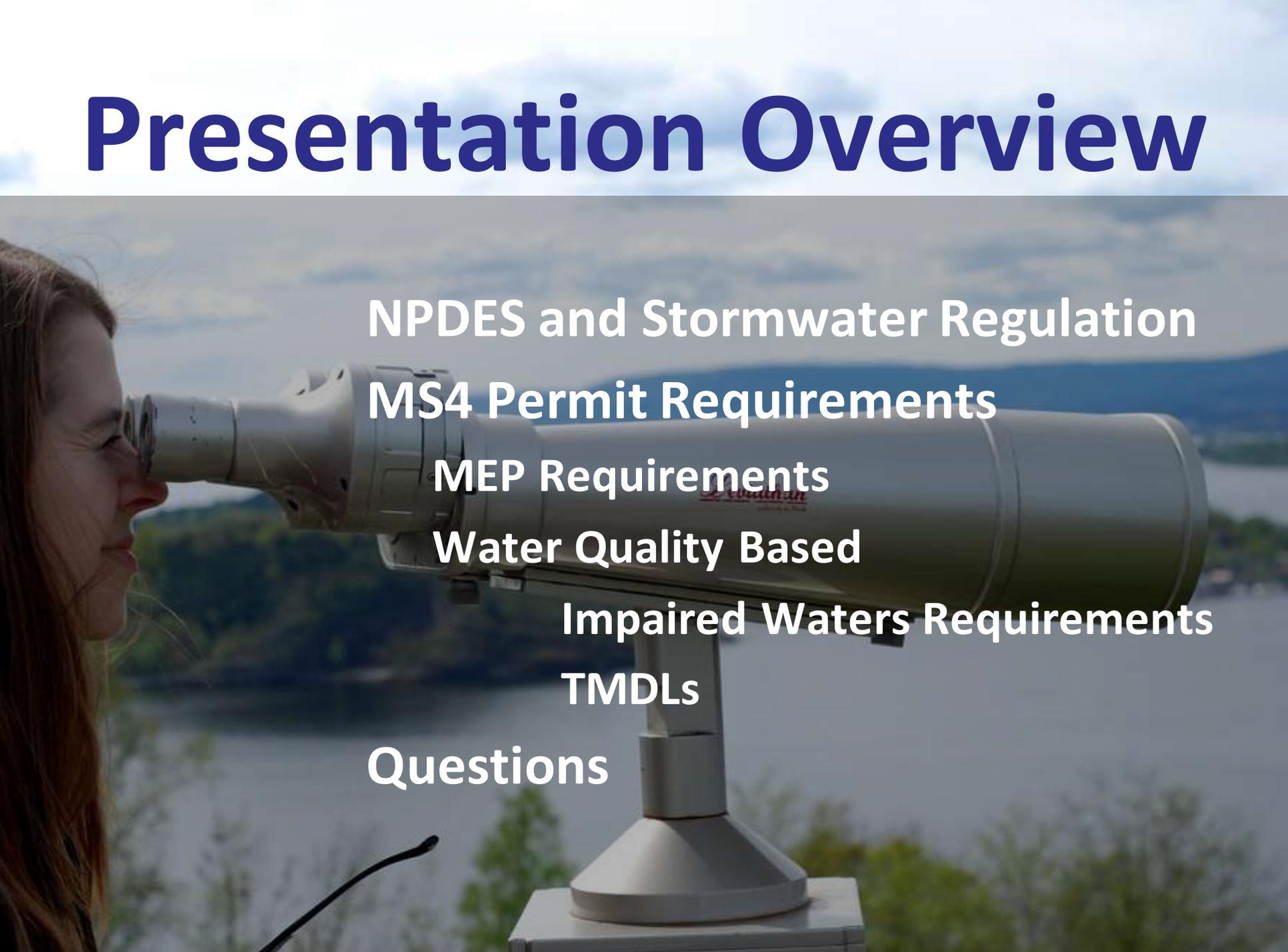


2014 Draft Massachusetts MS4 Permit

Newton Tedder
EPA New England

Presentation Overview

A woman with long brown hair is shown in profile on the left, looking through a large, silver telescope. The telescope is mounted on a stand and is pointed towards the right. The background is a scenic view of a lake and mountains under a cloudy sky. The text of the presentation overview is overlaid on the right side of the image.

NPDES and Stormwater Regulation

MS4 Permit Requirements

MEP Requirements

Water Quality Based

Impaired Waters Requirements

TMDLs

Questions

This presentation is for informational purposes only. Any comments made by the presenter or attendees is not part of the administrative record for this draft permit. Any comments that participants wish to be part of the administrative record must be submitted in writing to EPA during the public comment period or orally during the public hearing.

**Public Comment Period: September 30, 2014 –
December 29, 2014**

Public Hearing:

Date: November 19, 2014

Time: 1:00pm

Location: Leominster Public Library
(Community Room), 30 West Street,
Leominster, Massachusetts 01453.

