



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION



Bureau of Clean Water

Total Maximum Daily Load and Advanced Restoration Plan Update

WRAC Meeting

November 16, 2023

Josh Shapiro, Governor

Jessica Shirley, Interim Acting Secretary

Questions

- TMDLs vs ARPs?
- What have we been working on recently?
- What are we proposing for the future?

What are TMDLs?

- TMDL = Total Maximum Daily Load
 - Section 303(d) of the CWA
 - $TMDL = MOS + WLA + LA$

Margin of Safety
for uncertainty

Wasteload Allocation
for point sources

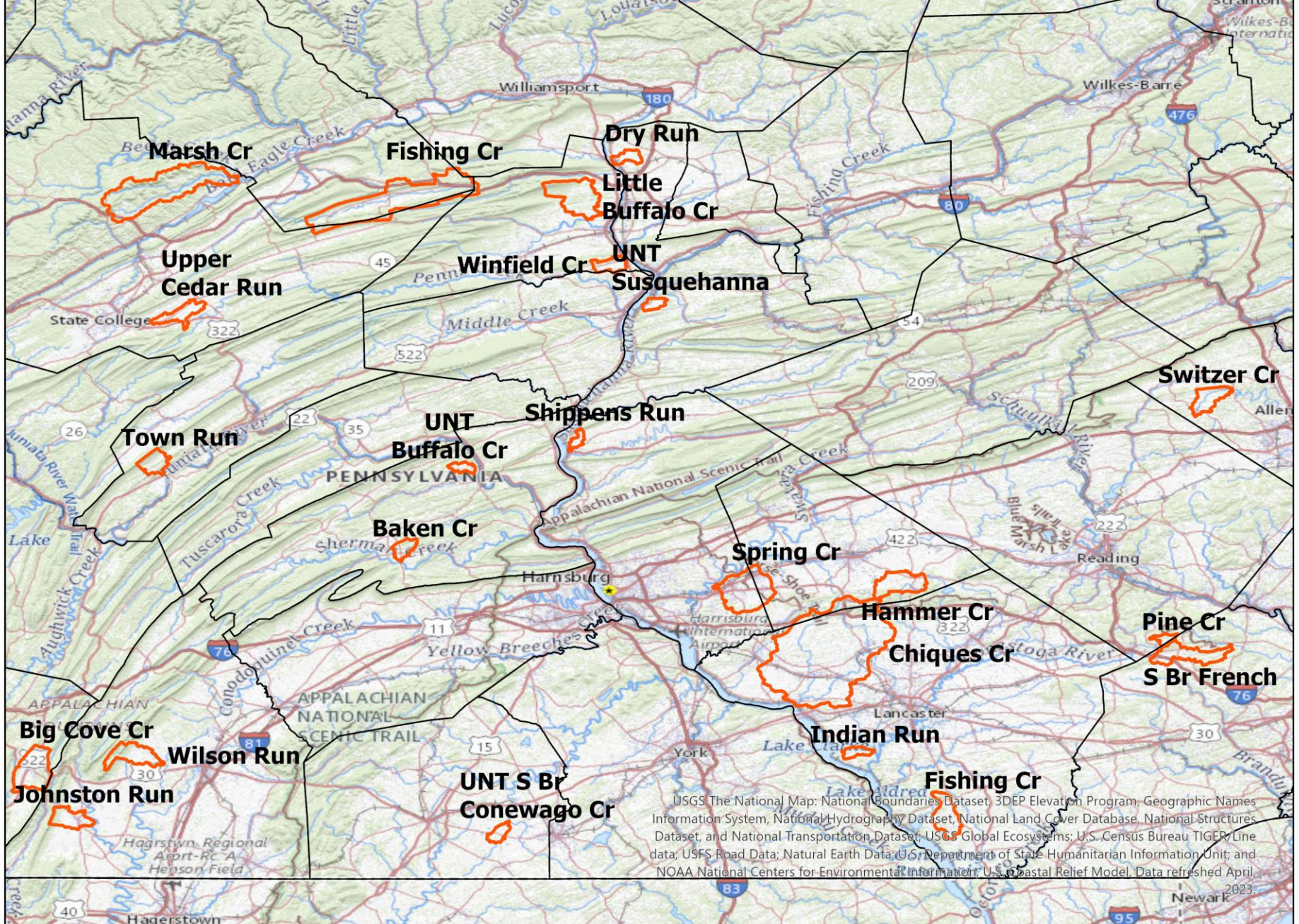
Load Allocation
for nonpoint
sources

What are ARPs?

