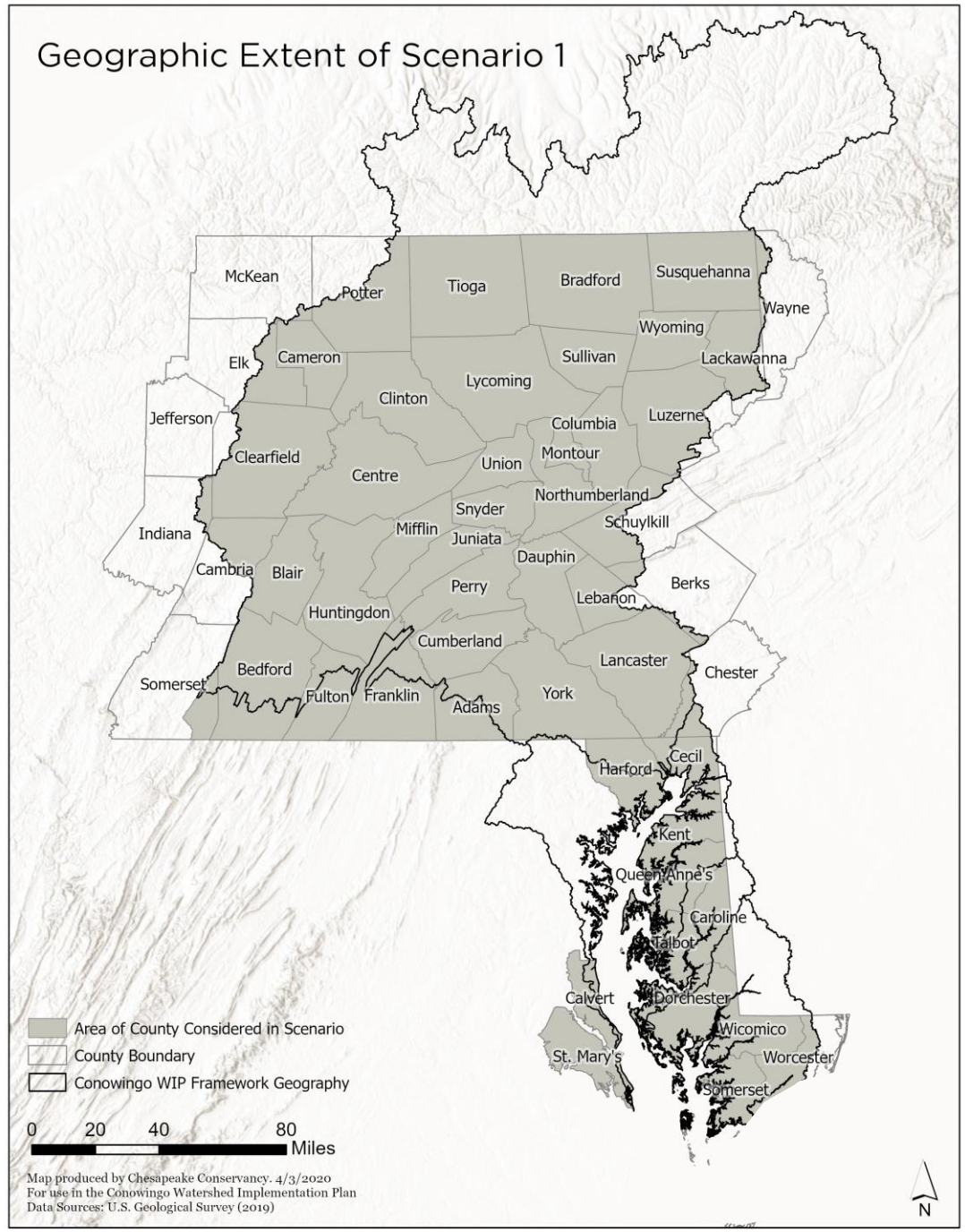
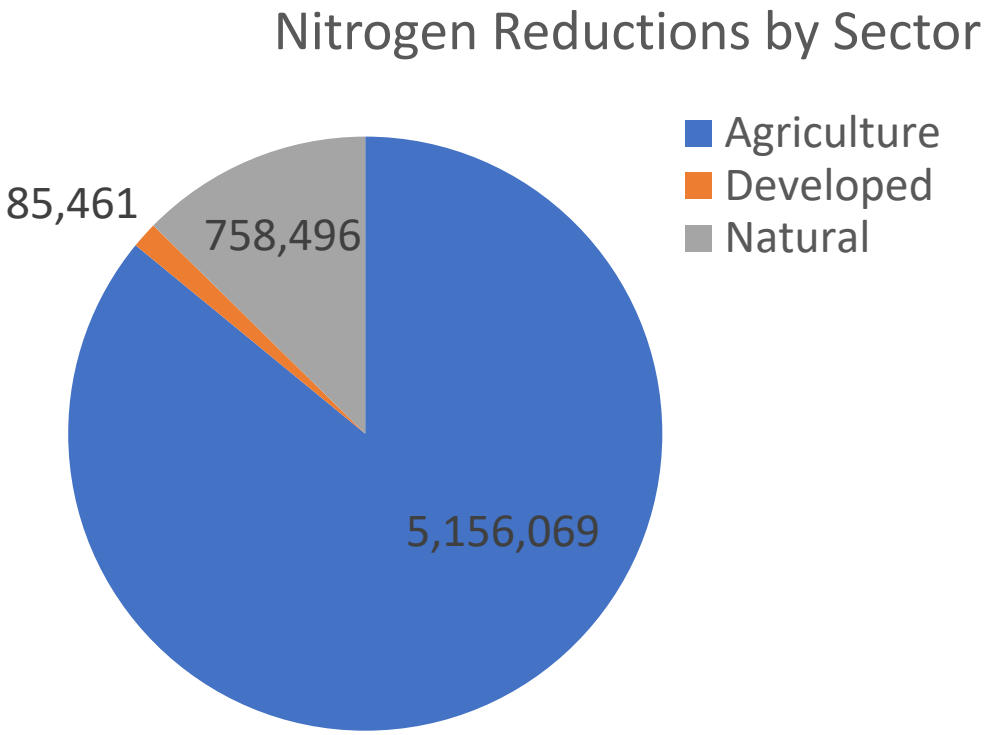
Activity 1 Team

