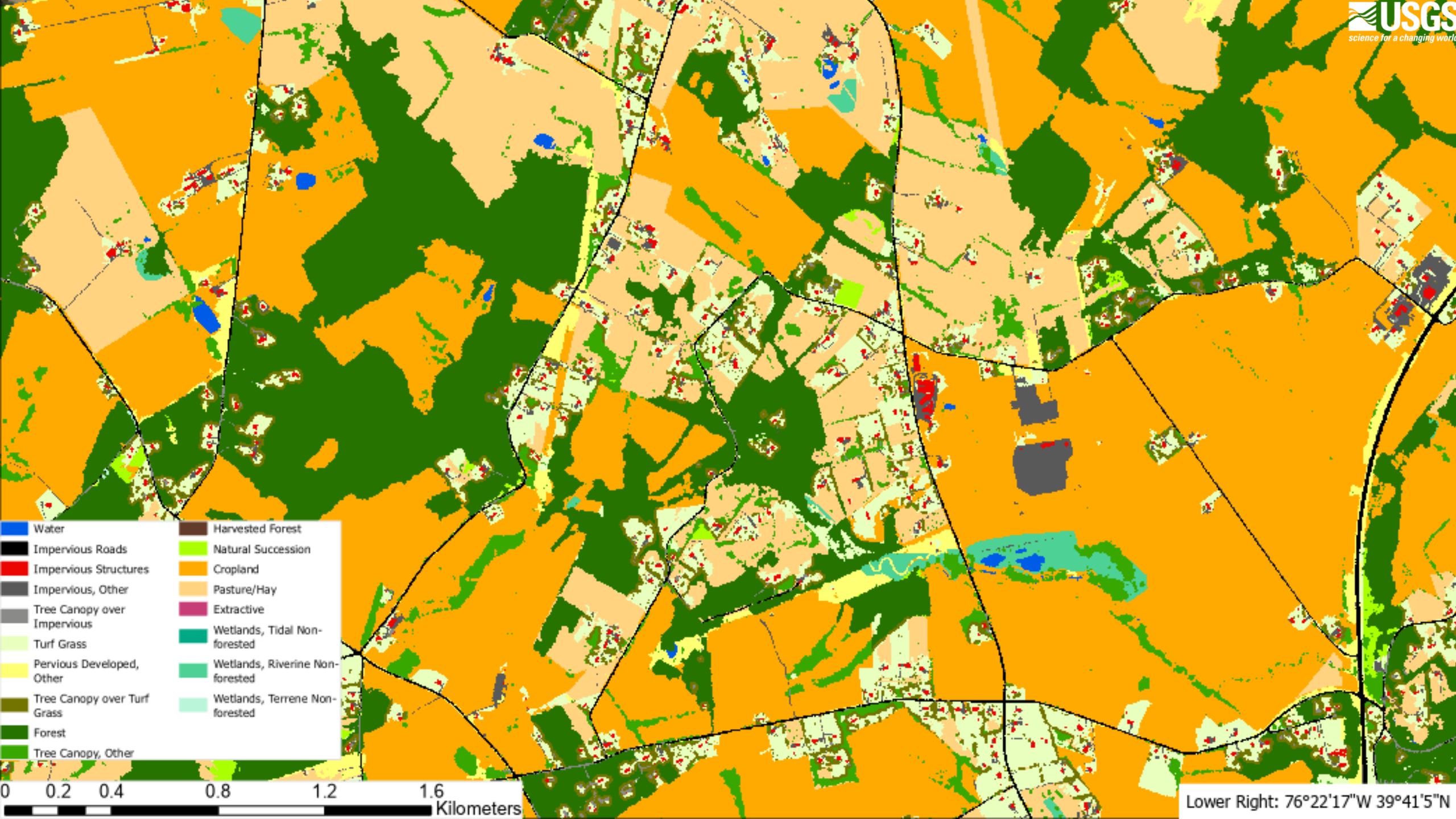
Draft % Tree Cover in Riparian Zone

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0 0.2 0.4 0.8 1.2 1.6
Kilometers

