



# Regulatory Framework USEPA Region 4

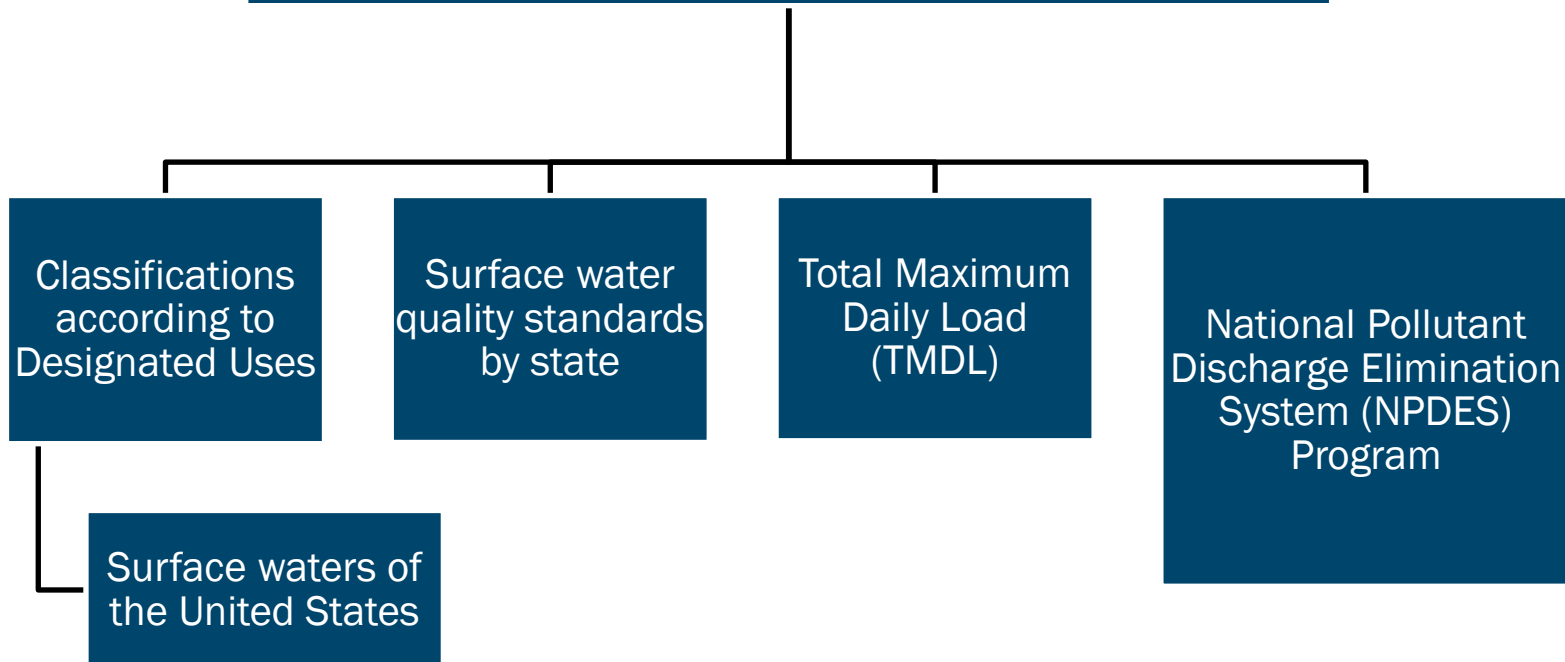
SESWA 11<sup>th</sup> Annual Stormwater Seminar  
April 15, 2016

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# Regulatory Framework - Federal