Clean Water Act - 1972

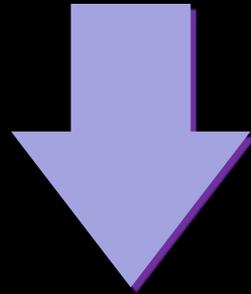


Goal



CWA Section 4

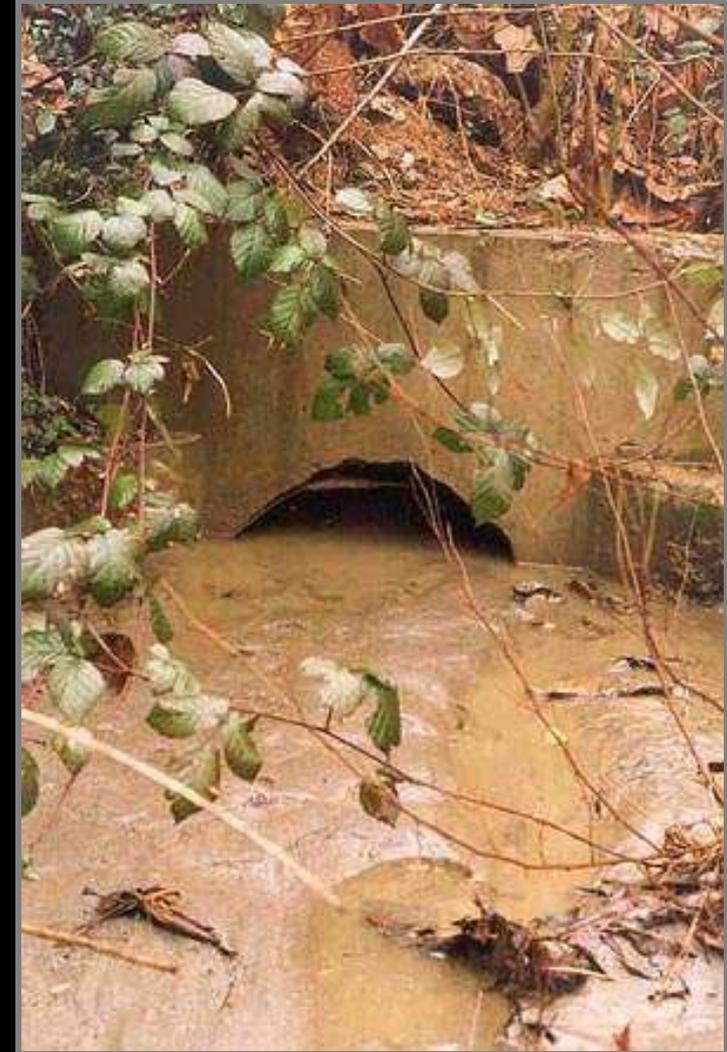
All “point” sources
“discharging pollutants”
into “waters of the U.S.”



Must obtain an NPDES permit from
an authorized state or EPA

Nationwide Urban Runoff Program (NURP)

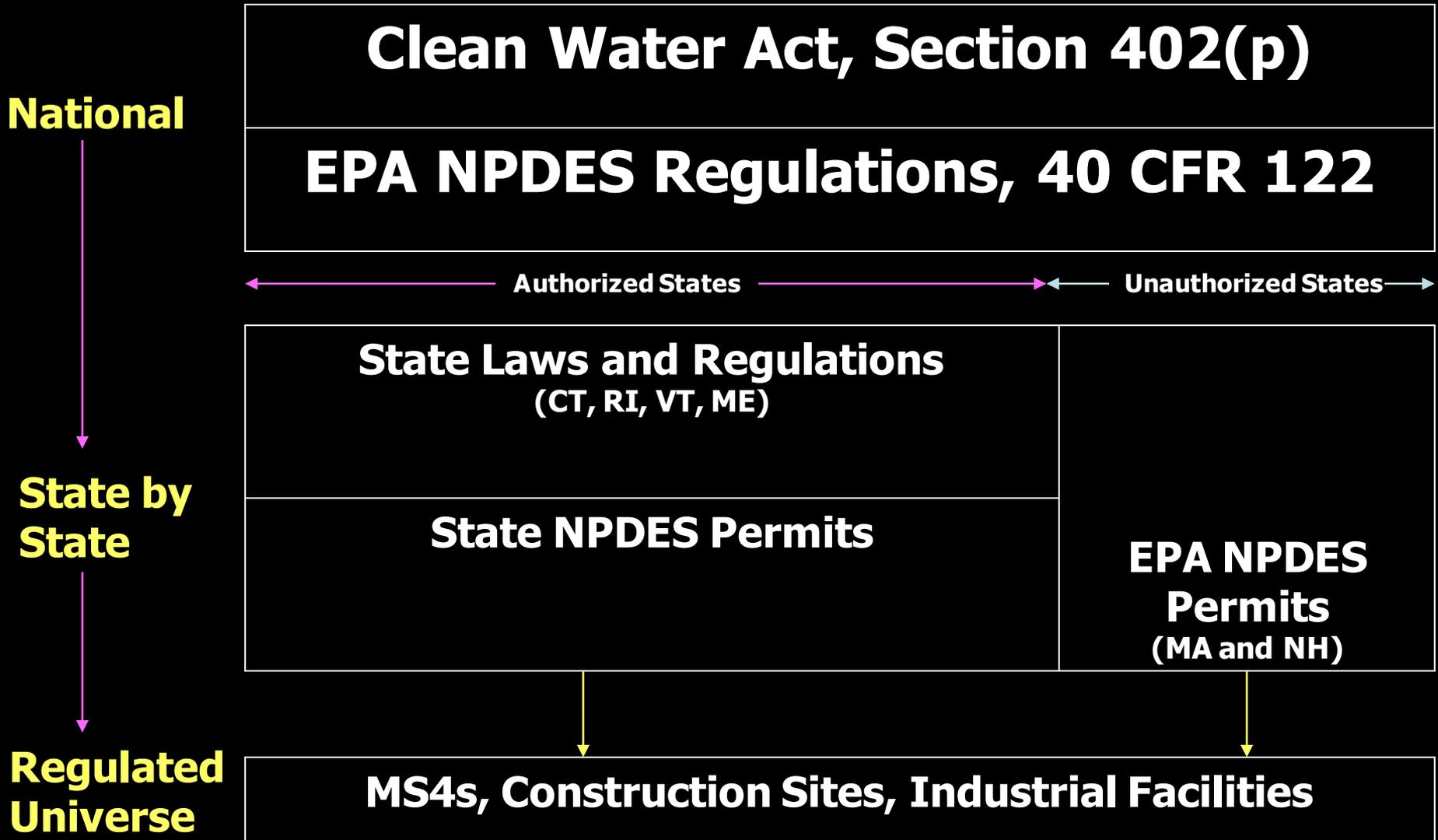
- ▶ Conducted by EPA between 1979 and 1983
- ▶ First comprehensive study of urban runoff pollution across U.S.
- ▶ Found high levels of heavy metals, fecal coliform, TSS, nutrients and hydrocarbons in urban runoff



Regulatory History

- ▶ Before 1987 stormwater considered a non-point source and not regulated
- ▶ Water Quality Act of 1987 required NPDES permitting of certain stormwater discharges
 - Medium and large municipalities (serving over 100,000 persons)
 - Industrial activities
 - Others, as determined by EPA, “to protect water quality”

