Chesapeake and Atlantic Coastal Bays Trust Fund

Physical and Nutrient Monitoring Training
2014

Introduction

- The Chesapeake and Atlantic Coastal Bays Trust Fund
- Started in 2007
- Goal - Accelerate restoration of the Chesapeake Bay
- Focuses financial resources on the most effective non-point source pollution control projects.

Urban, Flashy Streams

At Baseflow

During Rain Event

Urban Flashy Streams

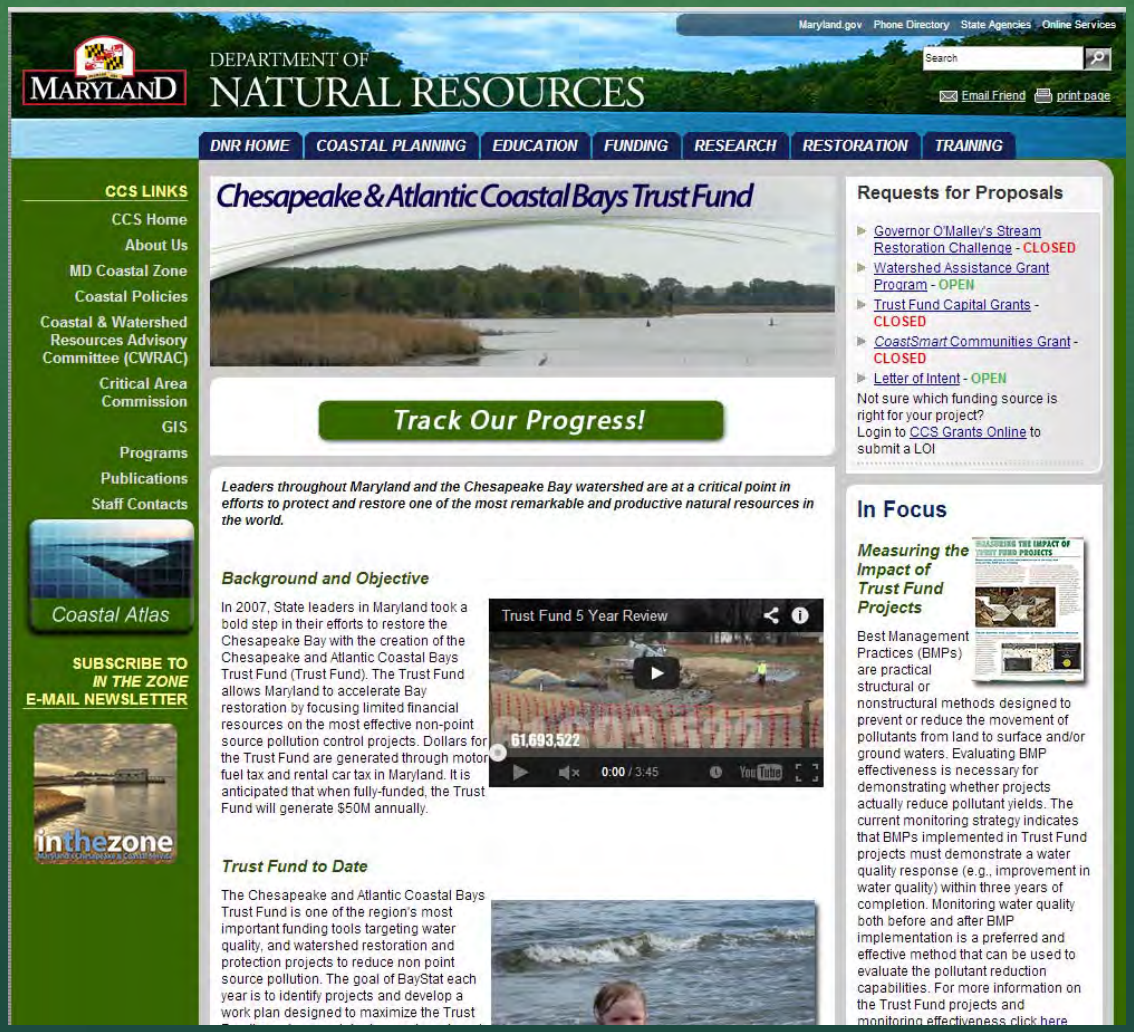
At Baseflow

During Rain Event

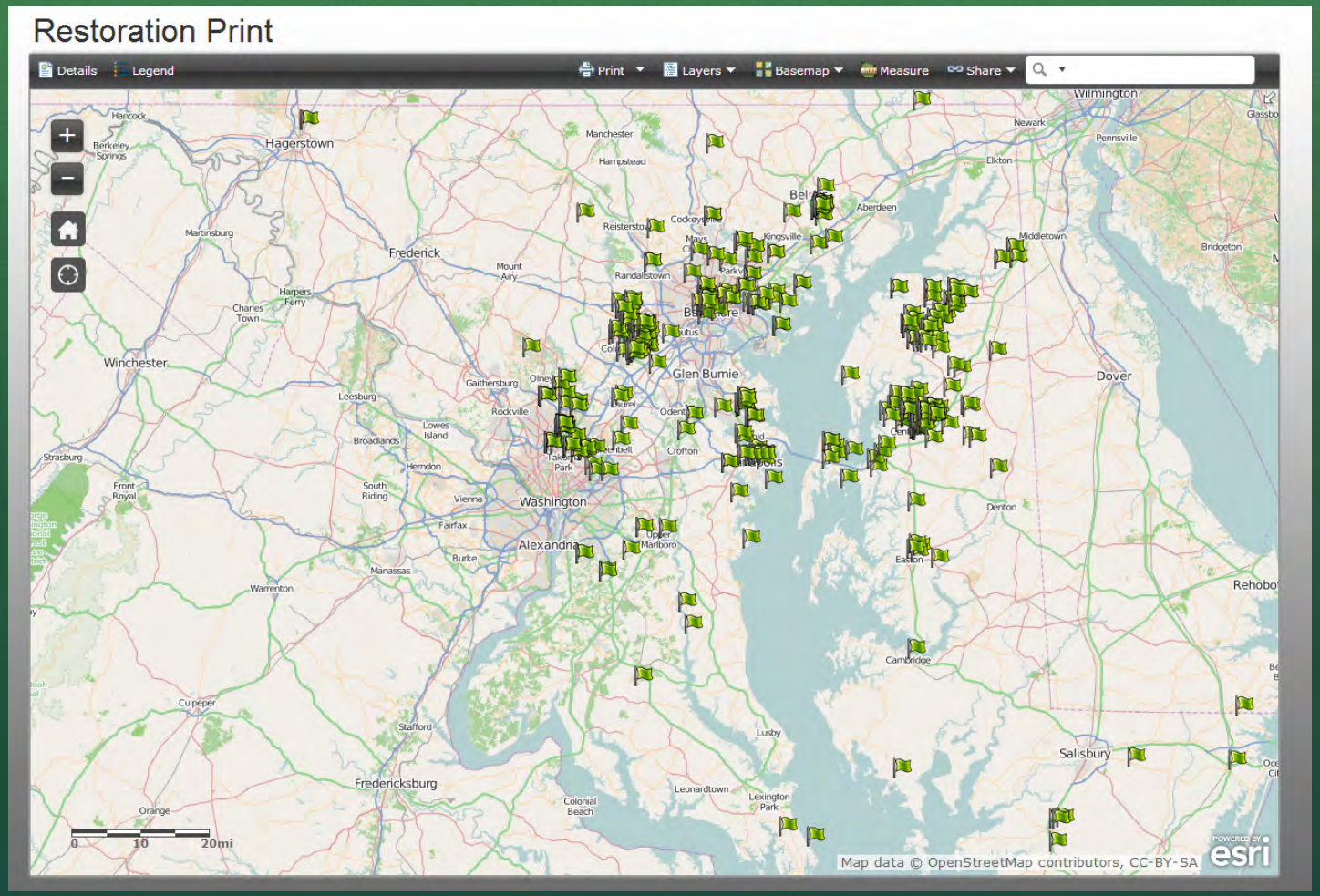
Source of Funding

Money for the Trust Fund (TF) is generated through motor fuel and rental car taxes. When fully-funded, the TF was to generate approximately 50M annually (FY14 – 68M).

