

A TMDL is coming to Town



CT DEEP
Hartford, CT
December 15, 2011

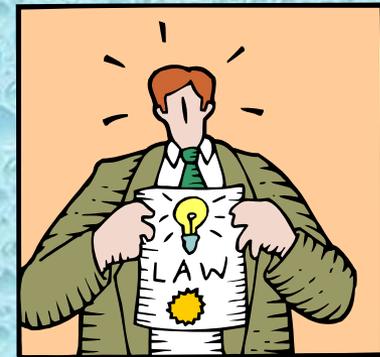
Total Maximum Daily Load (TMDL)

$$TMDL = \textit{Point Sources} + \textit{Nonpoint Sources} + \textit{Background} + \textit{Margin of Safety}$$

- Establishes the maximum amount of a pollutant that a waterbody can receive without adverse impacts to fish, wildlife, recreation, or other public uses
- Provides guidance for interested and responsible parties for developing implementation plans
- The end product of the TMDL process is a Water Quality Plan including implementation suggestions to meet pollutant reduction goals

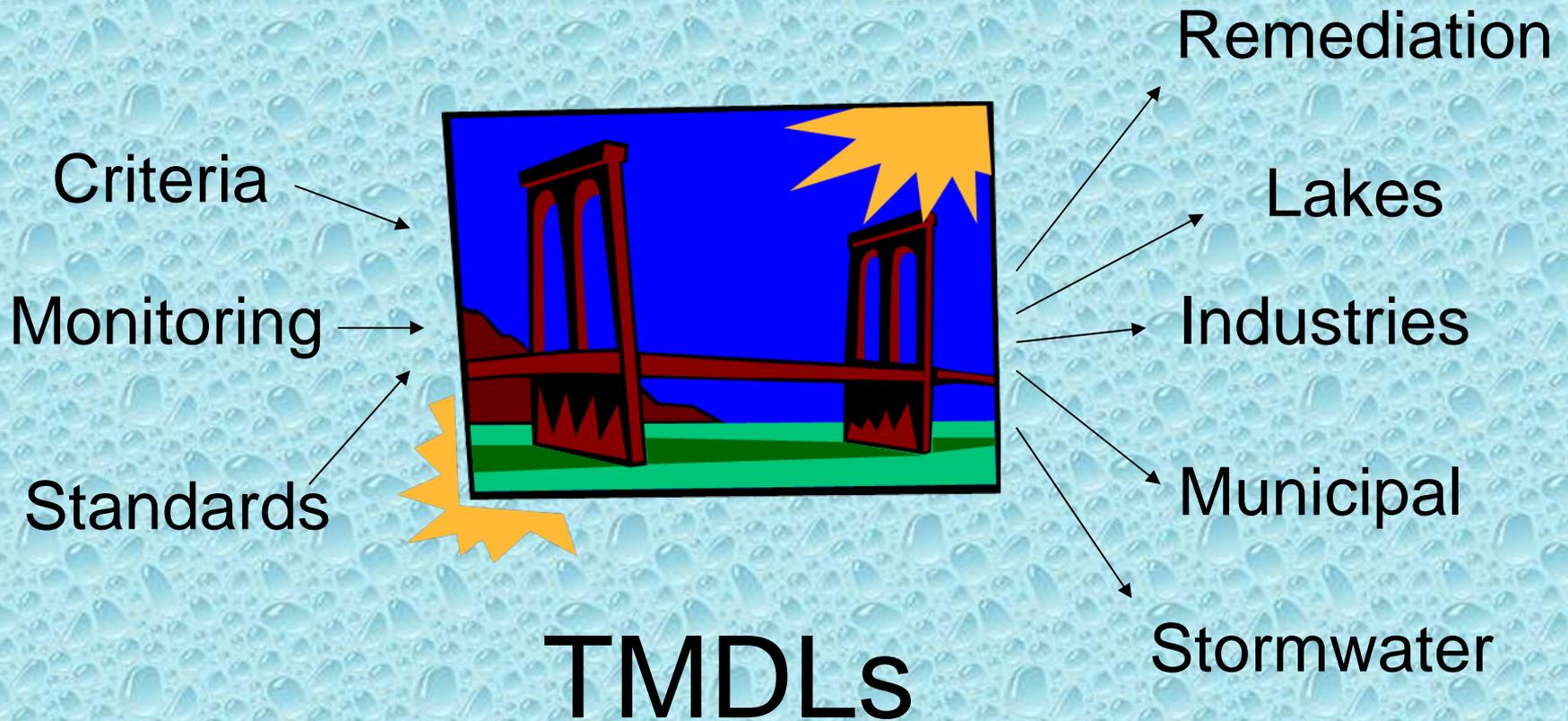
Why TMDLs?