Stormwater Regulatory Framework



Phase I Program

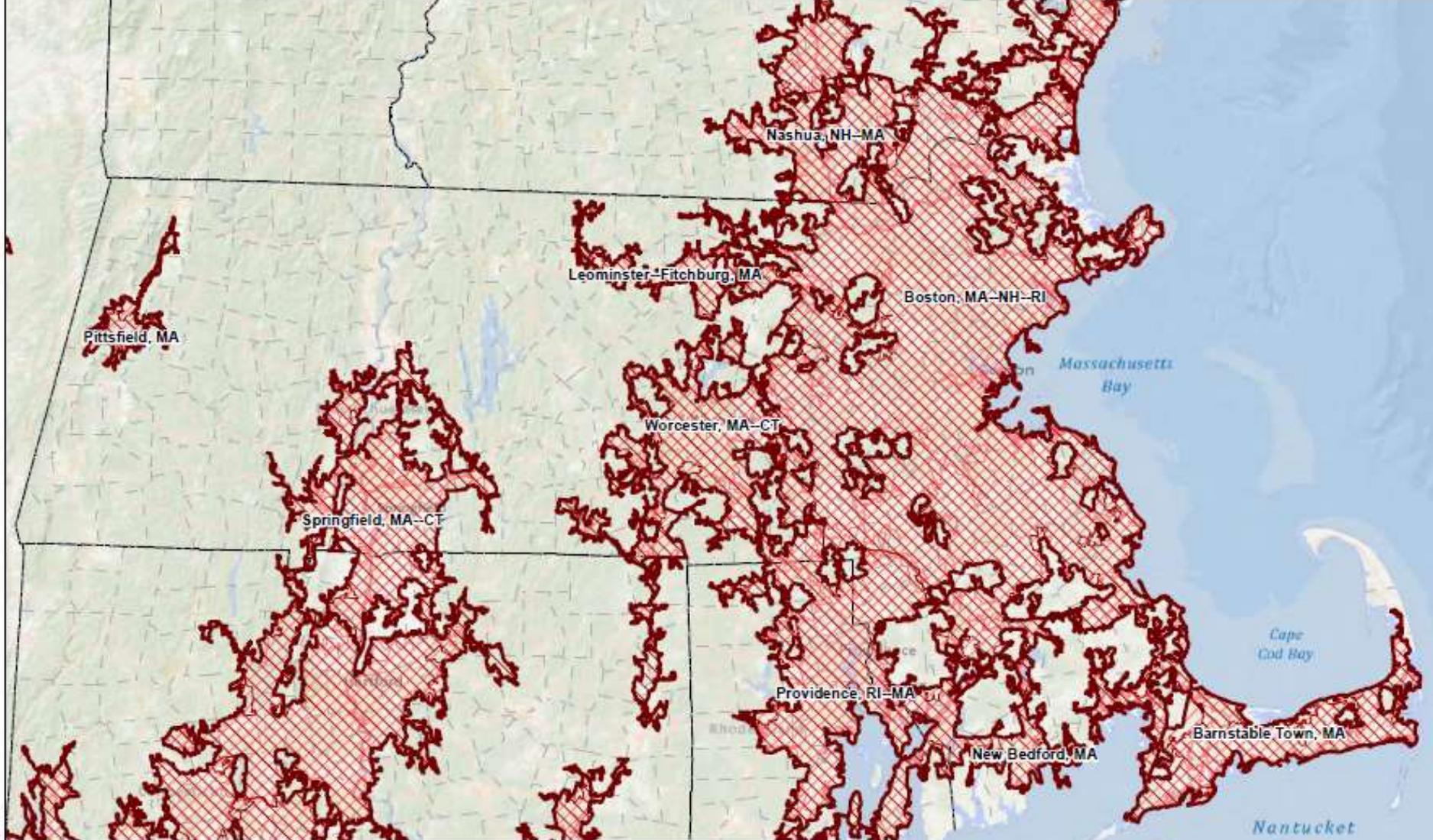
- ▶ Stormwater management program must reduce the discharge of pollutants to the maximum extent practicable (MEP) and protect water quality
- ▶ Medium and large municipalities (over 100,000)
- ▶ Industrial activity
(11 categories)
- ▶ Construction over
5 acres



Phase II Coverage

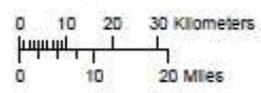
- ▶ 1995 Report to Congress, EPA determined that small municipalities also needed regulation – Regulations passed in 1999
- ▶ Permitting authorities can also designate additional small MS4s that are outside of urbanized areas
- ▶ Includes non-traditional MS4s within urbanized areas, such as:
 - Military bases
 - Public universities
 - Prisons, etc.
- ▶ First Massachusetts Phase II Permit: 2003