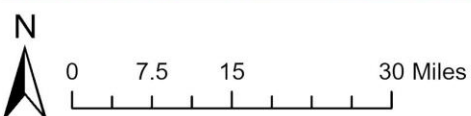
- ARP = Advance Restoration Plan
 - Like a TMDL + a Watershed Implementation Plan
 - Generates funding for voluntary BMP implementation
 - Effective for nonpoint sources

Recent Work

- 2023-2024 goals
- Siltation from Agriculture

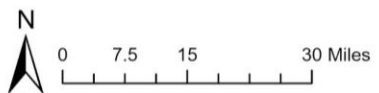


USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information; U.S. Coastal Relief Model. Data refreshed April, 2023.





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County Boundary
 Watershed

2023-2024 Progress

TMDLs

EPA-Approved

- Shippens Run, Dauphin Co
- Indian Run, Lancaster Co
- Johnston Run, Franklin Co
- UNT Buffalo Cr, Perry Co
- UNT S. Br. Conewago Cr., Adams Co
- Upper Cedar Run, Centre Co
- Dry Run, Northumberland Co
- Little Buffalo Cr, Union Co
- Winfield Creek, Union Co
- UNT Susquehanna Cr. Northumberland Co

In Progress

- Alder Run, Erie Co

To Drop

- Pine Creek, Berks Co – Drop

ARPs

EPA-Accepted

- Hammer Cr, Lebanon Co
- Baken Cr, Perry Co
- Trout Run, Erie Co

Draft for stakeholders

- Fishing Cr, Lancaster Co
- Town Run, Mifflin Co
- Wilson Run, Franklin Co
- Switzer Cr, Lehigh Co
- Chiques Cr, Lancaster Co

