

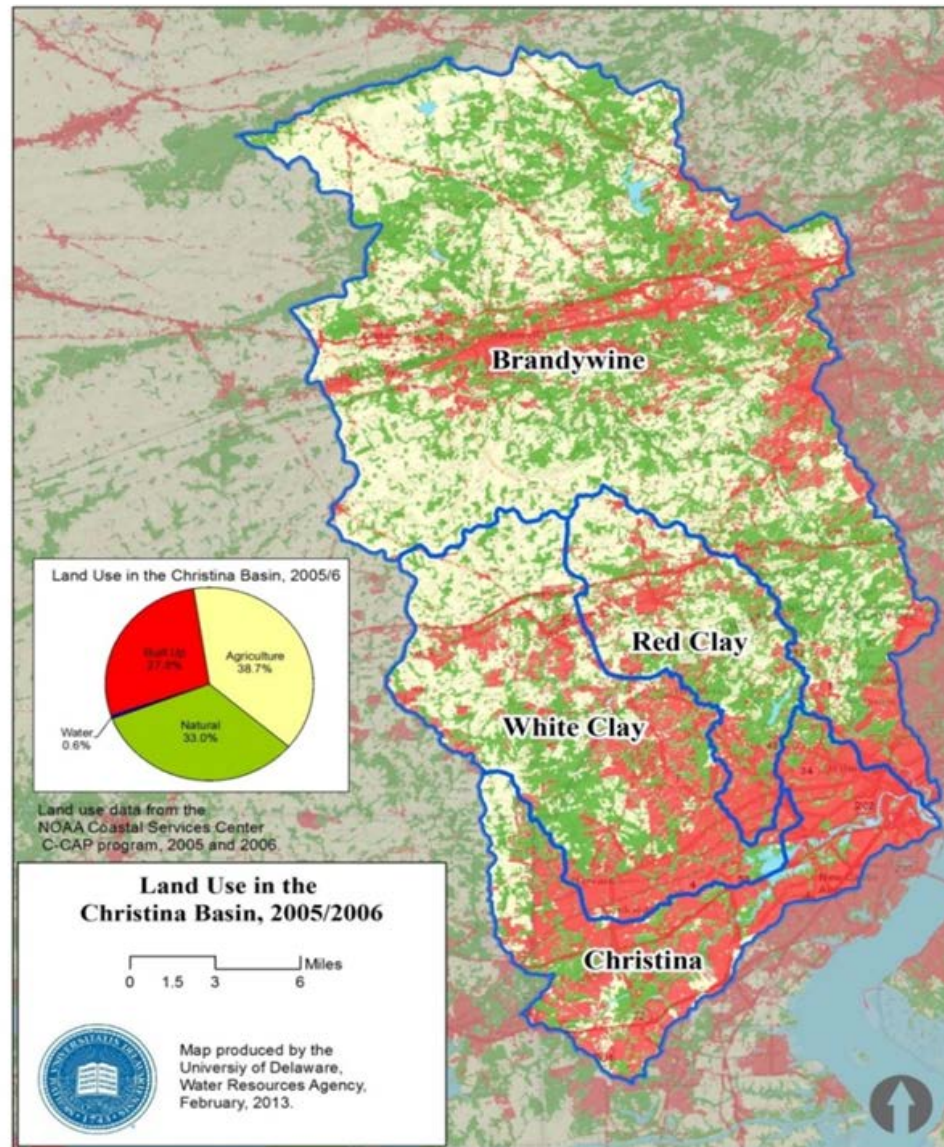
Brandywine Christina Healthy Water Fund

Draft Business Plan
Presented to
Stakeholders
May 4, 2017

AGENDA

Brandywine-Christina Healthy Water Fund
Mount Cuba Center | 3120 Barley Mill Road | Hockessin, Delaware
May 4, 2017 | 10:00 AM to 1:00 PM

- | | |
|---------------|--|
| 10:00 - 10:15 | Welcome and Introductions (Jerry Kauffman, University of Delaware) |
| 10:15 - 10:25 | Brandywine-Christina Healthy Water Fund: Update and Overview
(Richie Jones, The Nature Conservancy, Delaware) |
| 10:25 - 11:15 | Business Plan (Jenny Egan, The Nature Conservancy, Delaware) |
| 11:15 - 12:15 | Discussion and Wrap Up (Jenny Egan, The Nature Conservancy, Delaware) |
| 12:15 | Luncheon |

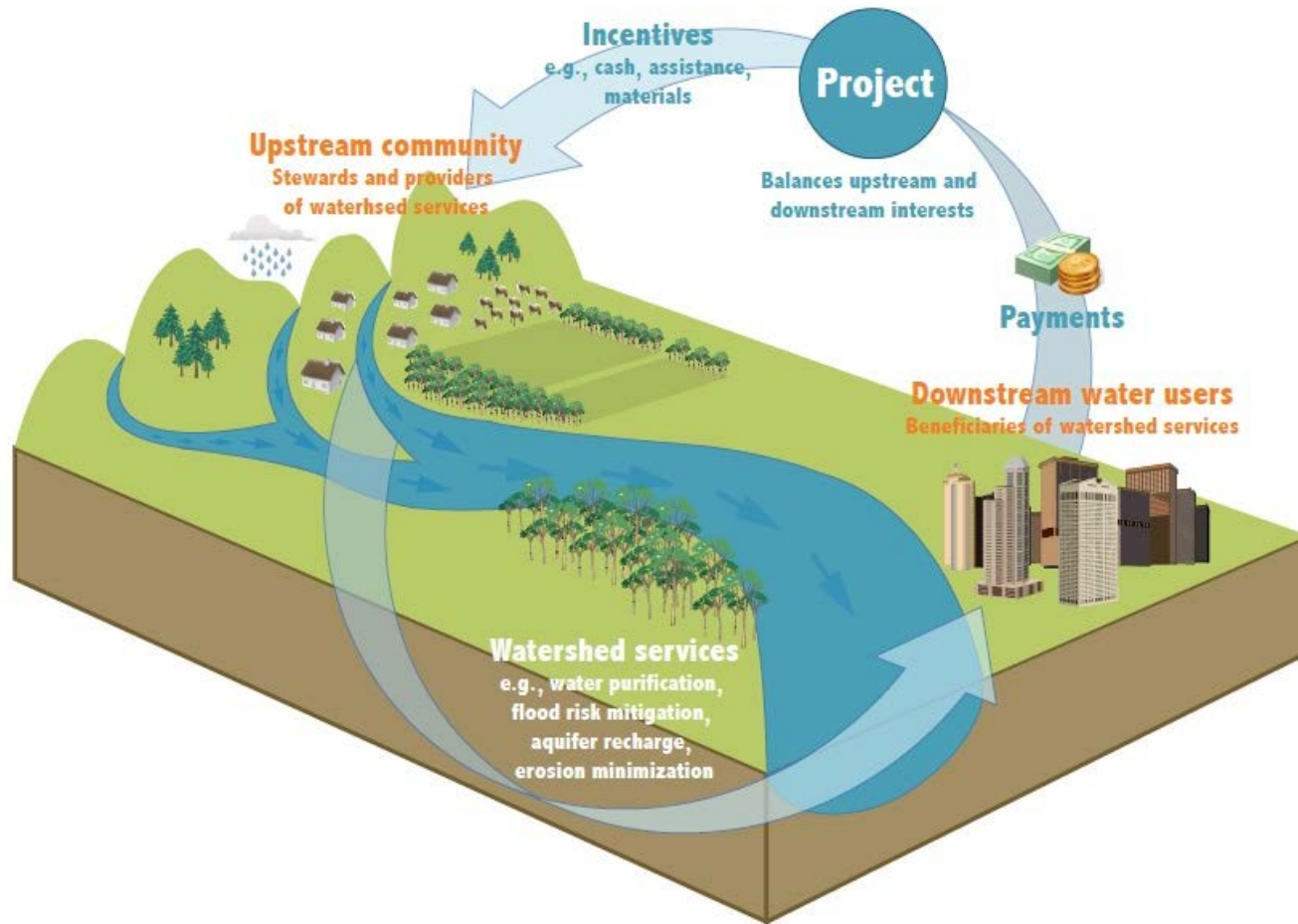




Goal

To create self-sustaining conservation finance vehicle that will restore the Brandywine-Christina watershed to fishable, swimmable, potable status in an accelerated timeframe.