Massachusetts

NPDES Phase II
Stormwater Program
Automatically Designated
MS4 Areas

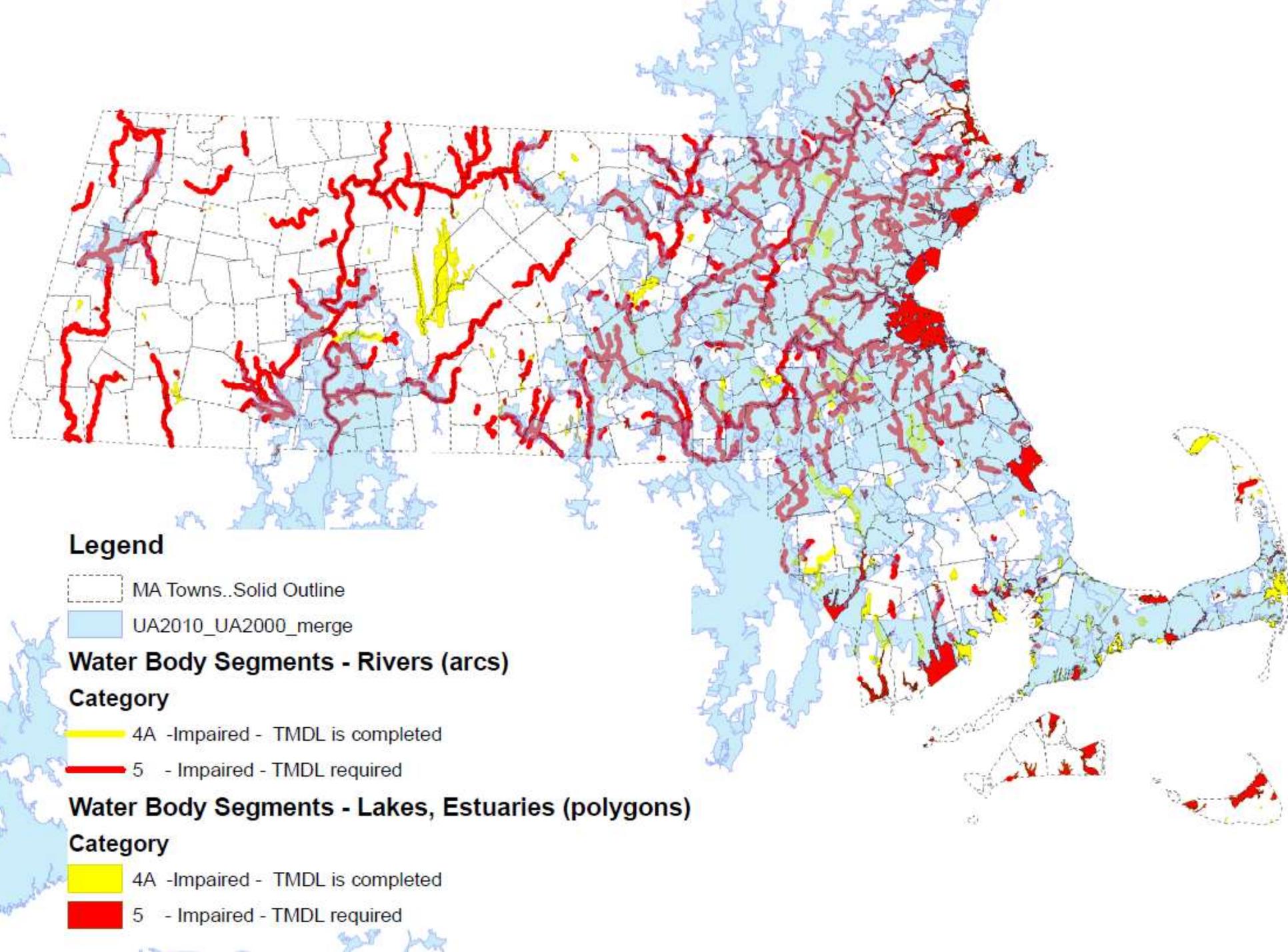


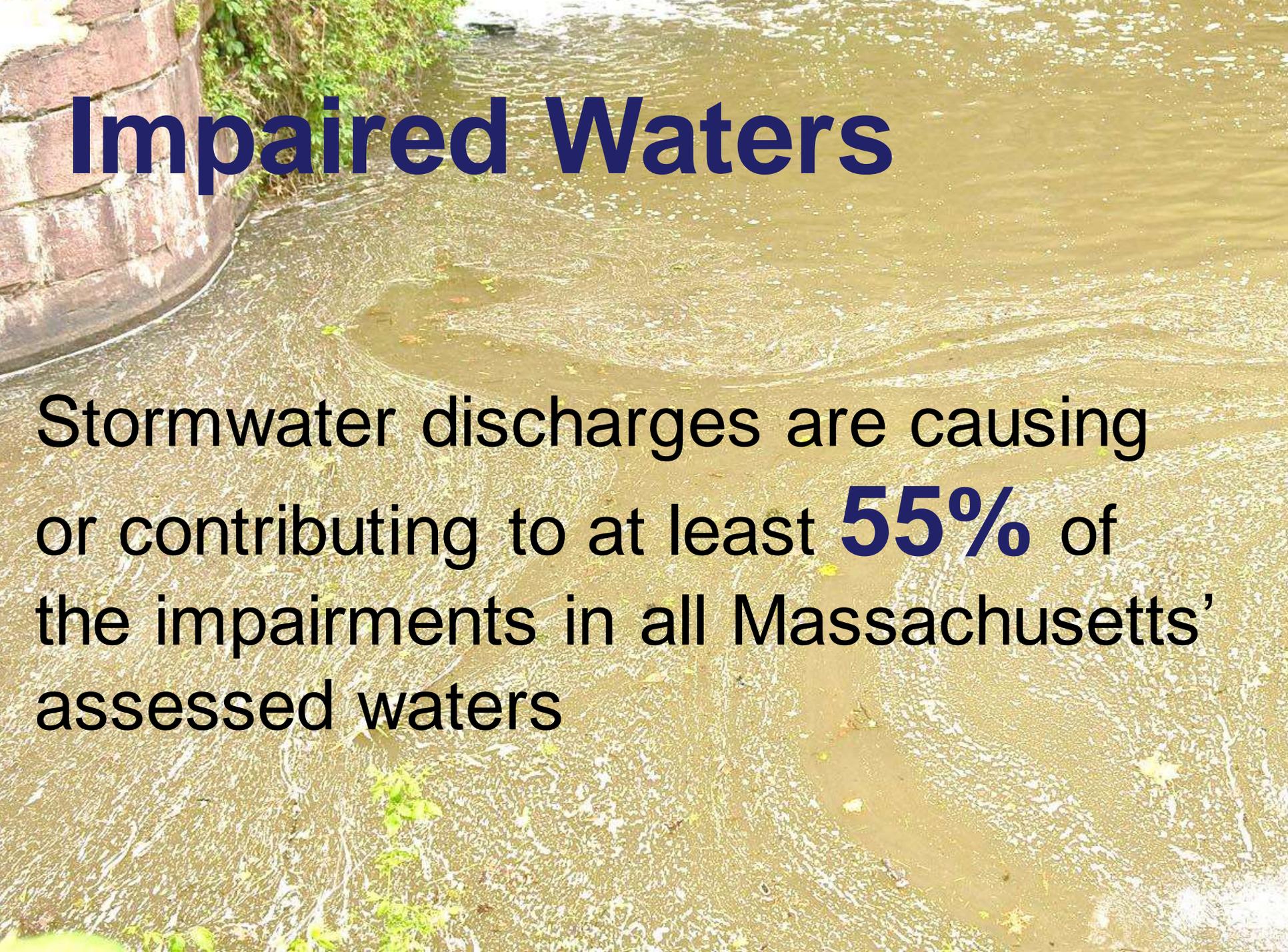
Regulated Area:



Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map: US National Park Service

US EPA Region 1 GIS Center Map #8824, 11/19/2012





Impaired Waters

Stormwater discharges are causing or contributing to at least **55%** of the impairments in all Massachusetts' assessed waters



