

# AN INTRODUCTION TO REGULATIONS GUIDING STORMWATER MANAGEMENT



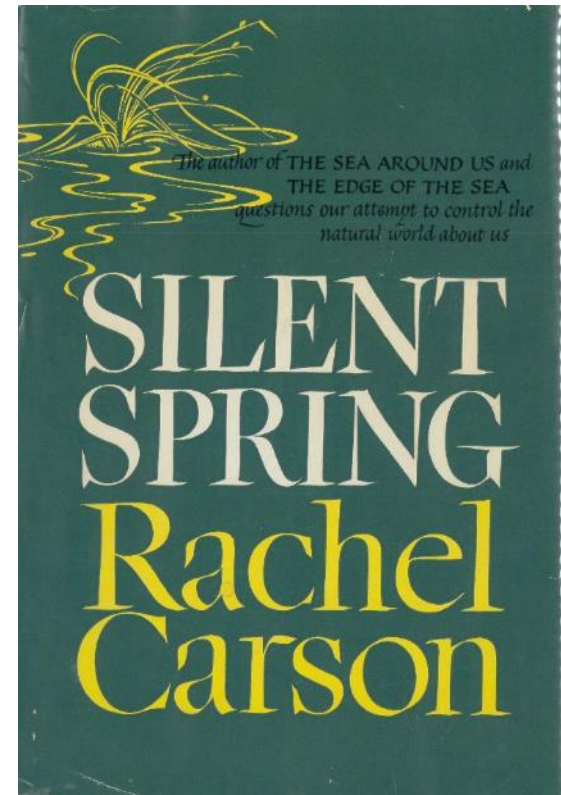
**Cory Trego**  
**Chester County Water Resources Authority**

# OUTLINE

- Background: Setting the Stage for Federal Environmental Legislation
- Federal Regulatory Framework
- The MS4 Program
- Determining Stream Impairment in Pennsylvania
- Local Planning: Stormwater Management
- Conclusions and Questions

# BACKGROUND

“Nature has introduced great variety into the landscape, but man has displayed a passion for simplifying it. Thus he undoes the built-in checks and balances by which nature holds the species within bounds.”

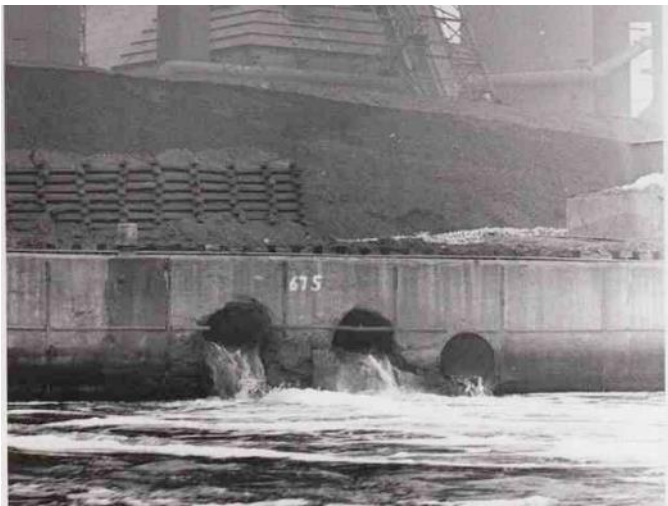


1962

# BACKGROUND

## Cuyahoga River Fire

“Chocolate brown, oily, bubbling with subsurface gases, it oozes rather than flows.”- *Time*, 1969



# BACKGROUND



## Persistent Fish Kills



Tom Ardito, <http://ian.umces.edu>

## Public Demand for Federal Action Increases

- **1948: Federal Water Pollution Control Act**
- **1965: Water Quality Act required states to issues water quality standards for interstate waters**
- **1970: National Environmental Policy Act (NEPA) signed into law and EPA established**
- **1972: Federal Water Pollutions Control Act re-written and dubbed Clean Water Act (CWA)**
  - **Primary federal law governing water pollution**