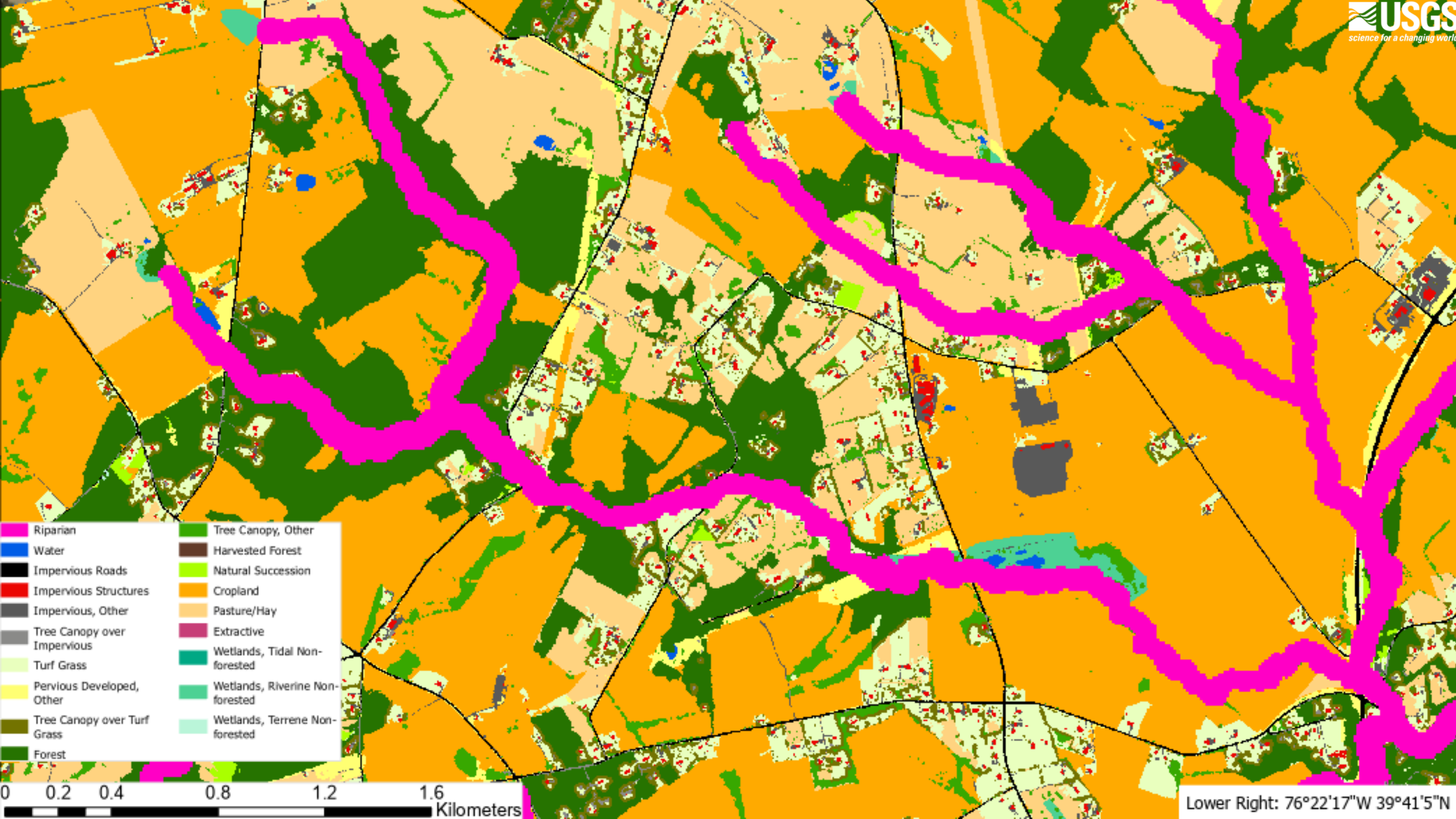
Lower Right: 76°22'17"W 39°41'5"N



- | | |
|-----------------------------|---------------------------------|
| Water | Harvested Forest |
| Impervious Roads | Natural Succession |
| Impervious Structures | Cropland |
| Impervious, Other | Pasture/Hay |
| Tree Canopy over Impervious | Extractive |
| Turf Grass | Wetlands, Tidal Non-forested |
| Pervious Developed, Other | Wetlands, Riverine Non-forested |
| Tree Canopy over Turf Grass | Wetlands, Terrene Non-forested |
| Forest | |
| Tree Canopy, Other | |

0 0.2 0.4 0.8 1.2 1.6 Kilometers

Lower Right: 76°22'17"W 39°41'5"N



- | | |
|-----------------------------|---------------------------------|
| Riparian | Tree Canopy, Other |
| Water | Harvested Forest |
| Impervious Roads | Natural Succession |
| Impervious Structures | Cropland |
| Impervious, Other | Pasture/Hay |
| Tree Canopy over Impervious | Extractive |
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| Forest | |

0 0.2 0.4 0.8 1.2 1.6
Kilometers

Lower Right: 76°22'17"W 39°41'5"N





- Tree Cover:**
- Forest
 - Tree Canopy, Other
 - Tree Canopy over Turf
 - Tree Canopy over Impervious

