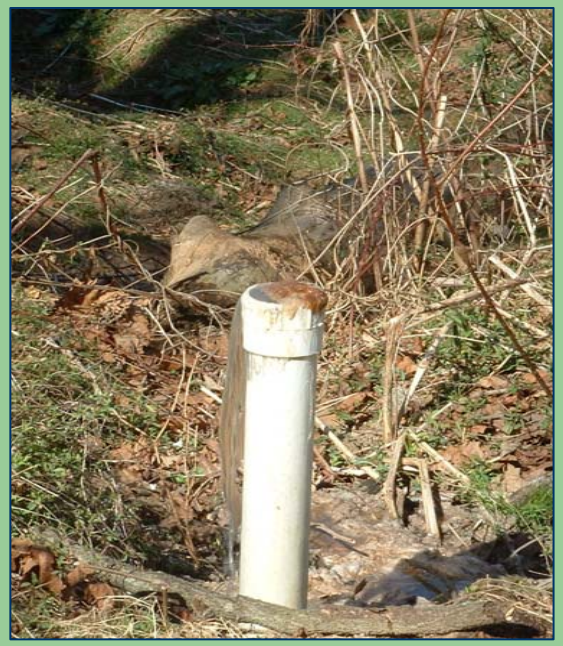
Illicit Discharge Detection and Elimination:
Introduction and Terminology



Wissahickon IDDE Workshop and Field Training

Ft. Washington, PA

May 31, 2011

Presented By:

Deb Caraco

Center for Watershed Protection

Center for Watershed Protection

- National non-profit 501(c)3, non-advocacy organization
- Mission: to protect, restore, and enhance our streams, rivers, lakes, wetlands, and bays.
- Provides technical assistance and tools to watershed groups, local, state, and federal governments
- 20 staff in MD, VA, & NY

www.cwp.org

www.forestsforwatersheds.org

www.cbstp.org

www.awsps.org

Overview:

- What are Illicit Discharges?
  - Some key terms
- Why we should care about them
  - They're the law
  - IDDE is the most dramatic of the six minimum measures
- They're really important for water quality

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Some Key Terms

- Illicit Discharge
- Storm Sewer
- Outfall
- Discharge Frequency
- Flow Type
- Mode of Entry
- Generating Sites

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What is an Illicit Discharge?

- A discharge to an MS4 that is not composed entirely of storm water except permitted discharges and fire fighting related discharges

  40 CFR 122.26(b)(2)

  - Unique frequency, composition & mode of entry
  - Interaction of the sewage disposal system & the storm drain system
  - Produced from “generating sites”

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Sources of Illicit Discharges

- Illegal dumping practices (95%)
- Broken sanitary sewer line (81%)
- Cross-connections (71%)
- Connection of floor drains to storm sewer (62%)
- Sanitary sewer overflows (52%)
- Inflow / infiltration (48%)
- Straight pipe sewer discharge (38%)
- Failing septic systems (33%)
- Improper RV waste disposal (33%)
- Pump station failure (14%)

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What is a Storm Sewer?

- Enclosed pipe or open channel
- From a regulatory standpoint (40 CFR 122.26(b)(5)):
  - Major outfall = enclosed storm drain pipes 36 inches or greater in diameter & open channels that drain more than 50 acres
  - For industrial land uses, major outfall = enclosed storm drain pipes 12 inches or greater in diameter & open channels that drain more than 2 acres
- Minor storm outfalls are smaller than these thresholds

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I said we **will** be counting outfalls < 6” in diameter!

