



# Rainfall to Results: the Future of Stormwater

Chris French  
Director – Stormwater Programs  
WEF Stormwater Institute

CWEA Stormwater Summit

June 8, 2016



- Federation of Sewage Works (1928)



- Federation of Sewage and Industrial Wastes Association (1950)



- Water Pollution Control Federation (1960)

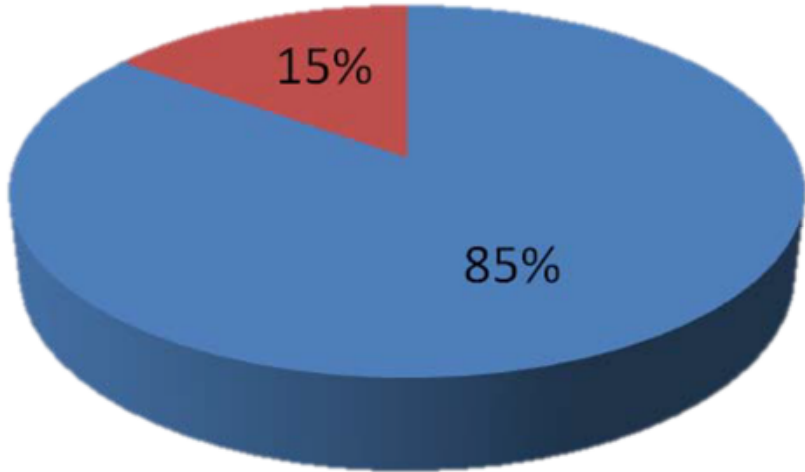


- Water Environment Federation (1991)



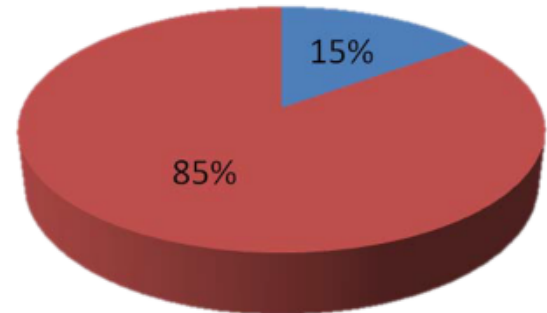
# The Rise of Nonpoint Source Pollution

1970



40 yrs

2010



**Point Source vs. Nonpoint Source**

**Water Quality Impairments**







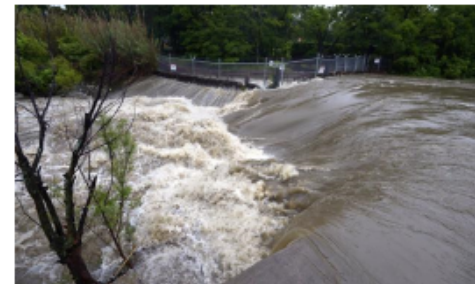
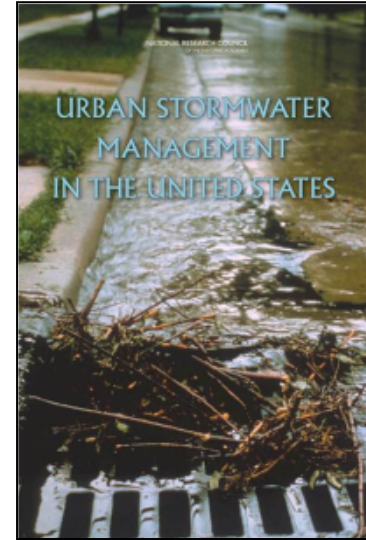
1980s

1990s

2000s

2010s

- Clean Water Act Amendments – NPS implementation projects, 1987
- MS4 Permitting Program, Phase I, 1990
- MS4 Permitting Program, Phase II, 1999
- NRC Urban Stormwater Runoff Report, 2008
- Integrated Planning Framework, 2011
- Withdrawal of Stormwater Regulatory Framework, 2014
- Formation of Green Infrastructure Collaborative, 2014
- Revised memo on SW Permits & TMDLs, 2014



## 2009 – 2011

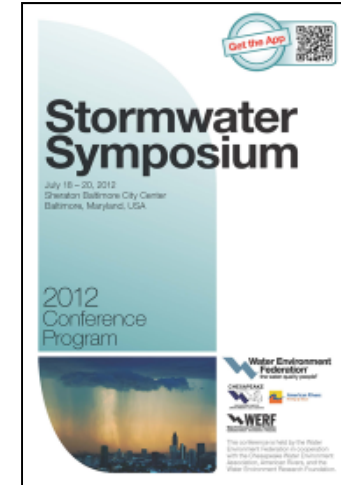
- WEF Board of Trustees appoints Stormwater Task Force, [2009](#)
- Formation of Stormwater Coordinating Council, [2010](#)
- Formation of Stormwater Committee, [2011](#)
- Stormwater Report, e-newsletter and website launched, [2011](#)
- WEF Position Statement on Stormwater Management, [2011](#)
- “Future of Stormwater” meeting, [2011](#)