## Clean Water Act (1972)



# Regulatory Framework - Federal

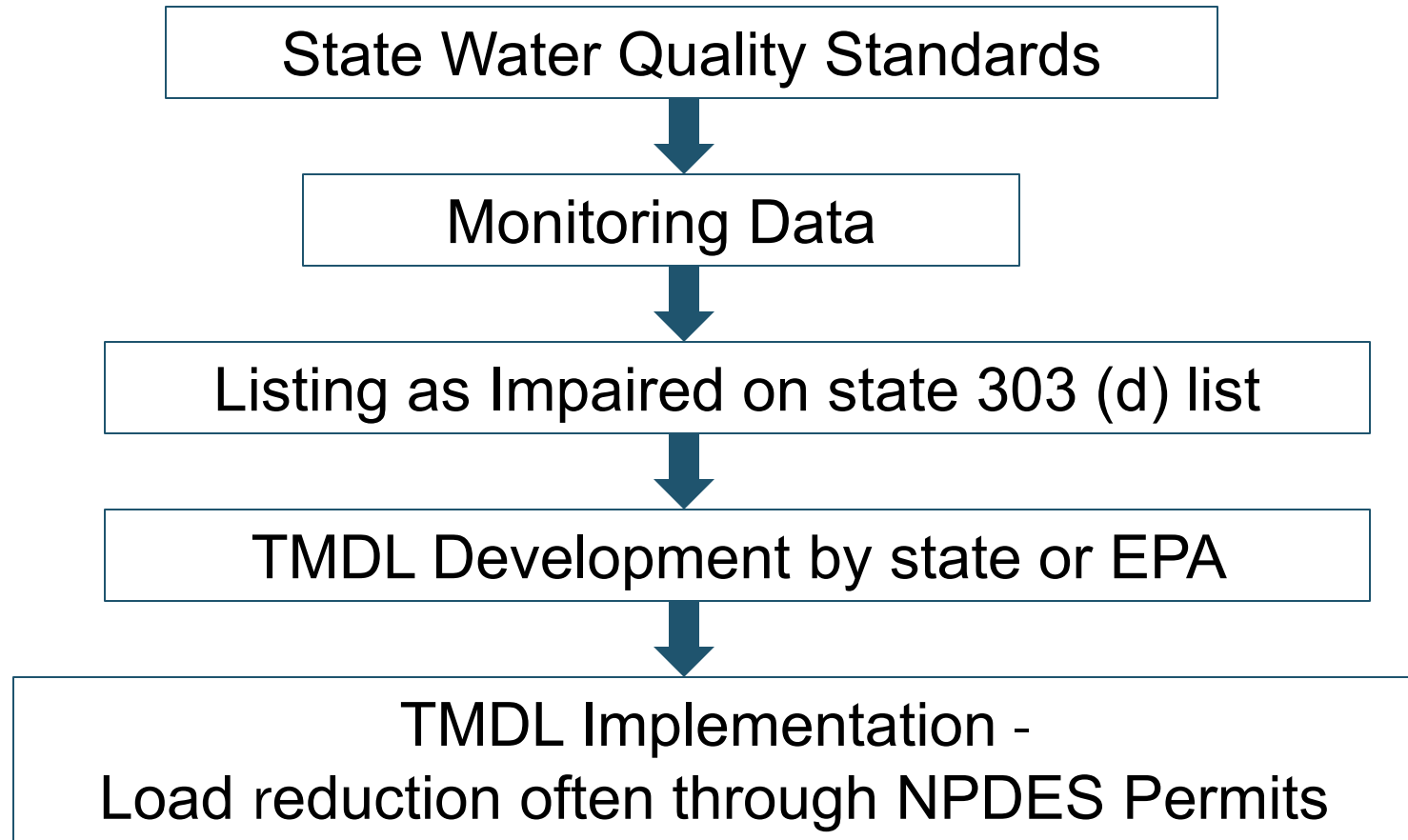
- Possible National Stormwater Rule:
  - Incentives
  - Technical assistance
  - Tools to implement strong stormwater programs
  - Leverage existing requirements to strengthen municipal stormwater permits
  - Continue to promote green infrastructure as an integral part of stormwater management
- EPA largely out of new TMDLs

# **MS4 Requirements**

## **Minimum Control Measures (MCMs)**

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Post-Construction Storm Water Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations Maintenance

# TMDL Process



# USEPA Region 4 Approved TMDLs by State

State Name	Number of TMDLs
<a href="#"><u>Alabama</u></a>	<a href="#"><u>305</u></a>
<a href="#"><u>Florida</u></a>	<a href="#"><u>2,246</u></a>
<a href="#"><u>Georgia</u></a>	<a href="#"><u>1,700</u></a>
<a href="#"><u>Kentucky</u></a>	<a href="#"><u>345</u></a>
<a href="#"><u>Mississippi</u></a>	<a href="#"><u>1,440</u></a>
<a href="#"><u>North Carolina</u></a>	<a href="#"><u>13,443</u></a>
<a href="#"><u>South Carolina</u></a>	<a href="#"><u>524</u></a>
<a href="#"><u>Tennessee</u></a>	<a href="#"><u>1,276</u></a>