Water Fund Model



Basic business strategy





How will the Water Fund work?

- Provides a mechanism to value a pound of pollution reduction
- Demand – beneficiary need projections
- Supply - services and accounting

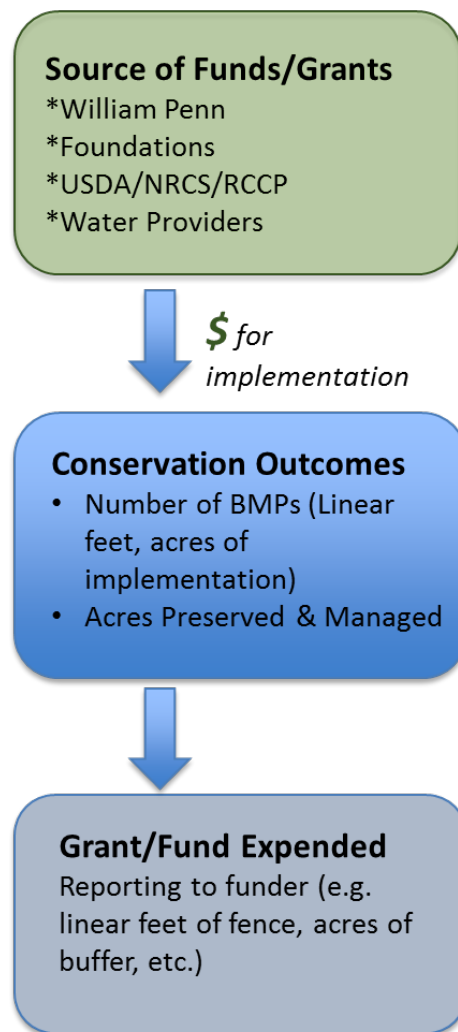
Brief overview of sections in plan:

- Proposed governance structure
- Financial projections

Current project path

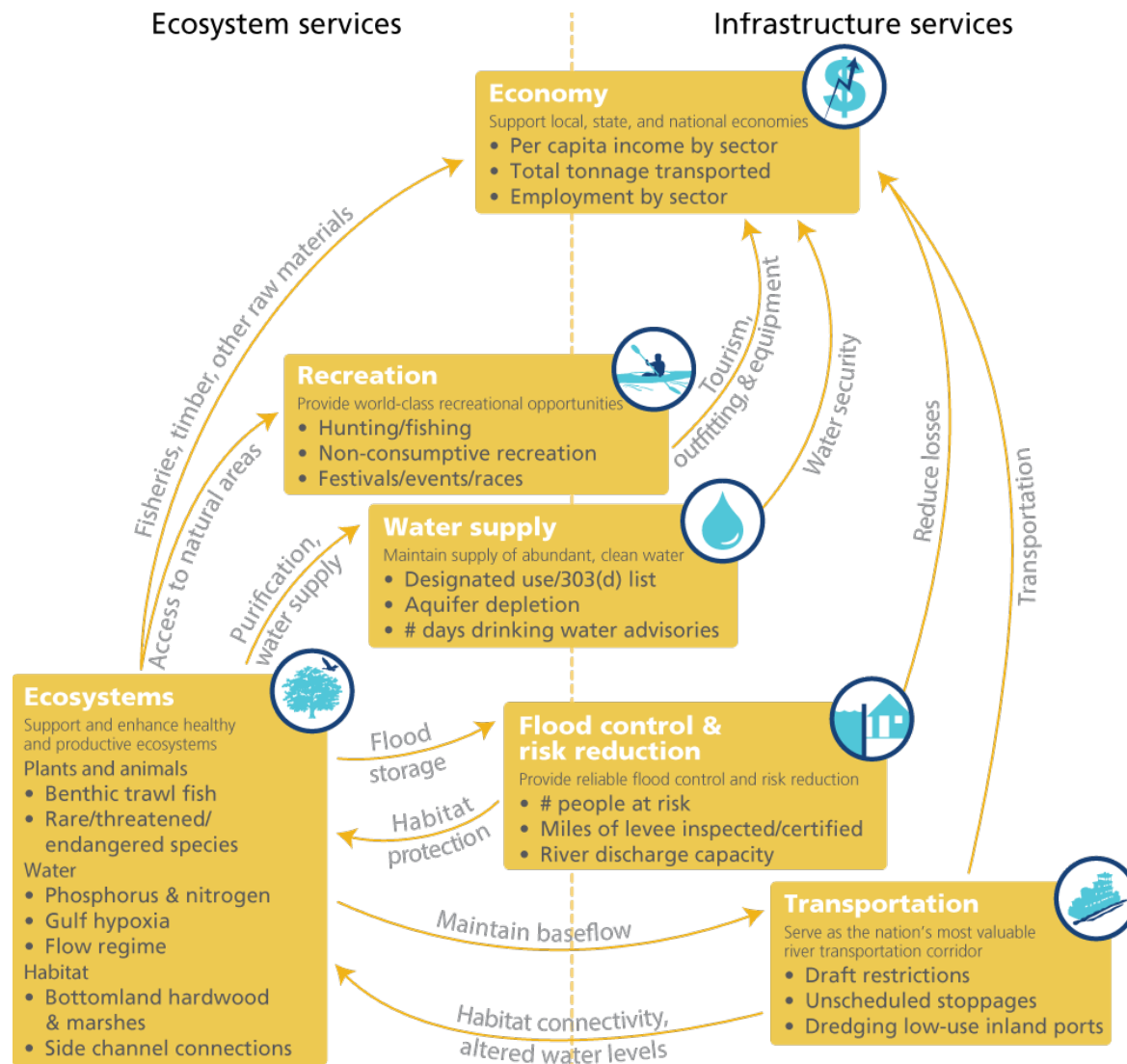
Importantly, the funds are expended and investment is not fully realized.

How do we **monetize** the conservation outcomes to generate more investment in restoration?





“As you go through life, take time to monetize the roses.”