## 2012 – 2014

- Promotion of Stormwater Program Director, 2012
- WEF Stormwater Symposium, 2012
- 1<sup>st</sup> WEFTEC Stormwater Congress, 2013
- *World Water, Stormwater Management* magazine launched, 2013
- STEPP white paper released, 2014
- 2<sup>nd</sup> WEFTEC Stormwater Congress, 2014
  - National Stormwater Summit



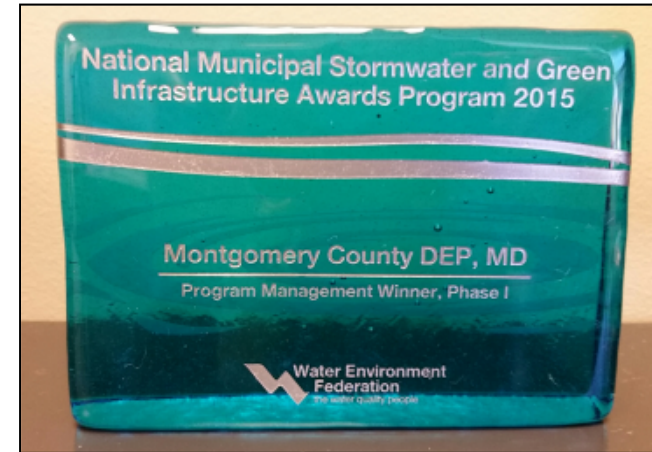
# 2014 National Stormwater Summit

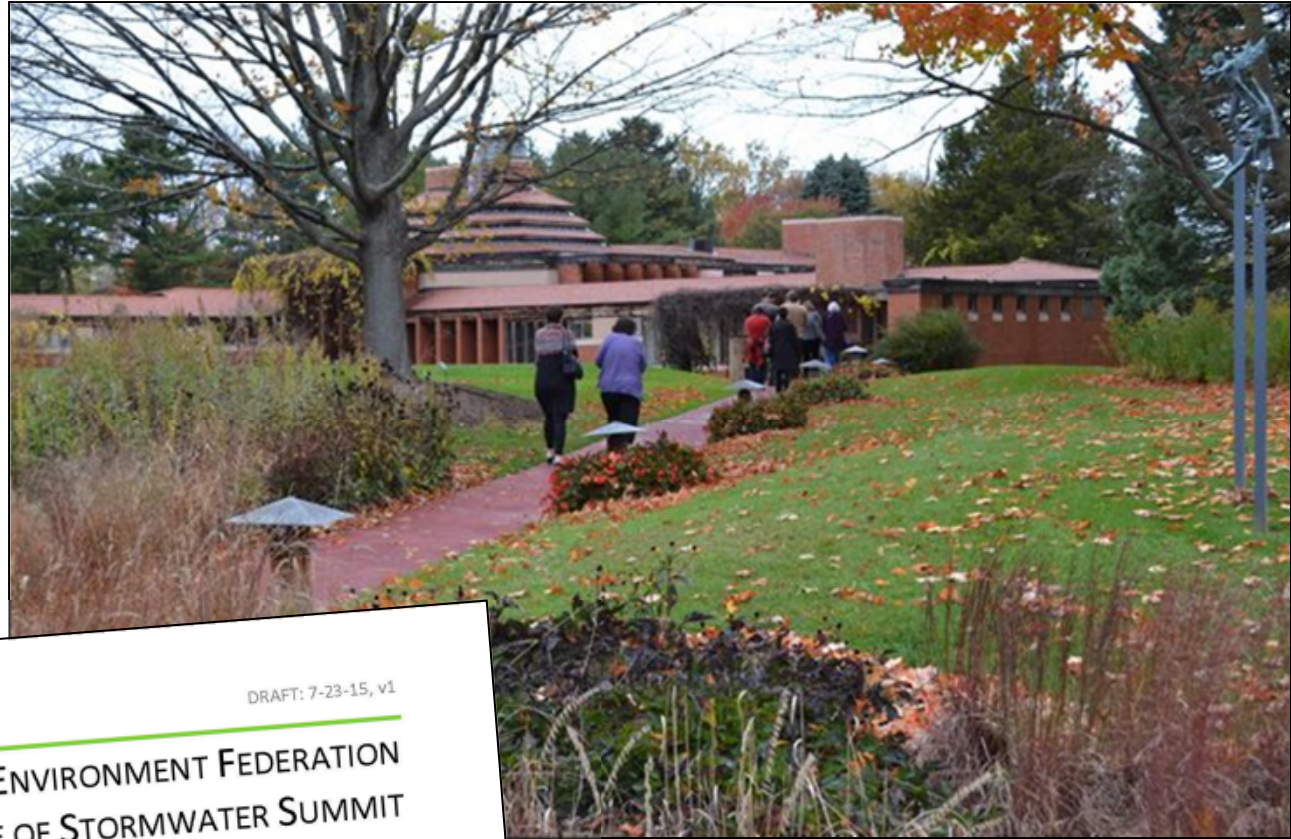
“Consensus that WEF should take a national role in the sector, and convene future meetings”