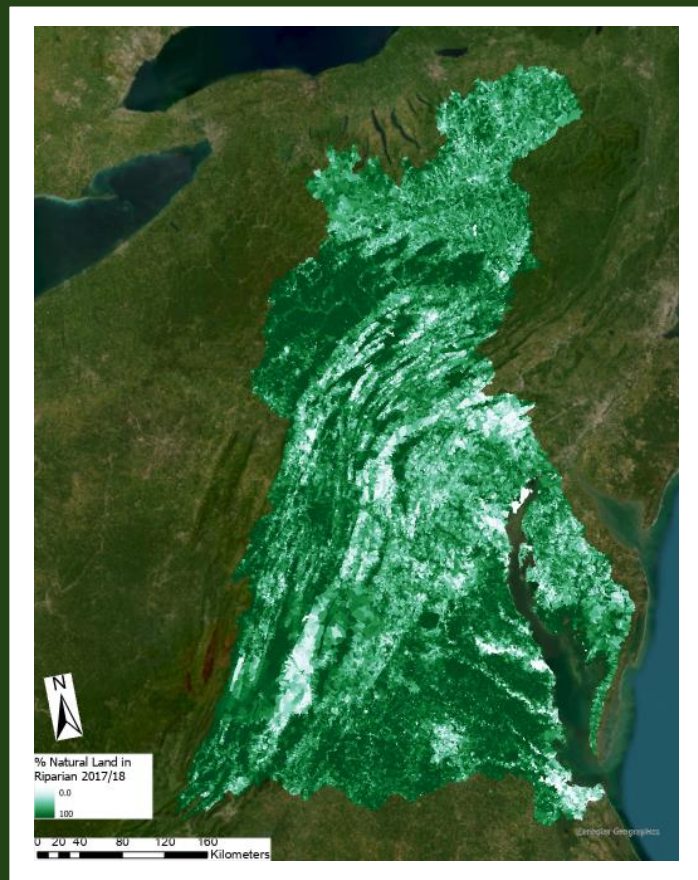
- Pervious:**
- Turf Grass
 - Pervious Developed, Other
 - Natural Succession
 - Harvested Forest
 - Cropland
 - Pasture/Hay
 - Wetlands (Tidal, Riverine, and Terrene)

Water	Tree Canopy over Turf Grass
Impervious Roads	Forest
Impervious Structures	Tree Canopy, Other
Impervious, Other	Natural Succession
Tree Canopy over Impervious	Cropland
Turf Grass	Pasture/Hay
Pervious Developed, Other	Wetlands, Riverine Non-forested



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Local catchment



Upstream Watershed



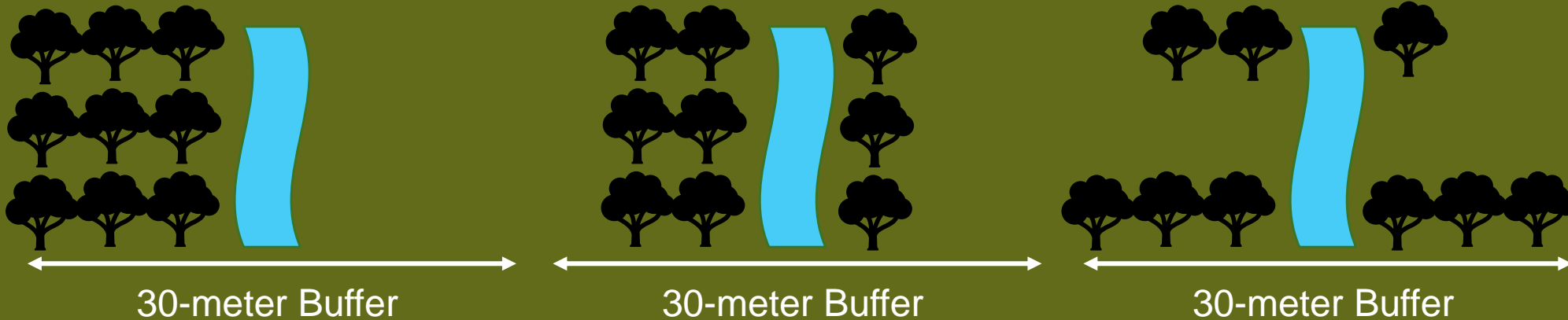
Land Use Methods and Metrics Outcome

- Riparian Natural Lands 2017/18 and Riparian Natural Lands Change 2013/14-2017/18 are planned for FY' 2024
- Natural Lands = Tree Cover and Wetlands, excluding TC over Impervious
- Scale: 1:100k National Hydrography Dataset (NHD) V2.1 Catchments
 - Local catchment and upstream watershed

Future Plans and Next Steps

- Publish the riparian data on Science Base (FY' 23)
- Inform other outcomes including Stream Health, Healthy Watersheds, and Brook Trout.
- Assess configuration and pattern of riparian buffers

50% Tree Cover in Riparian Configurations



Contact

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Chesapeake Bay Program

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