Draft Massachusetts MS4 Permit Requirements

NOI and SWMP

Required NOI Info

Basic Info

2003 permit items

Endangered Species

Historic Properties

BMPs

Cert & signature



Notice of Intent - NOI

Notice of Intent (NOI) for coverage under Small MS4 General Permit Page 1 of 14

Part I: General Conditions

General Information

Name of Municipality or Organization: State

EPA NPDES Permit Number:

Primary MS4 Program Manager Contact Information

Name: Title:

Street Address Line 1

City State Zip Code

Fax Number:

Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

Stormwater Management Program (SWMP) Location

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Eligibility Criteria (check all that apply): A B C D E F

National Historic Preservation Act (NHPA) Determination Complete? Eligibility Criteria (check all that apply): A B C D

MS4 Infrastructure (if covered under the 2003 permit)

Due 90 days from effective date of permit
Information required on NOI
Public notice of the NOI
Authorization to discharge

Elements of SWMP

Description & details

Map

Annual evaluation





MEP Requirements

Six Minimum Measures

1. Public education
2. Public involvement
3. Illicit discharge detection & elimination
4. Construction runoff
5. Post-construction stormwater management
6. Pollution Prevention



Shared Responsibility

The regulations, 40 CFR 122.35, allow for MS4s to share responsibility for the implementation of the six minimum measures



Public Education and Outreach

▶ Four Audiences

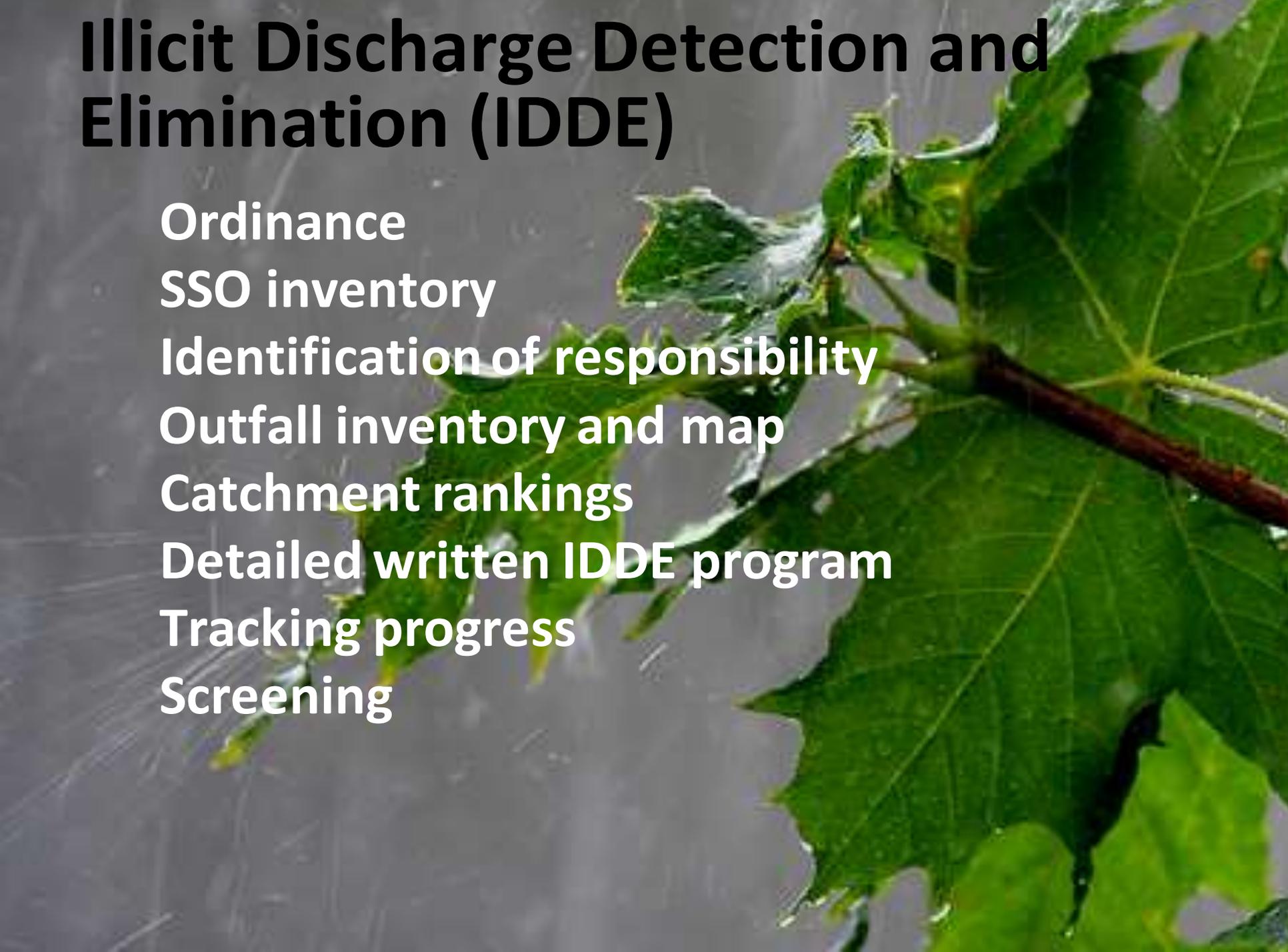
- Residents
- Businesses and commercial facilities
- Developers
- Industrial Facilities

▶ Two messages to each audience over the permit term

Public Involvement and Participation

- ▶ Public review of SWMP
- ▶ Make all reports available to the public

Illicit Discharge Detection and Elimination (IDDE)