- Section 303(d) of the Clean Water Act (CWA) requires States to develop TMDLs for impaired waters



- Impaired waterways are prioritized by CT DEEP for TMDL development based on information about pollutants, resource availability and programs in place to aid implementation

Connecting Data with Sources

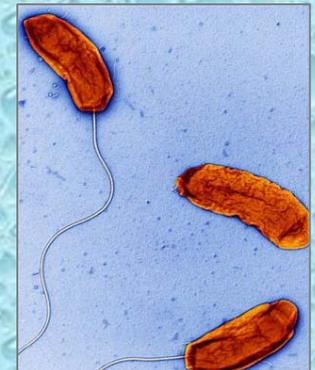


TMDL Allocations

- Waste Load Allocation (WLA)
 - Point Source Discharges to waterbody
- Load Allocation (LA)
 - Non-point sources and unregulated sources
- Margin of Safety (MOS)
 - Account for uncertainty in analysis and monitoring
 - Seasonal variability

Indicator Bacteria

- Fecal Coliform, e.coli, Enterococci
- Surrogates for the presence of pathogens in waste stream from warm blooded animals
 - Potential pathogens sourced from fecal matter in water include bacteria and viruses such as:
 - Salmonella and Vibrio spp (including cholera)
 - Norwalk Virus and Hepatitis A
 - Cryptosporidium and Giardia



CT Bacteria Water Quality Criteria

2011 Connecticut Water Quality Standards

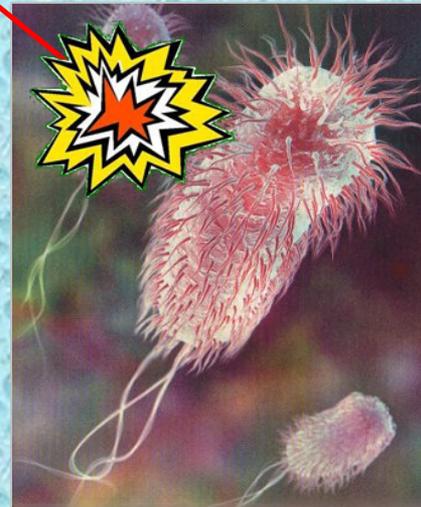
APPENDIX B: WATER QUALITY CRITERIA FOR BACTERIAL INDICATORS OF SANITARY QUALITY SEE ALSO STANDARDS # 23 AND 25

DESIGNATED USE	CLASS	INDICATOR	CRITERIA
Freshwater			
Drinking Water Supply ⁽¹⁾			
Existing / Proposed	AA	Total coliform	Monthly Moving Average less than 100/100ml Single Sample Maximum 500/100ml
Potential	A	----	-----
Recreation ⁽²⁾⁽³⁾			
Designated Swimming ⁽⁴⁾	AA, A, B	<i>Escherichia coli</i>	Geometric Mean less than 126/100ml Single Sample Maximum 235/100ml
Non-designated Swimming ⁽⁵⁾	AA, A, B	<i>Escherichia coli</i>	Geometric Mean less than 126/100ml Single Sample Maximum 410/100ml
All Other Recreational Uses	AA, A, B	<i>Escherichia coli</i>	Geometric Mean less than 126/100ml Single Sample Maximum 576/100ml
Saltwater			
Shellfishing ⁽⁶⁾			
Direct Consumption	SA	Fecal coliform	Geometric Mean less than 14/100ml 90% of Samples less than 31/100ml
Indirect Consumption	SB	Fecal coliform	Geometric Mean less than 88/100ml 90% of Samples less than 260/100ml
Recreation			
Designated Swimming ⁽⁴⁾	SA, SB	Enterococci	Geometric Mean less than 35/100ml Single Sample Maximum 104/100ml
All Other Recreational Uses	SA, SB	Enterococci	Geometric Mean less than 35/100ml Single Sample Maximum 500/100ml

Statewide Bacteria TMDL

What?

- Covers impairments across Connecticut caused by bacteria
- Calculate loading reduction goals to meet water quality criteria
- Suggest planning and implementation strategies to meet bacteria reduction goals



Statewide Bacteria TMDL

How?

- CT DEEP compiled years of data from multiple sources
- Potential sources are identified and analyzed for loading
- Load reduction goals are calculated based on all available data and known sources
- Guidance on the most appropriate and effective implementations

Impaired Segments Included in Project

Where?