For More Information…



Restoration Print



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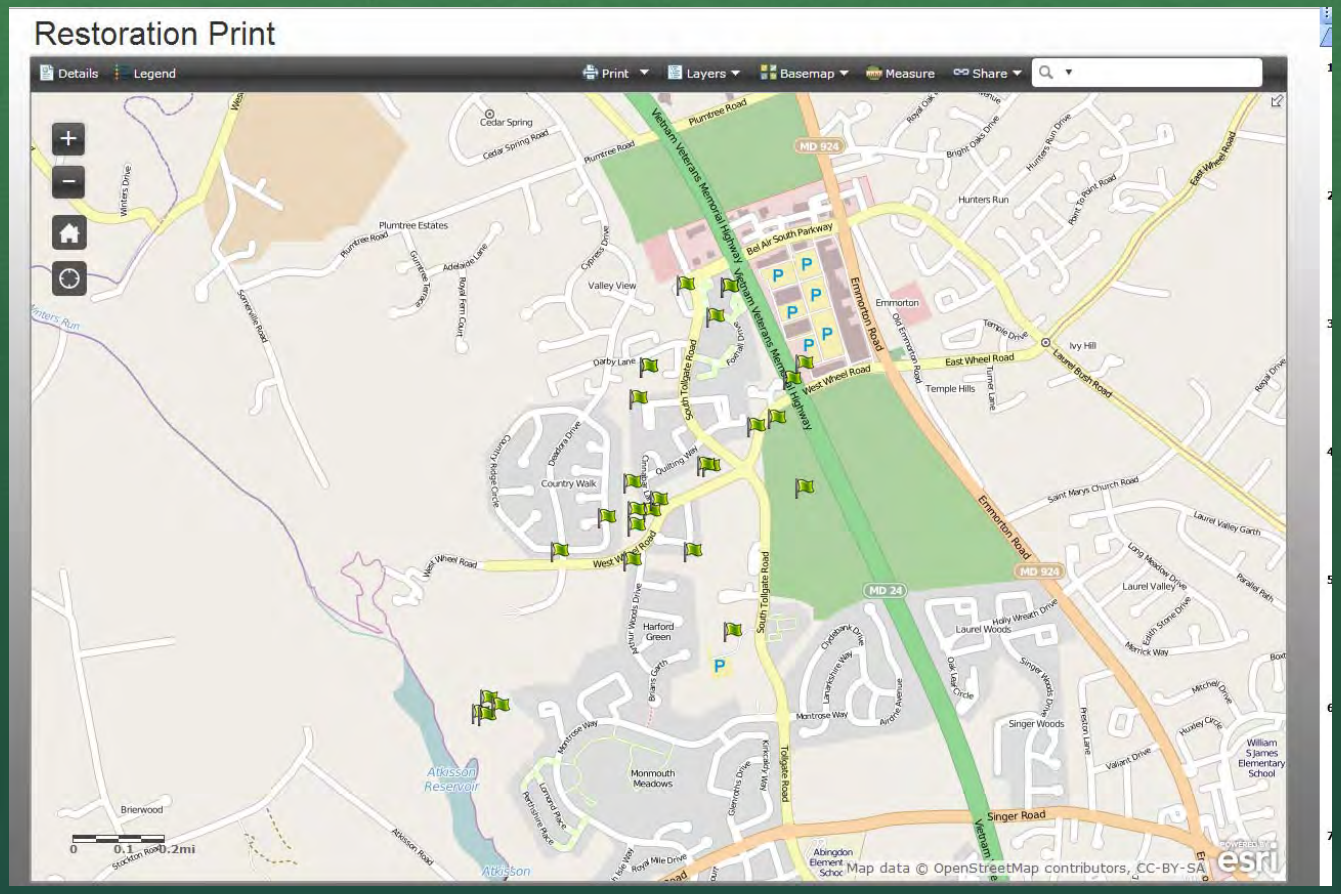