2015

- 1<sup>st</sup> National Phase I and Phase II MS4 Awards Program
- 3<sup>rd</sup> WEFTEC Stormwater Congress
- *State of Stormwater and Action Agenda Meeting*
- *Launch of the WEF Stormwater Institute*





DRAFT: 7-23-15, v1

## WATER ENVIRONMENT FEDERATION STATE OF STORMWATER SUMMIT

*Synthesis of Pre-Summit Interviews and Survey Results*

### BACKGROUND

To inform discussions at the July 26 – 28 *State of Stormwater Summit*, the Water Environment Federation (WEF) with support from Ross Strategic carried out nine approximately 60-minute telephone interviews with stormwater experts and opinion leaders and surveyed the WEF Stormwater Working Group. Participants were asked a structured series of questions about strengths in the current stormwater system, challenges and opportunities, a long-range vision for stormwater management, and actions needed to overcome challenges, seize opportunities, and move toward the vision. This document summarizes the results of the interviews and survey. Please note the following caveats:

- “Statements of fact” made by participants have been taken as given, but not verified.
- The summary seeks to strike a balance between respecting the richness and detail of the interviews/survey while providing a reasonably digestible and compact presentation – some fidelity has been undoubtedly lost in translation.
- The material is drawn from individual contributions – any given statement should not be viewed as a consensus perspective, and at times statements, reflective of different perspectives, can contradict each other.

The  
**Johnson**  
Foundation  
AT WINGSPREAD

## MEETING PARTICIPANTS

**Andrew Reese** • Vice President, Amec Foster Wheeler

**Brenna Mannion** • Regulatory Affairs & Outreach Director, National Association of Clean Water Agencies

**Chris French** • Regulatory Manager, Contech Engineered Solutions, LLC (representing the Stormwater Equipment Manufacturers Association)

**Fernando Pasquel** • Vice President, ARCADIS

**Geoff Brosseau** • Executive Director, California Stormwater Quality Association

**Heather Harris** • Project Manager, CH2M

**Jay Dorsey** • Water Resources Engineer, Ohio Department of Natural Resources

**Karen Sands** • Manager of Sustainability, Milwaukee Metropolitan Sewerage District

**Kevin Weiss** • Chemical Engineer, U.S. Environmental Protection Agency

**Kyle Dreyfuss-Wells** • Deputy Director of Watershed Programs, Northeast Ohio Regional Sewer District

**Lynn Broadbus** • President, Broadview Collaborative, Inc.

**Mike Beezhold** • Senior Planner, CDM Smith

**Nancy Stoner** • Water Program Director, Pisces Foundation

**Randy Bartlett** • Deputy Director, Fairfax County Government Stormwater and Wastewater Management Divisions

**Randy Neprash** • Staff, Minnesota Cities Stormwater Coalition and Stormwater Regulatory Specialist, Stantec Consulting

**Robert Traver** • Professor and Director of the Villanova Urban Stormwater Partnership, Villanova University

**Sandra Ralston** • Principal, Consensus LLC

**Sue Olson** • Project Engineer, City of Appleton Department of Public Works

**Terry Leeds** • Director, Kansas City Water Services

**Theresa Connor** • Research Program Director, Water Environment Research Foundation

**Trevor Clements** • Water Resources Director, Tetra Tech

## PHONE INTERVIEWEES

**Bob Newport** • Stormwater Specialist, U.S. Environmental Protection Agency Region 5

**Chris Kloss** • Green Infrastructure Coordinator, U.S. Environmental Protection Agency Office of Water

**Scott Taylor** • Senior Vice President, Michael Baker International

**Sherry Wilkins** • Stormwater Director, Huntington Stormwater Utility

**Steve Leo** • Stormwater Management Division Director, Gwinnett County

**Wes Sydnor** • Municipal Separate Storm Sewer System Program Manager, Louisville Metropolitan Sewer District

**Will Harris** • National Sales Manager, Modular Wetland Systems, Inc. (representing the Stormwater Equipment Manufacturers Association)

## FACILITATORS

**Elizabeth McManus** • Principal, Ross Strategic

**Rob Greenwood** • Principal, Ross Strategic

## RAINFALL TO RESULTS TEAM

**Kristina Twigg** • Associate Editor, Water Environment Federation

**Matthew Ries** • Chief Technical Officer, Water Environment Federation

**Roger C. Dower** • President, The Johnson Foundation at Wingspread

**Seth Brown** • Senior Stormwater Advisor, Water Environment Federation and Principal/Founder, Storm and Stream Solutions, LLC