Both major & minor storm outfalls can be a source of illicit discharges & both merit investigation

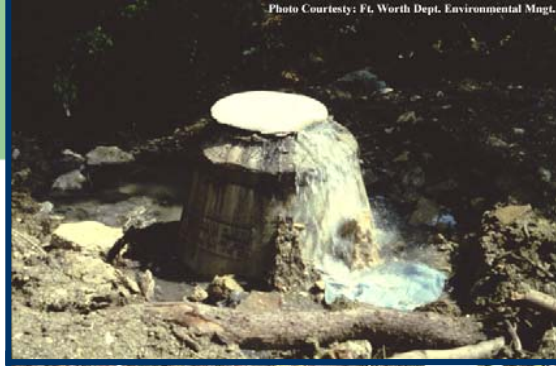
Discharge Frequency

- **Continuous discharges**
  - Occur ***most or all of the time***
- **Intermittent discharges**
  - Occur over a ***shorter period of time*** (e.g., a few hours per day or a few days per year)
- **Transitory discharges**
  - ***Occur rarely***, usually in response to a singular event such as an industrial spill, ruptured tank, sewer break, transport accident or illegal dumping episode

Discharge Flow Types

- Sewage & septage flows
- Washwater flows
- Liquid wastes
- Tap water *
- Landscape irrigation flows *
- Groundwater & spring water flows *

* Not typically considered illicit



Mode of Entry

- ***Direct entry***
  - Sewage, industrial, commercial cross-connection
  - Straight pipe

- ***Indirect entry***
  - Groundwater seepage
  - Spills
  - Dumping
  - Outdoor washing activities
  - “Nuisance” or non-target water

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Land Use & Potential Generating Sites

- Residential
- Commercial
- Industrial
- Institutional
- Municipal

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IDDE: It's the Law

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Phase II Program Requirements
(Source: 64 FR 68722 – December 8, 1999)

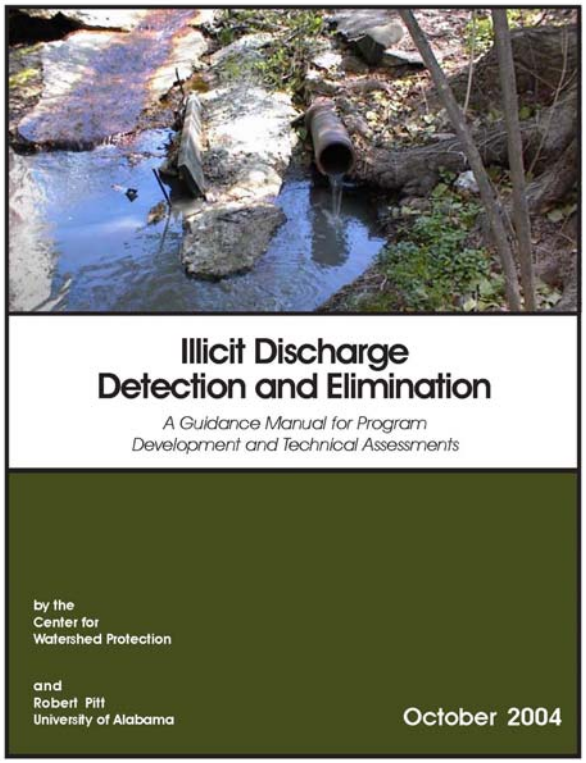
- Storm sewer system map
- Regulatory mechanism (e.g. ordinance) to prevent illicit discharges
- Plan to detect & address non-storm water discharges
- Education
- Measurable goals

Phase II Program Requirements
(EPA Guidance)

- Plan to detect and address illicit discharges should include:
  - Procedures for locating priority areas likely to have illicit discharges
  - Procedures for tracing the source of an illicit discharge
  - Procedures for removing the source of the discharge, and
  - Procedures for program evaluation and assessment

IDDE Guidance Manual

- Joint EPA-funded project between CWP and University of Alabama
- 8 Program Components
- Desktop Methods
- Field and Lab Protocols
- Model Ordinance
- Technical Appendices
- Download at www.cwp.org or http://cfpub.epa.gov/npdes/