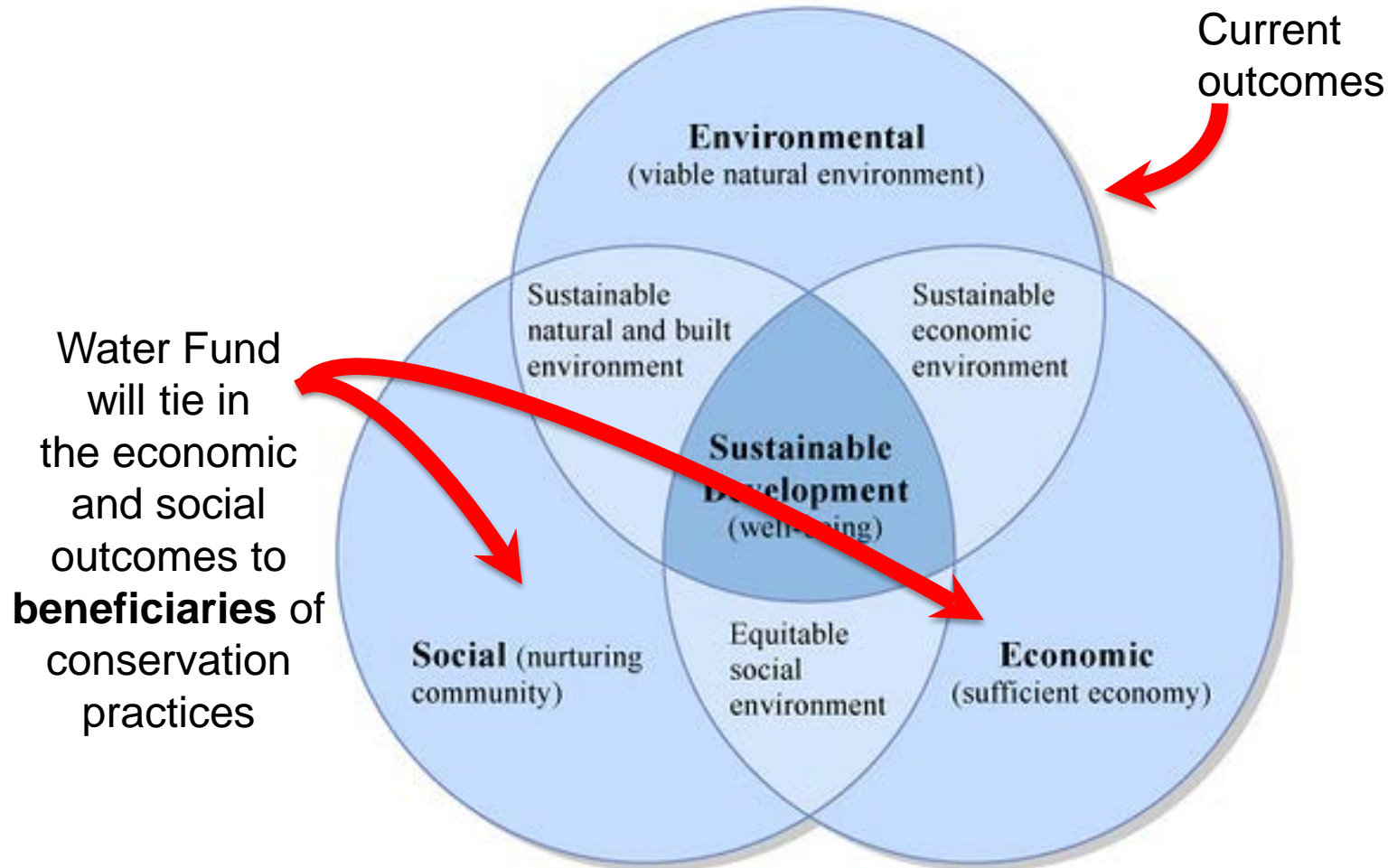


ian.umces.edu

A diagram displays several connections revealed at the Lower Mississippi River Basin workshops. These connections will be used to develop a basin-wide report card for the watershed.

Diagram courtesy of the Integration & Application Network, University of Maryland Center for Environmental Science.

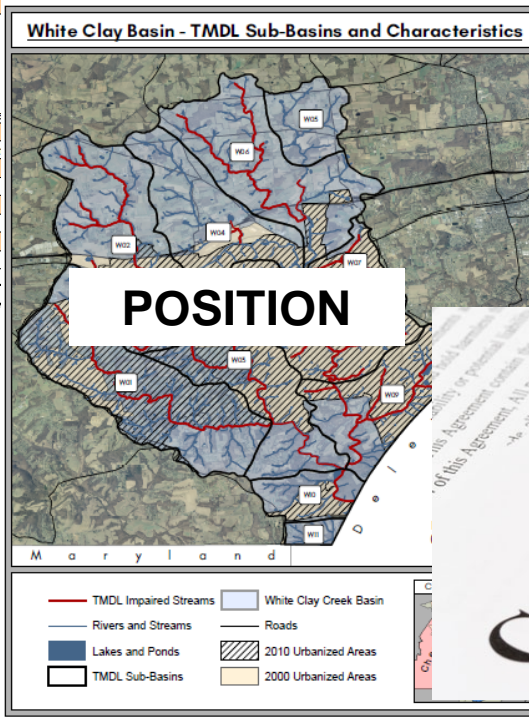
Sustainable systems



How will the Water Fund work?

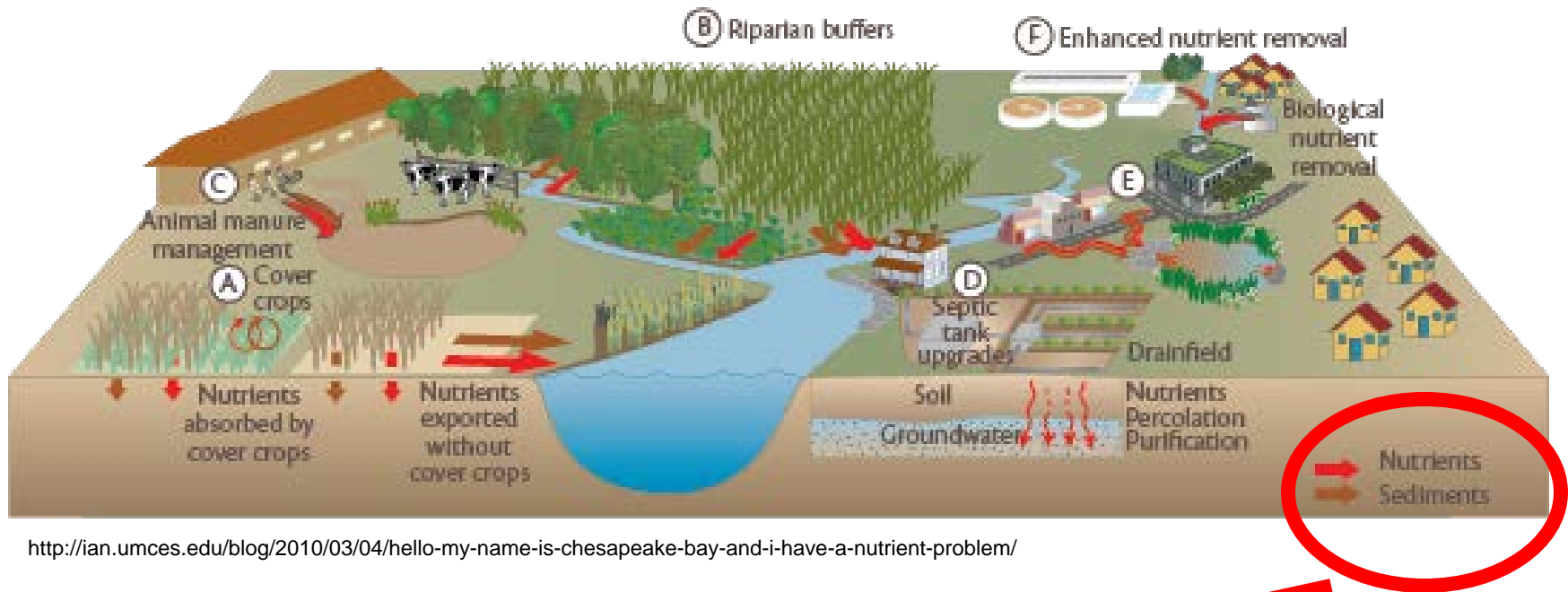
Code	Practice	Scenario	Units	Unit Cost	Total Cost
362	Diversion				\$1,885.50
362		Diversion, large, greater than 300 feet	LnFt	\$4.19	\$1,885.50
468	Lined Waterway or Outlet				
468		Rock Lined - 24"			
558	Roof Runoff St				
558					
561	Heavy Use Area				
561					
561		Reinforced Concrete with Curbs			
575	Trails and Walkways				
575		Walkway with Gravel and Geotex			
587	Structure for Water Control				
587		Grated Dropbox			
620	Underground Outlet				
620		15" to 18"			
634	Waste Transfer				
634		6 to 8 inch Pressure Pipe			
Totals					

POUNDS



PRICE

What is the value of a pound?