•Freshwater Segments

- Pawcatuck Major Basin = 3 segments
- Southeastern Coast = 5 segments
- Thames Major Basin = 16 segments
- Connecticut Major Basin = 41 segments
- Southcentral Coast = 11 segments
- Housatonic Major Basin = 20 segments
- Southwest Coast = 17 segments

•Saltwater Segments

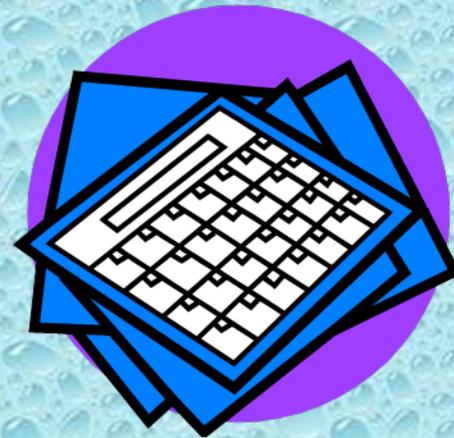
- Long Island Sound Central = 9 segments
- Long Island Sound Western = 42 segments

•Total Impaired segments = 164 included!!

Statewide Bacteria TMDL

When?

- May - November 2011
 - Compile data and information
- December 2011
 - Outreach meeting to stakeholders
- January- March 2012
 - Developing DRAFT materials
- April –June 2012
 - Official Public Comment period on DRAFT documents
- August 2012
 - Final Documents submitted to EPA for approval