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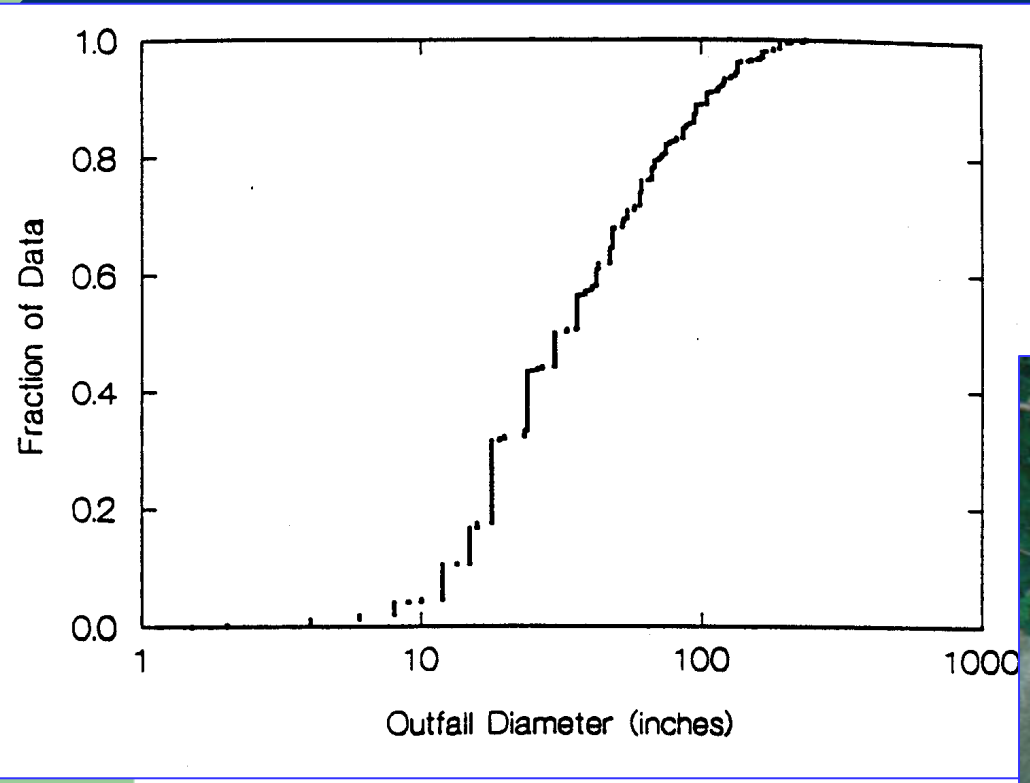
Some Differences Between "Phase I" Requirements and the Manual

- Phase I communities had specific monitoring parameters identified, including some that rarely have "hits"
- Required sampling within the storm drain system.
- Required screening for outfalls greater than 36"

Few programs screen outfalls smaller than 36”