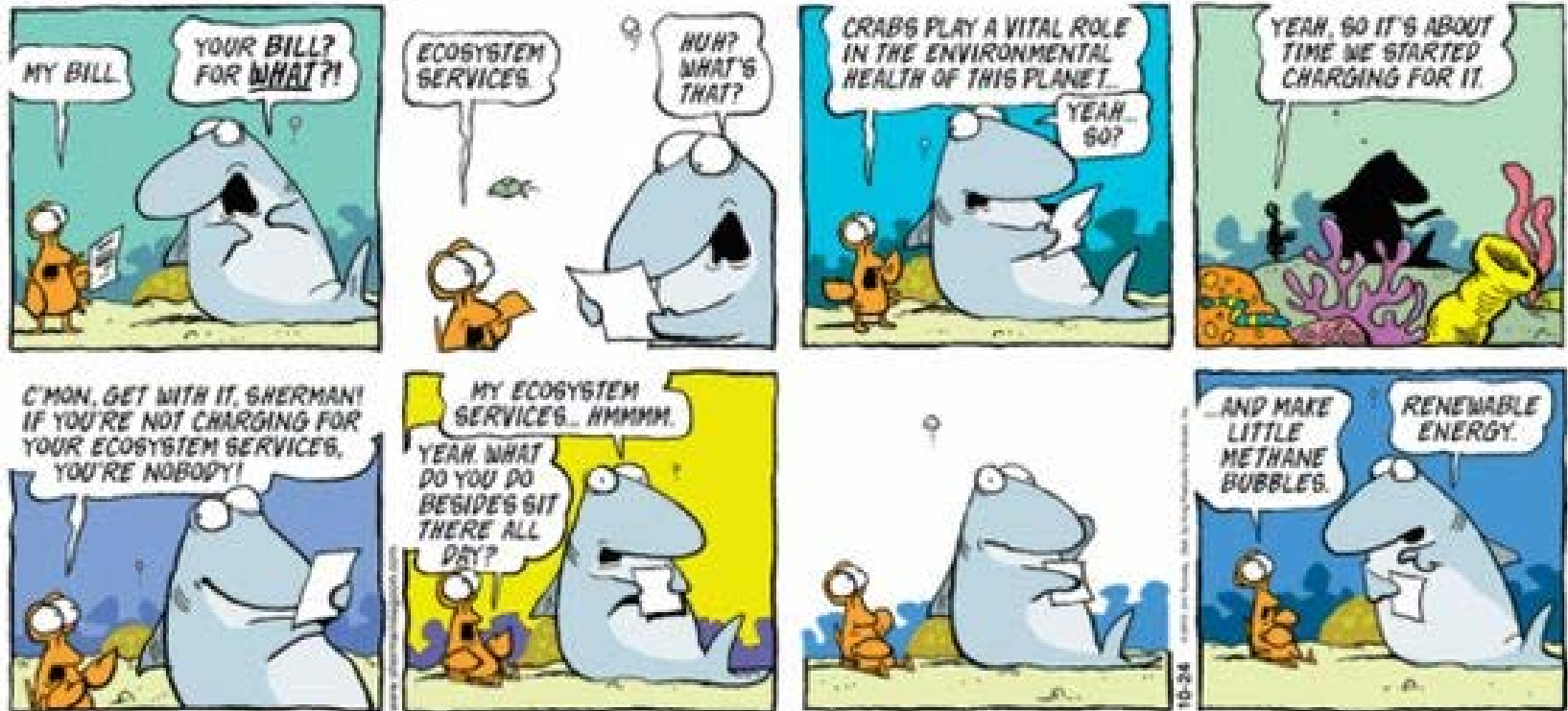
<http://ian.umces.edu/blog/2010/03/04/hello-my-name-is-chesapeake-bay-and-i-have-a-nutrient-problem/>

The **value** of a pound of sediment removal from the watershed can be determined through what **beneficiaries' needs** are for that pound of reduction and how much it **costs** to provide that reduction.

Value and services

SHERMAN'S LAGOON

BY JIM TOOMEY





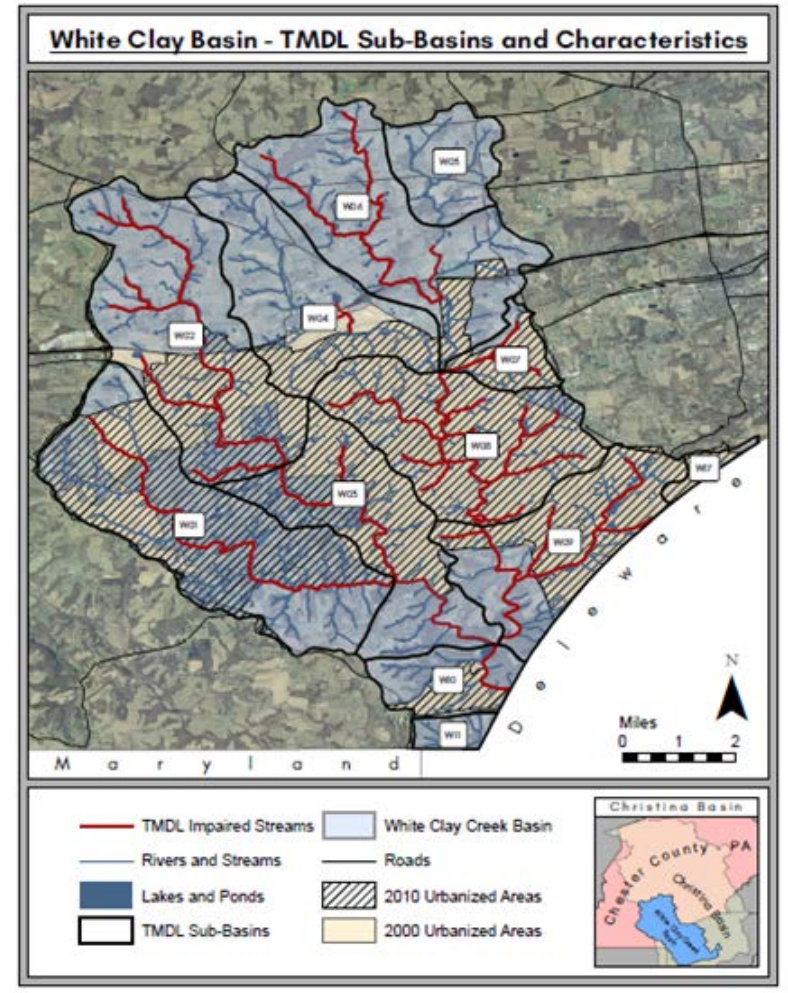
Needs of primary beneficiaries

- Beneficiaries: MS4s and Water providers
- Needs: **Sediment** and nutrient removal

Pollution removal prices based on potential demand and cost to provide services to these two beneficiaries.

Water Fund services - \$/lb

- 1) Demand estimation
- 2) Supply strategy: project coordination, accounting, and reporting
- 3) Reinvestment of funds



