
**Construction & Development
Effluent Guidelines
and
EPA's National Stormwater
Rulemaking**

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Discussion Topics

- Background
- Compliance Dates
- Non-Numeric Requirements
- Numeric Standards
- Monitoring
- Technologies for Turbidity Control



Overview

- Construction site discharges regulated through National Pollutant Discharge Elimination System (NPDES) permits
- All construction sites disturbing 1 or more acres of land are required to obtain permits
 - Stand-alone projects
 - Projects that are part of a common plan of development or sale
- EPA promulgated new regulations for construction and development (C&D) sites on December 1, 2009.

Effluent Guidelines

- Technology-based standards for control of wastewater and stormwater discharges from various categories of industry
- Not risk-based, so we don't set different standards for different waterbodies
- Can be numeric standards (i.e., discharge limitations) and/or Best Management Practices (BMPs) and process changes
- ELGs are incorporated into permits and serve as the national technology “floor” for all dischargers. Where ELGs are not sufficient to meet water quality, water quality based effluent limitations may apply.

C&D ELG History

- EPA must periodically identify industries for regulation (304(m))
- EPA selected C&D industry in 2000
- Proposed rule in 2002
- Withdrawal of proposal in 2004
- Litigated by environmental groups and states
- Court found EPA has a mandatory duty to issue ELGs identified in 304m
- Court ordered deadlines
 - December 1, 2008 proposal
 - December 1, 2009 final rule

General Rule Requirements

- All construction sites subject to permits must implement erosion and sediment controls and pollution prevention measures
- Phase-in requirement for sites to sample stormwater discharges and comply with a numeric effluent limitation (NEL) of 280 nephelometric turbidity units (NTU).
 - Beginning August 1, 2011 sites disturbing 20+ acres at once
 - Beginning February 2, 2014 sites disturbing 10+ acres at once
- Disturbed area calculation is based on the entire site and includes non-contiguous areas

Current Status of Numeric Limitation

- EPA was sued by NAHB, UWAG and Wisconsin Homebuilders Association
 - Data used to calculate numeric limitation
 - Applicability to linear utility projects
 - Cold-weather considerations
 - Applicability of limitation to smaller drainage areas within a site
- EPA asked court to vacate the numeric standard while EPA re-evaluates the calculation of the turbidity limitation
- Court remanded the rule back to EPA, but did not vacate the numeric limitation
- Effective January 4, 2011, EPA has stayed the 280 NTU numeric limitation
- EPA plans to propose a revised numeric limitation Spring 2011
- EPA will issue a final numeric limitation after considering comments

Background

- EPA issues permits in 4 states (MA, NM, NH, ID), territories and certain tribal lands
 - Other states issue their own permits
- Permits are valid for 5 years – EPA and states must periodically issue new permits
- EPA and States must incorporate the new requirements into any general or individual permits issued after February 1, 2010
 - EPA will issue a new CGP prior to July 2011, incorporating the new ELG requirements
 - State permits have varying expiration dates - whenever a given state permit expires and is reissued, that permit must include the ELG requirements
 - States are not required to reopen their existing permits prior to expiration, but may choose to do so
- Only after a permit has been issued with the new ELG requirements is it applicable to existing and new construction projects

Non-Numeric Requirements

- Erosion and Sediment Controls
- Soil Stabilization
- Pollution Prevention Measures
- Prohibited Discharges
- Surface Outlets



*Photos courtesy of USGS
and Dane County, WI*

Erosion and Sediment Controls

- Minimize erosion at outlets and downstream channel and streambank erosion;
- Provide and maintain natural buffers around surface waters
- Direct stormwater to vegetated areas, unless infeasible;
- Minimize soil compaction and, unless infeasible, preserve topsoil.



Photo courtesy of NRCS

Soil Stabilization

- Initiate stabilization of disturbed areas immediately
 - whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased,
 - when earth disturbing activities have temporarily ceased and will not resume for a period exceeding 14 calendar days.
- Where vegetative stabilization is infeasible, alternative stabilization measures must be employed.