Small outfalls (<36”) represent 50% of outfalls in Birmingham, AL

6” Drain in Lewisburg, Tennessee

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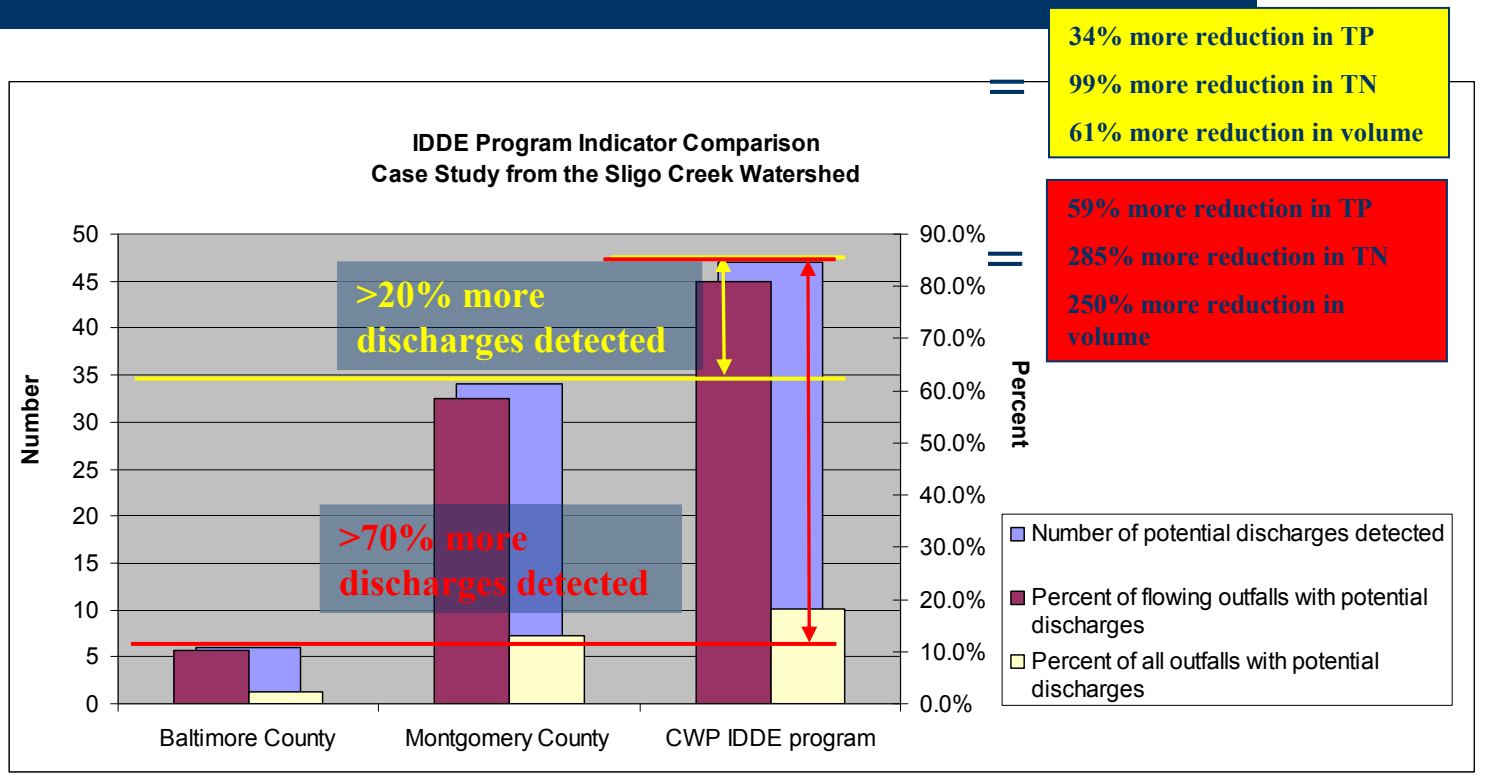
Measurement Techniques Are Important!



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IDDE is the Most Dramatic of the Minimum Measures

1. Public Involvement
2. Public Participation
3. Illicit Discharge Detection
4. Construction Site Runoff Control (Erosion and Sediment Control)
5. Post-Construction Runoff Control
6. Good Housekeeping

Public Education and Public Involvement Are “Based on True Story”

Clarice Rivers in, "Not in My Watershed!"

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Construction Site Management is a Western

Tex Silty in "Mending Fences"

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Post-Construction Runoff Controls is an Art House Film

Claude Dubois in "Jardin de Pluie" (The Rain Garden)

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Good Housekeeping is a Magazine

IDDE is a Horror Film

Lori Lily in: "It Came from the Drain"

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Illicit Discharges Are *Really Important* for Water Quality

- Illicit discharges are components of 15-40% of flowing outfalls (likely many more, based on screenings that CWP has conducted in the mid-Atlantic)
- The loads associated with illicit discharges can be a serious threat to public health, create stream and river impairments and be a significant portion of the total load in a river or stream (affecting TMDLs, Bay Goals etc)
- A cost effective way to help comply with various regulations and Bay Goals