# FEDERAL RESPONSE

## The Clean Water Act

- Sought to improve water quality by managing point source discharges
- Original CWA did not address non-point source pollution or stormwater runoff



# FEDERAL LEGISLATION

**Stormwater: storm water runoff, snow melt runoff, and surface runoff and drainage [40 CFR §122.26(b)(13)]**





# FEDERAL RESPONSE

## Water Quality Act of 1987

- **Amendment to CWA**
  - **Directed states to develop non-point pollution management programs (Section 319) and directly addressed stormwater discharges**
- **Phase 1 of National Pollutant Discharge Elimination System (NPDES) took effect 1990 and required large and medium “MS4s” to reduce stormwater to the “maximum extent practicable”**
- **Phase II took effect in 1999, which required small MS4s to apply for NPDES permit coverage for their stormwater**

# FEDERAL LEGISLATION

## A Framework for Managing Stormwater

US EPA Clean Water Act (1972) prohibited discharge of pollutants to waters, unless authorized by a...



National Pollutant Discharge Elimination System (NPDES) Permit



Stormwater Management: In PA, DEP is Authorized to Administer NPDES Permits; they delegated partial oversight (construction stormwater) to Conservation Districts

# FEDERAL LEGISLATION

## National Pollutant Discharge Elimination System (NPDES)

- **NPDES permits:** Required for any discharge to waters of the Commonwealth. **Issued by PA DEP's Bureau of Clean Water**
- **Construction Stormwater** - Erosion and sediment control (earth disturbance 1 acre or more) – Call CCCD to report construction site with failing E&S
- **Wastewater Management**
  - Concentrated animal feeding operation (CAFO)
  - Pesticide application
  - Sewage treatment
  - Industrial waste
  - Industrial stormwater
  - **Municipal stormwater since 2003 – Managed under the MS4 Program**



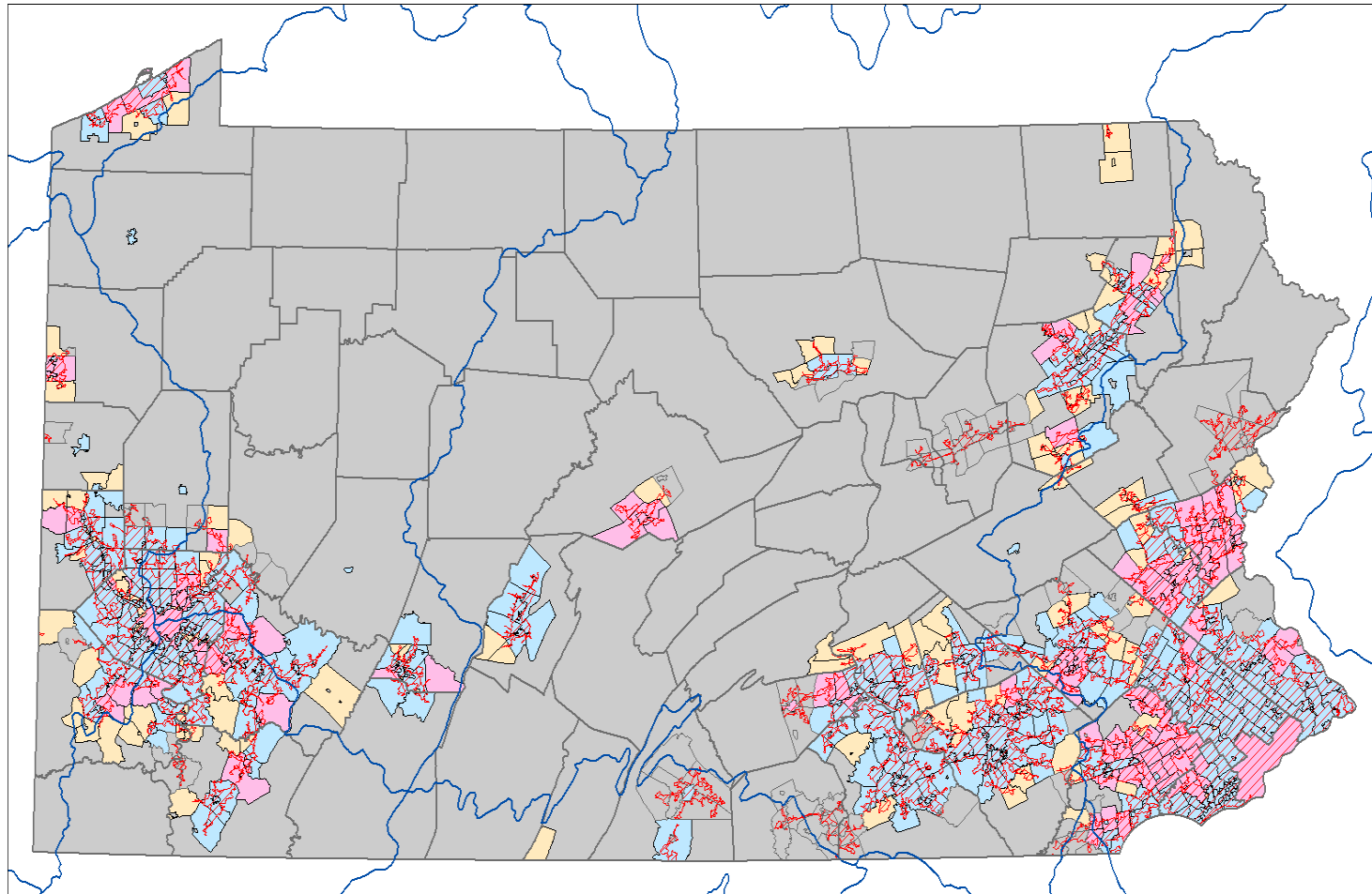
**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