Pollution Prevention Requirements

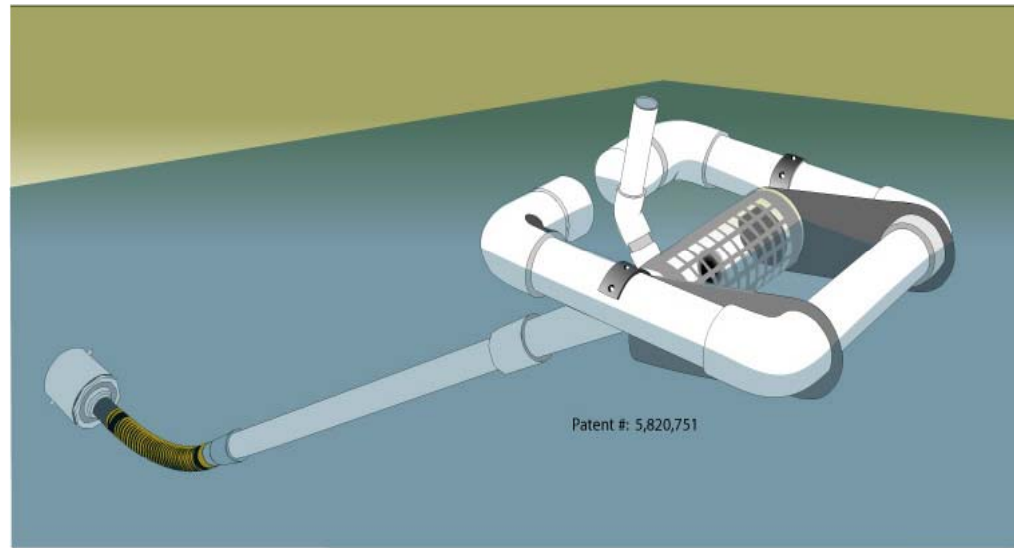
- Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters.
- Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater;
- Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

Prohibited Discharges

- Wastewater from washout of concrete, unless managed by an appropriate control;
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
- Soaps or solvents used in vehicle and equipment washing.

Surface Outlets

- When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.
 - Skimmer
 - Weir
 - Flashboard riser



*Photo courtesy of
<http://www.fairclothskimmer.com/index.html>*

Turbidity Limitation and Monitoring

- Turbidity limitation of 280 NTUs is a Daily Maximum Value (not tied to background)
- Sampling required at each discrete discharge point (basins, channels, pipes, etc.)
- Daily value at each discharge point is calculated by averaging all samples at that point
 - Individual samples can be above 280 NTU as long as average is below 280 NTU
- Can use zero discharge (such as infiltration, discharge to forested or vegetated buffers)



Photo courtesy of Dr. Richard McLaughlin, NC State University

Turbidity Limitation and Monitoring

- Permittees can phase land disturbing activities to stay below the disturbed acreage threshold
- Areas that are temporarily or permanently stabilized do not count towards the disturbed acreage threshold – permitting authorities will need to define what constitutes stabilization
- Limitation does not apply to interstate natural gas pipeline projects
- Limitation does not apply on days with precipitation that exceeds the local 2-year, 24-hour storm event

Turbidity Limitation and Monitoring

- Protocols and methods for sample collection are up to the permitting authority, but EPA envisions that use of a properly calibrated field turbidity meter is adequate
 - Grab samples
 - Automated samplers
 - Single-stage samplers
- Monitoring frequency is to be determined by the permitting authority, but EPA recommends at least 3 grab samples per day at each discharge point (during normal working hours)

Sampling Requirements

- For linear projects, permitting authority can consider representative sampling instead of sampling at each discharge point
- Even if permitting authority allows representative sampling, all discharge points are still subject to compliance with effluent limitation
- Permitting authority will specify data reporting requirements



Photos courtesy of USGS and Dane County, WI

Areas where Permitting Authority Has Flexibility

- Size of buffers around surface waters
- Soil stabilization – time from initiation of stabilization measures to completion
- Soil stabilization requirements in arid and semi-arid areas
- Surface outlet requirements in areas where infeasible
- Definition of what constitutes temporary stabilization
- Sampling
 - Frequency of sample collection
 - Methods for sample collection and analysis
 - Sampling locations for linear projects
 - Data submission/reporting
- Polymers and flocculants
 - Specific products/formulations
 - Dosage rates
 - Residual testing requirements
 - Specific technologies/applications