**Steve Dye** • Legislative Director, Water Environment Federation and President, Nexus Government Relations

**Tad Segal** • President, Outreach Strategies, LLC

**Timothy Williams** • Deputy Executive Director, Water Environment Federation

# wef Stormwater Institute

- A new center of excellence and innovation housed within WEF
- Responds to MS4 professionals for a central hub on stormwater issues, and provides a platform to develop best practices and share better approaches to stormwater management
- Will leverage and be complementary to ongoing and proposed WEF stormwater programs
- Provides new options for collaboration and funding for key initiatives
- <http://wefstormwaterinstitute.org/>



# Objectives for stormwater success

Work at the watershed scale



Manage assets and resources



Close the funding gap



Transform stormwater governance



Engage the community



Support innovation and best practices



# WEF STEPP Initiative



- Lack of consistent stormwater treatment technology testing standard and evaluation program creates confusing marketplace
  - Regulators & stormwater managers unsure if reported best management practice (BMP) pollution removal numbers are real
  - Innovative technologies lack consistent regulatory recognition pathways, resulting in marketplace barriers
  
- STEPP seeks to establish a common performance testing protocol and evaluation process for stormwater BMPs



# WEF STEPP Initiative



- Forthcoming recommendation building on 2 widely recognized programs in the US
- Will initially look at BMP performance after initial construction
- Will allow for BMP monitoring performance monitoring over time; addressing longevity and provide insights on BMP resiliency issues
  - Practices with greatest longevity and resiliency result in reduced costs to end user
- Resource managers can better understand system performance over time and the appropriate uses for BMPs

# WEF National MS4 Awards

([www.wef.org/MS4awards](http://www.wef.org/MS4awards))

## Overall Highest Scores

- Phase I – Charlotte Stormwater Services, Charlotte, NC
- Phase II – City of Fairbanks, Alaska

## Innovation

- Phase I – City of Santa Monica, Calif.  
and City of Tacoma, Wash.
- Phase II – City of Alexandria, Va.

## Program Management

- Phase I – Montgomery County Department of Environmental Protection, Md.
- Phase II – Lafayette Consolidated Government, Lafayette, La



**2016 applications closed April 15<sup>th</sup>**

NATIONAL  
GREEN  
INFRASTRUCTURE  
CERTIFICATION  
PROGRAM

ngicp





- NGICP sets national certification standards for GI construction, inspection, and maintenance work
- Promotes GI as an environmentally and economically beneficial stormwater management option
- Supports the development of proficient green workforces, and establishes a career path for skilled GI workers



- Momentum is building!
- Partners include:
  - Baltimore City, MD, Department of Public Works
  - Fairfax County, Virginia
  - Capital Region Water Board, Harrisburg, PA
  - Kansas City, MO, Water Services Department
  - Louisville, KY Metropolitan Sewer District
  - Milwaukee Metropolitan Sewerage District (MMSD)
  - Montgomery County, Maryland
  - San Francisco Public Utilities Commission

# GI Maintenance Issues

**Clogged Grate  
Inlet to  
Stormwater  
Planter Box  
System**

**Allows Water  
to Bypass  
BMP**



# GI Maintenance Issues

**Clogged  
Grate Inlet to  
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**Allows Water  
to Bypass  
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# Objective: Engage the Community

- Work with variety of stakeholders to build public understanding of stormwater and governance issues
- Leverage limited resources and education program goals
- Build public support for programs





# Engage the Community

- Action 7.1 Improve the ability of the stormwater sector to engage various audiences

# Some Ways Can Volunteers Help

- Identify stormwater outfalls
- Stream walks and visual observation
- Notify when finding poor E&S controls
- Finding cross and illicit stormwater connections
- Education and outreach
- Collecting WQ samples/producing WQ data



# 2013 Arlington County MS4 Permit

## MS4 Permit Requirements for Bacteria Program

Excerpt:

- The permittee shall use the Coliscan EasyGel method to analyze in-stream E-coli levels.
- The permittee shall collect monthly samples at each of the following locations in Four-Mile Run identified in Table I.
- **The permittee may rely on community volunteers to conduct bacteriological monitoring.**
- The permittee shall analyze the data for relationships with precipitation events including recent (occurred within 24-hours of sampling) and long term (total monthly precipitation).