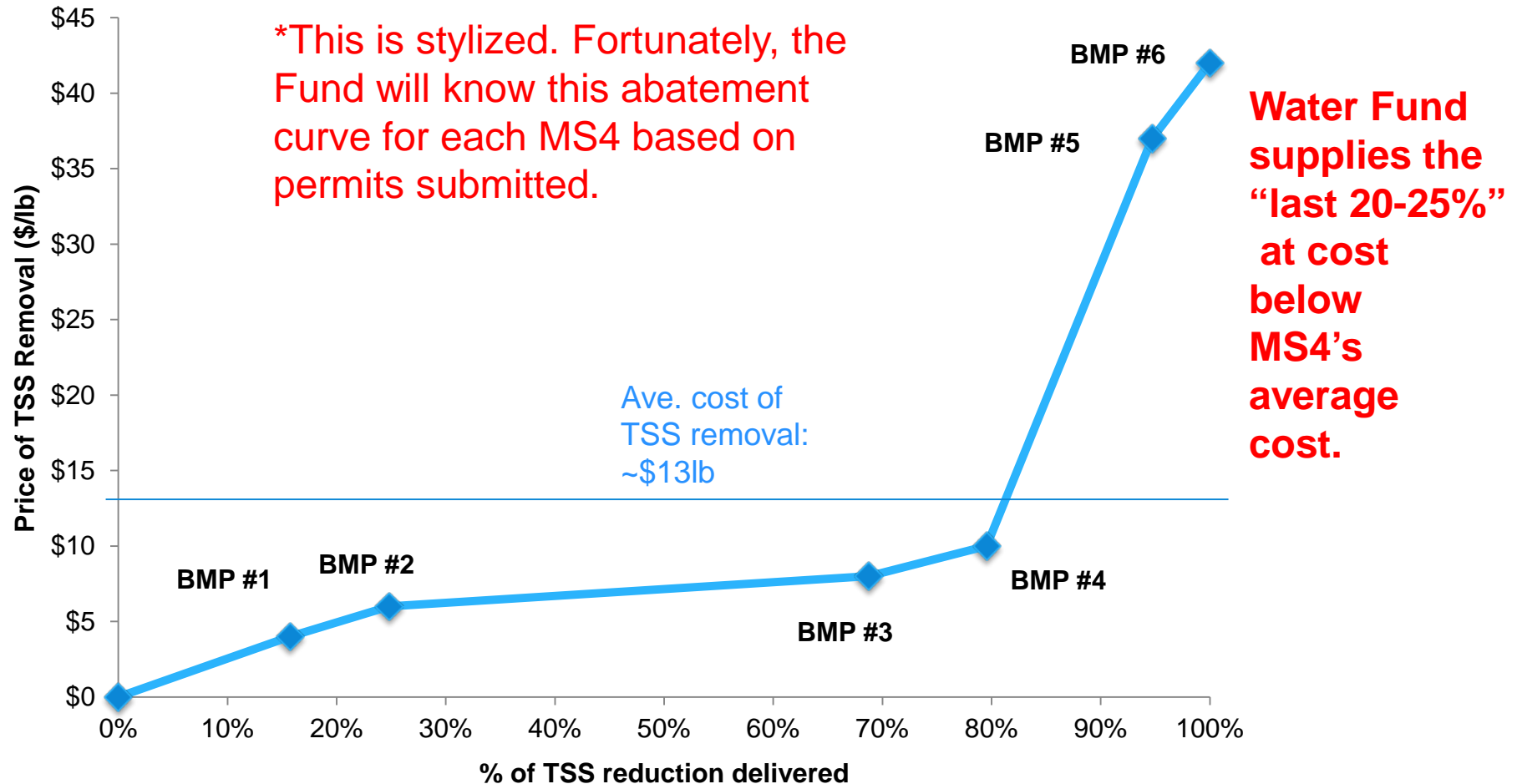
Projected demand (5yr)

Beneficiaries	Target Pollutant	Quantity Demanded
MS4* (PA & DE)	<ul style="list-style-type: none">• TSS	<ul style="list-style-type: none">• Approximately 30 +/- tons/yr.
Water** Providers (Private & Public)	<ul style="list-style-type: none">• TSS	<ul style="list-style-type: none">• Approximately 25+/- tons/yr.

*Demand will be further understood within the first year of the funds function as the MS4 communities determine their projects for reductions.

**Proxy for water provider is based on current willingness to invest

Pricing TSS service on MS4 sample urban abatement curve



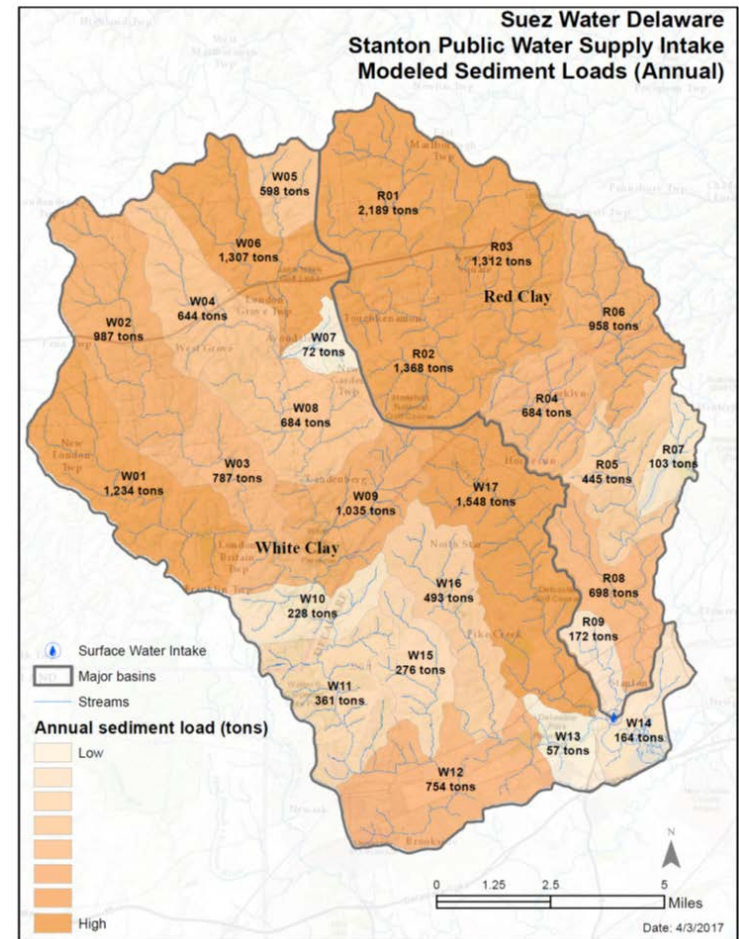
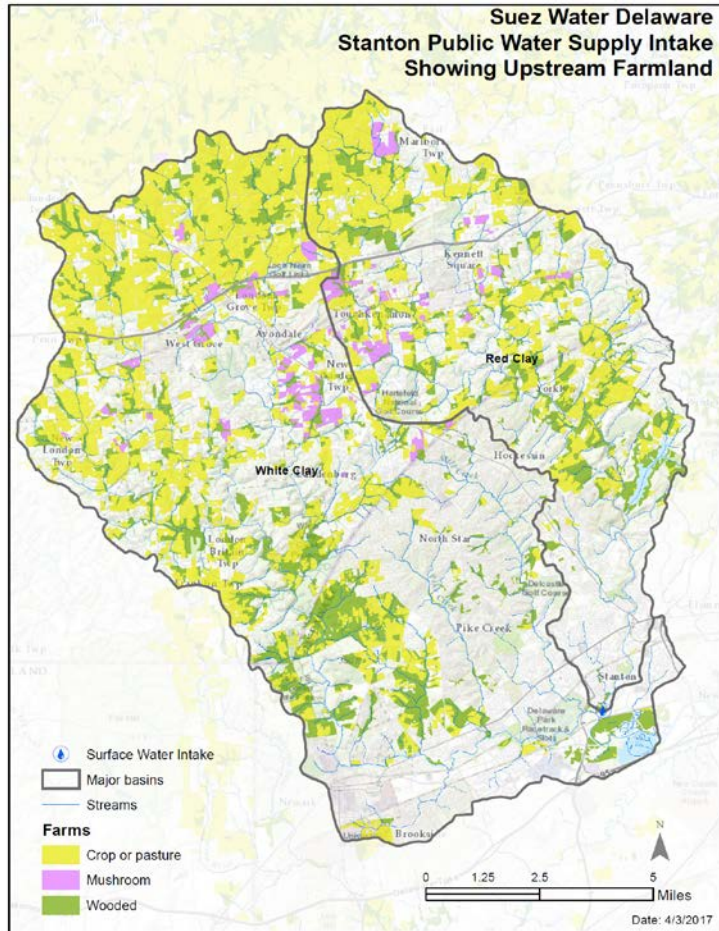
Water service providers

- Based on what currently paying
- Value will be determined by what the public service commission and or city council is willing to approve
- The Fund provides a vehicle to value the pollution removal in a manner that can be adopted by the oversight bodies