Total: 21,279 TMDL

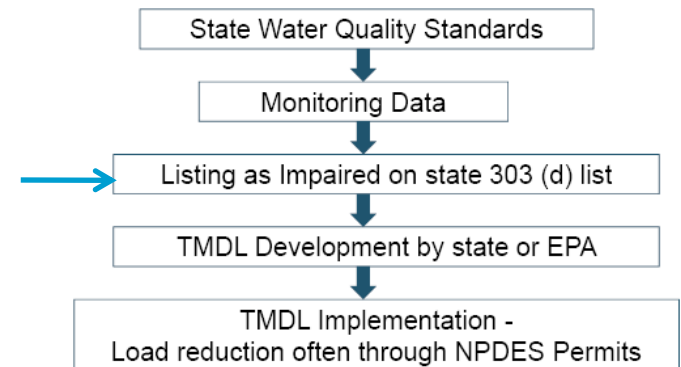
# USEPA Region 4 Approved TMDLs

<b>Pollutant Group</b>	<b>Number of TMDLs</b>
Mercury	<u>14,474</u>
Pathogens	<u>2,915</u>
Nutrients	<u>1,267</u>
Sediment	<u>1,057</u>
Organic Enrichment/Oxygen Depletion	<u>642</u>
Pesticides	<u>335</u>
Metals (other than Mercury)	<u>122</u>

# Current Status of State-wide Numeric Nutrient Criteria

- Very few states have state-wide numeric nutrient criteria
- Most criteria are narrative – “cannot cause an imbalance of flora and fauna”
- South Carolina – phosphorus; adopted EPA Ecoregion values in 2001 (only state)
- Florida - phosphorus and nitrogen for freshwaters; FL estuaries in progress

**Most states currently have narrative nutrient criteria. Numeric nutrient criteria typically significantly increase the number of impaired waters.**





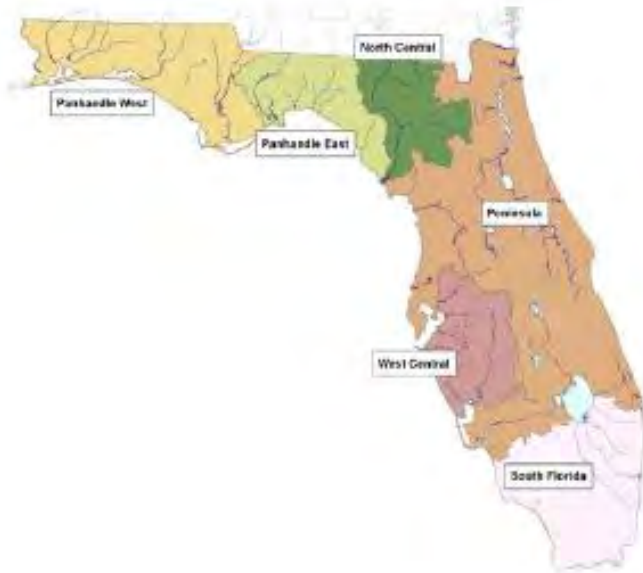
# Florida's Lake Nutrient Criteria

Long Term Geometric Mean Lake Color and Alkalinity	Annual Geometric Mean Chlorophyll <i>a</i>	Minimum calculated numeric interpretation		Maximum calculated numeric interpretation	
		Annual Geometric Mean Total Phosphorus	Annual Geometric Mean Total Nitrogen	Annual Geometric Mean Total Phosphorus	Annual Geometric Mean Total Nitrogen
> 40 Platinum Cobalt Units	20 µg/L	0.05 mg/L	1.27 mg/L	0.16 mg/L <sup>1</sup>	2.23 mg/L
≤ 40 Platinum Cobalt Units and > 20 mg/L CaCO <sub>3</sub>	20 µg/L	0.03 mg/L	1.05 mg/L	0.09 mg/L	1.91 mg/L
≤ 40 Platinum Cobalt Units and ≤ 20 mg/L CaCO <sub>3</sub>	6 µg/L	0.01 mg/L	0.51 mg/L	0.03 mg/L	0.93 mg/L

<sup>1</sup> For lakes with color > 40 PCU in the West Central Nutrient Watershed Region, the maximum TP limit is 0.49 mg/L, which is the TP streams threshold for the region.

Allowable TP and TN concentration to achieve chlorophyll a standard.

# Florida's In-Stream Nutrient Criteria



Annual geometric mean not to be surpassed more than once every 3 years.