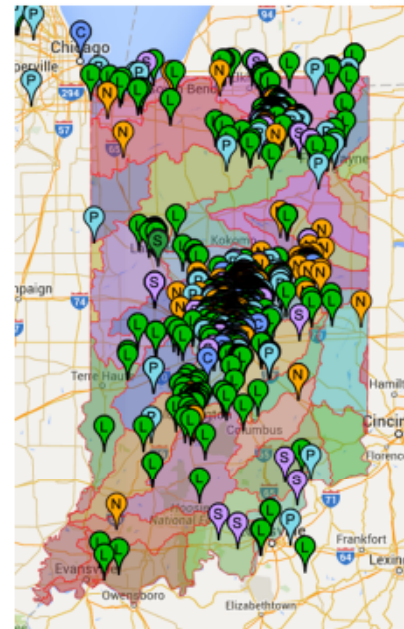
# Engage the Community

- Action 7.2 Encourage and support peer-to-peer information sharing between public officials on stormwater challenges, successes, *and failures.*

# Uniting MS4s (and other partners) Through a Common 'Call-To-Action' Campaign

- ✓ Case Study - White River Alliance and Tippecanoe Watershed Foundation
- ✓ 21 MS4s (Stormwater permittees)
- ✓ 3 Major Water Utilities (statewide reach)
- ✓ Soil & Water Conservation Districts and Soil Waste Districts
- ✓ Large and small watershed groups
- ✓ Other NGOs (wildlife federation, parks, land trusts, Boy Scouts, etc)
- ✓ Corporate/Industry partners
- ✓ **Everyone uses it as THEIR OWN program and promotes it through their own venues = LEVERAGE**

MAP OF PLEDGES



# Learning from Stumbles

www.richmond.com/news/local/city-of-richmond/article\_458198b4-4ec1-5447-96cc-27697f0be561.html

Richmond 56°

## Richmond Times-Dispatch

SEARCH

NEWS VIRGINIA POLITICS BUSINESS ENTERTAINMENT FOOD & DRINK SPORTS VIDEO OPINION WEATHER JOBS REAL ESTATE ALL SECTIONS

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### Disputed Reedy Creek restoration project set to begin this summer

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Posted: Sunday, April 17, 2016 9:30 pm

By JOHN RAMSEY Richmond Times-Dispatch

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DANIEL SANGJIB MIN/TIMES-DISPATCH


Bill Shanabruch opposes the restoration of Reedy Creek in Richmond. The project will

A city of Richmond plan to restore a portion of Reedy Creek in South Side has drawn the ire of neighbors who see the project as an unnecessarily risky move that will require the felling of more than 400 trees.

The \$1.27 million plan calls for creating a new stream pattern that will allow excess water to enter a floodplain along 1,940 feet of Reedy Creek and 775 feet of a tributary known as Crooked Branch. The

### VIDEOS

Mayor Jones and Bike Walk RVA  
Richmond Times-Dispatch



Now Playing

Mayor Jones and Bike Walk RVA  
Bike to Work Day and the Bike/Walk Street on Floyd...

VIDEO: Bear found in neighborhood is released

# Ecological

## APPLICATIONS

A PUBLICATION OF THE ECOLOGICAL SOCIETY OF AMERICA

- 2011 special issue dedicated to Streambank Restoration Challenges & Failures
- 7 Studies evaluated ecological outcomes of channel reconfiguration restoration projects in eastern United States and western Europe
- “Unfortunately, the conclusions of these papers are sobering. Empirical evaluation of a variety of channel-based restoration projects discovered little evidence of ecologically successful outcomes.”

# Recent WEF Policy Engagement

- NMSA - New organization developing to engage MS4 communities to collaborate, educate, and to provide a new voice regarding MS4 related matters
- WEF & NMSA currently developing MOU to work towards common interests





# Recent WEF Policy Engagement

- Collaborated to produce robust comments to EPA regarding proposed MS4 Phase II Remand Rule
  - Focus not only on state elements, but specifically how small MS4 communities might be affected by proposed rules
- Provided comments regarding draft 2017 Construction Stormwater Permit
  - Made suggestions re wash water and demolition activity implementation (possible PCB/toxics source)