Ordinance

SSO inventory

Identification of responsibility

Outfall inventory and map

Catchment rankings

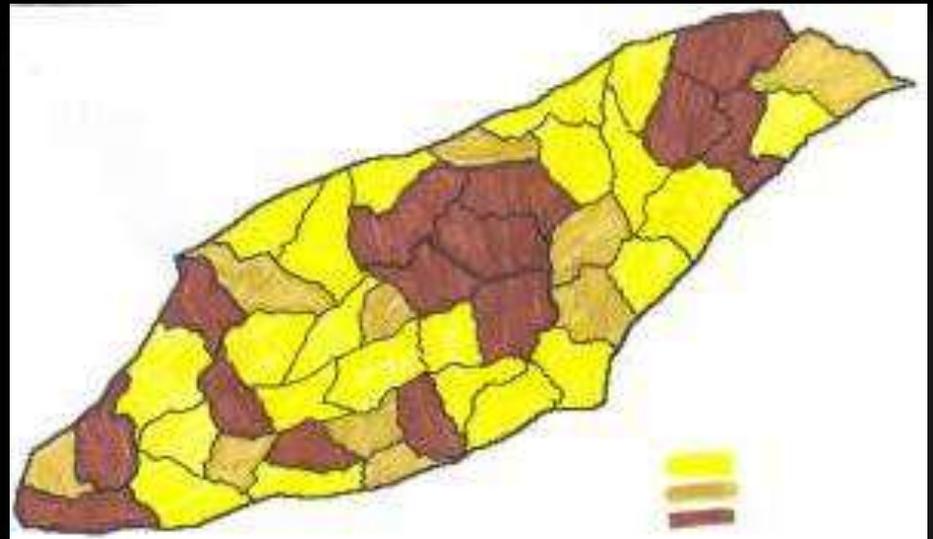
Detailed written IDDE program

Tracking progress

Screening

IDDE - Catchment Ranking

- Excluded Catchments
- Problem Catchments
- High Priority Catchments
- Low Priority Catchments



Post-Construction Stormwater Management



Updated Ordinance

Retain and or treat the first 1" of runoff from IA on site from new and re-development disturbing ≥ 1 acre

Street design &
Parking assessment

Green infrastructure

Tracking impervious area

Good Housekeeping

O&M procedures

Catch basin cleaning

Street sweeping

SWPPP





Water Quality Requirements



Discharges to Impaired Waters

Discharges to waters
without a TMDL

Discharges to waters
with an Approved TMDL

Approved TMDLs

Long Island Sound
Nitrogen TMDL

Phosphorus and
Metals TMDLs for
Rhode Island
Waters

Bacteria and Pathogen
TMDLs

Charles River Phosphorus
TMDLs

Lake and Pond
Phosphorus TMDLs

Cape Cod Nitrogen
TMDLs

Assabet River Phosphorus
TMDL



Ten Mile River Watershed and Kickemuit River TMDLs

Attleboro

North Attleborough

Plainville

Rehoboth

Seekonk

Swansea

Appendix F

Phosphorus
Bacteria
Metals



Title: _____
Scale: 0 1 Miles
Date: 8/15/2012
Drawn by: 296

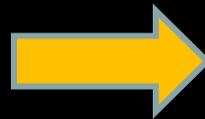
Figure 2. Ten Mile River watershed.

Figure I-1 The Kickemuit Reservoir watershed.



Assabet River and Lake and Pond Phosphorus TMDLs

***EXCESSIVE
PHOSPHORUS***



- ▶ Reduced clarity
- ▶ Noxious scums
- ▶ Toxic blooms
- ▶ Surface waters choked with plant matter
- ▶ Low dissolved oxygen for aquatic life (e.g., fish)

Urban Stormwater Phosphorus

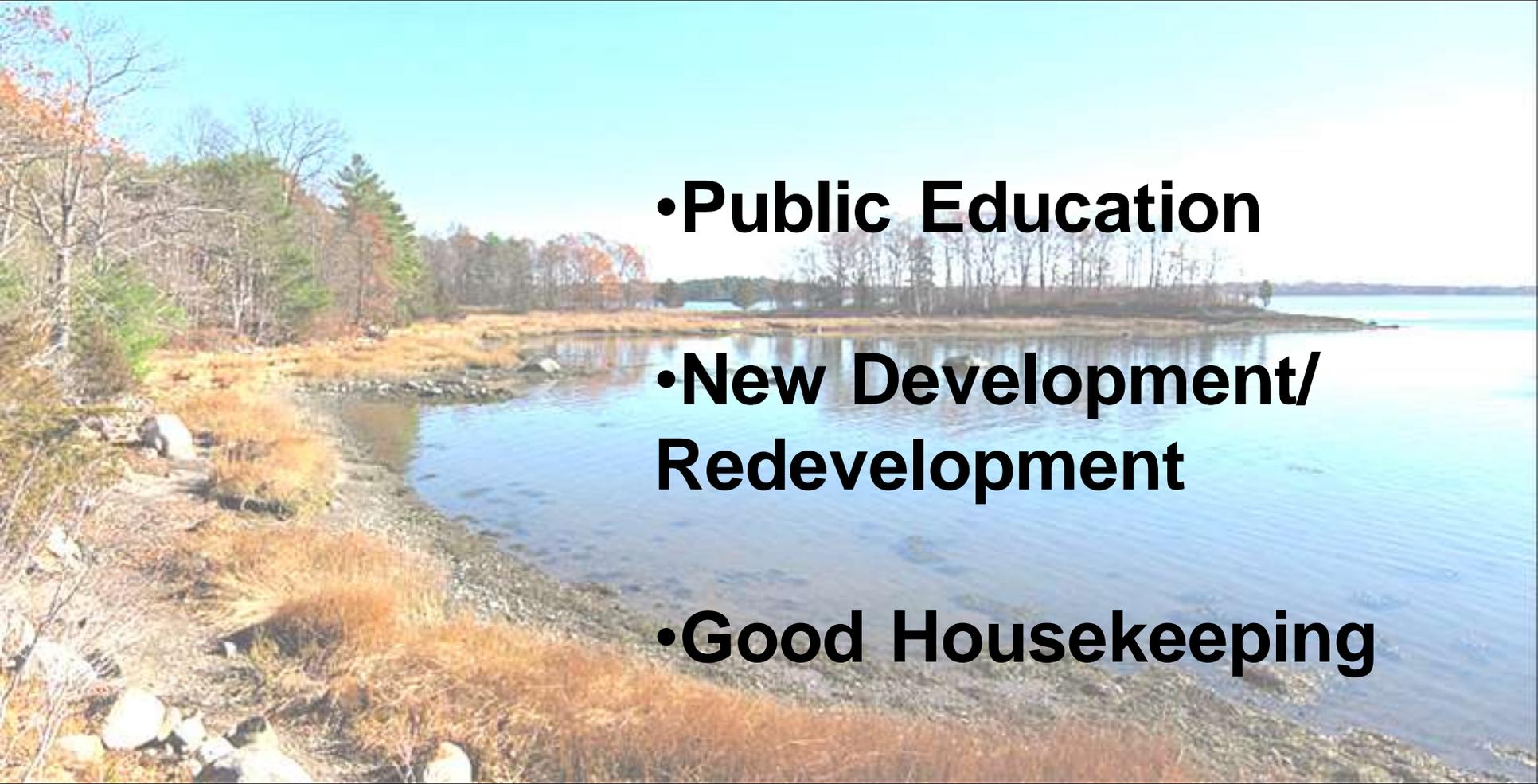


Tends to be associated with very fine particles ~ 40 microns

Much is washed from impervious surfaces with small amounts of rainfall (e.g., 0.3 inches)