# THE MS4 PROGRAM

## Municipal Separate Storm Sewer Systems (MS4)



# THE MS4 PROGRAM



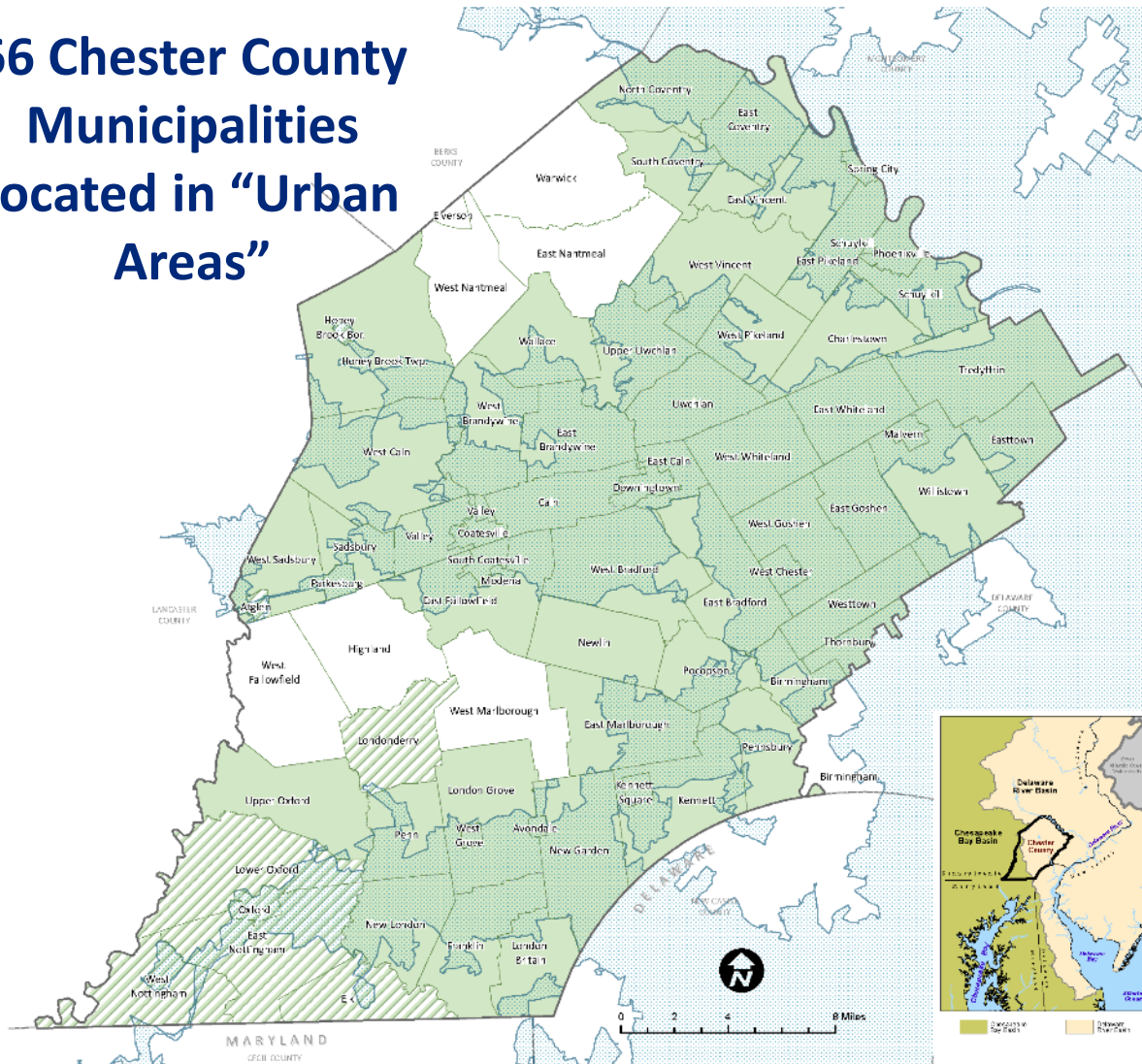
MS4 Municipalities / 2010 Urbanized Areas

- Penn State as of May 2012
- General
- Individual
- Water
- Municipalities
- County Domains
- 2010 Urbanized Area
- Major Watershed Boundary

0 15 30 60 90 120 Miles

# THE MS4 PROGRAM

## 66 Chester County Municipalities located in "Urban Areas"



Chester County  
Stormwater and Pollution Reduction

Map  
WQ-1-2015

## Municipalities in the MS4 Stormwater Permit Program & 2010 Urbanized Areas

Municipalities that meet certain population thresholds must obtain NPDES permit coverage for stormwater discharges from their storm sewers or conveyances, including but not limited to streets, ditches, and pipes.

Currently, 58 of Chester County's 73 municipalities have been designated by PADEP for inclusion in the small Municipal Separate Storm Sewer System (MS4) program. An additional eight (8) municipalities have been recently notified by PADEP that they will be included in the program for the next permit cycle (2018) as a result of the expansion of the Urbanized Area based on the 2010 census.

Urbanized Area - U.S. Census Bureau

2010 Urbanized Areas (Philadelphia and Pottstown)

Municipalities in the MS4 stormwater program

- 58 municipalities currently included in the MS4 program
- 8 municipalities notified that they will be included in MS4 program
- 8 municipalities not included in MS4 program
- County Boundary

### DATA SOURCES:

Municipalities in the MS4 Program - Pennsylvania Department of Environmental Protection, Bureau of Clean Water, July 2015  
Urbanized Areas - U.S. Census Bureau, US Department of Commerce, 2010  
Administrative Boundaries and Coordinates - Chester County, PA, Inc.