Keys to Compliance

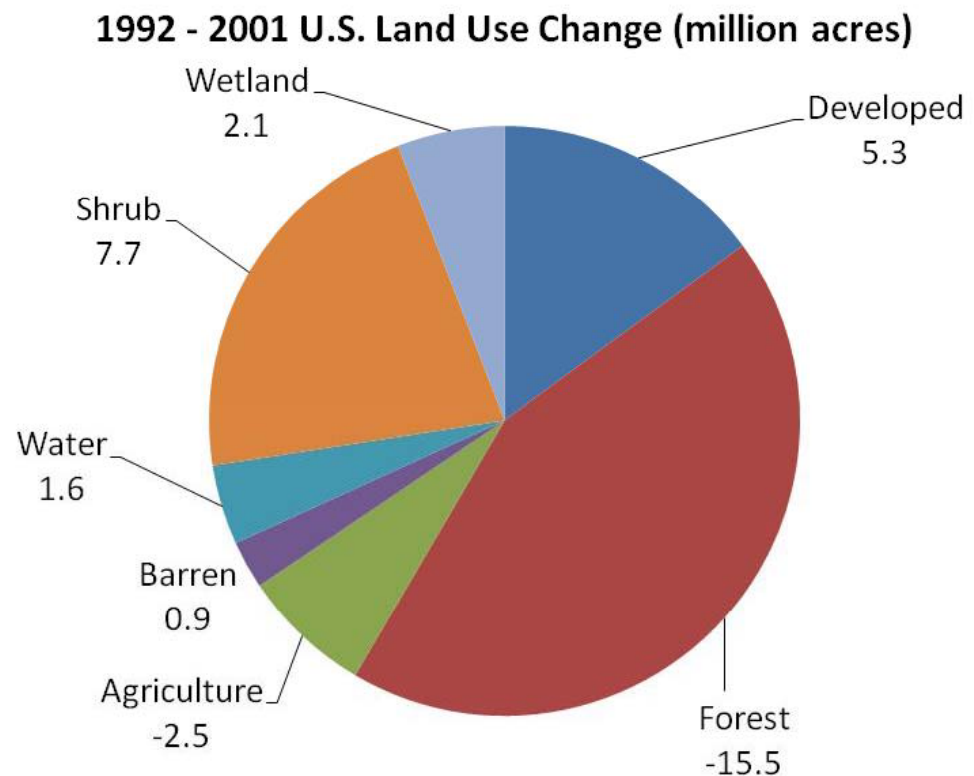
- Source control
- Phase construction
- Minimize disturbance
- Stabilize soils
- Treatment train
- Treat all of the water
- Utilize vegetated areas for dispersion
- Retain water on-site
- Utilize polymers and flocculants where necessary and according to permitting authority guidelines