## Fish Tissue Advisories and TMDLs

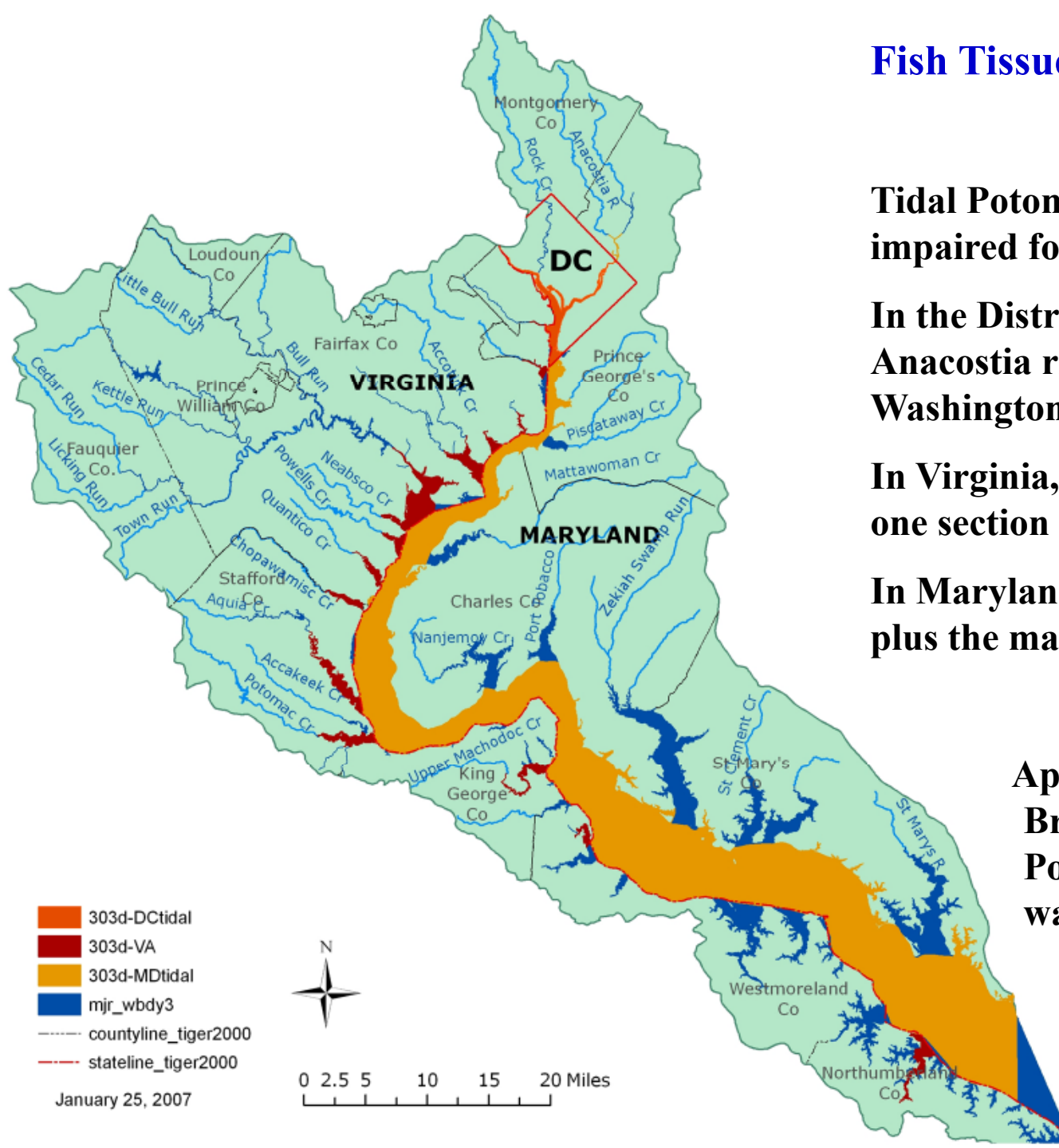
**Tidal Potomac water bodies listed as impaired for PCBs in fish tissue.**