### DISCLAIMER:

This map was generated using the best information available at the time of publication. This map should not be relied upon as the sole basis of determination of regulatory requirements or responsibilities. The adjacent PADEP reports and other documents should be consulted for official descriptions and additional regulatory information. This map contains aerial imagery, and the PADEP reports are regularly updated. Please contact the PADEP for more information.

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Chester County Water Resources Authority

[www.chesco.org/water](http://www.chesco.org/water)

November 14, 2016



# THE MS4 PROGRAM

## Stormwater Management Program (SWMP)

- Municipalities are required to develop a **Stormwater Management Program** to be approved for their permit
  - Consist of six focus areas called “**Minimum Control Measures**” (MCMs)
- Some “impaired” watersheds have a **Total Maximum Daily Load (TMDL)** which specifies the maximum amount of certain pollutants that are allowed to enter the watershed
- Must develop a “**Pollution Reduction Plan**” (PRP) if discharging to the Chesapeake Bay or to a stream impaired by Nitrogen, Phosphorus, or Sediment

# STREAM ASSESSMENT

## PADEP Stream Classifications

- How do you determine if a stream is impaired?
- Protected Uses
  - Aquatic Life (cold water fishes, migratory fishes)
  - Water Supply (potable, industrial, etc.)
  - Recreation and Fish Consumption (boating, fishing, water contact sports)
- Special protection
  - High Quality Waters
  - Exceptional Value Waters