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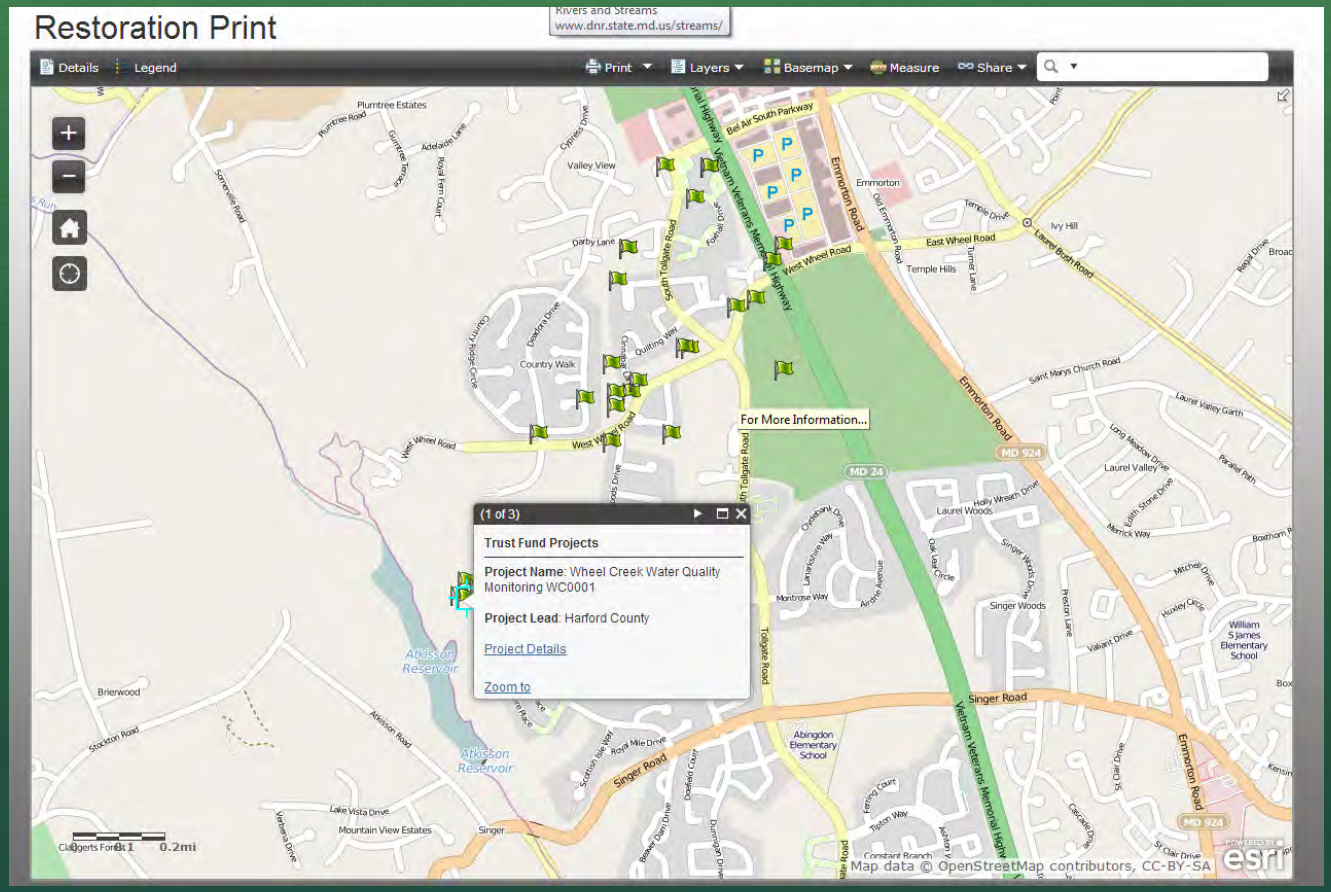
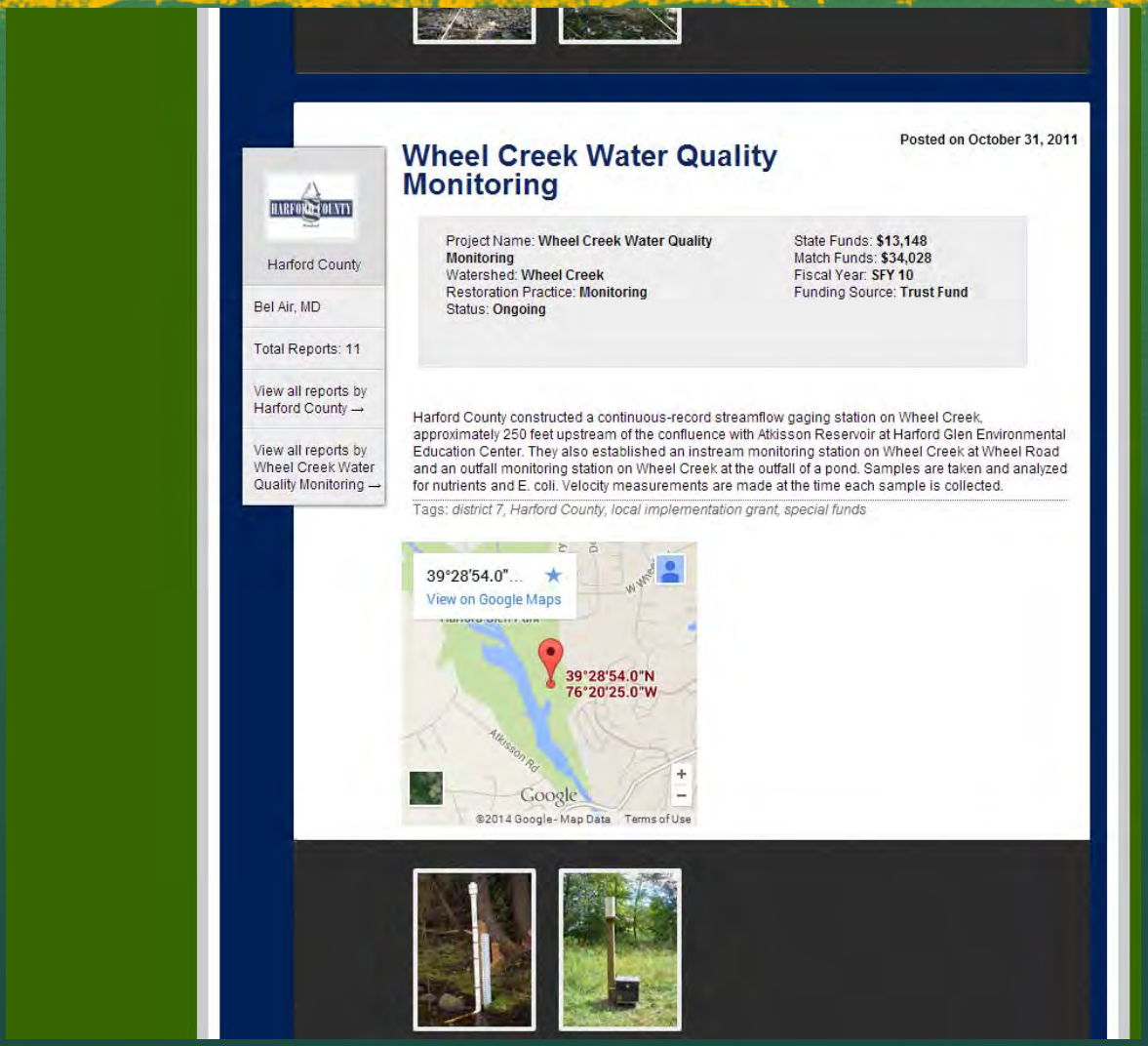