**In the District of Columbia, the Anacostia river, the Potomac river, Washington Ship Channel.**

**In Virginia, 19 separate embayments & one section of Potomac R.**

**In Maryland, the tidal Anacostia river plus the mainstem Potomac**

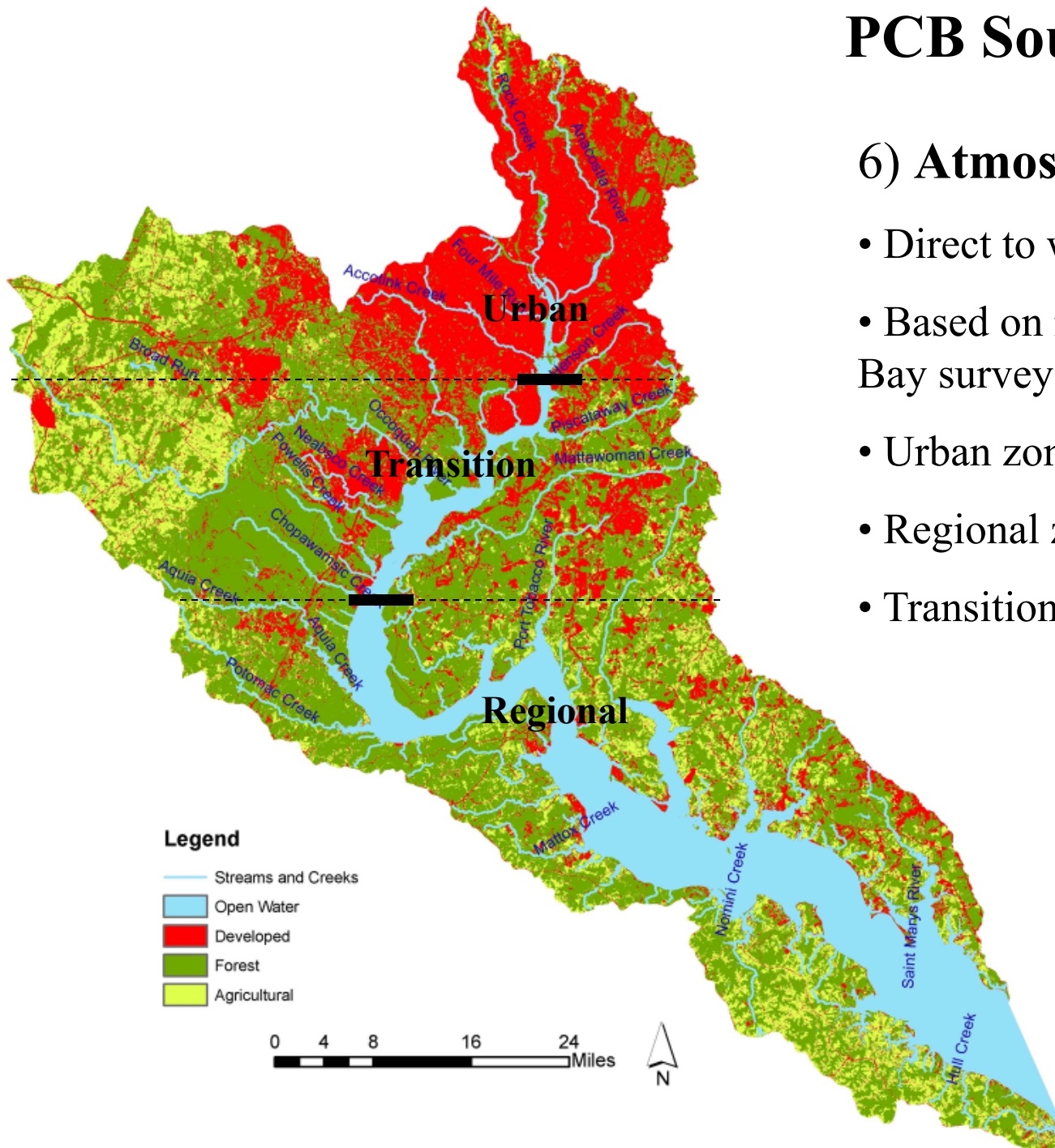
**Approx 117 miles from Chain Bridge to the mouth of the Potomac, 457 mi<sup>2</sup> tidal waters.**



# PCB Source categories

## 6) Atmospheric Deposition

- Direct to water surface only
- Based on mid '90s Chesapeake Bay survey and literature review.
- Urban zone 16.3 ug/m<sup>2</sup>/yr tPBC
- Regional zone 1.6 ug/m<sup>2</sup>/yr tPBC
- Transition zone interpolated