Nutrient Region	Total Phosphorus Threshold	Total Nitrogen Threshold
Panhandle West	0.06 mg/L	0.67 mg/L
Panhandle East	0.18 mg/L	1.03 mg/L
North Central	0.30 mg/L	1.87 mg/L
Peninsula	0.12 mg/L	1.54 mg/L
West Central	0.49 mg/L	1.65 mg/L
South Florida	No numeric nutrient threshold. The narrative criterion in paragraph 62-302.530(47)(b), F.A.C., applies. <sup>2</sup>	

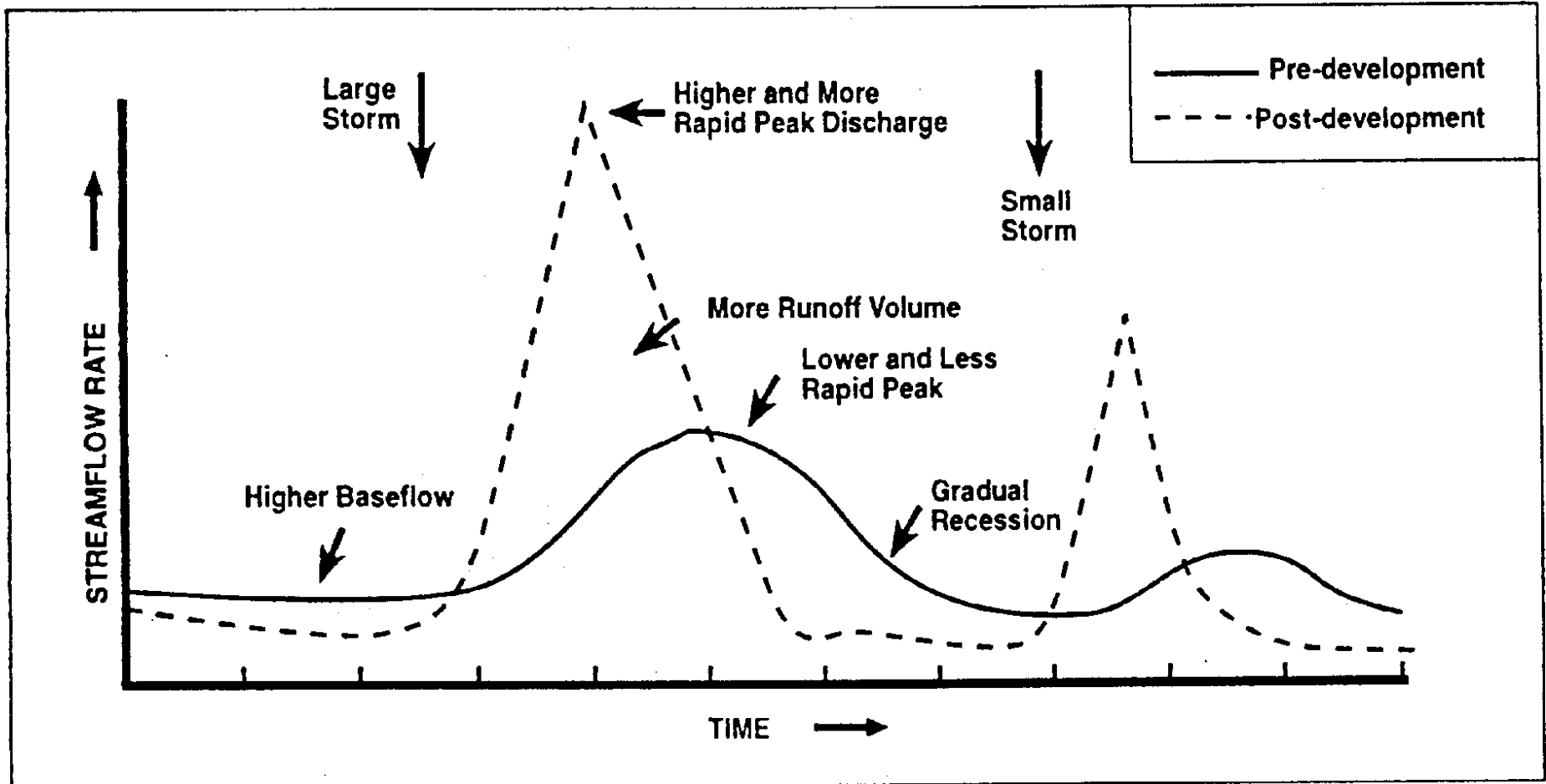
Rule includes Site Specific Alternative Criteria (SSAC) and mixing zones. Cannot have mixing zone in Impaired Water. Sound science.