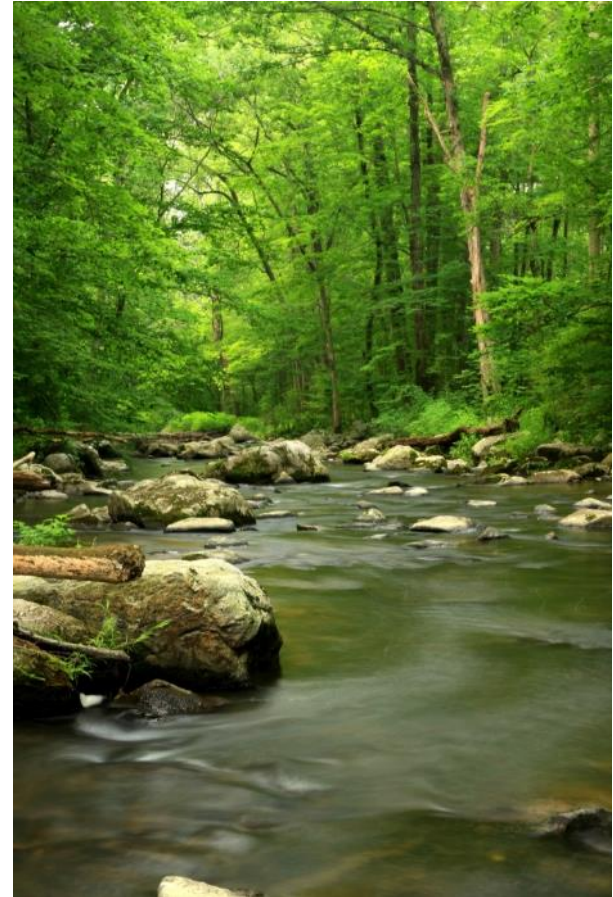




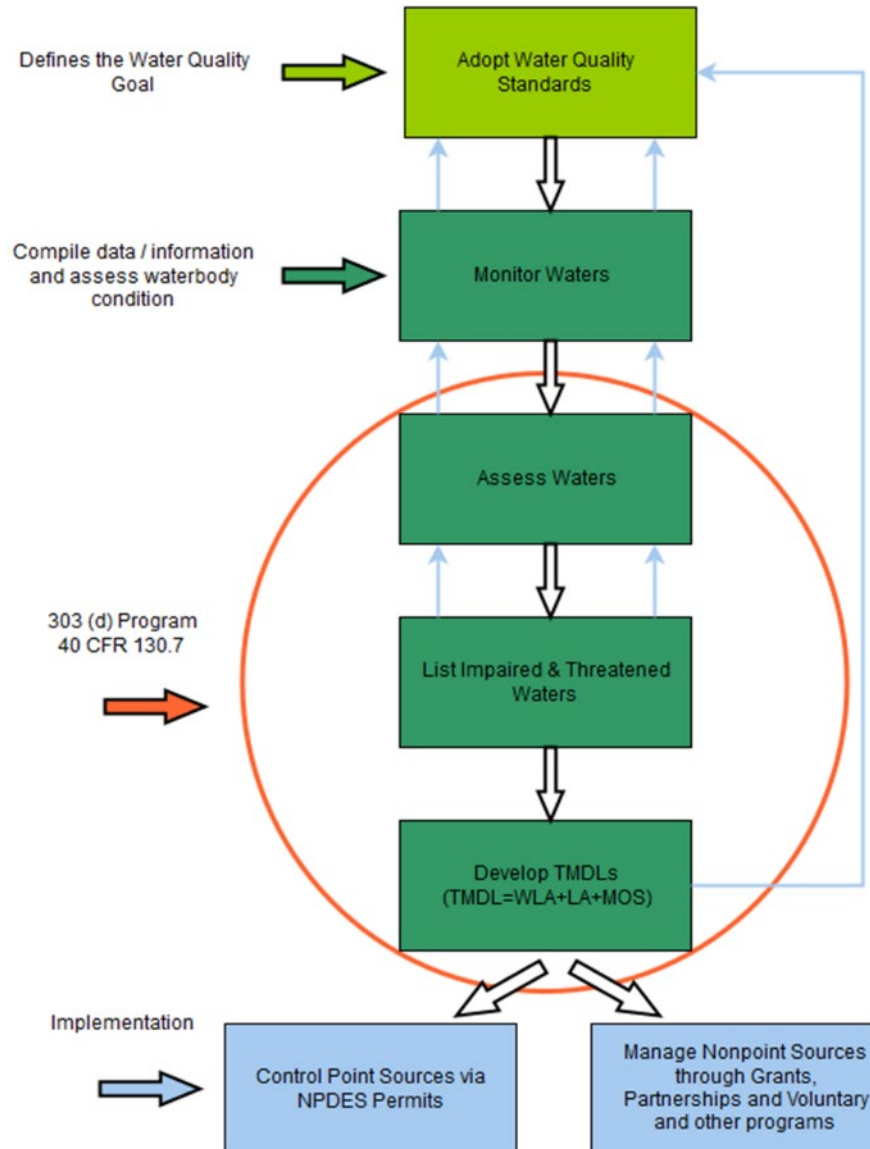
# STREAM ASSESSMENT

## Determining If a Stream is Impaired

- Section 303 (d) of the Clean Water Act requires states to compile a list of impaired streams
- PA DEP classifies streams in 3 broad categories:
  - Attaining
  - Impaired
  - Unassessed
- Assess streams using a variety of data:
  - Benthic macroinvertebrates
  - Bacteria samples
  - Fish tissue samples
  - Water chemistry