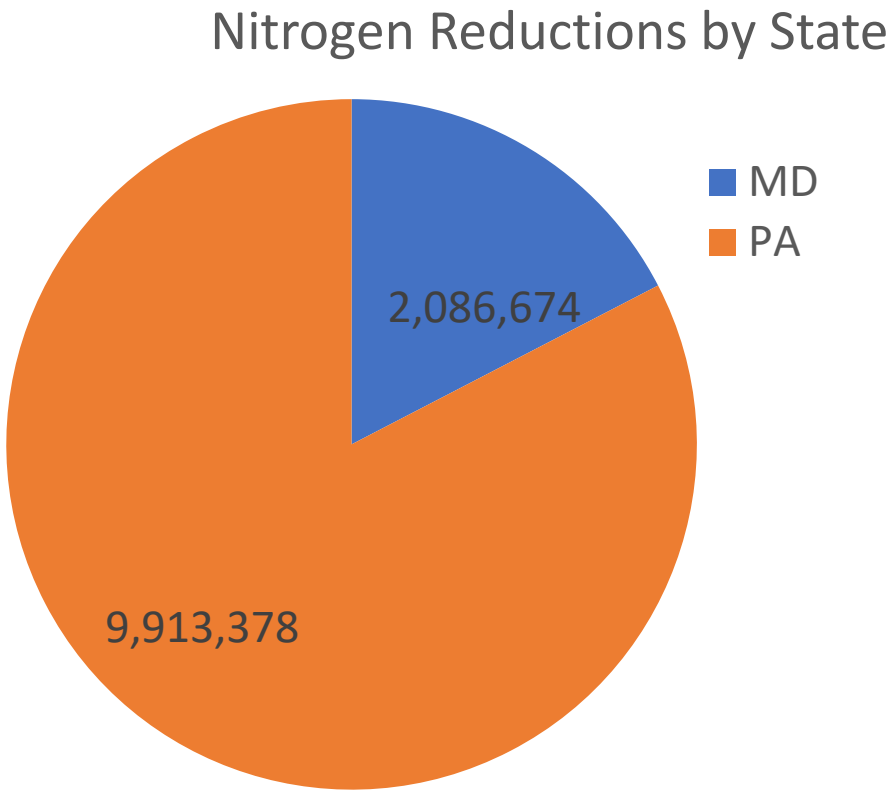
Scenario 1 - Constrained

Geographic Extent	PSC Framework shell based on P (limited to counties in the Susquehanna Watershed in MD and PA plus counties in other N-Effective land-river segments within the P- shell.
States Included	Maryland, Pennsylvania
Major Basins	Susquehanna, Potomac, Patuxent, Eastern Shore, Western Shore
Primary BMPs	Forest Buffers, Wetland Restoration, Stream Restoration, Living Shorelines, Bioswales
N Reduction	6,000,026
Total Annualized Cost	$367,838,818
Cost Per Pound	$61.31


Geographic Extent of Scenario 1
McKean
Potter
Tioga
Bradford
Susquehanna
Wayne
Wyoming
Elk
Cameron
Sullivan
Lackawanna
Lycoming
Clinton
Jefferson
Columbia
Luzerne
Clearfield
Union
Montour
Centre
Northumberland
Snyder
Schuylkill
Indiana
Mifflin
Juniata
Dauphin
Cambria
Blair
Perry
Berks
Lebanon
Huntingdon
Cumberland
Lancaster
Chester
Bedford
Somerset
Fulton
Franklin
Adams
York
Cecil
Harford
Kent
Queen Anne's
Caroline
Talbot
Calvert
Dorchester
Wicomico
St. Mary's
Worcester
Somerset
Area of County Considered in Scenario
County Boundary
Conowingo WIP Framework Geography
0
20
40
80
Miles
Map produced by Chesapeake Conservancy. 4/3/2020
For use in the Conowingo Watershed Implementation Plan
Data Sources: U.S. Geological Survey (2019)
N