# Comparison of BMP Treatment Efficiencies for Primary Pollutants

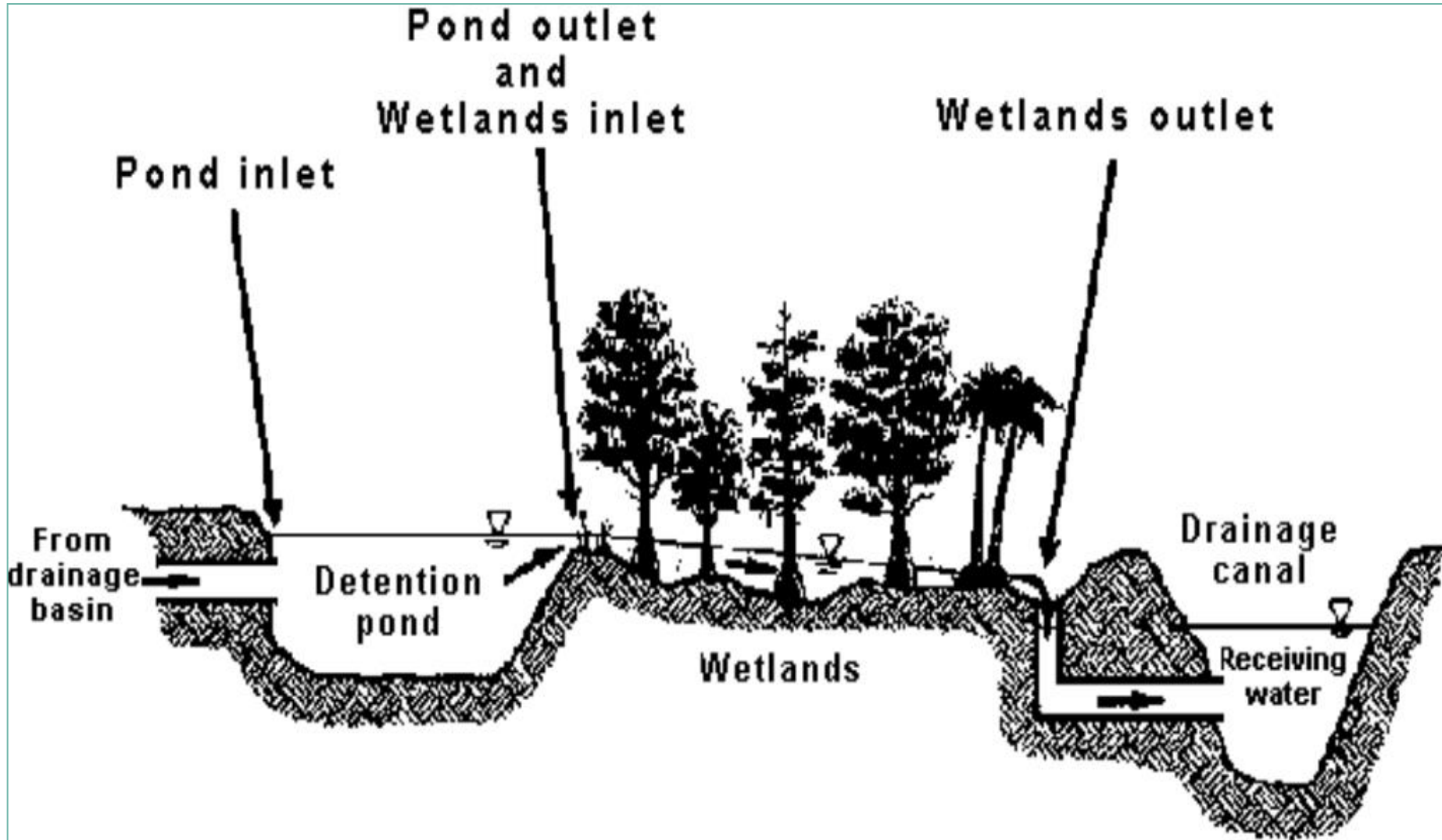
Type of BMP	Estimated Removal Efficiencies (% Load Reduction)			
	TN	TP	TSS	BOD
<b>INFILTRATION/REUSE</b>				
<b>Volume Reduction</b>				
1.00" VOLUME	80	80	80	80
1.50" VOLUME	90	90	90	90
WET DET (14-21 day WSRT)	25-35	60-70	90	50-70
WET DET/FILTER	0-10	50	85	70
DRY DETENTION	10-20	20-40	20-60	20-50
DRY DET/FILTER	(-)-20	(-)-20	40-60	0-50
CHEMICAL TREATMENT	20-40	80-90	>90	30-60
WETLAND TREATMENT	(-)-90	(-)-90	50-90	(-)-50