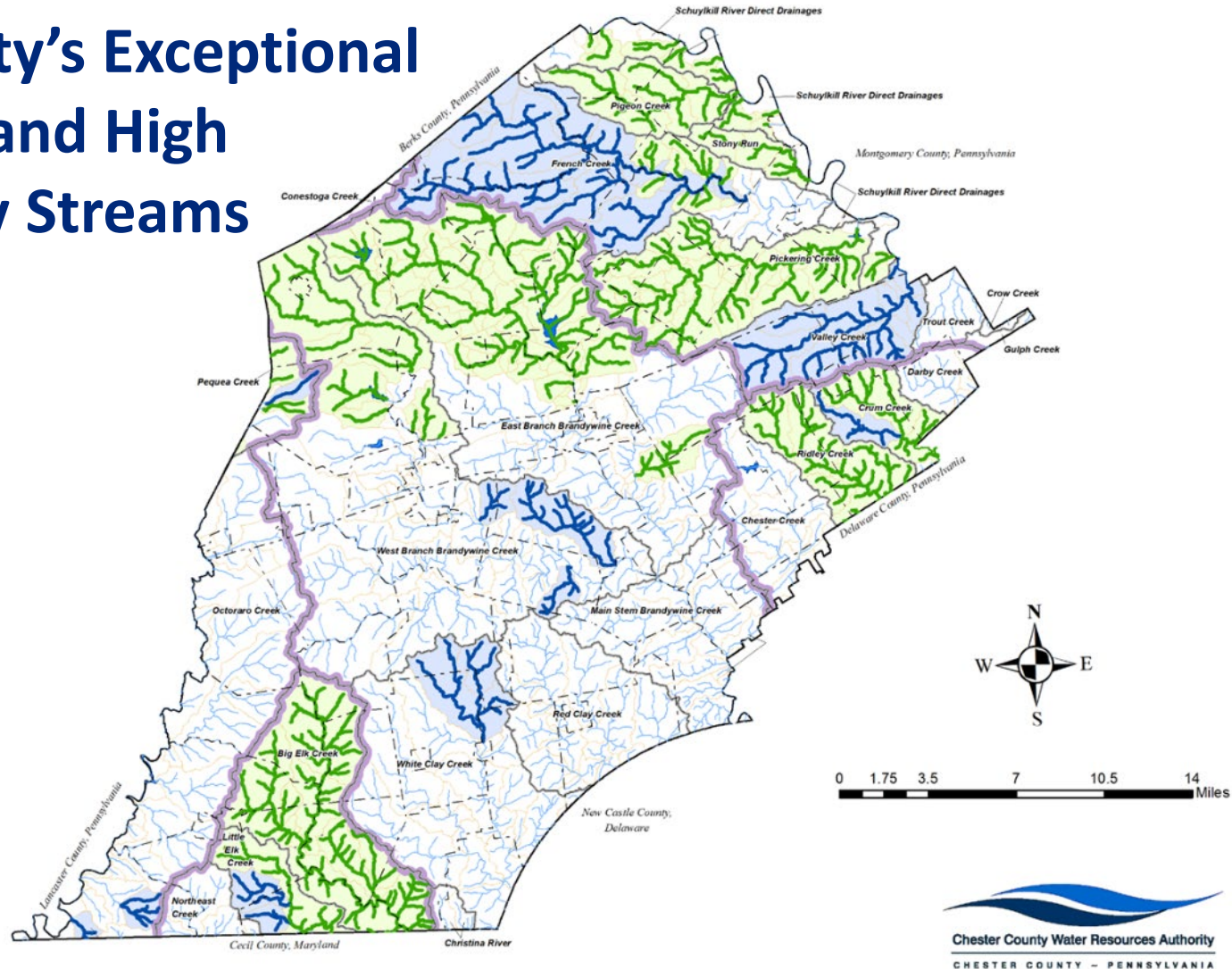
# STREAM ASSESSMENT



# STREAM ASSESSMENT

## Chester County's Exceptional Value and High Quality Streams

- 2348 stream miles
- 21 watersheds
- 190 miles of EV Streams
- 466 miles of High Quality streams