Stormwater controls must have filtration component to be effective

P Reduction Through Enhanced BMPs

- 
- **Public Education**
 - **New Development/
Redevelopment**
 - **Good Housekeeping**

Additional Requirements

- **Phosphorus Source Identification Report**
- **Evaluate feasibility for Potential Structural BMPs**
- **Plan & Install at least one structural BMP as demo project**
- **Tracking**

Metals Reduction Requirements

Attleboro
North Attleborough
Plainville
Seekonk

Cadmium, Lead
Aluminum, Iron



- If discharge contains
illicits remove in 60 days

- Additional BMPs

- New Development/
Redevelopment

- Good Housekeeping

Bacteria Reduction Requirements

- If discharge contains
illicits remove in 60 days
- Additional BMPs
 - Public Education
 - IDDE

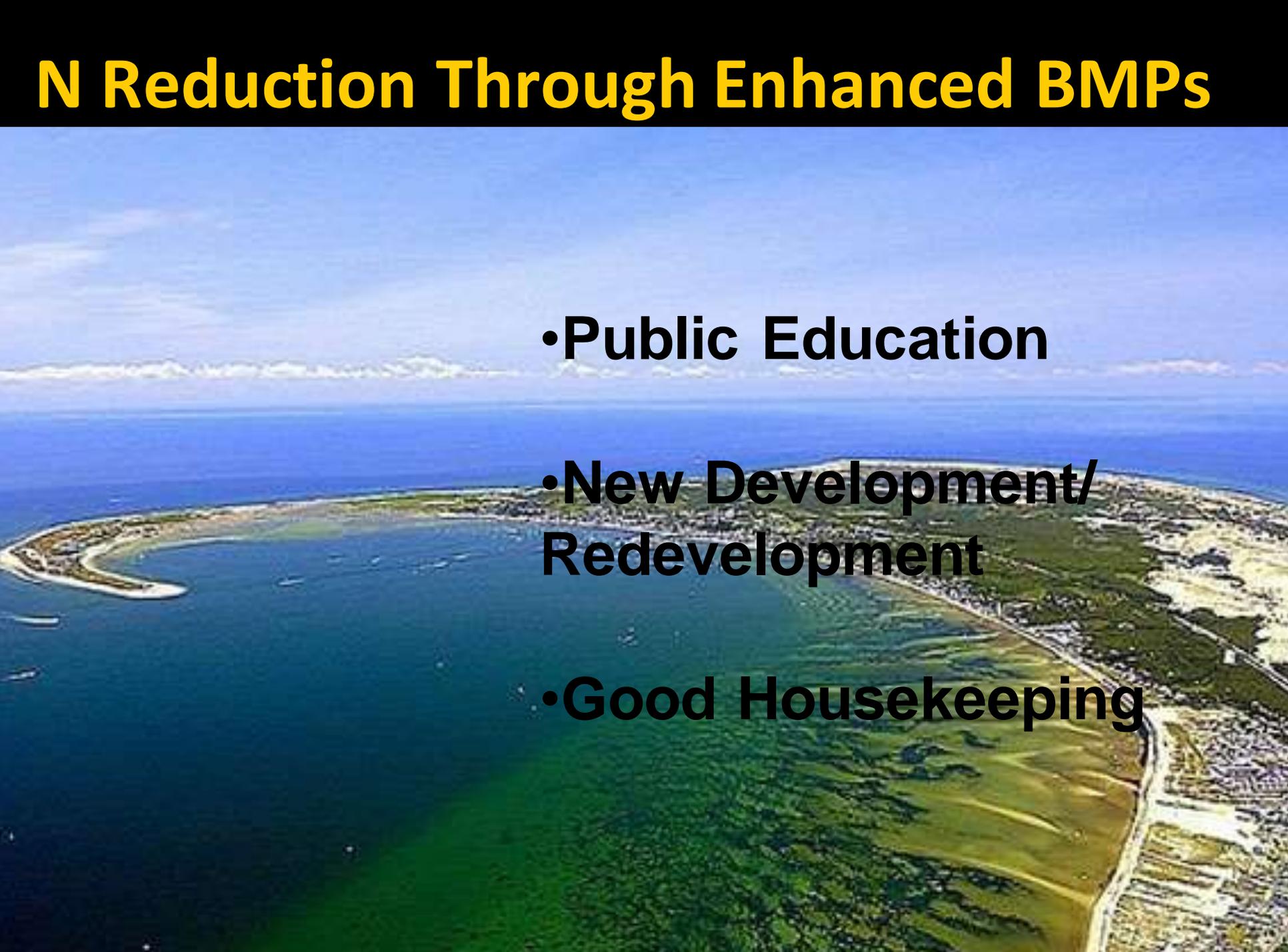
*Same Requirements for all
Bacteria/Pathogen TMDLs in
Massachusetts*



A satellite-style map of Cape Cod, Massachusetts, showing the green landmass and the dark blue water of the Cape Cod Bay. The text "Cape Cod Nitrogen TMDLs" is overlaid in yellow on the left side of the map.

Cape Cod Nitrogen TMDLs

N Reduction Through Enhanced BMPs

An aerial photograph of a coastal region. In the foreground, there are green fields and a road. To the right, a town with buildings is visible. The middle ground shows a bay with blue water and a small peninsula. The background features a blue sky with light clouds and a distant mountain range.

