



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Office of Water Management

# Chiques Creek Watershed Restoration Initiative: *An Alternative Approach to the Traditional TMDL*

Project Partners:

Susquehanna River Basin Commission

Lancaster County Conservation District

Penn State Agriculture and Environment Center

Local Stakeholders

Invited Stakeholder Meeting, January 13, 2015

# ▶ Topics for the Day

- Overview – Why are we here?
- Monitoring
- Modeling
- Restoration Plan Development and Implementation
- Available Resources
- Open Discussion Q/A

# ▶ Overview- Chiques Creek TMDL History

- Appeared on 1996 303(d) List for nutrient and sediment related impairments
- Last biological assessments done in 1997
- TMDL developed and EPA approved in 2001:
  - Provided WLAs for several WWTPs
  - Reductions assigned to agricultural sources

# Where are we in 2015?

- Chiques Creek is still impaired
- DEP Reorienting the TMDL program
  - Focus back on attaining tangible water quality benefits
  - Increase public engagement and collaboration
  - Increase chances for successful implementation (planning and prioritizing for NPS grants)
- Federal 303(d) Revisioning
  - National effort encompassing assessment, listing and TMDLs
  - TMDL Alternatives – new opportunities

# Chiques Creek

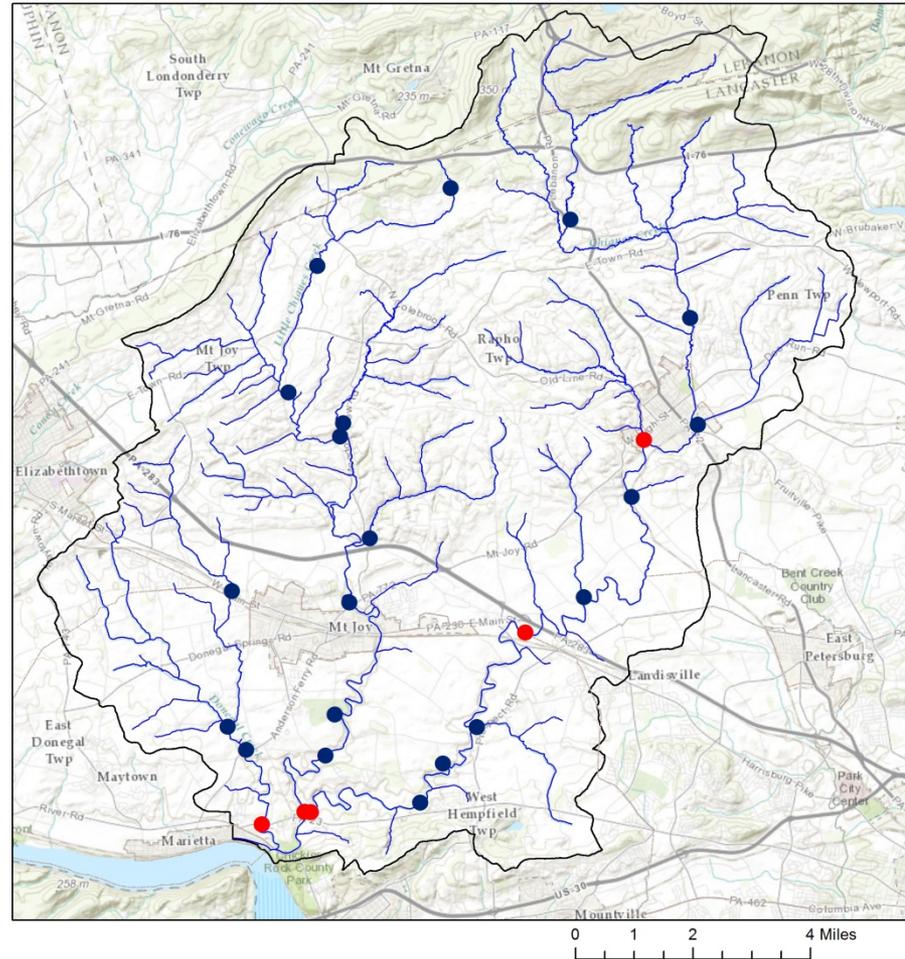
- Current TMDL being withdrawn and must be replaced by TMDL or Alternative by March 2016
- Options
  - Revise the TMDL – same old, same old
    - Include missed NPDES permittees
    - Revise allocations to point and nonpoint sources
  - Pilot the new TMDL Alternative approach
    - Stakeholder engagement and involvement
    - DEP biological assessments, monitoring, modeling, water quality endpoint development
    - Effective implementation
      - More flexibility in NPDES than traditional TMDL where next permit must be consistent with TMDL requirements
      - Planning and prioritization for NPS reductions