EPA's New Stormwater Rulemaking

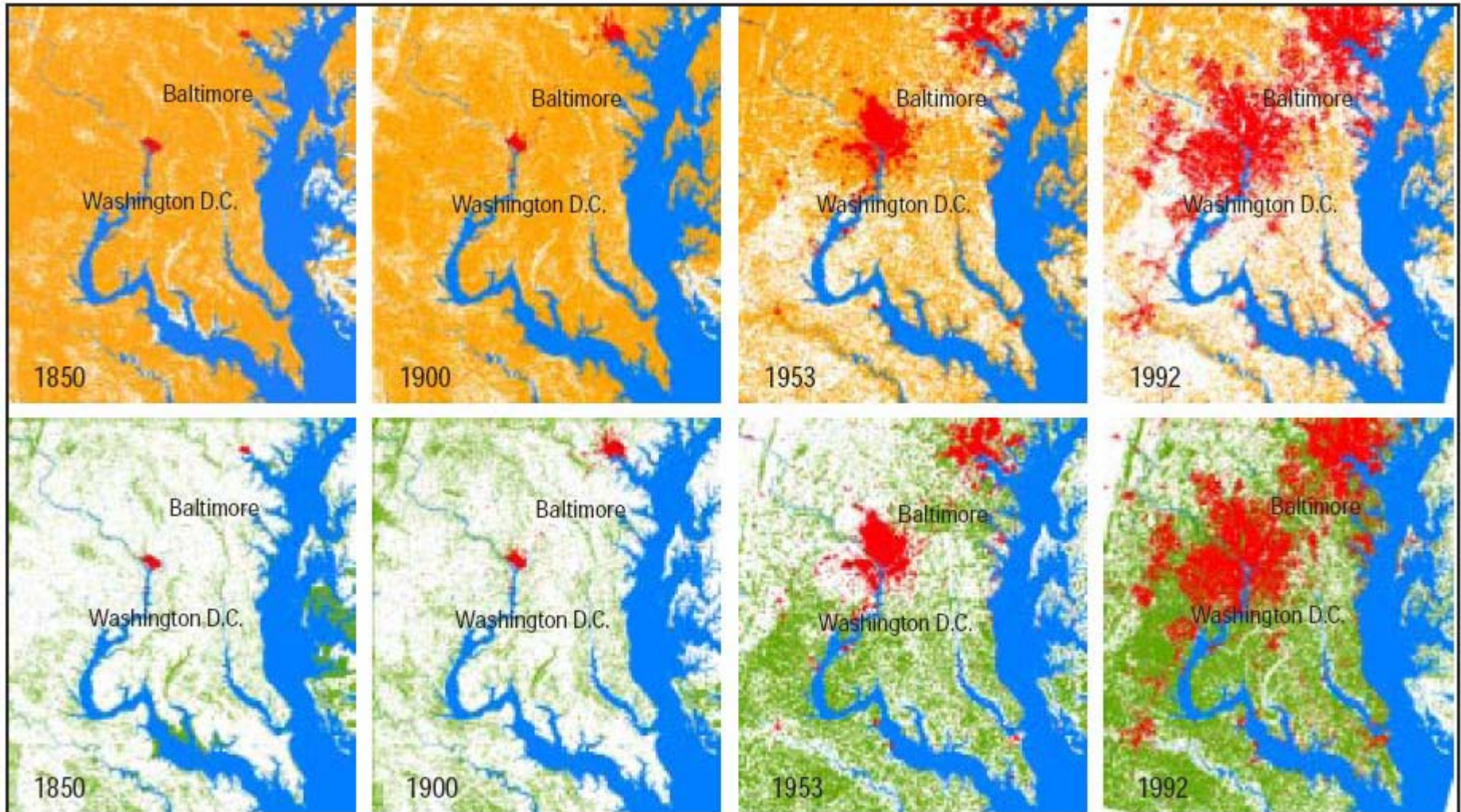
- EPA is developing new national stormwater regulations
 - Postconstruction stormwater management for new development and redevelopment projects
 - Expansion of municipal areas subject to Phase I and II stormwater permits
 - Consistent requirements for Phase I and II Municipal Separate Storm Sewer Systems (MS4s)
 - Retrofits for existing MS4 areas
 - Transportation-specific permit requirements (for DOTs)
 - Additional requirements for the Chesapeake Bay watershed
 - Permit requirements for industrial areas owned by municipalities (maintenance yards)