- **Public Education**
- **New Development/
Redevelopment**
- **Good Housekeeping**



Discharges to Waterbodies *Without* an Approved TMDL

Additional requirements for
Bacteria, Nutrients, Solids,
Chloride, Metals and Oil and
Grease

NSQD urban stormwater

Parameter	Count	Median	Geometric Mean	Minimum	Maximum	25%	75%
Phosphorus Total (mg/l)	1967	0.25	0.26	0.02	10	0.15	0.42
Total Nitrogen (mg/L)	1763	2.0	2.0	1.0	7.0	1.0	3.0
Fecal Coliform (colonies/100 ml)	524	4500	3578	2.0	5230000	800	26000
Total E Coli (colonies/100 ml)	25	1100	1366	10	35000	460	8500
Chloride (mg/l)	57	6.0	7.0	1.0	350	4.0	10
Turbidity (NTU)	12	106	98	16	630	43	176
Total Suspended Solids (mg/l)	2046	45	46	1.0	2405	22	95
Oil and Grease Total (mg/l)	390	5.0	4.8	0.2	570	2.5	8.5
Zinc Total (ug/l)	1592	105	89	1.4	3050	50	190

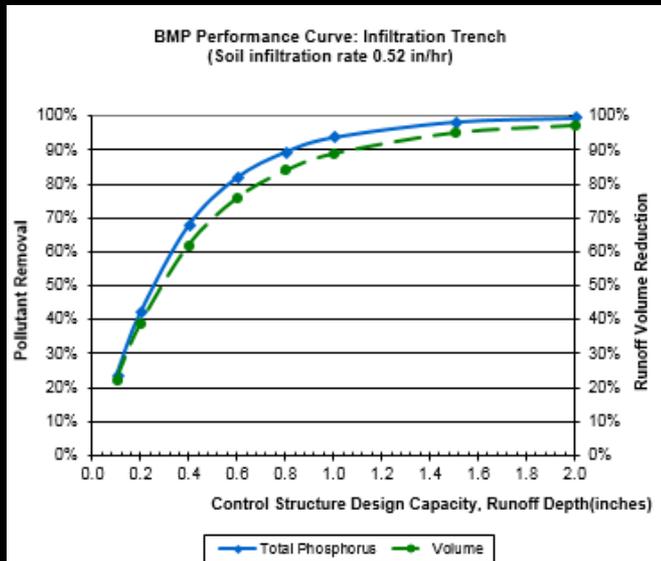


Discharges To Nutrient Impaired Waters or their Tributaries

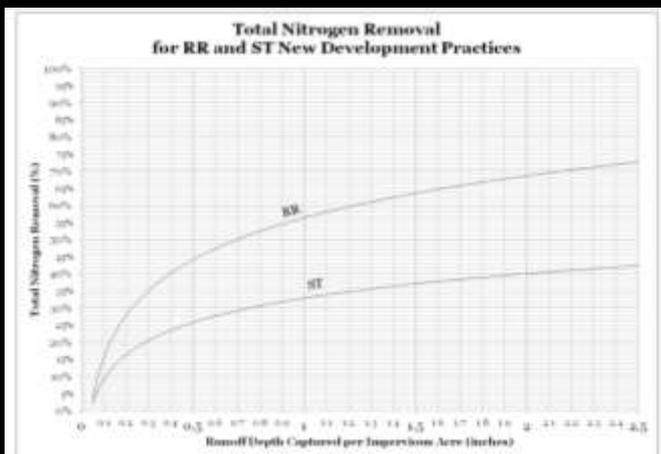
Enhanced BMPs

- Public Education**
- New Development/
Redevelopment**
- Good Housekeeping**

Nutrient Source Identification Report



- Due Year 4
- Delineate potential N or P sources
- ID potential retrofits
- 1 demonstration project by year 6
- Tracking of N or P reductions through implementation of structural BMPs



Discharges To Bacteria Impaired Waters

- If discharge contains illicits remove in 60 days

- Additional BMPs
 - Public Education
 - IDDE



Discharges To Chloride Impaired Waters

Salt Reduction Plan

- Track the amount of salt applied
- New or modified equipment
- Adopt application rate guidelines
- Training for applicators
- Equipment Calibration
- No Salt Zones



Discharges To Chloride Impaired Waters (cont)

Additional BMPs

- Mechanism to ensure private industry and commercial sites cover salt piles
- Public Education
- New Development and Redevelopment

Discharges To Sediment, Metals or Oil and Grease Impaired Waters

- If discharge contains illicits remove in 60 days
- Additional BMPs
 - New Development/ Redevelopment
 - Good Housekeeping



Binoculars – Credit: <http://www.flickr.com/photos/gcbb/2465054692/>

Sidewalk Tree – Credit: <http://www.flickr.com/photos/madmardign777/79436383/>

Letters – Credit: <http://www.flickr.com/photos/calliope/234447967/>

Ruler – Credit: <http://www.flickr.com/photos/vrillusions/5197046091/>

Impaired waters, Algae, Impaired Lakes, Bacteria, Sediment/trash, Salt, LID street images, BMP near reservoir, Catch Basin - Credit: EPA

Image Credits I

Cuyahoga – Credit: http://blog.cleveland.com/science_impact

Maple Leaf in Rain – Credit: <http://www.flickr.com/photos/lanier67/184302007>

Elements Cupcakes – Credit: <http://www.flickr.com/photos/nickbusse/4163894602/>

Roseate Turn – Credit: http://www.flickr.com/photos/andy_li/4862883387/

Wachusett Reservoir – Credit: <http://www.coreservs.com/news/wp-content/uploads/2012/10/015-Wachusett-Reservoir.jpg>

Sparrow Dock – Credit:

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3 Ring Binder – Credit: <http://www.flickr.com/photos/jkfid/4333767484/>

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Boston – Credit:

http://cambridge.hyatt.com/content/dam/Multimedia/regency/bosrc/737x415xRiver_view_2_25461_med.jpg.pagespeed.ic.FaXFY22gTt.jpg

Beach Closed – Credit: <https://www.cantonpl.org/blog/greenenvironment/how-safe-your-favorite-beach>

All pictograms sourced from EPA HQ

Image Credits II

Cape Cod 1 – Credit: Wikipedia.org

Cape 2 – Credit: <http://www.momscleanairforce.org/blue-sky-irony/>

Cape 3 – Credit: <http://www.savebuzzardsbay.org>



Thank you

Questions ?

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617.918.1038
tedder.newton@epa.gov**

Draft Permit Documents: http://www.epa.gov/region1/npdes/stormwater/MS4_MA.html