

Protecting nature. Preserving life."





Martha Narvaez - University of Delaware - Water Resources Center 2017 Delaware Estuary Science & Environmental Summit

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Project Goal

Fishable, swimmable, potable

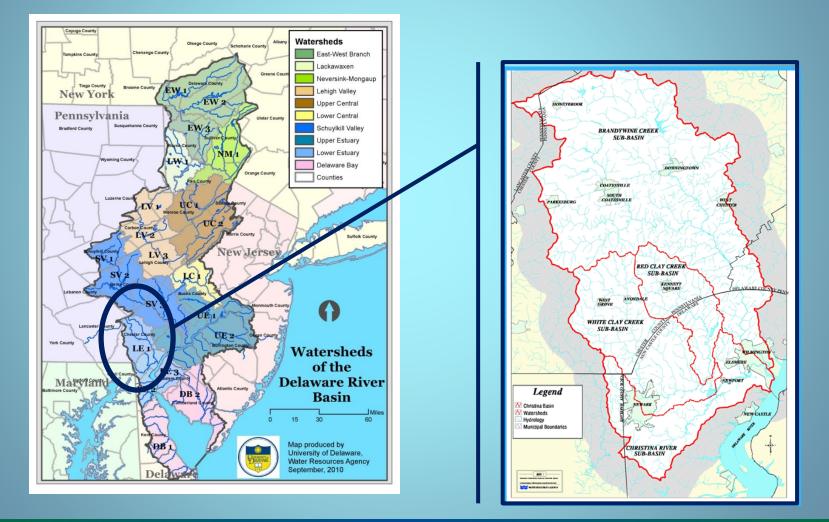


Water Fund

A written agreement between stakeholders that guides implementation of conservation and includes:

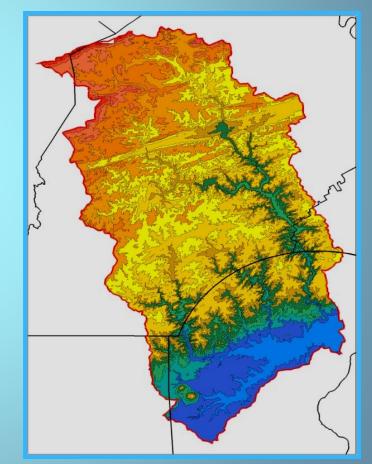


The Brandywine-Christina Watershed

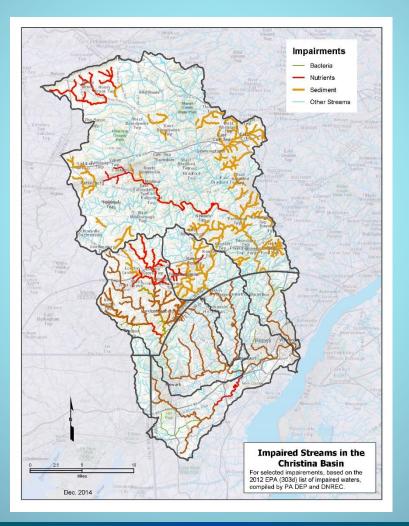


Brandywine-Christina Watershed an interstate watershed

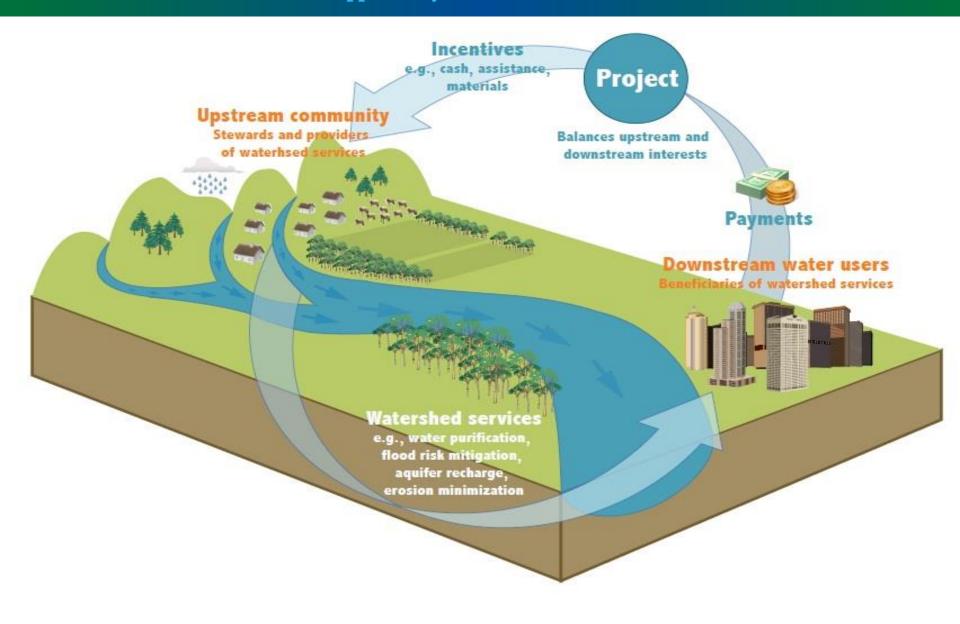
State	Area (se	q. mi.)
DE	157 (289	%)
PA	400 (719	%)
MD	8 (1%)	
TOTAL	565 (100%)	
Watershed		Area (sq. mi.)
Brandywine Creek		
Brandywine	e Creek	325
Brandywine Red Clay C		325 55
-	Creek	
Red Clay C	Creek Creek	55



Impairments in the Brandywine-Christina



The Opportunity: The Water Fund Model



Brandywine-Christina Healthy Water Fund Year 1: Feasibility Study

- Watershed characterization
- Advisory panel process
- Case studies and models
- Economic analysis
- Key stakeholders
- Recommendations



To be successful, the Water Fund must:

- Add value to conservation in the watershed and not duplicate or diminish the overall impact of preexisting initiatives;
- Measure water quality improvements in the watershed against the goals of swimmable, fishable and potable waters, which will require removing impairments from the watershed's streams; and
- Must be able to demonstrate a favorable economic return on investment.