Postconstruction Standards - Background

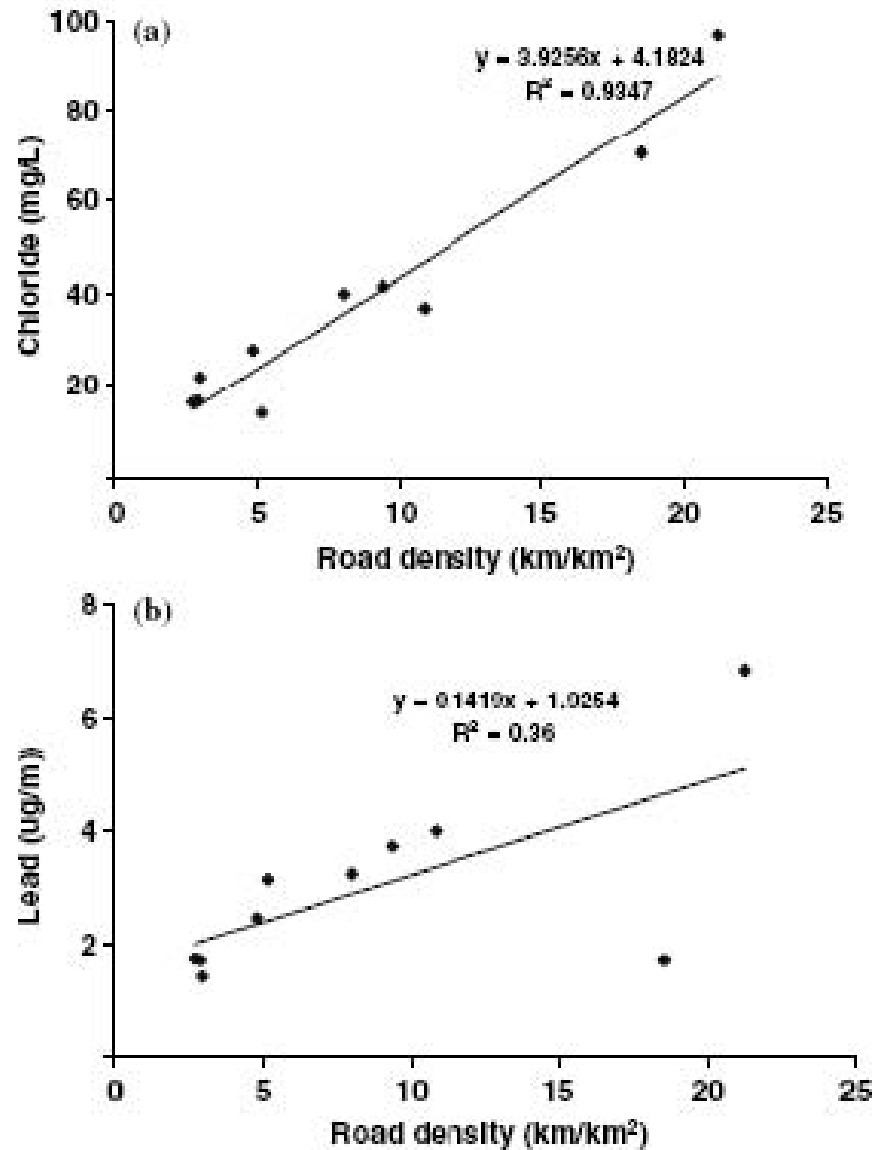
- Developed land in the U.S. increased by approximately 5.3 million acres from 1992 to 2001 (NLCD change product)
- Developed land covers approximately 5% of the land surface area, but EPA's Phase I and II regulations cover about 2% of the area
- Much development is occurring outside of federally-regulated MS4 areas, leading to variation in stormwater management standards