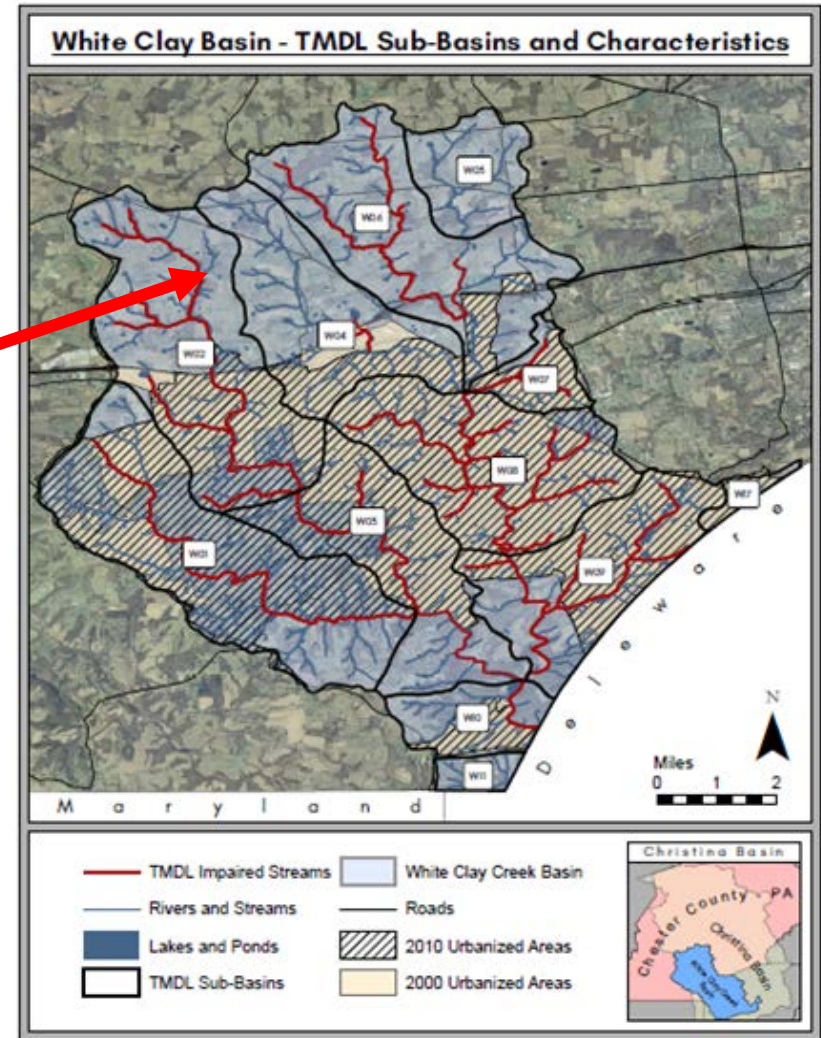
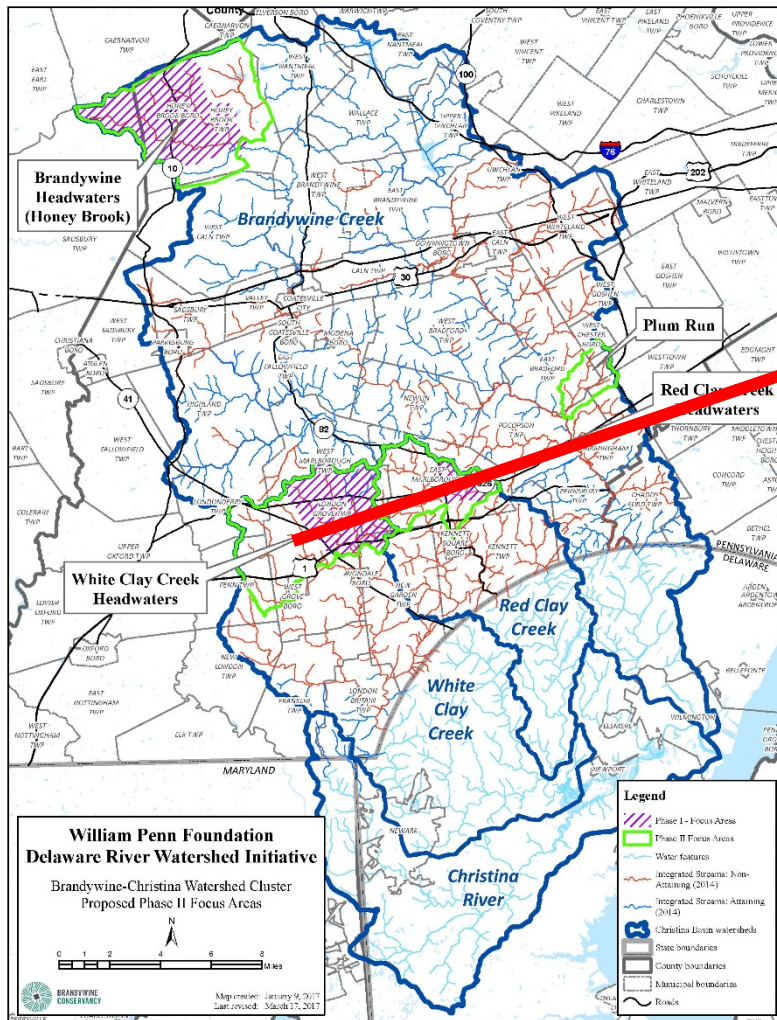
Projected demand and price (5yr)

Beneficiaries	Target Pollutant	Quantity Demanded	Price
MS4 (PA & DE)	• TSS	• Approximately 30 +/- tons/yr.	\$4-\$6/lb
Water Providers (Private & Public)	• TSS	• Approximately 25+/- tons/yr.	

Supply strategy: Agricultural BMPs



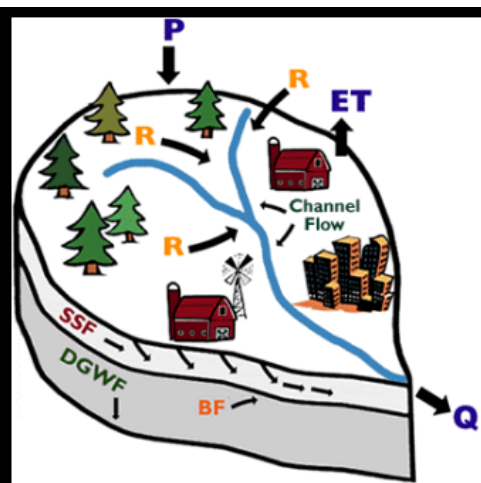
Project coordination



Accounting: MapSheds and DRWI

Focus Area	Focus Area Goal	Outcome	Water Quality and Quantity (WQ&Q) Target (Quantitative Objectives)	Ecological Target (Quantitative Objectives)	Outcome Metrics (Monitoring)		Performance Metrics (measure interim outputs and indicate progress in implementing the strategies – DRWI Metrics Table)
					WQ&Q Metrics	Ecological Metrics	
Restoration in Brandywine Christina	Restore water quality in local watersheds and protect existing high quality watersheds	Restore water quality in local basins at the tipping point for impairment and protect existing forested buffers.	Reduced TSS and water temperatures maintained where good	Natural lands increased reestablished/connected floodplain forest, stabilize banks, provide shade for the river and habitat for riparian wildlife.	-TSS mg/l reduced	-Total miles of reconnected forested floodplain -reduced bank erosion -increase in use of restored floodplain by riparian birds and herptiles	AGRICULTURAL RESTORATION Dollars of Federal Farm Bill and state funding leveraged by DRWI within focus areas. Acres of agricultural land with BMPs within focus areas. Miles of forested buffer restored within focus areas. Acres of wetlands enhanced or restored within focus areas