Scenario 1: N Reductions by Sector and State



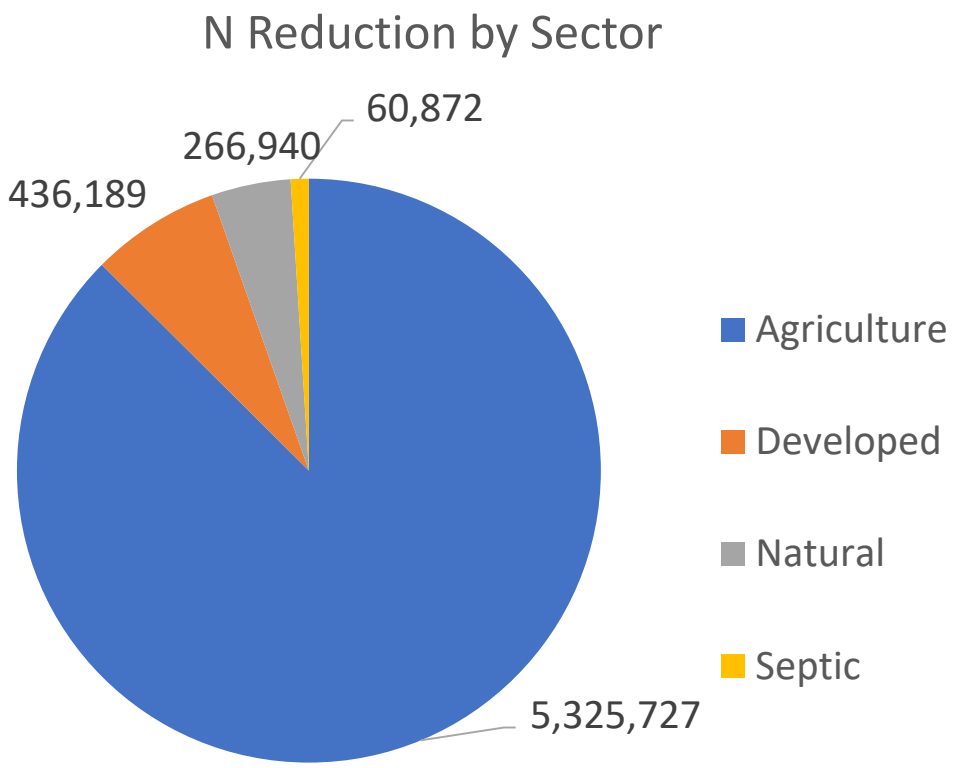


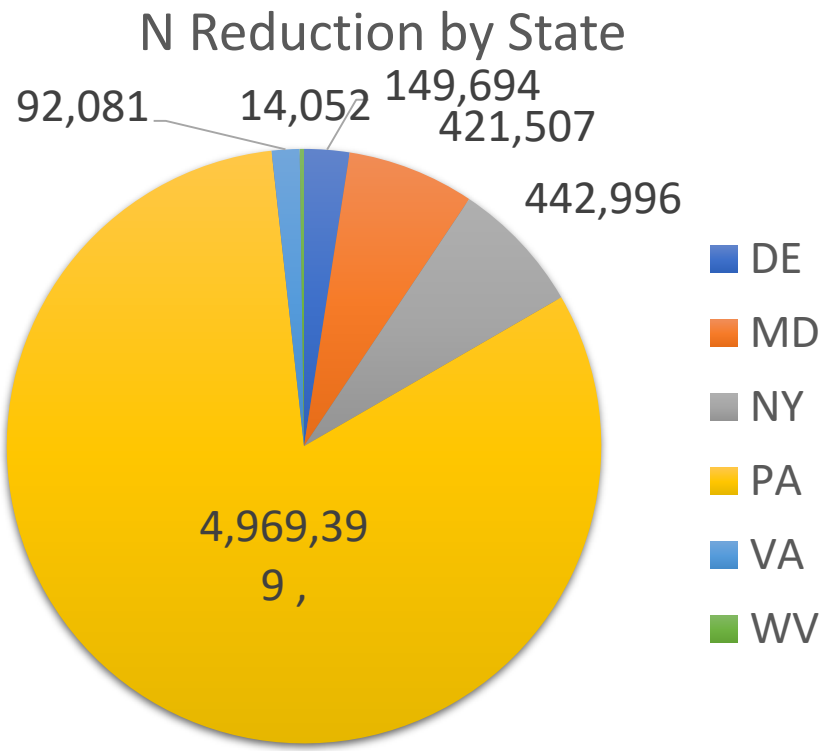
Scenario 2 – WIP Implementation Enhancement

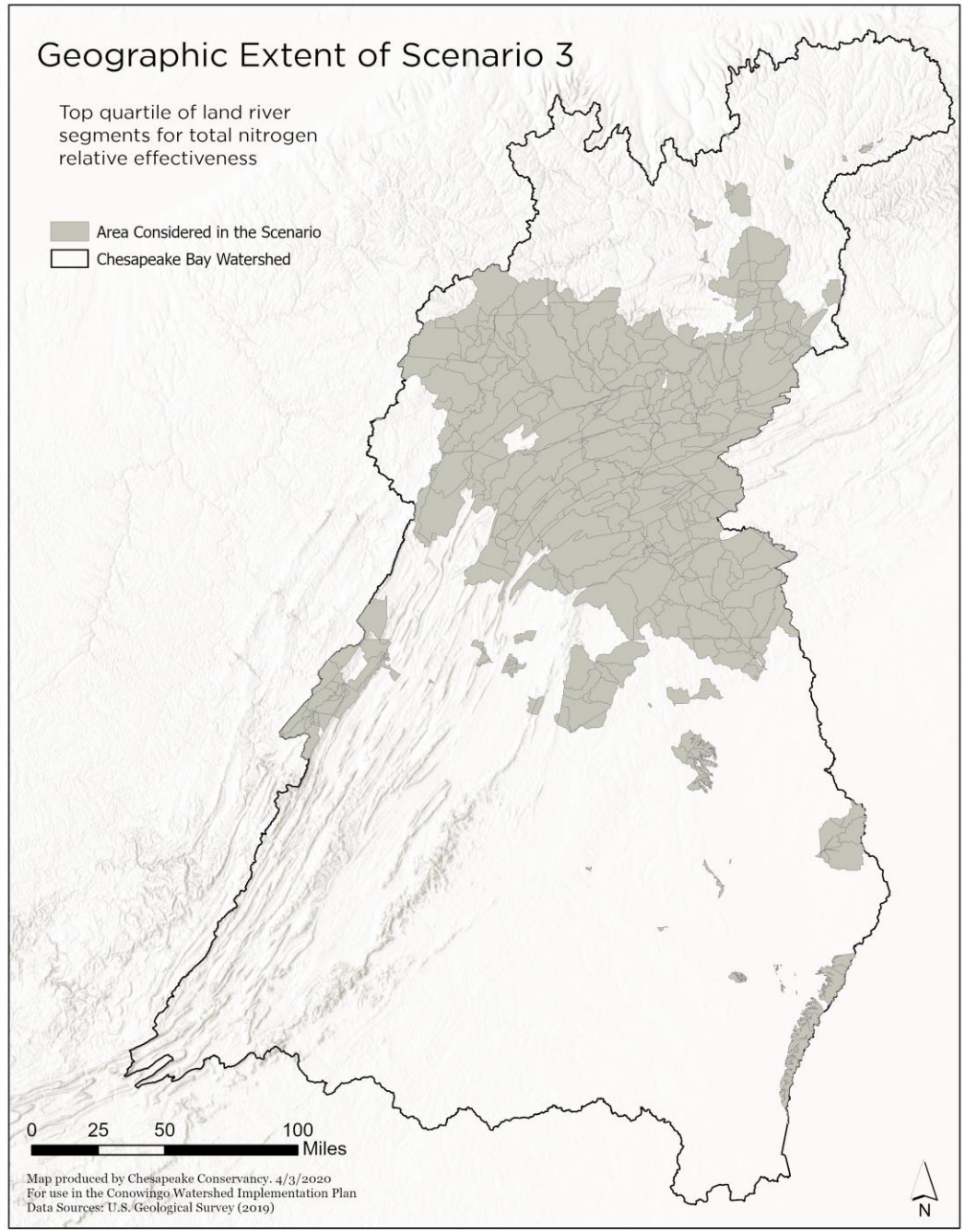
Geographic Extent	Susquehanna Basin Plus N-Effective LRSs outside the Susquehanna.
States	Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia
Major Basins	Susquehanna, Potomac, Eastern Shore, Western Shore
Primary BMPs	All BMPs at the WIP3 Implementation Level
N Reduction	6,098,728 lbs.
Total Annualized Cost	235,908,443
Cost Per Pound	$38.68