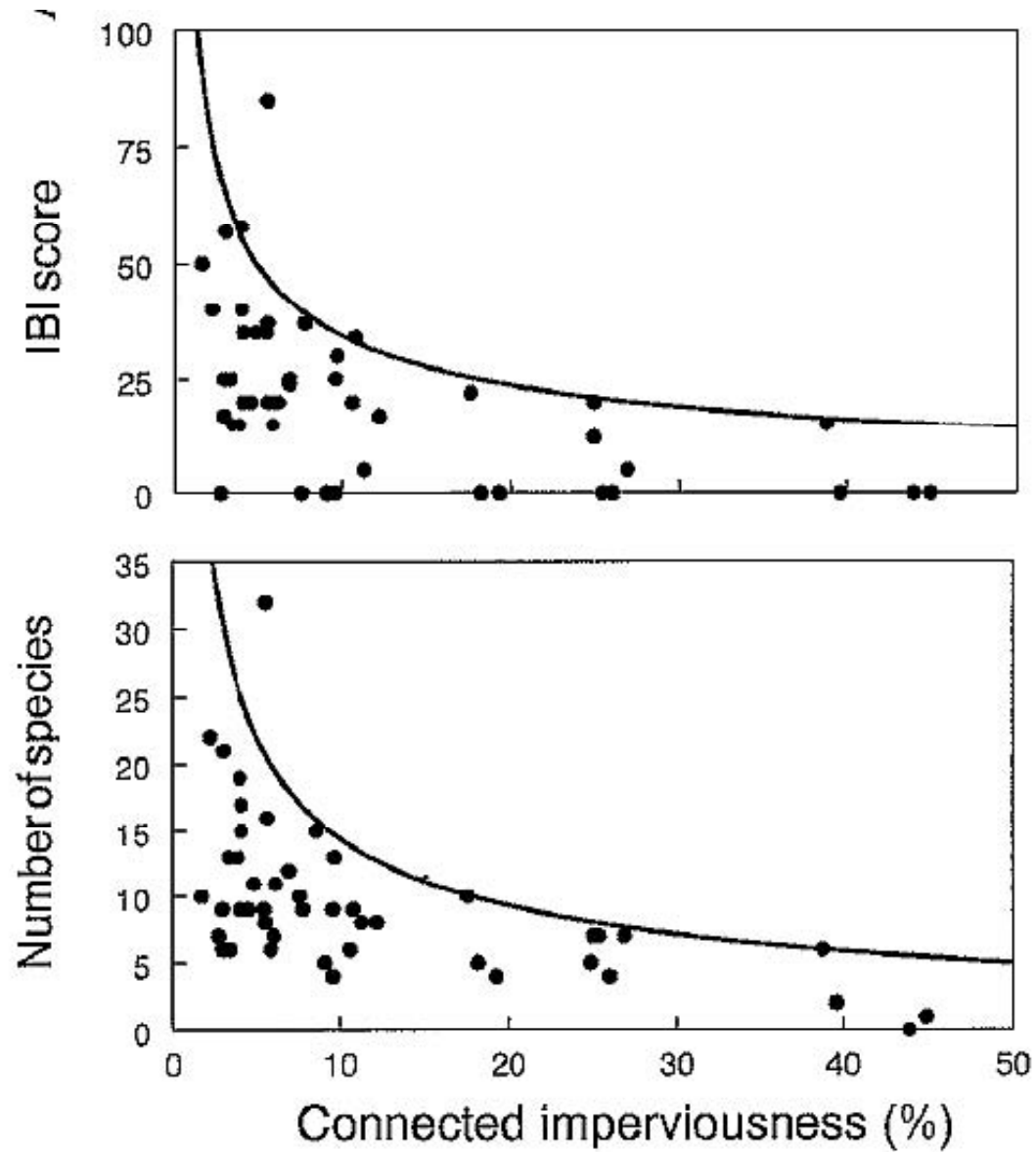
Postconstruction Standards - Background



Postconstruction Standards - Background



Postconstruction Standards - Background



Postconstruction Standards - Background

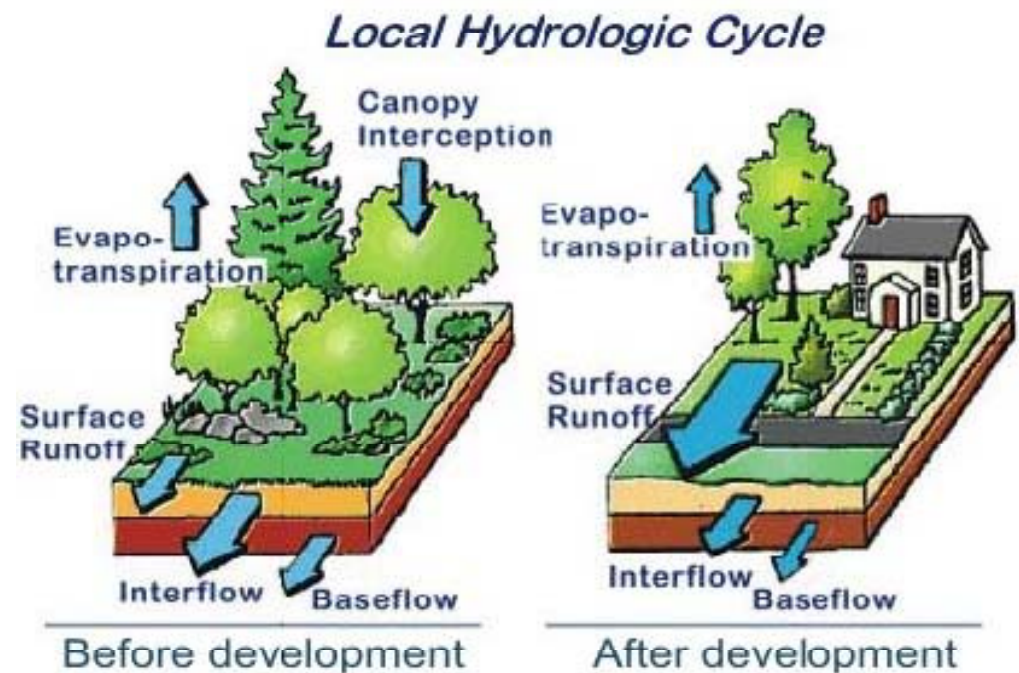


Postconstruction Standards - Background



Postconstruction Standards

- Focus of standard is preservation of hydrologic conditions and management of pollutants
- Hydrologic conditions
 - Flow duration / hydromodification
 - Peak flowrates
 - Infiltration rates