Learn more about each project



Posted on October 31, 2011

Wheel Creek Water Quality Monitoring

Harford County

Bel Air, MD

Total Reports: 11

View all reports by Harford County →

View all reports by Wheel Creek Water Quality Monitoring →

Project Name: **Wheel Creek Water Quality Monitoring**
Watershed: **Wheel Creek**
Restoration Practice: **Monitoring**
Status: **Ongoing**

State Funds: **$13,148**
Match Funds: **$34,028**
Fiscal Year: **SFY 10**
Funding Source: **Trust Fund**

Harford County constructed a continuous-record streamflow gaging station on Wheel Creek, approximately 250 feet upstream of the confluence with Atkisson Reservoir at Harford Glen Environmental Education Center. They also established an instream monitoring station on Wheel Creek at Wheel Road and an outfall monitoring station on Wheel Creek at the outfall of a pond. Samples are taken and analyzed for nutrients and E. coli. Velocity measurements are made at the time each sample is collected.

Tags: *district 7, Harford County, local implementation grant, special funds*

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Coastal Atlas

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Trust Fund Tracker

Welcome to the Trust Fund Tracker!

The Trust Fund Tracker shares project and budget information for the Chesapeake & Atlantic Coastal Bays Trust Fund, one of the region's most important funding tools targeting water quality, and watershed restoration and protection projects to reduce non-point source pollution. View the annual budgets by searching by state fiscal year, and learn more about the projects funded in each funding area. The specific project details are linked to Maryland's Restoration Report and updates are made monthly. For comments or questions, please email ccohee@dnr.state.md.us or call 410.260.8753.

-- Select the Fiscal Year -- | Find Projects by Fiscal Year

Fiscal Year 2014 Trust Fund Budget

	Project Lead	FY 14 Special Fund Actual	FY 14 Capital Fund Actual
Accountability, Verification and Management			
1. Strategic Monitoring	DNR/UMD	$400,000	-
2. Targeted Monitoring of Out of State Sources	DNR/USGS	$300,000	-
3. Implementation Tracking	DoIT	$200,000	-
4. Administration and Management (1.5%)	DNR	$414,000	-
Accelerating Restoration through Research and Development			
5. Manure to Energy Projects with Proven Technology	MDA/Interagency	-	$2,500,000
6. Maryland's Innovative Technology	UMD/DNR	$750,000	-

Requests for Proposals

- Governor O'Malley's Stream Restoration Challenge - CLOSED
- Watershed Assistance Grant Program - OPEN
- Trust Fund Capital Grants - CLOSED
- *CoastSmart* Communities Grant - CLOSED
- Letter of Intent - OPEN

Not sure which funding source is right for your project?
Login to CCS Grants Online to submit a LOI

Restoration Print

Trust Fund Mapper

Contact Information

Chesapeake & Coastal Service
Maryland Department of Natural Resources
Tawes State Office Building E-2
580 Taylor Avenue
Annapolis, Maryland 21401
Phone 410-260-8732
Fax 410-260-8739
customerservice@dnr.state.md.us

Why Monitor BMPs?