Geographic Extent of Scenario 2
Susquehanna + top quartile of land river segments for total nitrogen relative effectiveness
Area Considered in the Scenario
Chesapeake Bay Watershed
0
25
50
100
Miles
Map produced by Chesapeake Conservancy. 4/3/2020
For use in the Conowingo Watershed Implementation Plan
Data Sources: U.S. Geological Survey (2019)
N

Scenario 2 Reductions by Sector and State



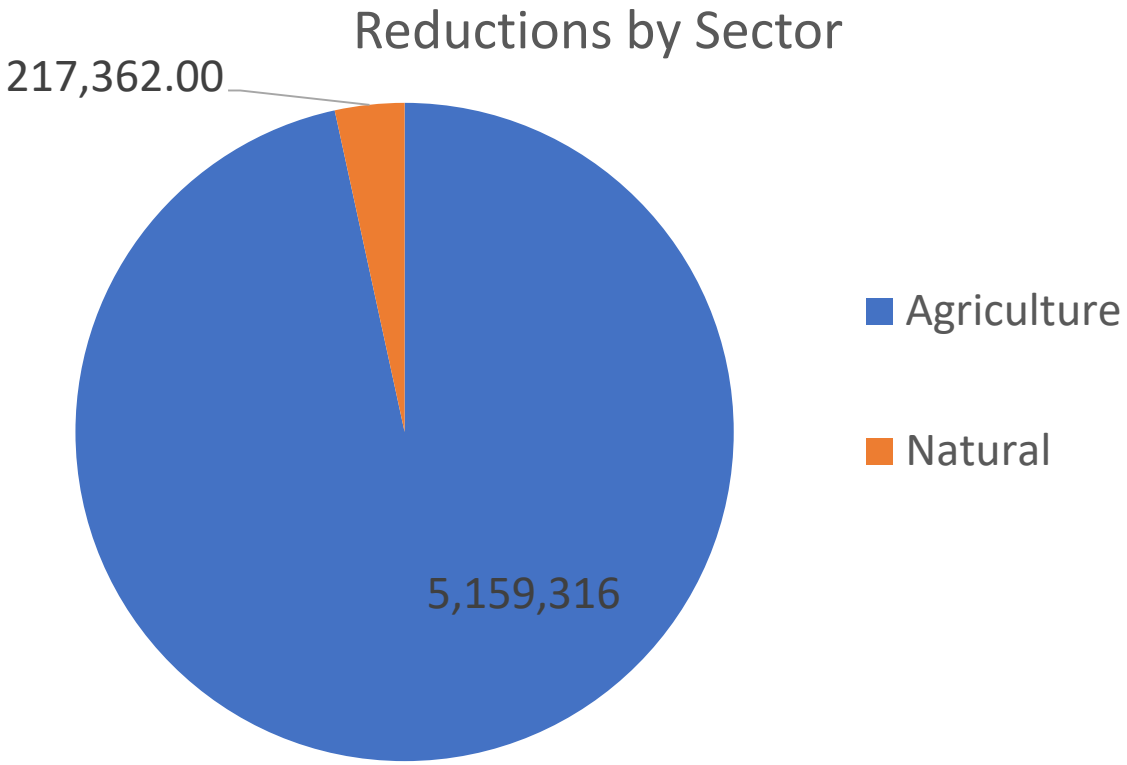


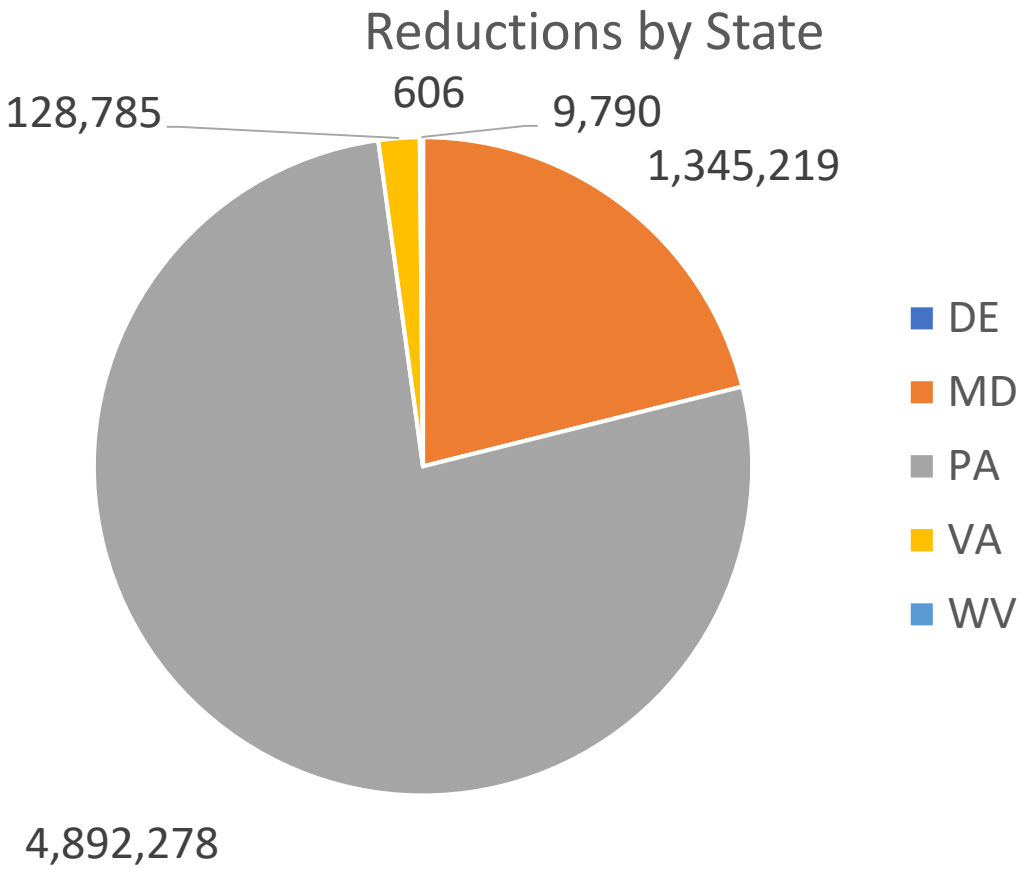

Geographic Extent of Scenario 3
Top quartile of land river segments for total nitrogen relative effectiveness
Area Considered in the Scenario
Chesapeake Bay Watershed
0 25 50 100
Miles
Map produced by Chesapeake Conservancy. 4/3/2020
For use in the Conowingo Watershed Implementation Plan
Data Sources: U.S. Geological Survey (2019)
N

Scenario 3 – Bay-Wide Cost-Effective Agriculture

Geographic Extent	N-Effective Segments Throughout the Bay Watershed
States	Delaware, Maryland, New York*, Pennsylvania, Virginia, West Virginia
Major Basins	Susquehanna, Potomac, Eastern Shore, Western Shore
Primary BMPs	Nutrient Management, Conservation Tillage, Prescribed Grazing , Grass and Forest Buffers, Wetland Restoration , Soil and Water Conservation Plan, Manure Incorporation, Barnyard Runoff Controls
N Reduction	6,376,678 lbs/yr
Total Annualized Cost	$50,987,795/yr
Cost Per Pound	$7.99
* Scenario needs to be slightly revised to include the New York portion of the area.	