Statewide TMDL Format

Core TMDL Report

-Background Info, Methodology,
Potential funding sources, BMP
implementation

Appendix 1.
Shunock River
CT 1004

Appendix 2.
Moosup River
CT 3500

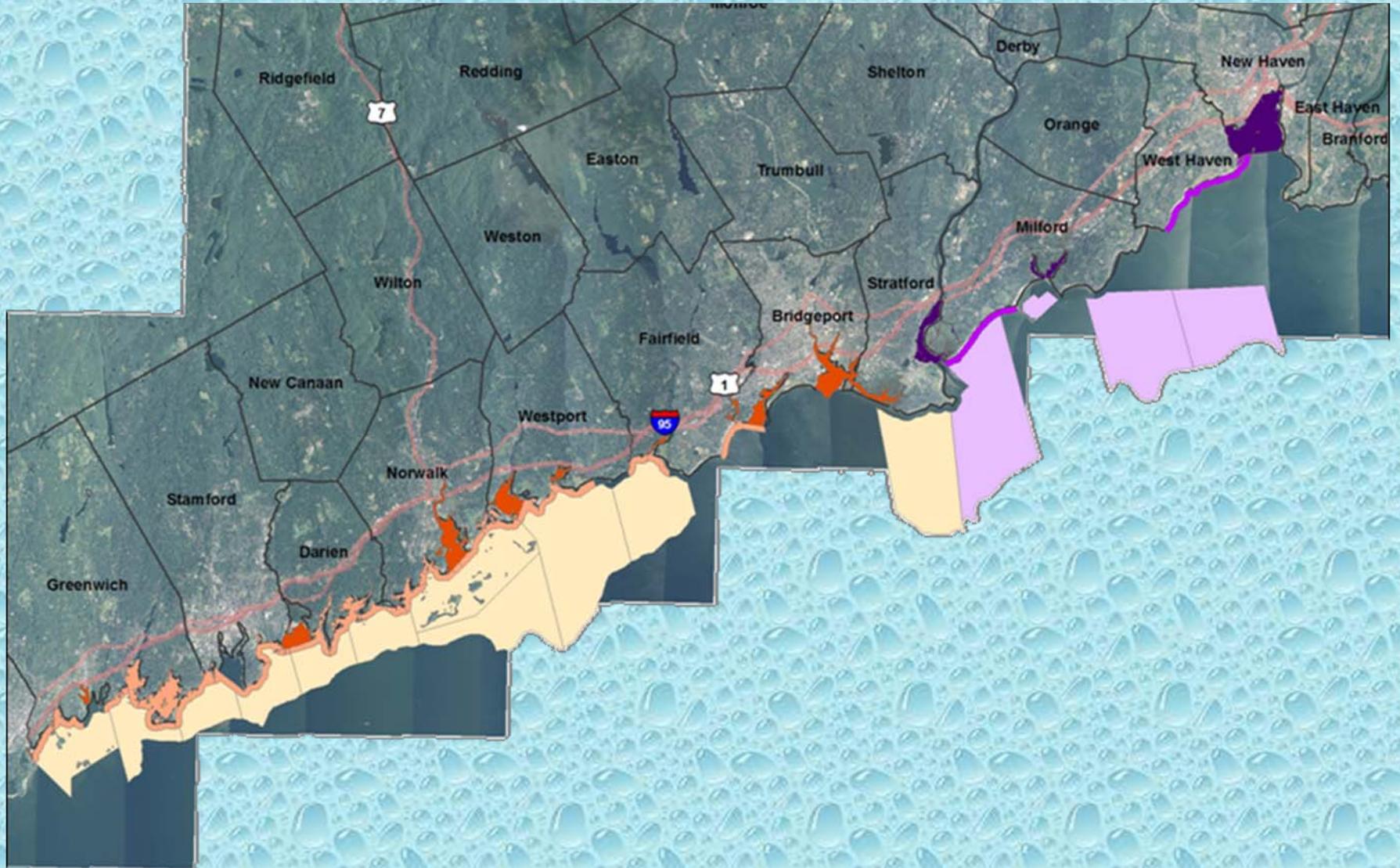
Appendix 3.
Broad Brook
CT 4206

Appendix XX.
Impaired
Waterbody
CT XXXX

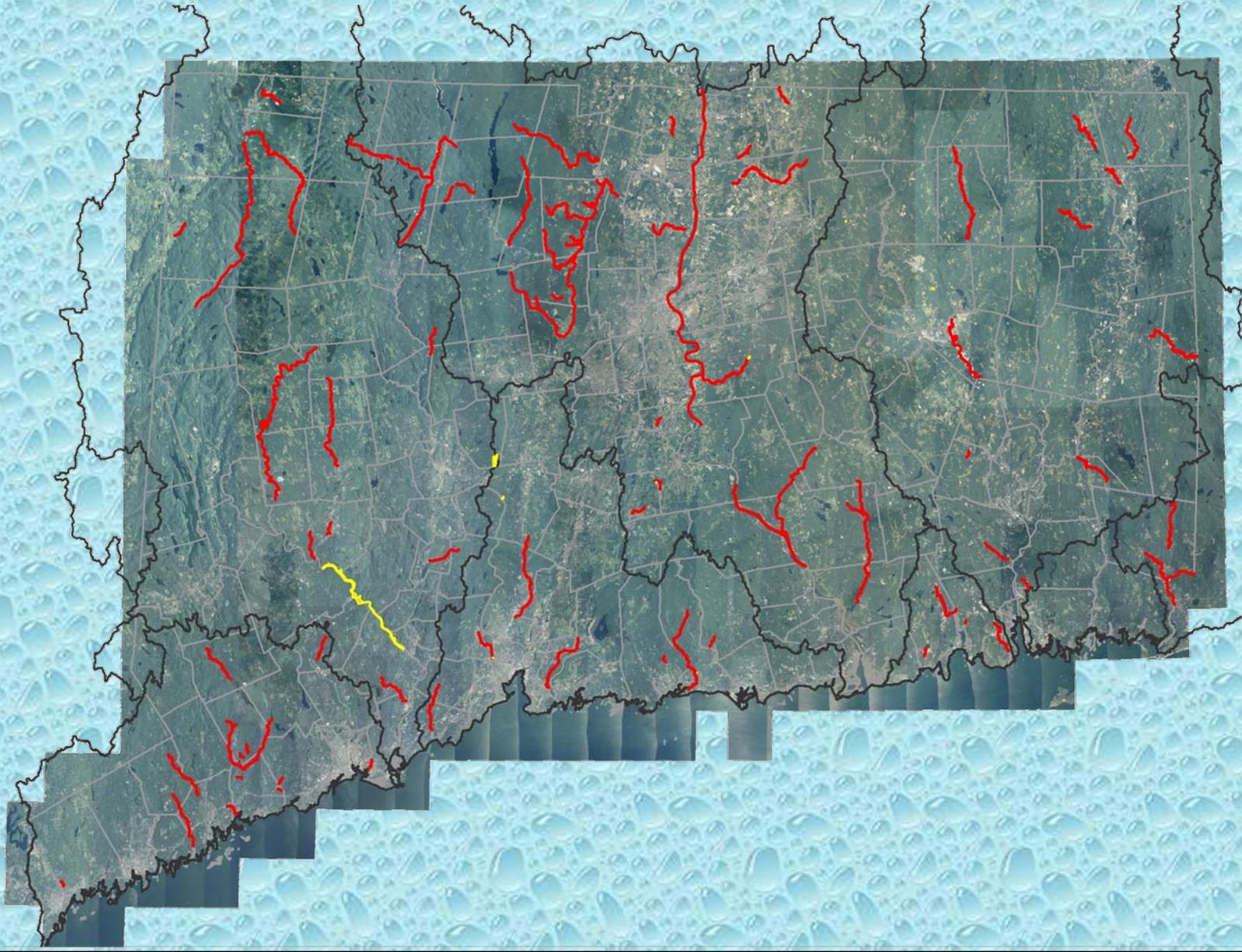
Bacteria Data Sources

Impairment	Bacteria Type	Data Source
Freshwater recreation	Escherichia coli	CT DEEP monitoring
		USGS data
		Volunteer data
		Municipal monitoring
Saltwater Recreation	Enterococci	CT DEEP monitoring
		Municipal monitoring
Saltwater shellfishing	Fecal coliform	Bureau of Aquaculture monitoring

Estuary Segments



Freshwater Segments



TMDL % Reductions Now What?