# TMDL Alternative Approach

- Why Chiques Creek?
  - Withdrawn TMDL needs to be addressed
  - Active stakeholders in all sectors
  - Mix of point (WWTP/MS4) and nonpoint source contributions to pollutant loading
  - Provides an opportunity to:
    - Demonstrate a collaborative process of plan development and implementation where all parties feel their interests are represented
    - Document measures of incremental progress toward water quality standards attainment without a rigid TMDL

# Monitoring Plan

## Chiques Creek Watershed, Lancaster County



### Legend

<b>Designated Use Streams</b>	Overlap	Proposed Sampling Points
Cold Water Fish	Trout Stocking	Proposed Sonde Points
Exceptional Value	Warm Water Fish	
High Quality	Missing from CH 93	

# Monitoring Plan

- Last basin survey conducted 2001
- 2015 survey will confirm and clarify basin impairments
- May result in reassessment for 2016 Integrated Report
- 25 proposed sites
  - Sites selected based on potential pollutant sources, presence of suitable substrate and access
- Monitoring Parameters:
  - Benthic Macroinvertebrates
  - Fish
  - Algae
  - Field and laboratory water chemistry
  - Physical habitat
- Long-term monitoring (Continuous Instream Monitoring) at 3 sites
  - pH, temperature, Dissolved Oxygen, Specific Conductance and Turbidity

# Monitoring Plan

- Continuous Instream Monitoring will be conducted for several months
  - Collects data at time intervals as short as 15 minutes
  - Provides clearer picture of water quality over long time period
  - Supports other chemical and biological monitoring data

# Modeling

- MapShed Watershed Model
  - Formerly AVGWLF coded in free GIS software (MapWindow)
  - Dynamic watershed model, daily time-steps
  - Fine scale modeling at subwatershed scale
  - Improved urban landuse and downstream impact modeling
- Built-in Scenario Generator
  - Urban and agricultural BMPs with associated efficiencies
  - Demonstration that selected suite of BMPs meets reduction goals
  - Serves as a planning tool for all future efforts (e.g. quantifying pollutant reductions in future permit cycles)

# Restoration Plan

- Sets pollutant reduction goals for both PS and NPS to achieve the allowable load in each subwatershed
- Establishes long-term and short-term milestones for achieving incremental progress toward final goals for point sources
- Focuses effort in nonpoint source activities, including approach to prioritizing subwatersheds, procurement of funds, etc.
- Determines appropriate monitoring frequency to document the improvement to water quality
- Establishes schedule for stakeholder review of process.

# Funding Opportunities

- Growing Greener – DEP
  - Program to support restoration of impaired (polluted) streams
  - Statewide, focused on priority watersheds (recoverable)
  - Addresses: agriculture, urban storm water, stream restoration, AMD
  - Annual application process (spring/summer) thru DEP
  - Non-profits eligible (munic, cons district, watershed orgs, etc)
  - 15% match required
  - 3-4 years to implement the project
- Commonwealth Financing Authority (CFA) watershed restoration grants program – DCED
  - Same as GG above (statewide, same issues, 15% match, project length)
  - For profit businesses also eligible
  - Apply through DCED

# Funding Opportunities

- Conservation Reserve Enhancement Program (CREP) – USDA/DEP
  - Focused on restoring/protecting lands boarding streams
  - 10-15 yr contracts to remove lands from production and put into natural vegetation
  - Funding provided to landowners for annual rental payments and installation of conservation practices (fencing, tree planting, etc)
- Chesapeake Bay funding – DEP/CD
  - Addressing nutrients and sediment coming from ag operations
    - Will include urban stormwater in the near future
  - Funding provided to landowner through the conservation district to install conservation practices
  - Landowners required to provide match monies

# Funding Opportunities

- Resource Enhancement and Protection (REAP) Program – SCC
  - Addressing nutrients and sedimentation coming from ag operations
  - PA tax credit provided to landowners to install conservation practices and to purchase certain farm equipment designed to reduce nutrient and sediment loss
  - Provides tax credit for 50% to 75% of cost of the practice or equipment
  - First come, first served
  - \$150,000 lifetime max for the program.
- NRCS EQIP program – USDA NRCS
  - To address resource concerns on farms (primarily nutrients/sediment)
  - Provides incentive payments to landowners for implementing conservation practices
  - Enter into EQIP contract to install practices determined to be needed to address soil, water, animal and air concerns.

# Funding Opportunities

- Nonpoint Source (319) funding – DEP
  - Only available to select priority small watersheds with restoration plans
  - Provides funding to nonprofits to address impaired stream reaches
  - Addresses: agriculture, urban runoff and stream restoration
  - No match required for practices implemented
  - Must have small watershed determined by DEP to be a priority for this funding source and must develop a plan outlining practices needed to clean up the stream
- National Fish and Wildlife Funding program – NFWF
- Private Sector Dollars - Various
- PENNVEST Nonpoint Source funding - PENNVEST

# Open Discussion

Questions/Comments?