Brandywine-Christina Healthy Water Fund Year 2 & 3: Business Plan

Research focus areas:

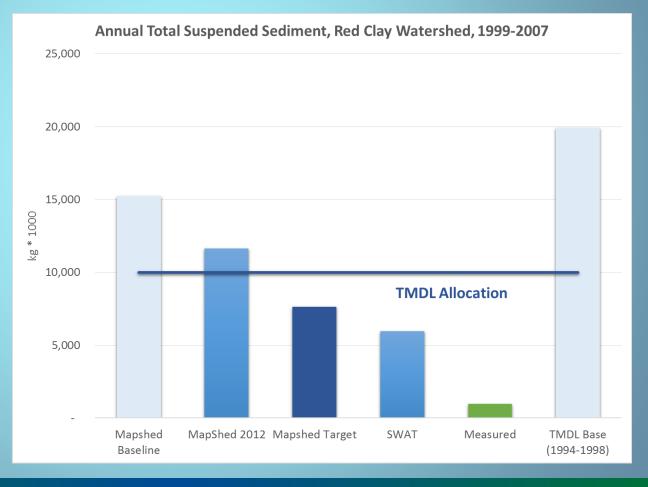
- 1. Technical Analysis
- 2. Regulatory Policy
- 3. Governance and Collaboration
- 4. Communications Research
- 5. Business Plan

Brandywine-Christina Healthy Water Fund

Technical Analysis

Research focus areas:

- 1. Technical Analysis
- 2. Regulatory Policy
- 3. Governance and Collaboration
- 4. Communications Research
- 5. Business Plan



Technical Analysis

Churchtown a ma Goodville Watershed Naryo Sub-basin Focus area Project area Streams Buena Vista Surface water intake Nutrient Impairment Low 41 Chestra . iteelville High Cluster Fo Town or borough //// Strategy Focus A Russellville Nitrogen Co 10 None < \$10K \$10K - \$ Farmland in t \$25K - \$ **Brandywine-Chr** Cluster \$50K - \$ Farmed \$100K -Mushroom \$250K White Clay Creek Wooded fai > \$500K Upstream of Major basir Impairments **City of Newark** Bacteria Sub-basins **Drinking Water Intake** Surface wa Nutrient Impaired Stream Density Sedimer Nutrients HH Map produced by the Univ Brandy Basin Map produced by the University of Delaware Water Resources Center, Nov. 2016.

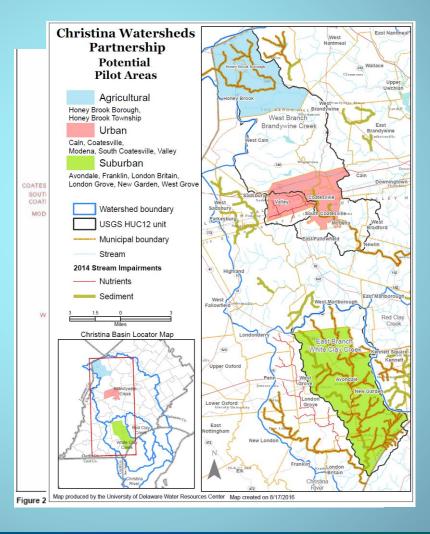
Research focus areas:

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- 4. Communications Research
- 5. Business Plan

Regulatory Policy

Research focus areas:

- 1. Technical Analysis
- 2. Regulatory Policy
- 3. Governance and Collaboration
- 4. Communications Research
- 5. Business Plan



Governance and Collaboration

Research focus areas:

- 1. Technical Analysis
- 2. Regulatory Policy
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- 5. Business Plan



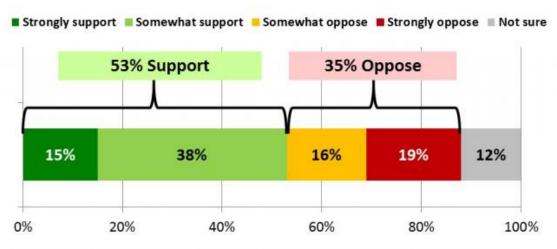


Communications Research

Research focus areas:

- 1. Technical Analysis
- 2. Regulatory Policy
- 3. Governance and Collaboration
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- 5. Business Plan

Support for a Healthy Water Fee



"If leaders in the State said more money would be needed to solve the problem of water pollution in Pennsylvania, and they proposed a monthly fee that was reasonable, would you be likely to support or oppose that?"

(If support/oppose): "Is that strongly or just somewhat {support/oppose}?"

Business Plan

Research focus areas:

- 1. Technical Analysis
- 2. Regulatory Policy
- 3. Governance and Collaboration
- 4. Communications Research
- 5. Business Plan

Round I: Start-Up Capital

Round II: Healthy Drinking

Water Fund

Round III: Municipal

Stormwater Finance

- Philanthropic Investment by William Penn to Develop Fund
- Capital Investment to Secure Asset
- Philanthropic Match
- Nature-Based Stormwater Solutions
- Conservation Finance Structure

Next Steps

- February 2017: Draft Business Plan
- February May 2017: Review, Comment and Revision
- June 2017: Final Business Plan Submission

Project information and reports available:

www.wrc.udel.edu/research/brandywine-christina-healthy-water-fund-2/

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