## Chester County's Impaired Streams

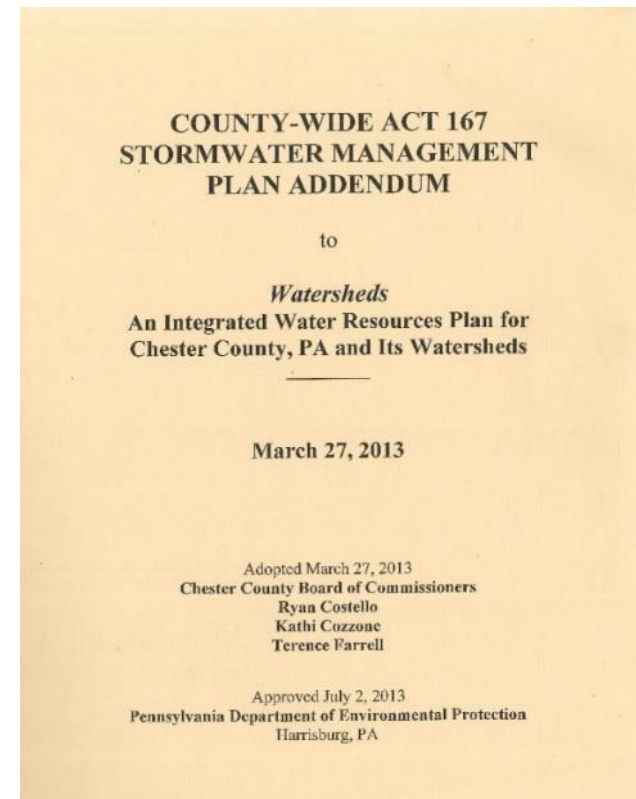
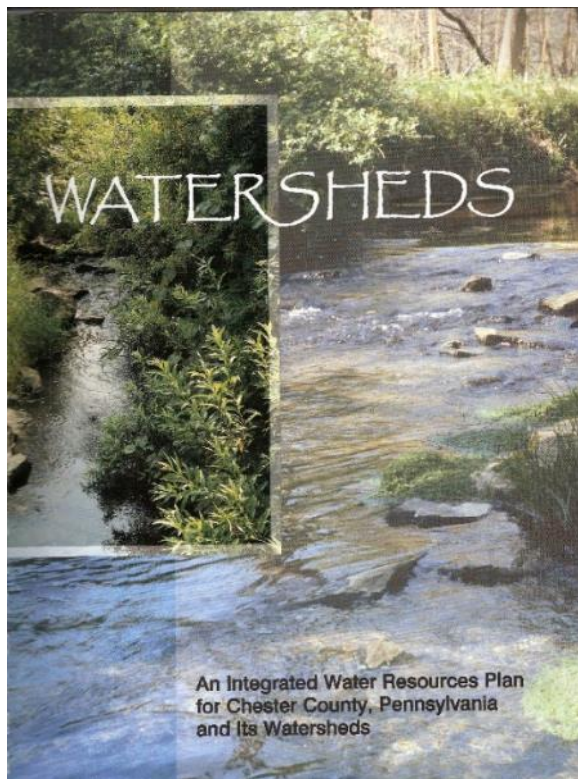
- **1394 miles  
assessed**
- **69% impaired**

## Municipal Stormwater Management Ordinances

- PA Stormwater Management Act (Act 167 of 1978) requires each county to adopt stormwater management plans for each watershed
- Each plan must include:
  - Survey of runoff characteristics
  - List of any flood control projects
  - Standards for development
- Act 167 also requires municipalities to adopt stormwater management ordinances consistent with their plans
- For MS4 municipalities, must comply with NPDES MS4 permit requirements

# LOCAL PLANNING

## Chester County's *Watersheds* plan and Stormwater Management Plan and Model Ordinance



# CONCLUSIONS

## Leverage the program to your community's advantage



 **Avon Grove Library**  
Yesterday at 9:00 AM · 🌐

It's so cool to watch the rain garden in action! The little ponds fill up with rain and then drain away in minutes after the shower ends. Even during the severe storms we've had recently, the rain garden hasn't overflowed!

Thanks again to [West Grove Borough, PA](#) and [White Clay Creek National Wild and Scenic River](#) for creating such a wonderful and well-designed resource here, right in front of our windows. [#reducewaterpollution](#) [#reducestormwaterrunoff](#)



# Questions?

*water@chesco.org*  
*chesco.org/water*  
**610-344-5400**