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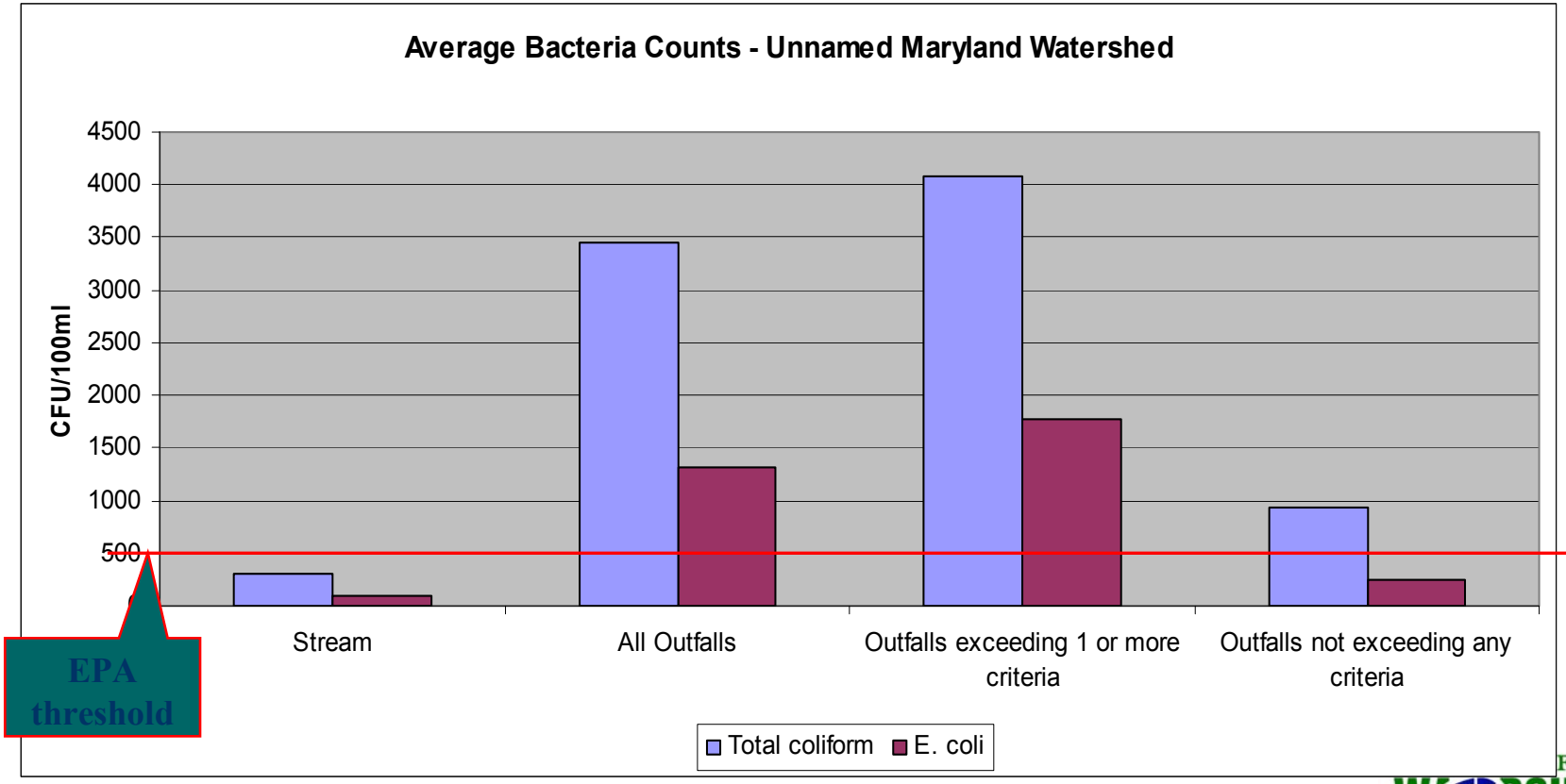