# Development Impacts Streams and Estuaries

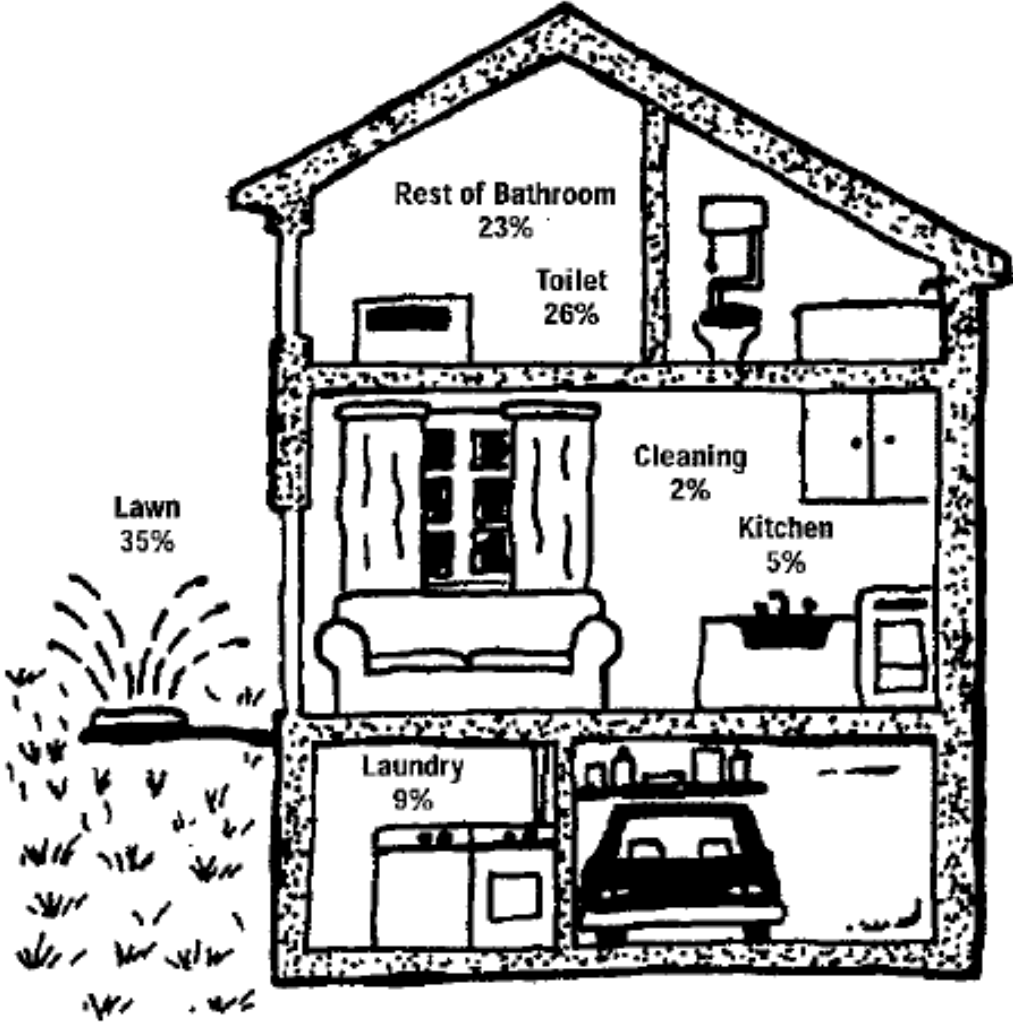
## STREAMFLOW



# Valuable Freshwater Resource Is Lost to Tide



# Up to 60% of our water use does not require potable water



# Urban Stormwater Management in the United States by NRC (2008)

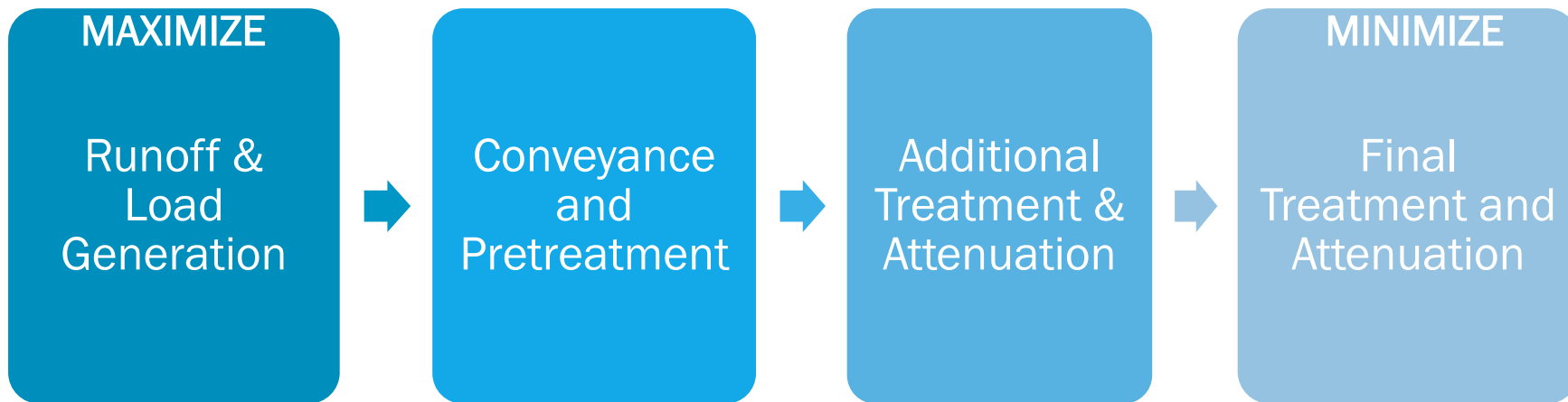
- EPA's current approach is unlikely to identify problem areas nor control waterbody impairment
- Flow and impervious cover should be considered a proxy for pollutant loading
- More vigilant regulatory oversight for products that pollute stormwater (i.e. deicing chemicals, brake linings)
- Federal government should provide financial support to states and local governments

# NRC Recommended Stormwater Management Approaches

- Individual controls inadequate; need system of structural and non-structural controls (treatment train approach)
- Non-structural volume reduction techniques, such as better site design, should be used first to reduce volume and load from new development
- Implement techniques that harvest, infiltrate and evapotranspire to reduce runoff volume from small storms
- Additional research on performance efficiencies is needed
- Retrofitting urban areas
- Base all wastewater and stormwater permits on watershed not political boundaries