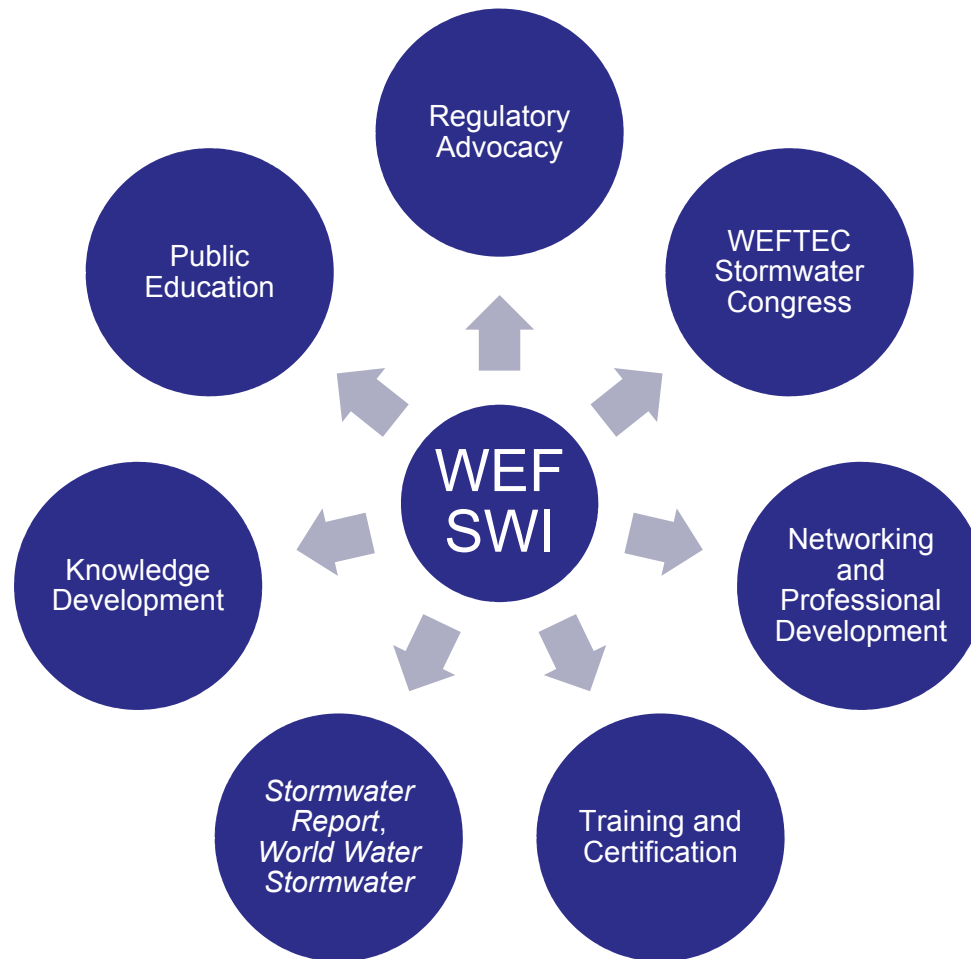


[wefstormwaterinstitute.org](http://wefstormwaterinstitute.org)

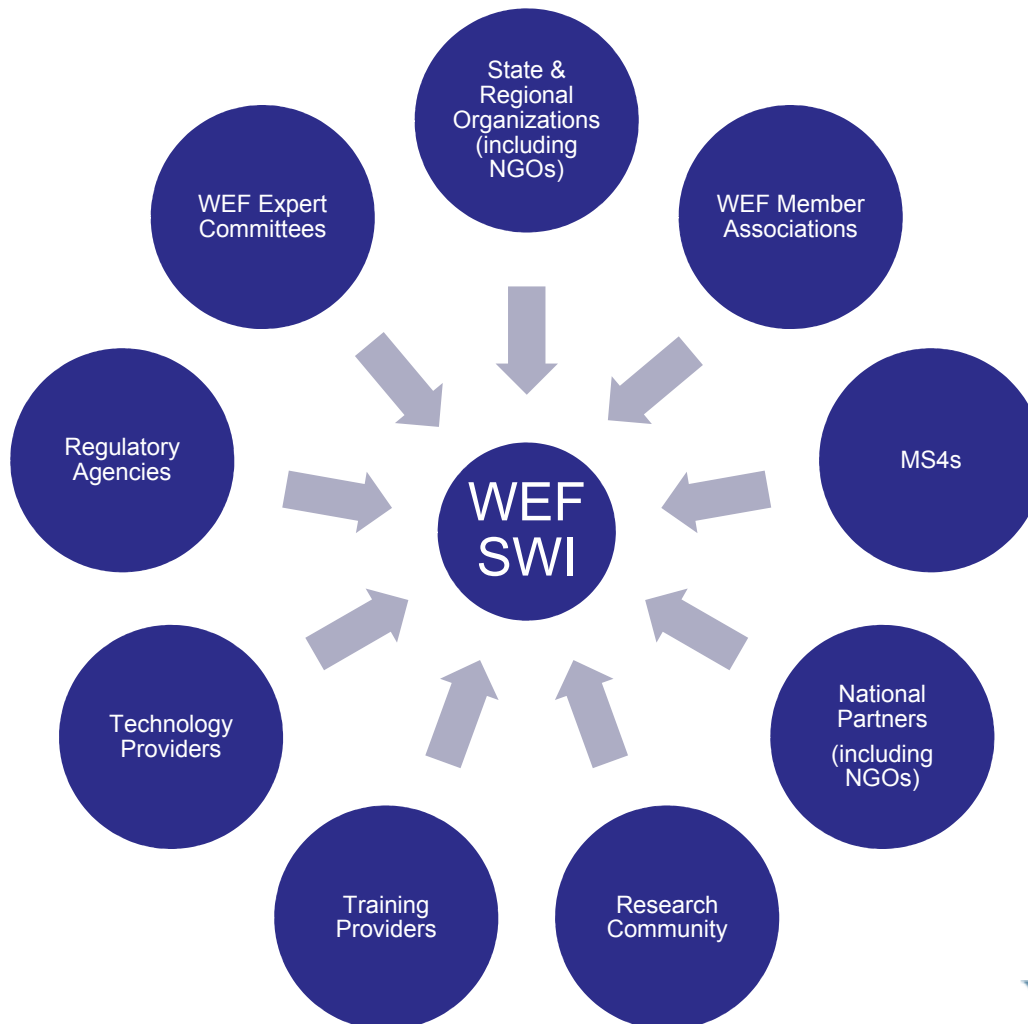
[stormwater.wef.org](http://stormwater.wef.org)



## WEF Stormwater Institute will fill the need for a center of excellence and information hub for Stormwater practitioners and agencies



## WEF Stormwater Institute will seek input from and partner with diverse stakeholders and interests





# Questions and Discussion

[wefstormwaterinstitute.org/rainfall-to-results](http://wefstormwaterinstitute.org/rainfall-to-results)

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