- Assess efficiency of installed BMPs to evaluate monetary investment
- Compare BMPs and how well they work in different installations
- Compare BMP nutrient and sediment measured/expected reduction values
- Use results to improve future project selection

Monitoring has Provided Good Data, but…

- Improvements to comparability:
  - Consistent protocols
  - List of Water Quality parameters
  - Minimum detection limits
- As the Trust Fund has grown, more people collecting more data, using different methods

Evaluating the Trust Fund

- Dan Nees (Environmental Finance Center, UMD)
- Recommendations
  - Use monitoring to establish a pay for performance model
  - More resources to establish baselines
  - Accurate comparable data allow prioritization of cost effective projects

Trust Fund Monitoring Strategy

- You don't need to monitor everything
- Sampling on a larger scale should only be done when estimates suggest more than a 30% reduction in nutrient or sediment loads will be achieved in a basin due to BMP installation.
- BMPs and their estimated nutrient and sediment reduction efficiencies.
- Helps applicants decide whether or not to monitor, and this training describes how to accomplish monitoring goals through standardized techniques.

Goals of Physical/Nutrient Training

- To provide specific guidance for monitoring techniques with a focus on nutrients and sediments, but not enough time for all the details
- To educate monitoring personnel on a standard protocol for WQ, geomorphology, and stream discharge data collection
- Accomplishes goals set in the Monitoring Strategy Document
- Although the manuals provide details, this training will be more of an overview of three monitoring protocols

The Big Four

- Stream Discharge (Flow)
- Water Quality
- Geomorphology
- Biology (not covered here)
- Minimum Level of Monitoring

Water Quality

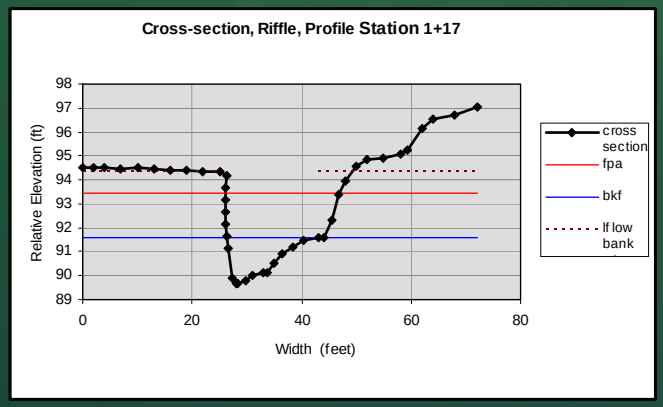
- Provides concentrations
  - Combined with discharge to calculate loads
- Designed with small, flashy urban streams in mind
- Required parameters are set by the protocol, as well as recommended minimum detection limits for Total Nitrogen and Total Phosphorus concentration
  - Recommended minimum detection limits set at values determined by Ray Morgan (UMCES)
  - Set using data collected at MBSS reference sites
  - Total Nitrogen – 1.6 mg/L
  - Total Phosphorus – 0.010 mg/L

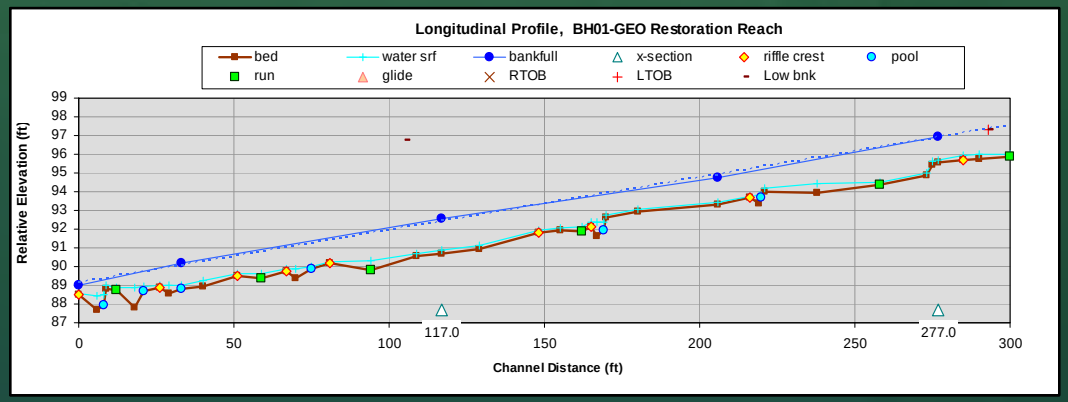
Stream Discharge

- Essential to calculate nutrient and sediment loading, a primary goal of the TF
- Consistent, accurate protocols are mandatory in order to collect usable data

Geomorphology

- Provides additional data on sediment inputs via erosion
- Provides an assessment of physical stream restoration effectiveness