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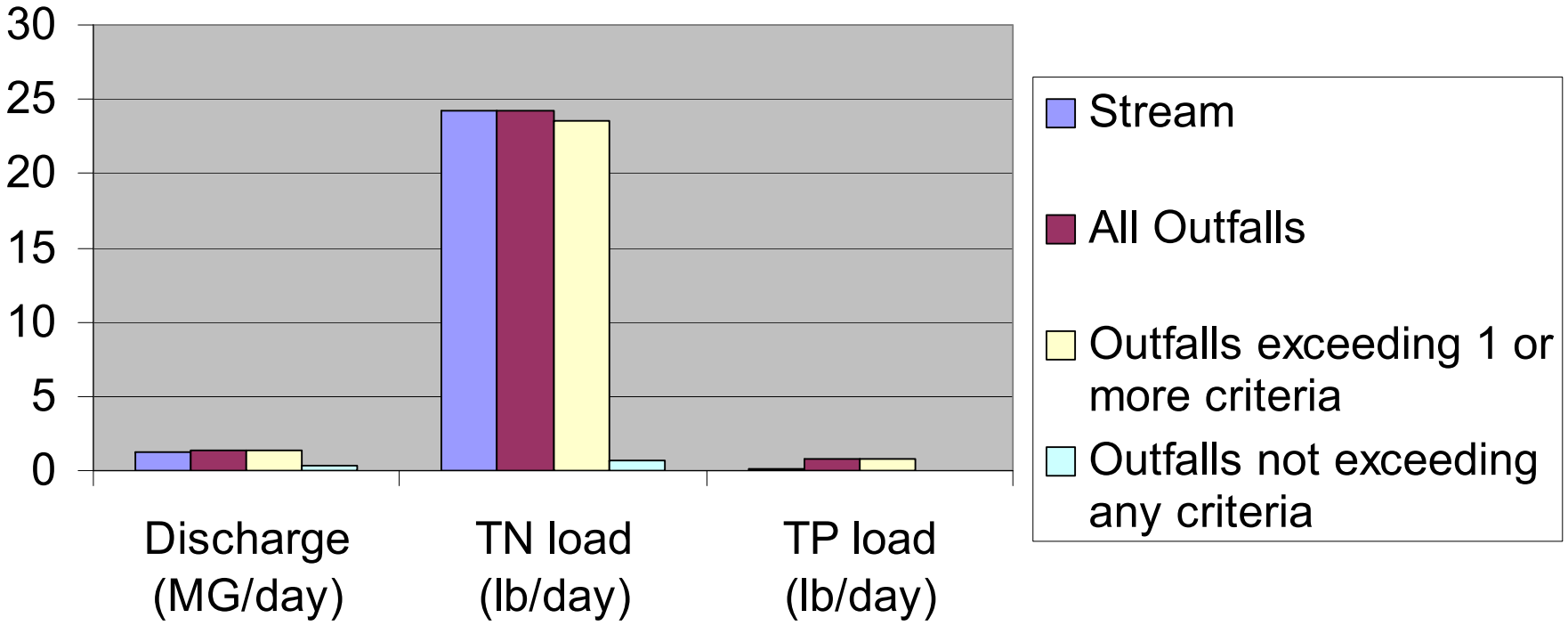
Unnamed Maryland Watershed Summary



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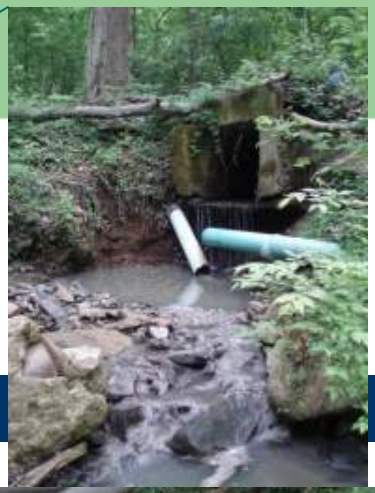

= 143 ½-acre bioretentions to treat TP (49 to treat TN); cost of $590-$1,700K

Open Discussion

- What are your most important water quality concerns?
- Are Illicit Discharges known to contribute to them?
- Do you suspect they might?