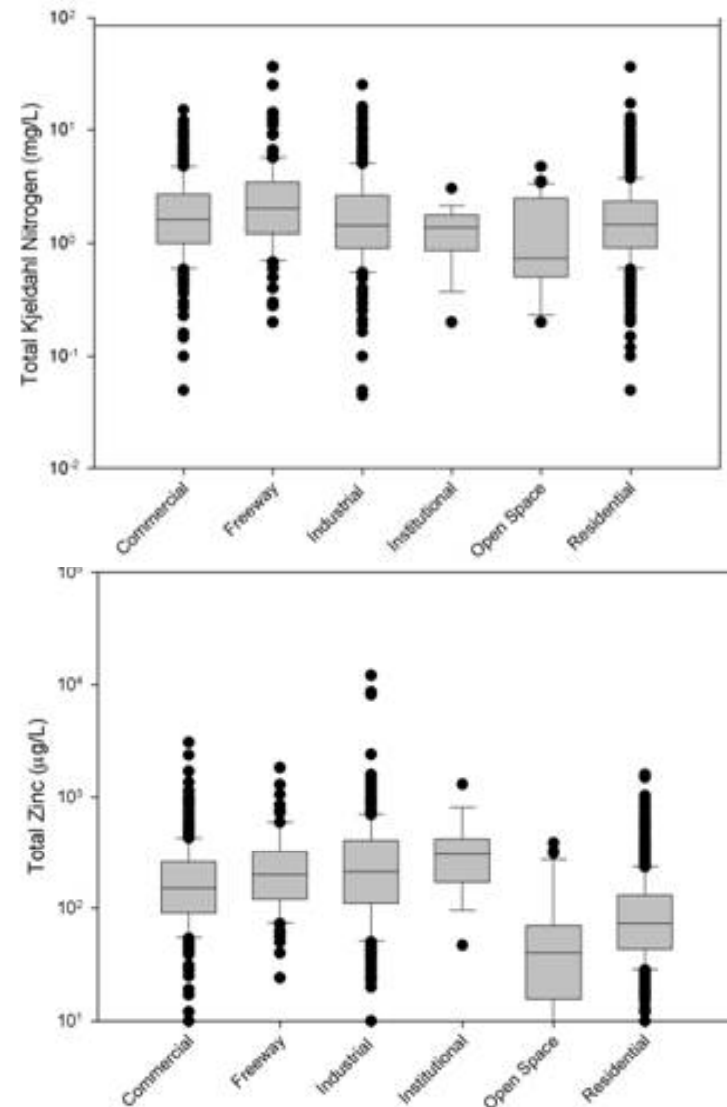


Hydrologic Conditions

- Flow Duration/Hydromodification
 - Management of flows to levels that approximate predevelopment conditions
 - Stable hydrologic conditions reduces channel erosion that often accompanies urbanization
 - Consider different standards for different types of receiving water bodies (lakes, tidally influenced systems, coastal areas, non-erodible streams)
- Infiltration Rates
 - Maintain stream baseflow levels
 - Attenuate impacts due to temperature of stormwater
 - Maintain groundwater supplies

Postconstruction Standards

- Pollutant Management
 - Sediment
 - Nutrients
 - Metals (Cd, Cr, Cu, Pb, Ni, Zn)
 - Bacteria
 - Trash



Source: National Stormwater Quality Database

Postconstruction Standards

- Techniques for Management – Hydrologic Impacts
 - Infiltration
 - Porous pavement
 - Bioretention
 - Evapotranspiration
 - Bioretention
 - Vegetated swales
 - Green roofs
 - Harvesting/Use
 - Cisterns
 - Rain barrels

MS4 Considerations

- Phase I and II standards
 - Consistent requirements for regulated municipalities
- Expansion
 - Expanding program to include unregulated areas where development is occurring
 - Consideration of appropriate requirements for smaller municipalities
- Retrofit
 - Developing plans for water quality improvement from existing developed areas

DOT Considerations

- Appropriateness of same requirements as municipalities
 - Postconstruction stormwater management
 - Construction site runoff control
 - Illicit discharge detection and elimination
 - Public education and outreach
 - Public participation
 - Pollution prevention/good housekeeping

Project Schedule

- Surveys sent to states, Phase I and II MS4s, non-regulated municipalities, DOTs and firms in the construction and land development industries
- Will spend most of 2011 analyzing data and developing proposed rule
- Plan to propose rules in late 2011
- Public comment period
- Finalize rule in late 2012

More Information

C&D Web Page

<http://water.epa.gov/scitech/wastetech/guide/construction/>

Stormwater Rulemaking Web Page

<http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm>

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