Scenario 3 Reductions by Sector and State



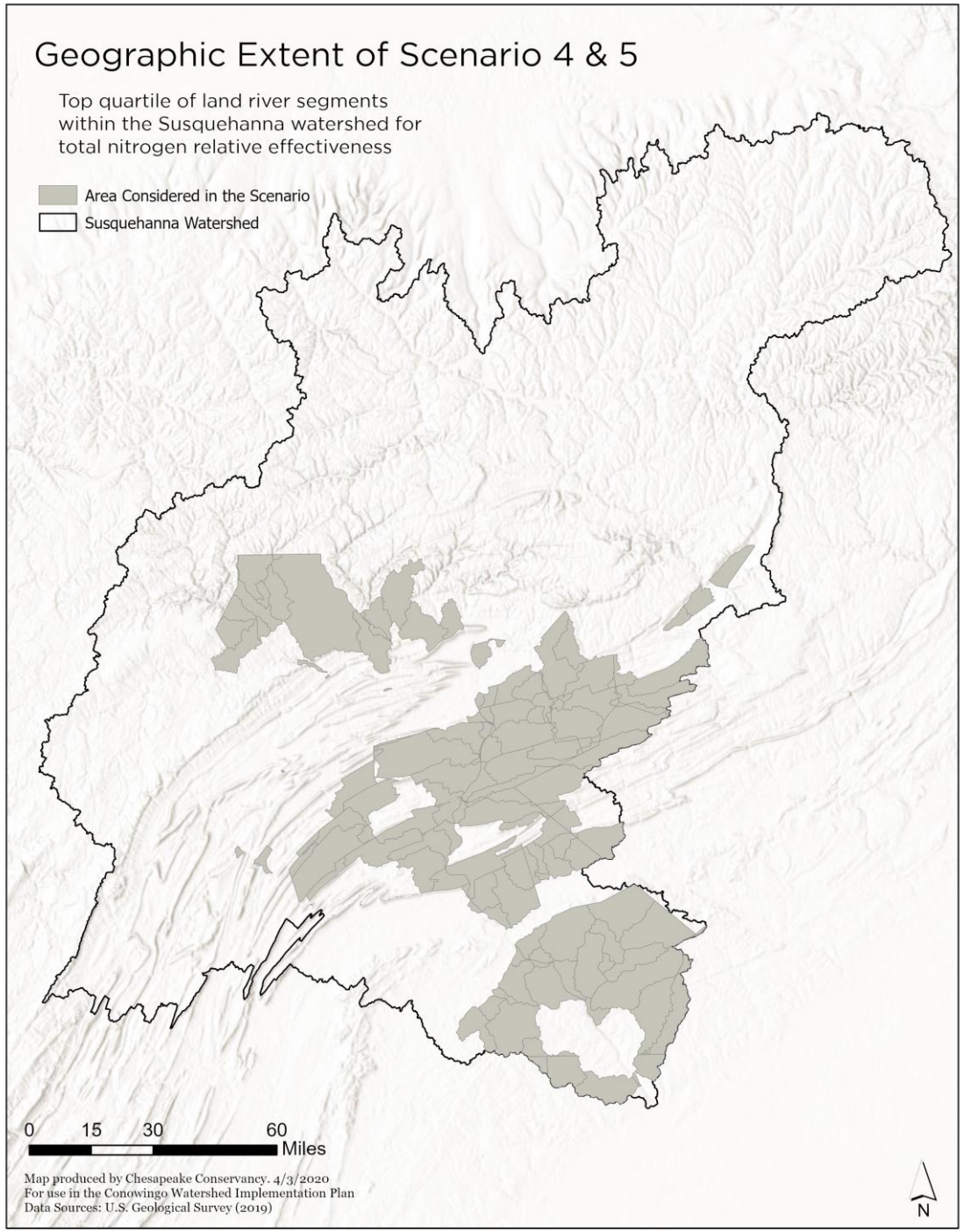


Scenario 4 – Susquehanna Cost-Effective Agriculture

Geographic Extent	N-Effective Segments Within the Susquehanna
States	(New York)*, Pennsylvania
Major Basins	Susquehanna
Primary BMPs	Nutrient Management, Conservation Tillage, Prescribed Grazing , Grass and Forest Buffers, Wetland Restoration , Soil and Water Conservation Plan, Manure Incorporation, Barnyard Runoff Controls
N Reduction	6,615,658 lbs/yr
Total Annualized Cost	$51,032,822/yr
Cost Per Pound	$7.71
* Scenario needs to be slightly revised to exclude the New York portion of the area.	

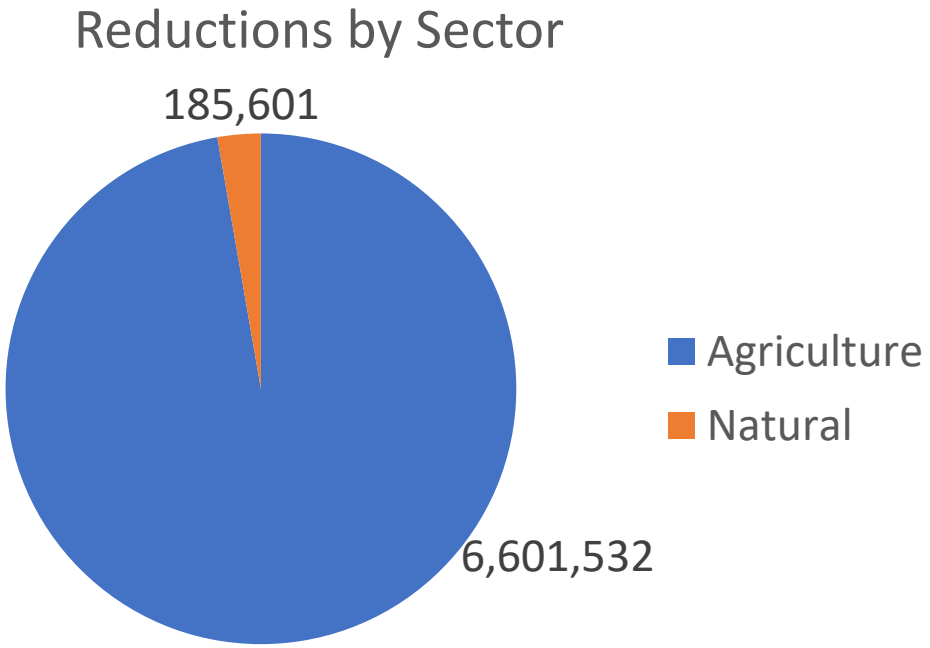
Geographic Extent of Scenario 4 & 5

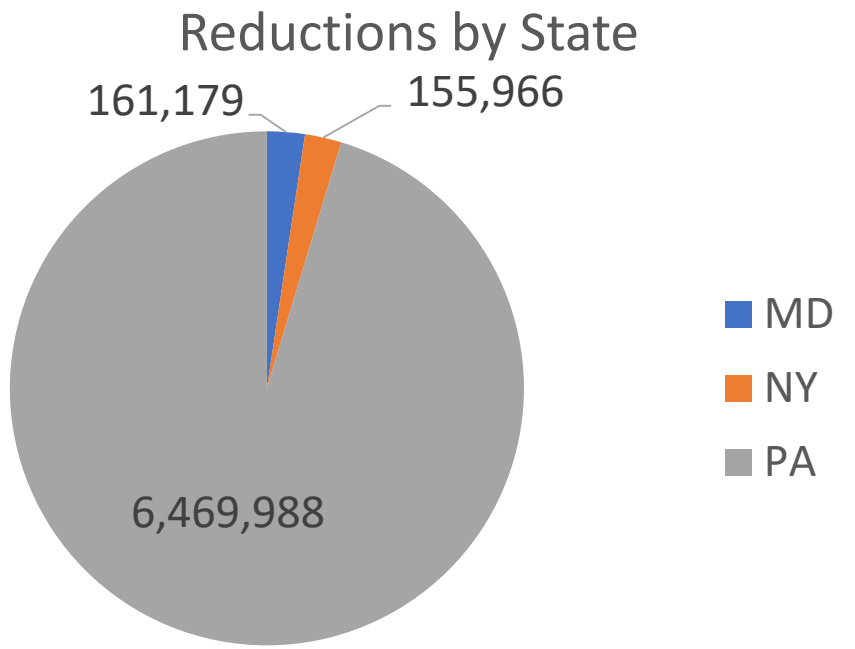
Top quartile of land river segments within the Susquehanna watershed for total nitrogen relative effectiveness