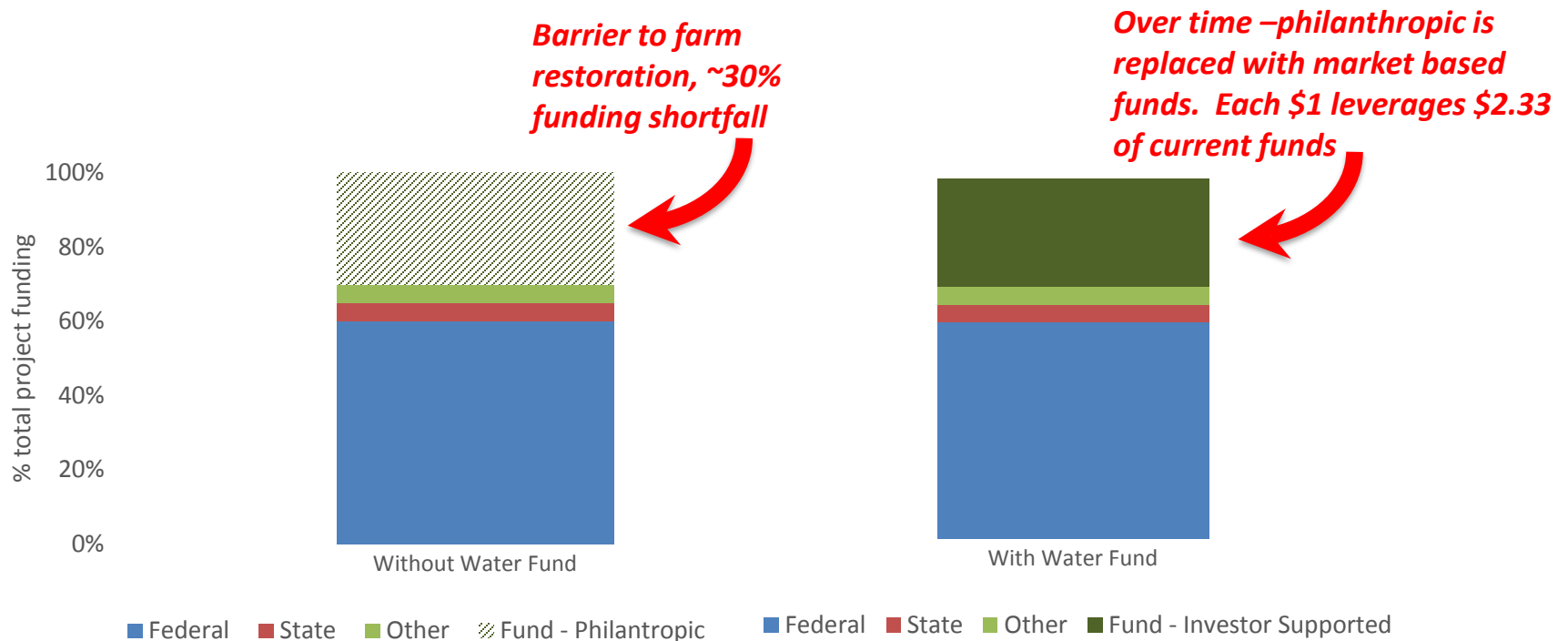
Using MapShed Model for the Christina Basin TMDL Implementation and Water Quality Restoration