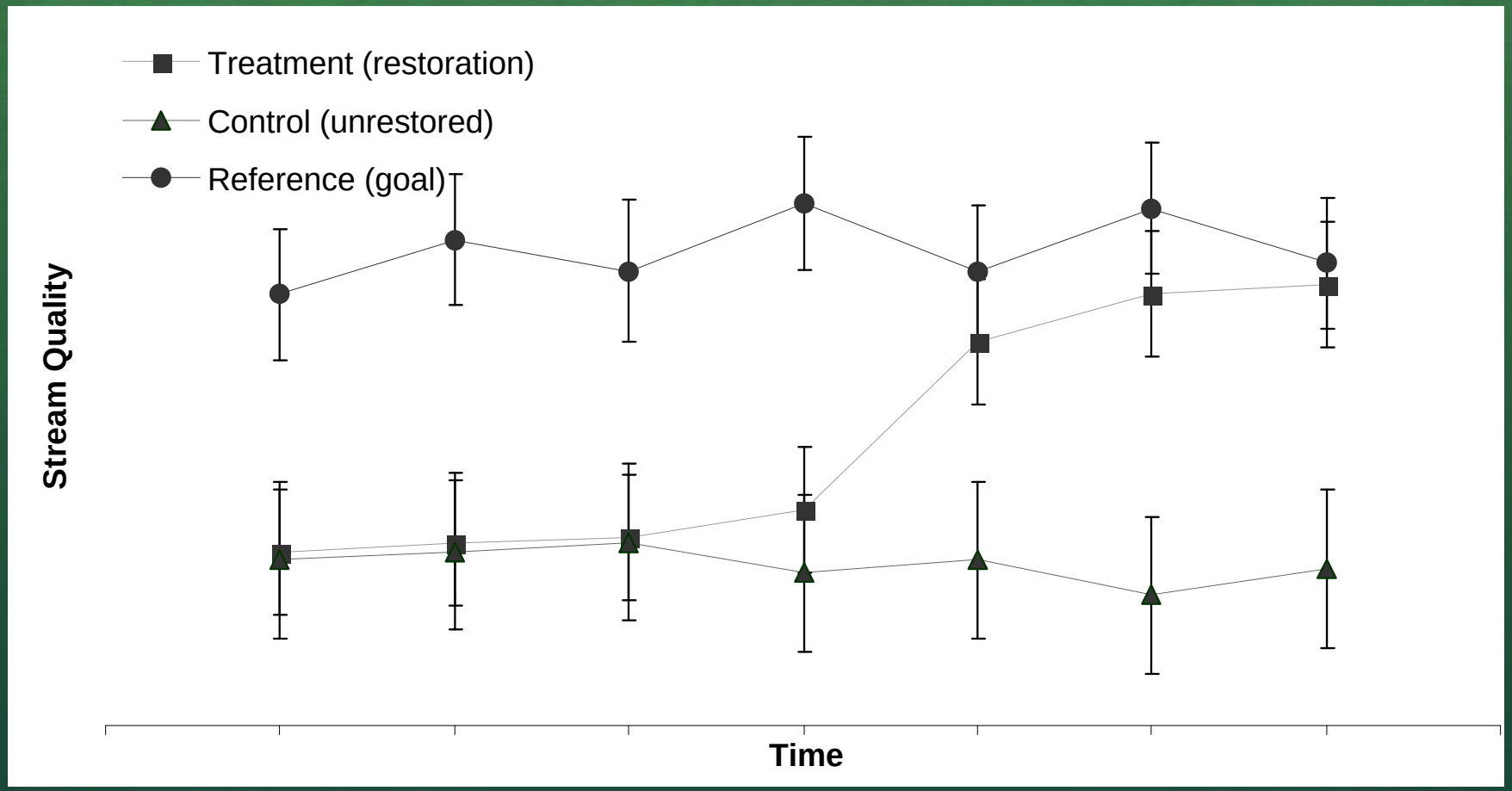
Biology

- Establishes connection between living resources in stream restoration
- Inverse relationship between nutrient levels and certain benthic macroinvertebrate health (Matt Ashton's work)
- MBSS data provide comparison to reference (sentinel site network) sites