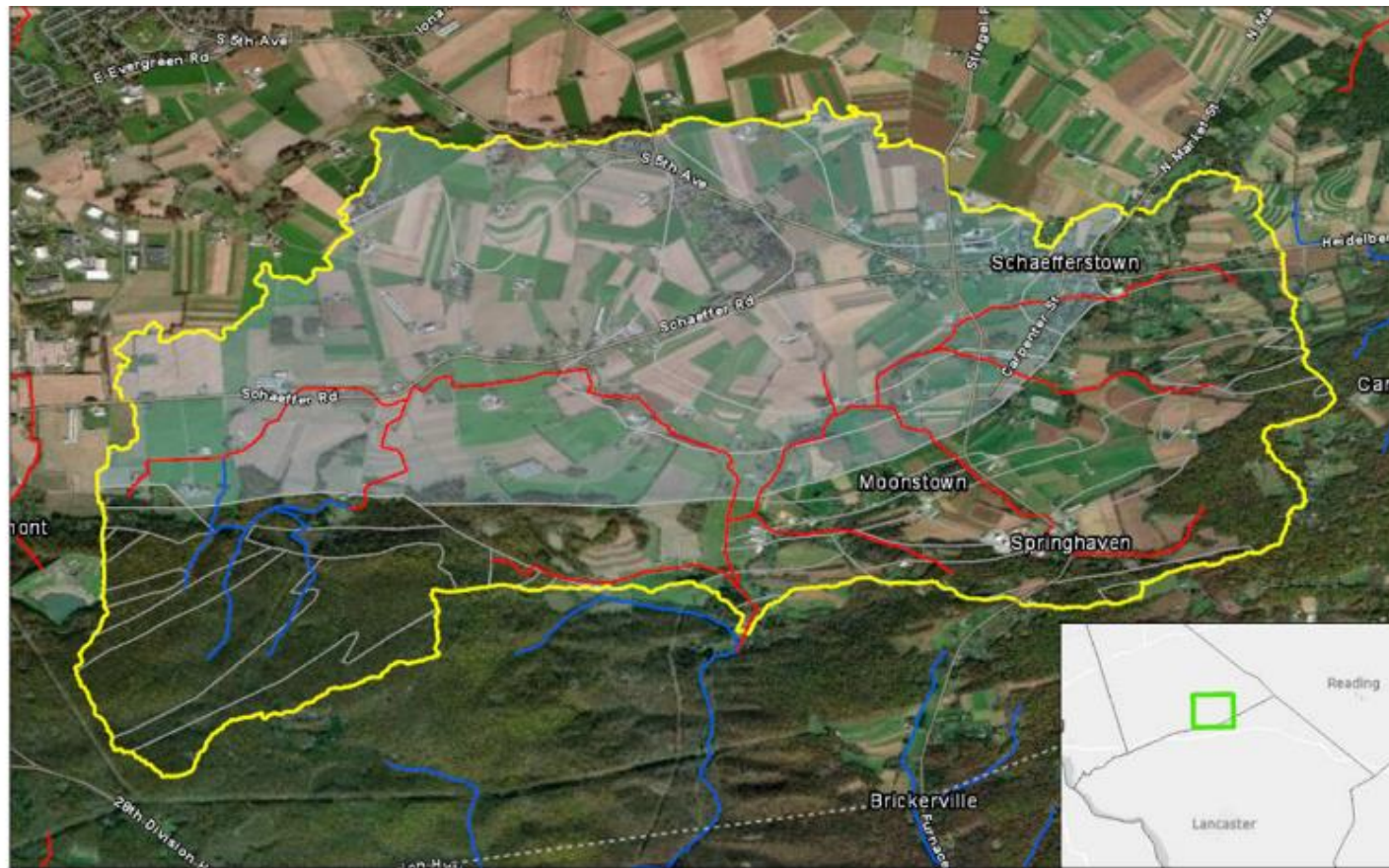
Draft of pollution reduction goals

- Spring Cr, Dauphin Co
- Big Cove Cr, Fulton Co
- Marsh Cr, Centre Co

First Draft not completed

- Laurel Hill Cr, Somerset Co
- South Br French Cr, Chester Co
- Fishing Cr, Clinton Co

ARP Example – Hammer Creek



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Hammer Creek: Headwaters Subwatershed
- Stream Segment Non-Attaining for Aquatic Life
- Stream Segment Attaining for Aquatic Life
- Bedrock: Unit Boundaries in Subwatershed
- Limestone or Dolomite in Subwatershed

Geology information were derived from the pagpoly GIS layer provided by Pennsylvania Bureau of Topographic and Geological Survey, Dept. of Conservation and Natural Resources. Watershed delineated in part using TauDEM tools in ArcGISPro.





Future Plans

- Priority ranking for 2022-2032
 - Must:
 - include cause of impairment
 - take into account pollution severity
 - take into account uses to be made of waterbodies
 - Used to select priority waterbodies every two years

Future Plans

- Aquatic Life Use impairments due to **Siltation**
- Recreational Use impairments due to **Pathogens**
- Aquatic Life Use impairments due to **Nutrients**
- Aquatic Life Use impairments due to **Metals**

Select Citations and Questions?

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Watershed areas delineated using: Stroud Water Research Center. Model My Watershed (MMW) [Software]. Available from <https://wikiwatershed.org/>. Technical documentation available at: <https://wikiwatershed.org/documentation/mmw-tech/>

TauDEM Version 5.3.7. (2016) by David Tarboton, Hydrology Research Group, Utah State University. Available at <https://hydrology.usu.edu/taudem/taudem5/downloads.html>

USGS StreamStats

QUESTIONS?

Mike Morris

michamorri@pa.gov