- Work with CT DEEP programs to improve water quality
 - Municipal programs (MS4), Watershed coordinators, Permitting group
- Work with Health Districts/ Departments
 - Assist with track-down of known sources
- Work with local watershed associations
 - Implement monitoring, conduct outreach to public, generate watershed plans

Small MS4 Permit Regulations and TMDL Requirements

- If a TMDL is approved for a waterbody into which the permittee discharges, the permittee shall review its Stormwater Management Plan (SMP).
- If the stormwater discharge(s) don't meet TMDL allocations, the SMP must be modified to implement the TMDL within four months of the TMDL's approval and notify the Commissioner of all modifications.

MS4 permit and TMDLs

- Phase II MS4 Permit – 113 Towns
- Must develop program to reduce discharge of pollutants and protect water quality
- Program must include Six Minimum Control Measures:

- Public Education and Outreach
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-construction Runoff Control
- Pollution Prevention/Good Housekeeping

Bacteria Implementation Efforts

- Modification of the SMP
- Implementation of measures thru the Control Measures and infrastructure upgrades
- Establishment of goals to measure BMP effectiveness of load reductions
- Water quality monitoring as required by the MS4 permit or an approved alternate monitoring plan

Water Quality Monitoring Plan

- Source detection of specific bacterial loading sources
- Fixed monitoring to quantify progress of implementation efforts
 - Sites used for developing TMDL reduction goals



Additional MS4 Reduction Effort

- Public Education, Outreach and Participation
 - Part of Minimum Control Measures
 - Educate public on behavioral changes
 - Create situations for citizen success



- Pollution Prevention / Good Housekeeping
 - Maintenance, repair or enhancement of stormwater management equipment



Additional Programmatic Assistance

- Non Point Source Program
- Stormwater Permitting/Enforcement
- Low Impact Development (LID) program
- Wildlife Division (Nuisance Waterfowl)
- Watershed Management Program

Nonpoint Source Program

- EPA/DEEP CWA Section 319 Grant Program:
 - Focuses on Impaired Water Bodies as identified in DEEP's Integrated Water Quality Report
 - Requires regional approach to water quality management
 - Funding available for planning efforts and implementation projects
 - Encourages collaboration with watershed groups

Watershed Based Plan

- Follow EPA guidance to develop plan
- 9 steps must include:
 - **IMPAIRMENT**
 - **LOAD REDUCTION**
 - **MANAGEMENT MEASURES**
 - **TECHNICAL & FINANCIAL ASSISTANCE**
 - **PUBLIC INFORMATION & EDUCATION**
 - **SCHEDULE**
 - **MILESTONES**
 - **PERFORMANCE**
 - **MONITORING**
- Can apply for CWA 319 funds to develop the Plan

LID Program

- Implementing LID practices to reduce total surface runoff
- Potential strategies:
 - Residential rain gardens
 - Removal of impervious surface
 - Alternative pavement surface
 - Stormwater disconnects
 - Green roof applications



LID Implementation

- Meeting with associations and citizen groups about watershed management and local LID opportunities.
 - Collaboration on 319 grant applications
 - Coordinate volunteers for implementation projects



LID Implementation

- Financial and technical assistance is available to municipalities and COGs
- Contact Watershed Managers at CT DEEP

www.ct.gov/deep/watershed



Watershed Management

- Assist with development of Watershed Based Plans
- Provide guidance and examples of other Municipalities LID implementation efforts
- Offer training opportunities and distribute materials to enhance understanding of LID and NPS issues

How you can help

- Local information of potential or known sources
 - Issues with nuisance waterfowl, dog parks, failing septic systems
 - Efforts currently underway to conduct implementation (primarily in non-MS4 municipalities)
- Information can be submitted in various formats
 - Photos exhibiting an issue, text descriptions, GIS layers or shapes
- Send in materials before the end of the 2011 calendar year to ensure inclusion in the TMDL

Examples of Sources We Want to Know About



Questions??

- Contact info

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