Map produced by Chesapeake Conservancy. 4/3/2020
For use in the Conowingo Watershed Implementation Plan
Data Sources: U.S. Geological Survey (2019)

Scenario 4 Reductions by Sector and State

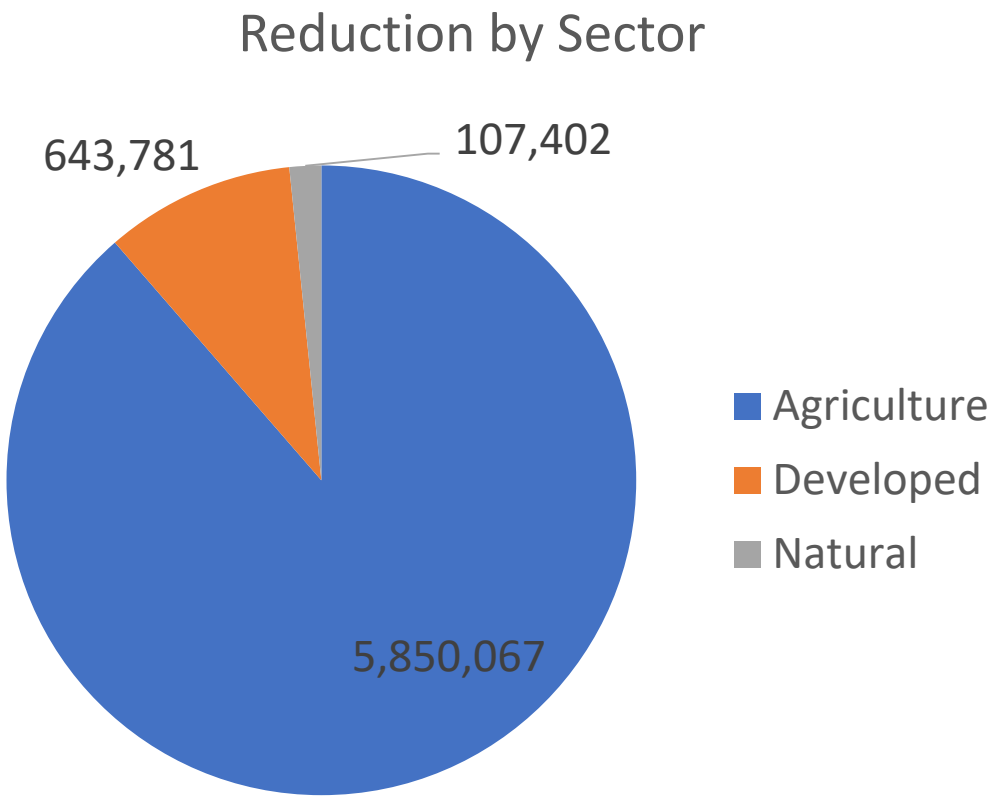


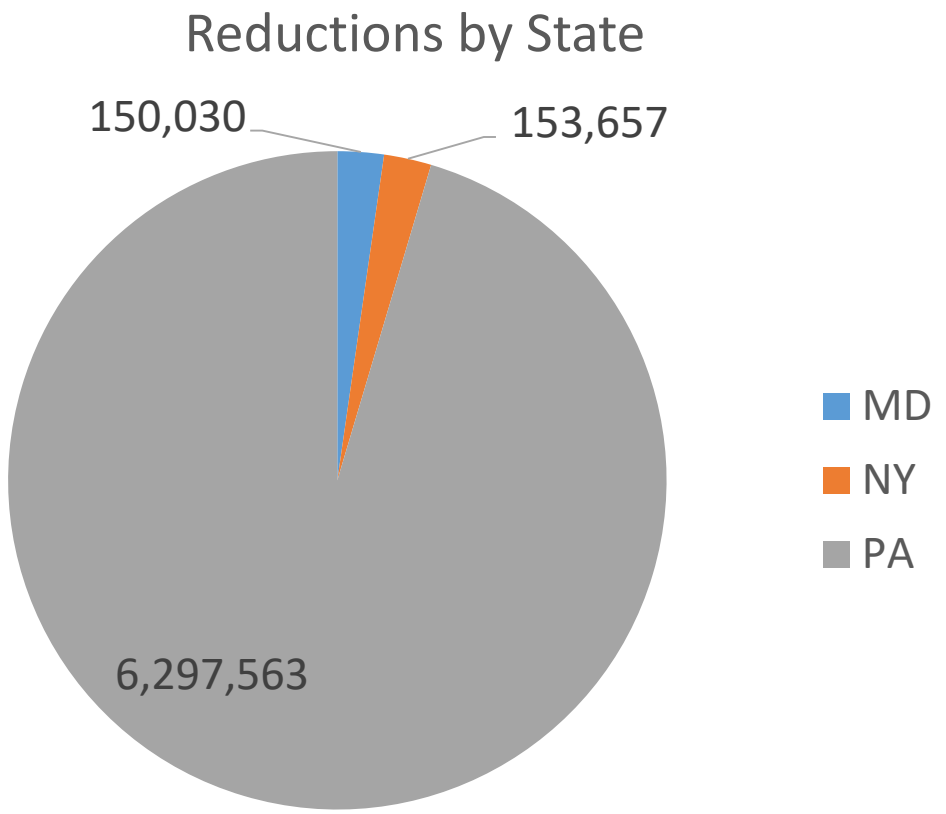


Scenario 5 – Susquehanna Cost-Effective Agriculture and Urban

Geographic Extent	N-Effective Segments Within the Susquehanna
States	(New York)*, Pennsylvania
Major Basins	Susquehanna
Primary BMPs	Nutrient Management, Conservation Tillage, Prescribed Grazing , Grass and Forest Buffers, Wetland Restoration , Soil and Water Conservation Plan, Manure Incorporation, Barnyard Runoff Controls , Urban Forest Planting, Urban Buffers
N Reduction	6,601,250 lbs/yr
Total Annualized Cost	$51,289,783/yr
Cost Per Pound	$7.77
* Scenario needs to be slightly revised to exclude the New York portion of the area.	

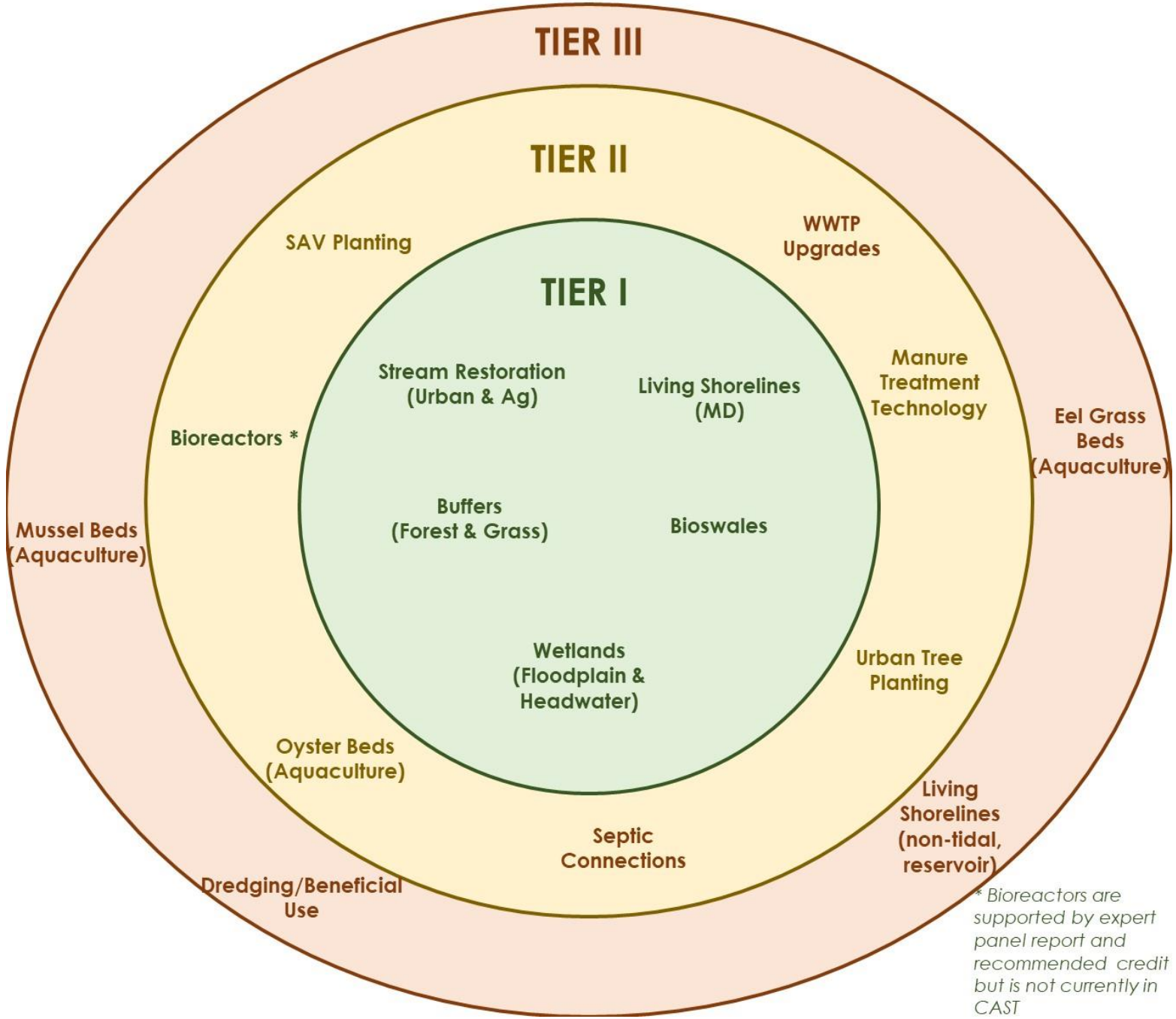
Scenario 5 Reduction by Sector and State





Programmatic Approach

- **State Program Investments**
  - Existing successful state level programs for implementing core agriculture BMPs
  - Need to account for additional administrative/technical support costs
    - 8-15% of cost of BMP
- **Pay for Performance Contracting**
  - Flexibility enables innovation and scalability
    - Focus on end goals in target watersheds rather than specific projects and project designs



** Bioreactors are supported by expert panel report and recommended credit but is not currently in CAST*

Outreach Challenges Due to COVID-19

- Near term shift to web-based/remote formats
  - CWIP Draft Informational Webcasts
    - Estimated at 3- Depends on selected geography
      - Pennsylvania specific
      - Maryland specific
      - Other states with relatively small target areas (i.e. WV, NY, DE, VA)
  - PA CAP meetings via conference calls web-based meetings
    - Continued coordination with PA DEP on participation and remote “venue”.