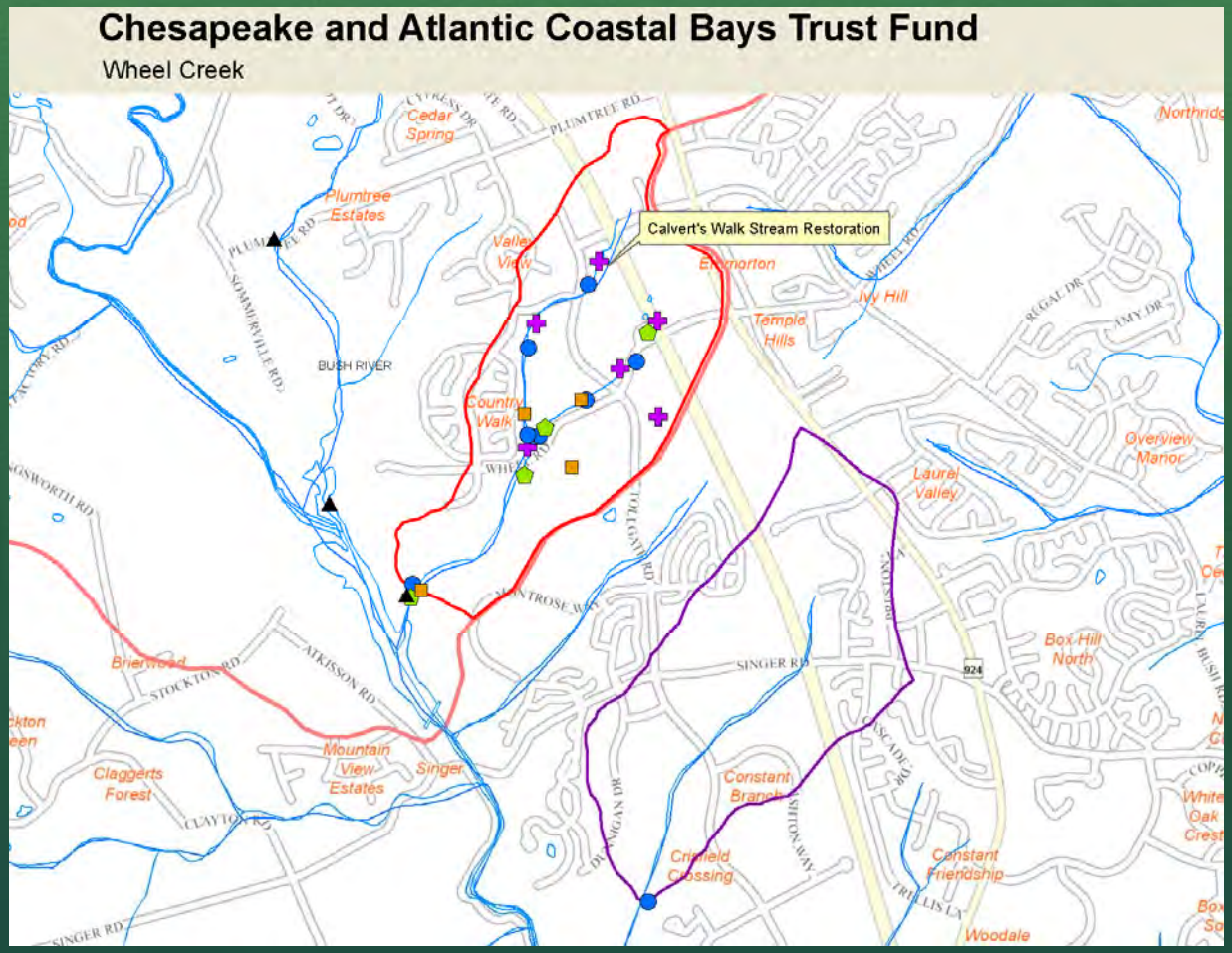
BACI Study Design

- Control sites
- Before – collection of baseline data assesses variability
  - How much time for pre and post monitoring?
  - Baseline data are important
  - After construction data important
- 10 years recommended (Kondolf, 2006)
- We recommend 5 years as a compromise

Looking for This…



Survey Design Example



Maryland's House o' Data

- Tasked with compiling and comparing data from TF projects
- Please submit to DNR (Luke Roberson) by February 1st after collecting previous year's data
  - Example – Collected data from June-Dec 2014? Due Feb 1st, 2015
  - Collected data from Dec 2014 – April 2015? Due Feb 1st, 2016

Remember…

- The focus of the Trust Fund is reducing NUTRIENT AND SEDIMENT LOADS to the Chesapeake Bay
- All protocols are STRONGLY RECOMMENDED by the RFP
- Data Submission date is STRONGLY RECOMMENDED in the RFP
- Follow the Monitoring Strategy Document to decide when/where to sample, use the protocols when you do

Questions?

- Thanks to all our contributors
  - Scott Stranko (DNR)
  - Andy Becker (DNR)
  - Paul Kazyak (DNR)
  - Tom Jones (Versar)
  - Beth Franks (Versar)
  - Sandy Davis (USFWS)
  - Rich Starr (USFWS)