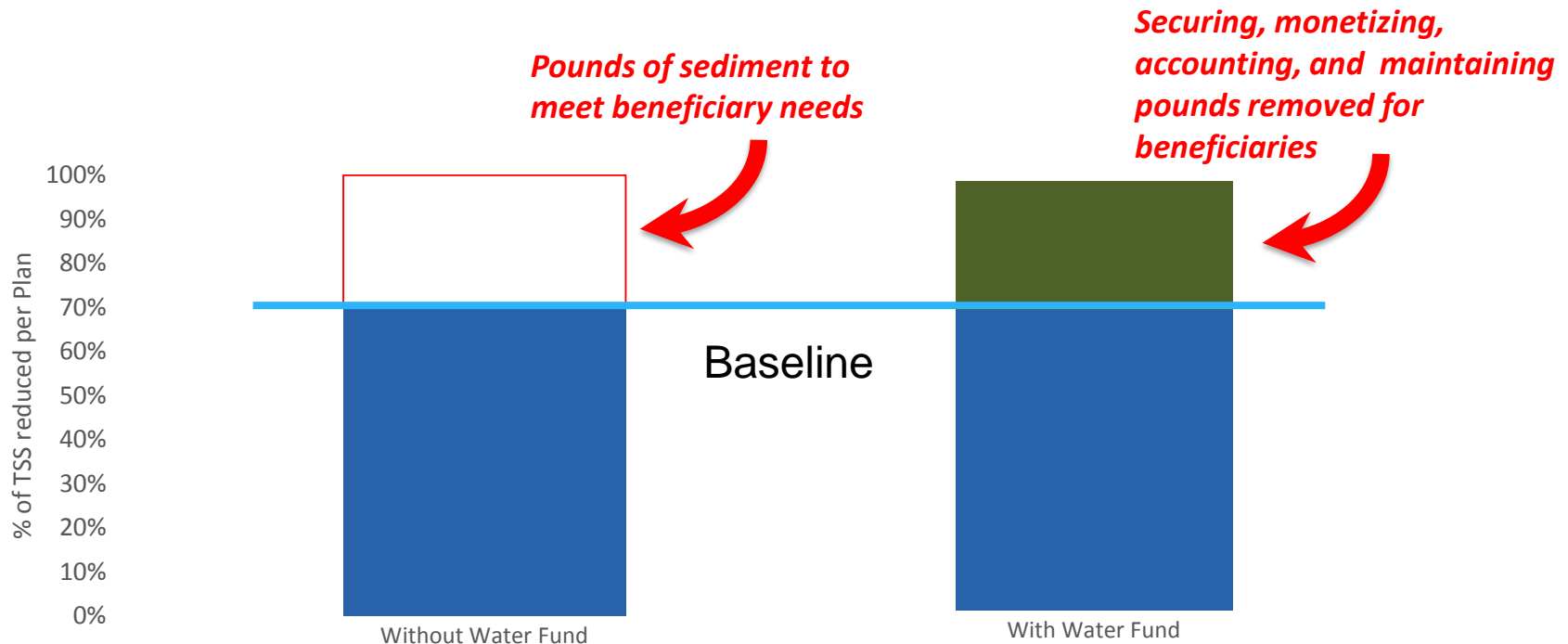
Reporting

- Coordination
 - Beneficiaries
 - Regulators
 - Contracts

Leveraging existing watershed **funding**



Leveraging existing watershed **projects**

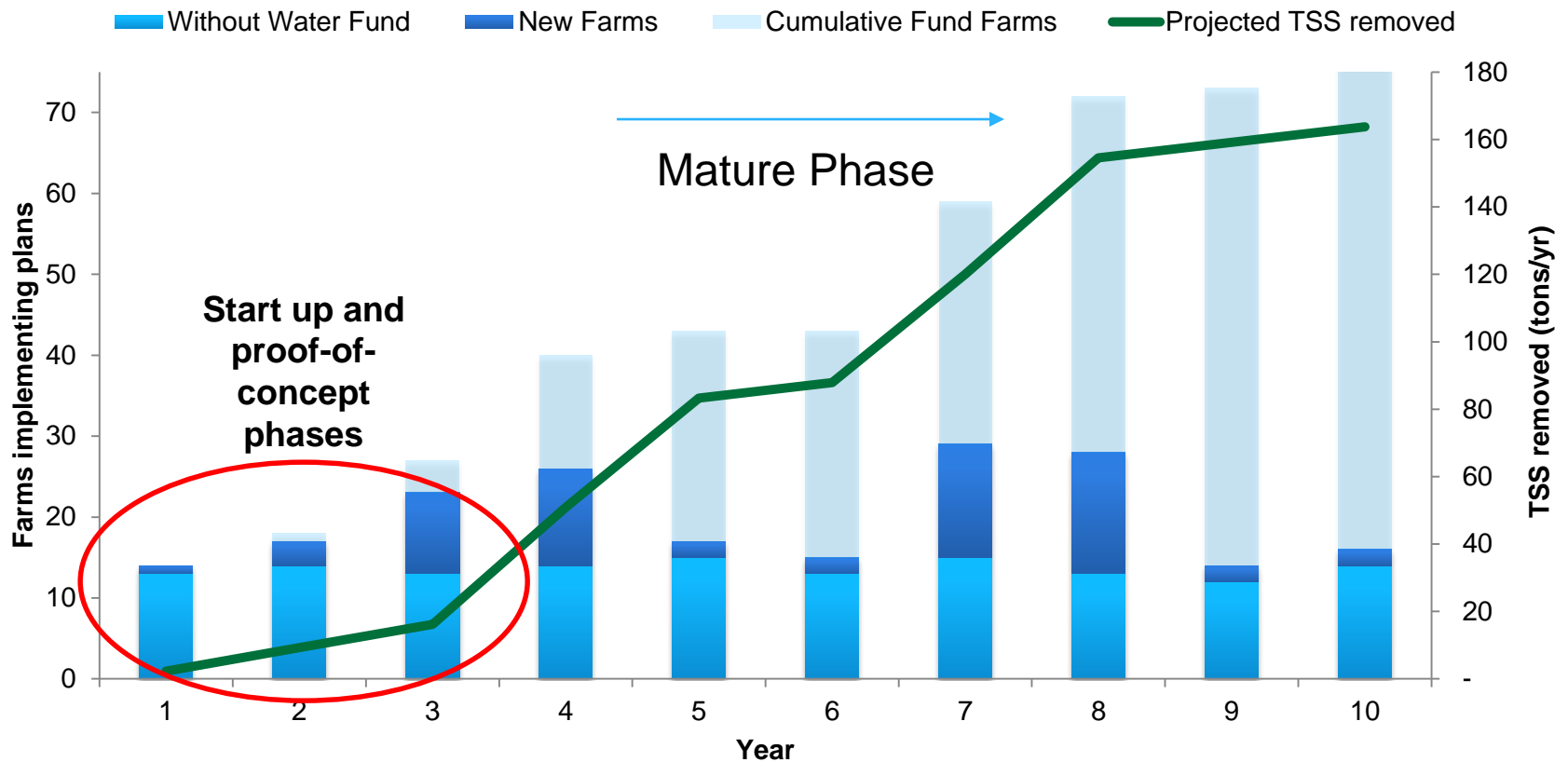


Projected services

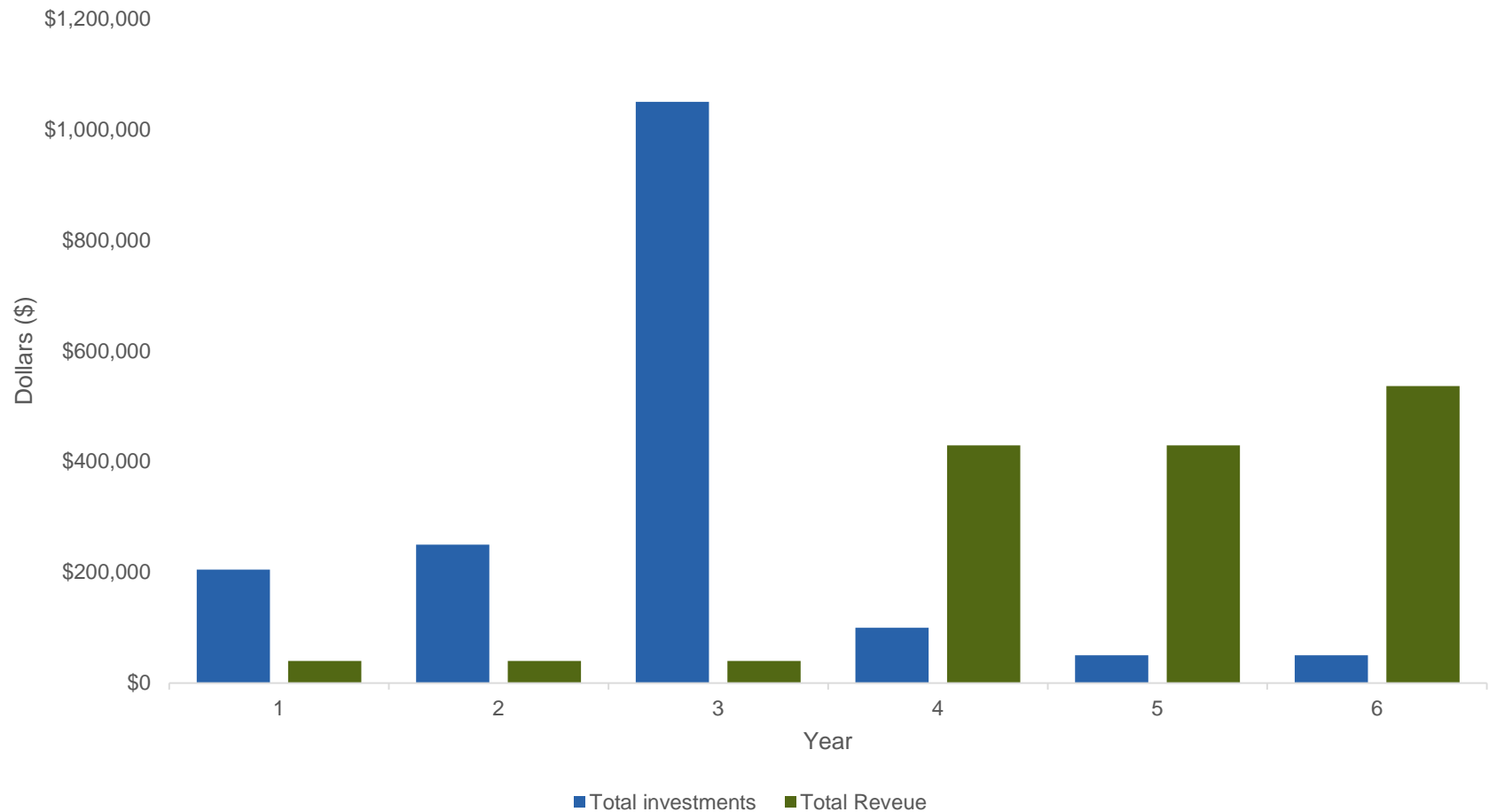
Service	YEAR					
	1	2	3	4	5	6
# of Farms	1	3	10	12	2	2
Cum. # of Farms	1	4	14	26	28	30
TSS inventory (TN/YR)	2	9	32	60	65	69
TSS demanded (TN/YR)	0	0	0	54	54	67
Net TSS	2	9	32	6	11	2

Long term projections

Long Term Projected Market Impact



Financial projections



Operations

- An independent business organization.
- Facilitate projects and accelerate scale of implementation that would not have occurred without the activities of the Water Fund.
- Dedicated staff to facilitate partner projects and cultivate sustainable funding streams.
- Governing body to provide guidance and expertise in aligning restoration with beneficiaries.

Potential governance representation

- William Penn Foundation
- Impact investors
- The Nature Conservancy in Delaware
- UD Water Resources Center
- Brandywine Conservancy
- Brandywine Red Clay Alliance
- Stroud Water Research Center
- Natural Lands Trust
- Christina Municipal Watersheds Partnership
- City of Wilmington
- City of Newark
- SUEZ Water DE
- AQUA PA
- PA American Water Downingtown MUA
- MS4 municipalities

Challenges

The Water Fund faces three challenges to effective and successful implementation:

1. Sufficient capitalization to adequately resource activities and staff.
2. Providing recognized, streamlined, and efficient process to partners.
3. Navigating regulatory uncertainties to generate sustained revenue.

Next steps

- Governing board composition and formation
- Organizational setup (policies/procedures)
- Build project pipeline with partners
- Implement proof-of-concept
- Report out (to stakeholders, regulators) for adaptive and iterative process
- Multiple grants (awaiting awards) to fill the proof-of-concept phase capital needs

Thank you – Questions?



White Clay Creek from
Wedgewood Road Bridge