# Treatment Train - Implementing Cost Effective BMPs For Non-Point Source Management



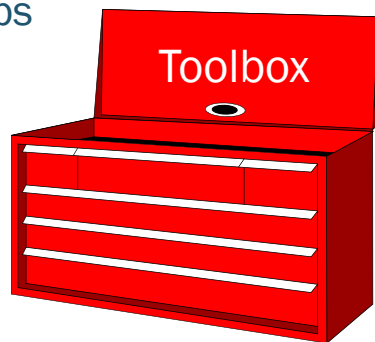
Regulations  
Public education  
Erosion control  
Roof runoff  
Disconnect IA  
Landscaping  
Pervious paving  
Pavement cleaning

Swales  
Catch Basins  
Inlets filters  
Oil/water separators  
Trash/sediment traps

Detention  
Wetland  
Storage  
Sediment sump

Retention  
Detention  
Wetland  
Chemical  
Ozone  
UV  
Reuse  
End of pipe

**GI**



# Volume Reduction

No volume = no load

Also reduces conveyance requirements and cost.

Disconnect Impervious Areas

Rainwater Harvesting and Reuse

Stormwater Storage and Reuse

Low Impact Development  
and Infiltration Practices  
(permeability of native soils critical)

# USEPA Promoting Integrated Stormwater and Wastewater Planning

- Status memo to EPA Regions January 2013
- Combine analysis of watershed wastewater and stormwater impacts and solutions
- Address most serious water quality issues first
- Find most cost effective/beneficial solutions
- **Use Green Infrastructure – Sustainability**
- Driven by local governments – early adopters – Baltimore, Seattle, Columbus OH



Questions

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